DEL PUERTO CANYON RESERVOIR

PARTIALLY RECIRCULATED DRAFT

Environmental Impact Report

SCH# 2019060254

December 2025

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Del Puerto Canyon Reservoir

Partially Recirculated Draft Environmental Impact Report

SCH# 2019060254

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Table of Contents

Chapter 1 Introduction 1-1
1.1 Purpose 1-1
1.1.1 Compliance with Superior Court Order 1-1
1.1.2 Scope of PRDEIR Analysis 1-2
1.2 Project Summary 1-3
1.2.1 Reservoir Releases 1-3
1.2.2 District's Prior CEQA Review of the Project and Project Approvals 1-5
1.3 Content and Summary of the Recirculated Draft EIR 1-5
1.4 Approach to the Analysis 1-6
1.4.1 Revised Terrestrial Biological Resources Analysis 1-6
1.5 Partially Recirculated Revised Draft EIR Process 1-7
1.6 References 1-8

Chapter 3 Environmental Setting, Impacts and Mitigation 3.4-1
3.4 Biological Resources—Downstream Terrestrial 3.4-1
3.4.1 Environmental Setting 3.4-1
3.4.2 Regulatory Framework 3.4-20
3.4.3 Impact Analysis 3.4-20
3.4.4 Mandatory Findings of Significance 3.4-40
3.4.5 References 3.4-42

Chapter 7 EIR Preparers 7-1
7.1 Del Puerto Canyon Reservoir Project Partner Agencies 7-1
7.1.1 Del Puerto Water District, CEQA Lead Agency 7-1
7.1.2 San Joaquin River Exchange Contractors Water Authority 7-1
7.2 EIR Preparation Team 7-1
7.2.1 Woodard & Curran 7-1
7.2.2 ICF 7-1

List of Figures

Figure 1-1: Proposed Reservoir and Dams 1-4
Figure 3.4 1: Vegetation Map, Sheet 1 of 3 ..... 3.4-4
Figure 3.4 2: Vegetation Map, Sheet 2 of 3 ..... 3.4-5
Figure 3.4 3: Vegetation Map, Sheet 3 of 3 ..... 3.4-6
Figure 3.4 4: Approximate Locations of Elderberry Shrubs 3.4-13
Figure 3.4-5. Wildlife Corridors within the Study Area 3.4-19
Figure 3.4-6: Del Puerto Creek Flows 2000 to 2025 (cfs) 3.4-25
Figure 3.4-7. Stream Gauge Locations of Measured and Estimated Return Flows 3.4-26
Figure 3.4-8: Del Puerto Creek Flows 2019-2020 Water Year (cfs) 3.4-27

List of Tables

Table 1-1: DPCR Impact Summary-Downstream Terrestrial Biological Resources 1-9
Table 3.4 1: Land Cover Types in the Study area Study Area and Approximate Acreages 3.4-3
Table 3.4 2: Summary of Impact Discussion Locations 3.4-23

List of Appendices

A Fifth District Court of Appeal Opinion

B Species Lists

C Special Status Species Tables

D Streamflow Estimates for lower Del Puerto Creek

Acronyms and Abbreviations

AB	Assembly Bill
ACE	Areas of Conservation Emphasis
AF	Acre-feet
AFY	Acre-feet per year
BA	Biological Assessment
BACT	Best Available Control Technology
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDPH	California Department of Public Health
CEHC	California Essential Habitat Connectivity
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
COA	Coordinated Operation Agreement
CRPR	California Rare Plant Rank
CSC	California Species of Special Concern
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
District	Del Puerto Water District
DMC	Delta-Mendota Canal
DPCR	Del Puerto Canyon Reservoir
DPWD	Del Puerto Water District
DWR	Department of Water Resources
EFH	Essential Fish Habitat

EHV	extra high voltage
EIR	Environmental Impact Report
EO	Executive Order
EPA	(United States) Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
Exchange Contractors	San Joaquin River Exchange Contractors Water Authority
FEIR	Final Environmental Impact Report
FESA	Federal Endangered Species Act
ft	feet
FWCA	Fish and Wildlife Coordination Act
GGS	Giant garter snake
GIS	geographic information system
gpm	Gallons per minute
HCP	Habitat Conservation Plan
HUC	hydrologic unit code
I-5	Interstate 5
IL4	Incremental Level 4 (water delivery)
IPaC	Information for Planning and Consultation
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
mg	Milligrams
MG	million gallons
mg/L	milligrams per liter
mgd	million gallons per day
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NWR	National Wildlife Refuge
OPR	Office of Planning and Research

PRC	Public Resources Code
PRDEIR	Partially Recirculated Draft Environmental Impact Report
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SB	Senate Bill
SOD	South of Delta
SRJECWA	San Joaquin River Exchange Contractors Water Authority
SSC	Species of Special Concern
SWAP	State Wildlife Action Plan
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
U.S.C.	United States Code
USACE	US Army Corps of Engineers
USBR	United States Bureau of Reclamation
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey

Chapter 1 Introduction

1.1 Purpose

1.1.1 Compliance with Superior Court Order

This Partially Recirculated Draft Environmental Impact Report (PRDEIR) has been prepared in response to the January 30, 2025, Opinion of the California Court of Appeal, Fifth District, in *Sierra Club et al. v. Del Puerto Water District* (Case No. F086218), affirming in part, and reversing in part, the judgment of the Superior Court in Stanislaus County Superior Court Case No. CV-20-0055193. This Opinion prompted the Superior Court to issue the Modified Judgment After Appeal Granting Petition for Writ of Mandate (Modified Judgment), signed by the Superior Court on April 8, 2025. This PRDEIR is intended to comply with both the Opinion and the Modified Judgment.

On October 21, 2020, the Del Puerto Water District (District) Board of Directors adopted a resolution that certified a Final Environmental Impact Report (FEIR) for the Del Puerto Canyon Reservoir Project (Project) and approved the Project. The FEIR consisted of the 2019 Draft EIR, and the 2020 Final EIR.

On November 20, 2020, the Sierra Club, California Native Plant Society, Center for Biological Diversity and Friends of the River (Sierra Club *et al.*) filed a Petition for Writ of Mandate challenging the adequacy of the FEIR. The Stanislaus County Superior Court granted the petition in part and denied it in part and also issued a peremptory writ of mandate requiring the District to set aside its actions certifying the FEIR and approving the Project. Both Sierra Club *et al*. and the Real Party in Interest the San Joaquin River Water Exchange Contractors Water Authority (Exchange Contractors) filed separate appeals. The Exchange Contractors also filed a cross-appeal. The District did not appeal or cross appeal but instead complied with the writ by setting aside its certification of the EIR and approval of the Project.[1]

On January 30, 2025, the Fifth District Court of Appeal issued an unpublished opinion (the Opinion) confirming in part and reversing in part the trial court's judgment. A copy of the Opinion appears in Appendix A to this PRDEIR. As described in the Opinion, the Court of Appeal found that the FEIR complied with the California Environmental Quality Act (CEQA) in all respects but one. Specifically, the court found that the FEIR failed to adequately analyze the Project's potential impacts to terrestrial species associated with Del Puerto Creek downstream of the proposed reservoir. (See Opinion, pp. 13-15.)

The court said that "[w]hile the FEIR analyzes … impacts to downstream aquatic species and impacts to terrestrial species that are not downstream … it does not analyze impacts to downstream terrestrial species." (*Id*. at p. 13.) "What is missing is analysis of whether there will be impacts to species that are both downstream and terrestrial. [¶] It may very well be the case that the project's efforts to mimic natural patterns of flow variability will result in the project having no impacts to downstream terrestrial species. That is a scientific matter on which we offer no input. What matters in the present action is that the FEIR does not expressly conclude as much. As a result, it fails as an informational document to adequately consider a potentially significant environmental impact." (*Id*. at pp. 14-15, footnote omitted.)

CEQA requires that a court, in fashioning a remedy in a CEQA case, include only those mandates necessary to achieve compliance with CEQA and that such remedy may extend only to those specific project activities found to be in noncompliance. (See Pub. Resources Code [PRC], § 21168.9, subd. (b).) Here, the Court of Appeal concluded that the FEIR was deficient solely with respect to its analysis of

[1] The Superior Court's Opinion had identified deficiencies in the EIR's analysis of the relocation of Del Puerto Canyon Road and in its evidentiary support for cultural resources findings. The Court of Appeal later reversed on both issues. The District's decision to set aside its project approvals followed the issuance of the Superior Court's peremptory writ and occurred prior to the appellate Opinion. Because the District took this action while the appeal was pending, the Superior Court, in issuing the Modified Judgment, had no need to modify the original peremptory writ of mandate.

potential impacts on terrestrial species associated with Del Puerto Creek downstream of the proposed reservoir. The court identified no other flaw. Under CEQA, where a court finds only limited deficiencies in an EIR, the remainder of the document is presumed to be legally adequate. (See F*ederation of Hillside and Canyon Assns v. City of Los Angeles* (2004) 126 Cal.App.4th 1180, 1204 ("*Federation II*") [where appellate court directed superior court to order limited relief, city had no obligation to update analysis of impacts in its adequate EIR].) Accordingly, in response to the Court's Opinion, only the FEIR's analysis regarding downstream terrestrial species has been revised. No other sections of the FEIR have been revised.

On February 15, 2023, prior to issuance of the Court of Appeal's Opinion, the District Board of Directors set aside its certification of the EIR and approval of the Project in response to the Superior Court's earlier Opinion. As a result, the status of the District's environmental review process now resembles that of a lead agency that circulated a full Draft EIR but has subsequently determined that a partial recirculation is necessary to address one discrete topic before a Final EIR can be certified. Thus, the legal principles applicable in such a situation are analogous and relevant, as are the above-described principles governing judicial remedies in CEQA litigation.

Full or partial recirculation of a Draft EIR is governed by PRC section 21092.1, which provides that when "significant new information" is added to an EIR after release of a Draft EIR but before certification, the public agency must undertake additional public review of that information. This requirement is implemented through section 15088.5 of the CEQA Guidelines, which provides, in subdivision (c), that "[i]f the revision is limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified." Subdivision (f)(2) of section 15088.5 further provides that:

> [w]hen the EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated EIR. The lead agency need only respond to (i) comments received during the initial circulation period that relate to chapters or portions of the document that were not revised and recirculated, and (ii) comments received during the recirculation period that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The lead agency's request that reviewers limit the scope of their comments shall be included either within the text of the revised EIR or by an attachment to the revised EIR.

Consistent with these legal principles, the Court of Appeal's Opinion, and the Modified Judgment, the District has prepared this PRDEIR, which presents additional environmental analysis to address the single deficiency identified by the court. The PRDEIR does not revise the October 2020 FEIR in any respect other than as directed or recommended by the court. The District will treat the 2020 FEIR as including adequate responses to comments on all issues timely raised during the public review period on the original December 2019 Draft EIR.

1.1.2 Scope of PRDEIR Analysis

Unless indicated otherwise, the analysis in the PRDEIR incorporates information from the 2019 Draft EIR and the 2020 Final EIR, augmented by additional technical studies undertaken specifically to evaluate potential impacts to terrestrial species associated with Del Puerto Creek downstream of the proposed project facilities. These studies are discussed in further detail in Chapter 3. The environmental analysis presented here revises the prior CEQA review only to the extent necessary to comply with the Court of Appeal's Opinion and the Modified Judgment.

Following the close of the public comment period on the PRDEIR, written responses will be prepared addressing any significant environmental issues that are timely raised and pertain to the revised and updated analysis of impacts to downstream terrestrial species. Together with the prior Final EIR, this PRDEIR and the responses to comments will constitute the new, expanded Final EIR for the Project.

1.2 Project Summary

The proposed Del Puerto Canyon Reservoir (Project) involves the construction and operation of a reservoir on Del Puerto Creek to provide approximately 82,000 acre-feet (AF) of new off-stream storage to the Central Valley Project (CVP). Proposed project facilities consist of a reservoir, main dam, and two saddle dams plus the facilities needed to convey water between the Delta-Mendota Canal (DMC) and the reservoir, including a pipeline, pumping plant and electrical facilities. The Project also includes relocating existing utilities that run north-south through the Project area and a section of Del Puerto Canyon Road, which runs east-west through the Project area. The reservoir would be located in the foothills west of the City of Patterson, California and Interstate-5. The Project would provide storage for existing water allocations from the U.S. Bureau of Reclamation (USBR), with whom the Project Partners have water supply contracts. Water would be stored in the reservoir when supply is available from the DMC and delivered to farms within service areas of the District and the Exchange Contractors in San Joaquin, Stanislaus, Merced, Fresno and Madera Counties. **Figure 1-1** shows the proposed reservoir and dams and **Figure 1-2** shows the pumping plant on the DMC and the conveyance pipeline leading from the pumping plant to the dam.

1.2.1 Reservoir Releases

As noted in the 2020 Final EIR, operation of the Project would include reservoir releases to meet environmental or regulatory commitments made during development and permitting of the project. For the purposes of analysis, modeling of the proposed environmental releases was based on a set of general operations rules for releasing flows during peak flow events. For every flow event of 500 cubic feet per second (cfs) or greater, environmental releases would be made in a pattern that mimics the unimpeded flow in Del Puerto Creek based on a new stream gage that would be installed upstream of the proposed impoundment area. If the stream gauge measurement exceeds 500 cfs, then releases would increase on the first day of the environmental release program, mimicking the measured natural flow, with flows up to 600 cfs, or the peak natural flow (whichever is less). After the first day, there would be up to six additional days of releases with a decreasing flow rate in each subsequent day, eventually returning to at or near zero releases after no more than 7 days.

The maintenance of these flows is intended to preserve key characteristics of the natural flow regime that drive key geomorphic and ecological processes supporting native species (Yarnell et al. 2015). For example, large-magnitude flows during the annual flood season typically transport a significant portion of the annual sediment load in unregulated streams. In Del Puerto Creek, these flows are likely the principal mechanism for delivery of coarse sediment (gravel) to the San Joaquin River, where evidence suggests that it serves an important role in maintaining white sturgeon spawning habitat (Marineau et al. 2017). Although Del Puerto Creek accounts for only a very small fraction of the flows in the San Joaquin River, the preservation of these flows would continue to support the flow management goals and objectives of ongoing species recovery and habitat restoration programs in the San Joaquin River (e.g., San Joaquin River Restoration Program).

Other important functions of these flows in Del Puerto Creek may include reducing sediment accumulations of pesticides and other contaminants, maintaining flow and sediment dynamics supporting native aquatic and riparian species, and eliminating introduced species that are not adapted to the natural flow regime (Kiernan et al. 2012).

Artificial reservoirs can alter water temperature, dissolved oxygen, and other physical and chemical properties of water released into receiving streams, as well as reduce or eliminate the natural transport of sediment and organic material to these reaches (Spence et al. 1996). In general, reservoirs increase water surface area and heating of surface waters that, depending on the withdrawal depth, can result in increased temperatures in downstream reaches. Most of the water released to lower Del Puerto Creek to meet environmental flow requirements would be released concurrently with major winter and spring flow

events when reservoir storage is high (or increasing) and air and inflow water temperatures are at annual minimums. These conditions would be expected to minimize the potential for adverse effects of reservoir operations on water temperatures in lower Del Puerto Creek and on dissolved oxygen levels, which generally decrease with increasing water temperature.

Notably, lower Del Puerto Creek (downstream of proposed dam and inundation area) has been highly altered from historical conditions by road infrastructure (e.g., highway and canal crossings), losses of riparian and wetland vegetation, agricultural return flows, and water quality degradation. Historical and ongoing physical disturbances have resulted in a simple conveyance channel with little cover. Intensive agricultural activities have altered water and sediment quality in lower Del Puerto Creek, with pesticide concentrations sometimes reaching levels acutely toxic to sensitive invertebrates (Weston et al. 2008, Ensminger et al. 2009, Hall and Anderson 2018).

Although agricultural return flows during the summer irrigation season generally provide more stable flow conditions than historically existed within lower Del Puerto Creek, these conditions likely do not support native fish species because of their sensitivity to water quality degradation and presence of introduced species that typically characterize low elevation tributary and mainstem reaches of the San Joaquin River (Brown 2000).

Figure 1-1: Proposed Reservoir and Dams

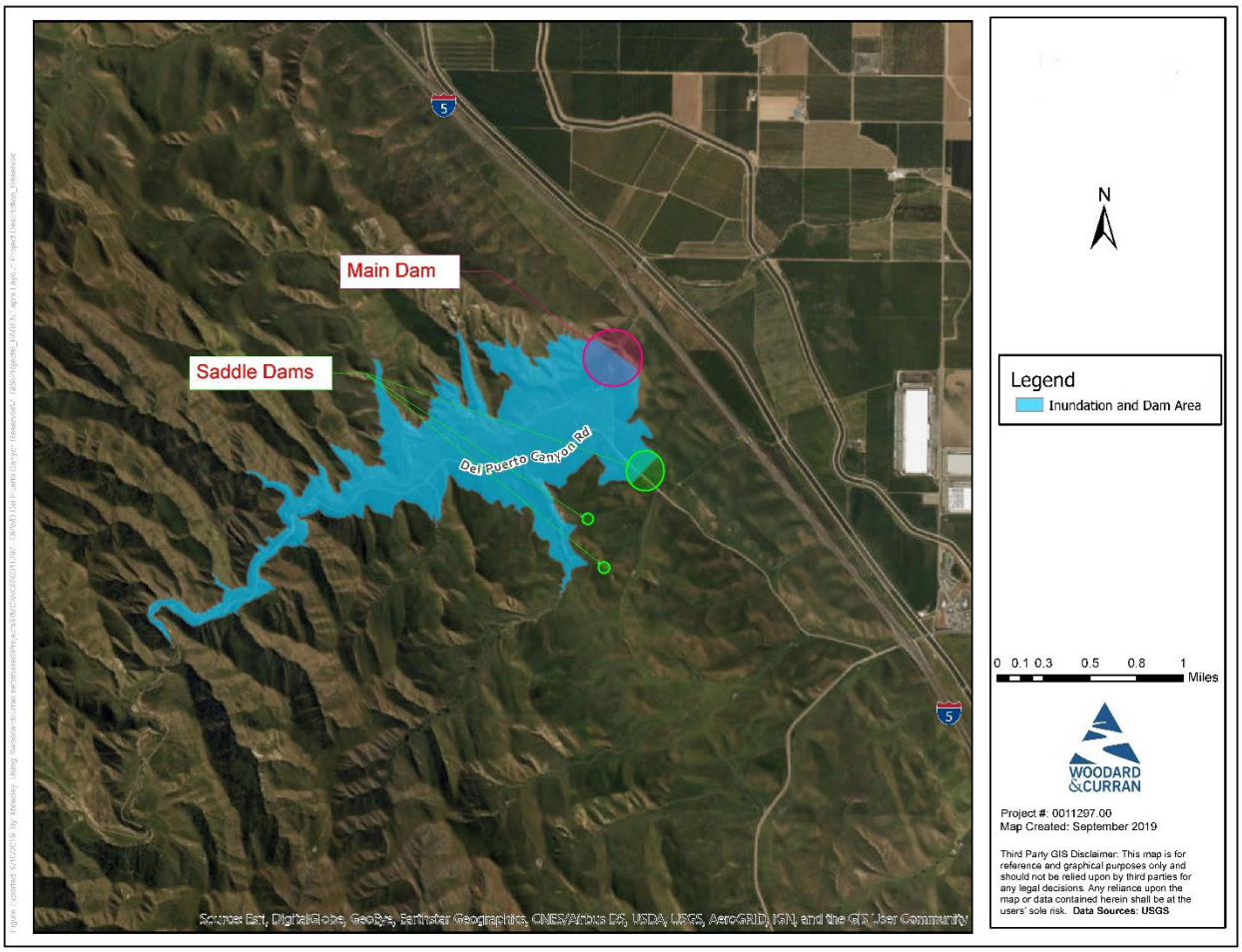
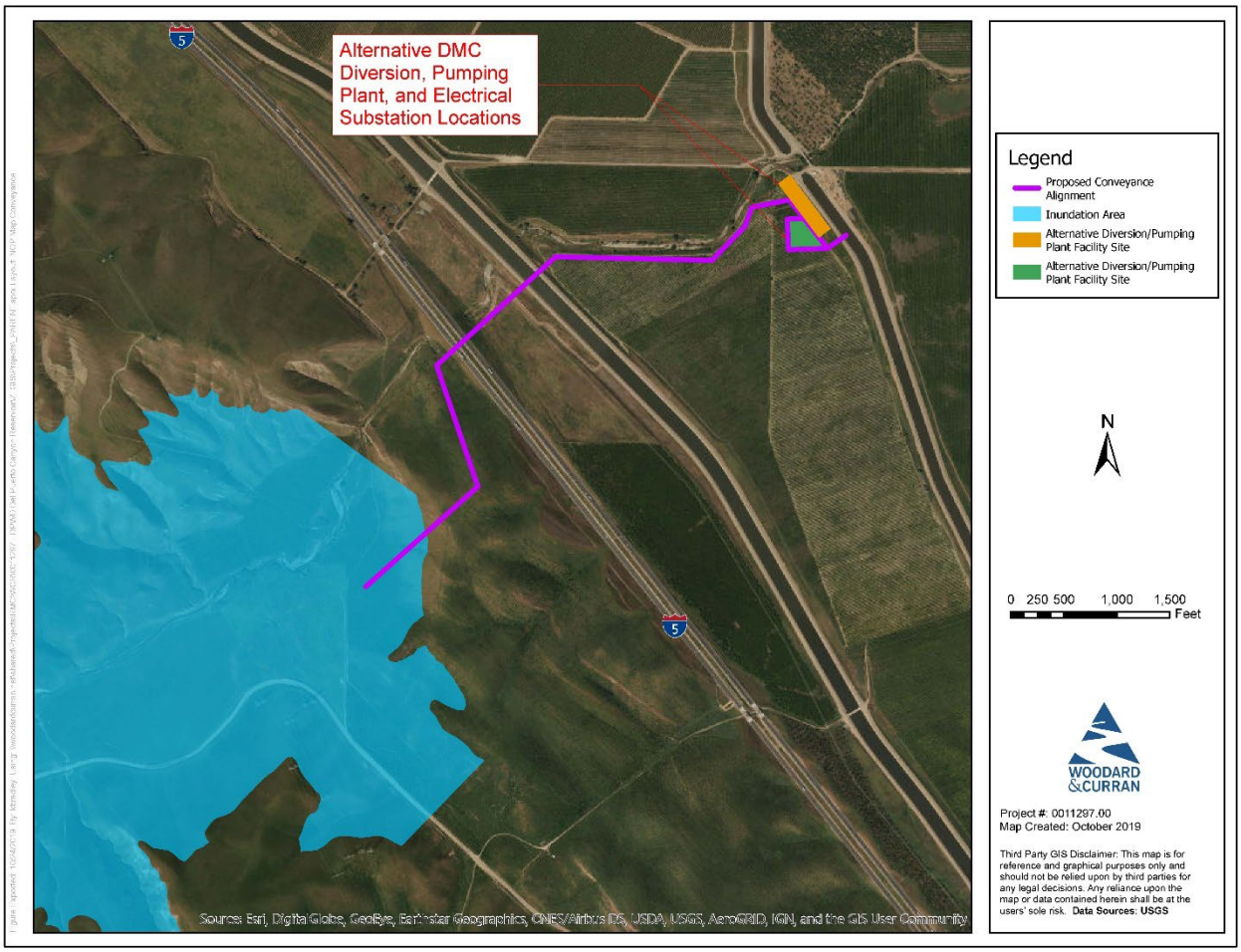


Figure 1-2: Pumping Plant and Conveyance Pipeline



1.2.2 District's Prior CEQA Review of the Project and Project Approvals

On December 12, 2019, the District issued a Draft EIR for the Del Puerto Canyon Reservoir Project for public review and comment. The Draft EIR included the District's thorough analysis of the Project's potential adverse environmental effects, including those related to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and recreation, noise, public services, traffic and transportation, tribal cultural resources, and utilities and service systems.

In October 2020, the District issued a proposed Final EIR for the Project, which included written responses to comments, including those of the Sierra Club. On October 21, 2020, the District's Board of Directors held a public hearing on the Project and certified the EIR and approved the Project. On October 22, 2020, the District filed a Notice of Determination with the Stanislaus County Clerk and with the State Clearinghouse pursuant to PRC section 21152.

1.3 Content and Summary of the Recirculated Draft EIR

As described in Section 1.1, this Partially Recirculated Draft EIR contains only the information necessary to comply with the Court of Appeal's Opinion and the Superior Court's Modified Judgment. No other chapters or portions of the 2020 Final EIR are revised or reconsidered in this document. Furthermore, no new information, changed circumstances, or new project components relating to issues other than downstream impacts on terrestrial species associated with Del Puerto Creek have arisen that would trigger

recirculation of analyses of other issues under PRC section 21092.1 and CEQA Guidelines section 15088.5.

This document consists of the following chapters and sections. All chapter and section numbering is consistent with the chapter and section numbering outlined in the Draft EIR (released December 2019).

Chapter 1: Introduction. This chapter describes the purpose and organization of the Partially Recirculated Draft EIR. A brief summary of the Project Description is also provided. No changes in the Project Description have occurred since the Project was approved in October 2020. This chapter supplements the introduction chapter in the 2020 Final EIR. The full Project Description is set forth in Chapter 2, Description of the Project, in the 2020 Final EIR.

Section 3.4: Biological Resources—Downstream Terrestrial. This section describes the biological resources downstream of Project facilities and evaluates the potential for the Project to adversely affect those resources. This information responds to the Court of Appeal Opinion, which identified the evaluation of impacts on downstream terrestrial biological resources along Del Puerto Creek as the only deficiency that required the District's reconsideration. This section supplements the 2020 Final EIR's evaluation of terrestrial biological resources, which focused primarily on impacts to resources within the project footprint.

Chapter 7: EIR Preparers. This chapter identifies the authors of the PRDEIR and the consultants who provided analysis in support of the document's conclusions.

Appendices. Appendices contain additional materials used during preparation of this Partially Recirculated Draft EIR or that support the analysis provided herein. As noted earlier, the Court of Appeal Opinion is **Appendix A**. **Appendix B** includes the species list obtained from the California Natural Diversity Database and U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) list. **Appendix C** provides Special Status Species Tables listing special-status plant and wildlife species that have the potential to occur in the geographic region. **Appendix D** provides estimates of streamflow in lower Del Puerto Creek, east of Interstate 5 (I-5).

1.4 Approach to the Analysis

The CEQA Guidelines state that "[w]hen recirculating a revised EIR, either in whole or in part, the lead agency shall, in the revised EIR or by an attachment to the revised EIR, summarize the revisions made to the previously circulated draft EIR." (See CEQA Guidelines, § 15088.5, subd. (g).) In compliance with this requirement and to address the single issue identified by the Court of Appeal, this PRDEIR includes a revised version of the Biological Resources-Terrestrial section. A summary of the contents and revisions presented in the updated Biological Resources-Terrestrial subsection is provided below.

1.4.1 Revised Terrestrial Biological Resources Analysis

The Del Puerto Water District is augmenting Section 3.4 (Biological Resources – Terrestrial) of the 2020 FEIR with a new subsection that evaluates terrestrial biological resources associated with Del Puerto Creek downstream of the Project facilities. The existing Section 3.4, which evaluates impacts within the footprint of the proposed Project, stands as written and is not being revised. The Court of Appeal did not find the analysis of terrestrial biological impacts within the Project footprint to be inadequate, therefore no additional studies or analyses are required regarding such footprint-related impacts. Nor did the Court of Appeal find any deficiencies in the FEIR's analysis of aquatic resources within Del Puerto Creek downstream from the Project footprint.

As directed by the court, this section reports the results of a terrestrial biological resources evaluation that considers biological resources associated with Del Puerto Creek downstream of the proposed Project. The analysis determined that there would be no significant impacts on terrestrial resources downstream of the Project facilities. Because there would be no new significant impacts, no new mitigation would be

required. Table 1 at the end of this chapter summarizes the assessment of biological resources downstream of Project facilities.

1.5 Partially Recirculated Revised Draft EIR Process

As explained earlier, the District has prepared the PRDEIR to present the environmental analysis required by the Court of Appeal's Opinion. The PRDEIR does not revise the 2020 FEIR in any respect other than as necessary to address the flaw identified in the Opinion. As also explained earlier, where a lead agency recirculates only "portions" of an EIR, the lead agency may request that commenters limit their new comments to the new material in the recirculated portions of the prior document. (See CEQA Guidelines, § 15088.5 subd. (f)(2).) This approach is also consistent with CEQA case law holding that, where a court in a CEQA case has found only limited problems with a respondent agency's record, neither the original parties to the litigation nor anyone else in privity to the original petitioner(s) has the ability to raise issues that (i) have already been rejected by the court or (ii) that could have been, but were not, raised by the original petitioner(s) during either the prior administrative process or during the litigation. (See *Federation II*, *supra*, 126 Cal.App.4th at p. 1204; see also *Planning and Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210, 229 [discussing *Federation II* and noting where previously challenged EIR underwent limited revisions on remand, a second challenge to the analysis will not lie where material facts have not changed]; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1112 [noting that Agency need only correct the deficiencies in the EIR that court has identified before considering recertification of the EIR].)

Therefore, the Del Puerto Water District requests that public comments be restricted to the newly circulated information contained in the PRDEIR related to biological resources downstream of project facilities. In other words, *the partial recirculation should not be an opportunity to re-submit comments on previously published topics, or to add additional comments on previously published topics*. Readers are therefore requested not to make comments on issues not directly implicated by this PRDEIR. The District will not be required to respond to any new comments that are directed to other portions of the previously certified FEIR that are not a part of the PRDEIR.

The PRDEIR will be subject to review and comment by the public, as well as all responsible agencies and other interested parties, agencies and organizations for a period of no less than 45 days. The PRDEIR is available for public review and comments during the period from December 5, 2025, through January 30, 2026. The PRDEIR and the complete 2020 Final EIR are available for review at the District offices at the address below and are available online at https://delpuertocanyonreservoir.com/resources.

Comments should be mailed to the District at the following address:

Del Puerto Water District
Attn: Anthea Hansen, General Manager
P.O. Box 1596
Patterson, CA 95363

or by email directed to: dpcr-environment@woodardcurran.com.

Following the close of the public comment period, the District's staff and consultants will prepare written responses addressing any significant environmental issues that are timely raised pertaining to the revised and updated analysis of impacts to downstream terrestrial species, as well as any other significant environmental issue requiring a response. These responses will be incorporated into a new Final EIR (FEIR), which will include (i) the 2019 Draft EIR, (ii) the original 2020 Final EIR, (iii) this PRDEIR, (iv) all comments received during the PRDEIR public review period, and (v) the District's written responses to those comments. Together, these documents will comprise the new and expanded FEIR for the Project. Once it is completed, the new FEIR will be published and made available to commenting agencies a

minimum of ten days prior to a hearing by the Del Puerto Water District Board of Directors to consider its adequacy, in accordance with the CEQA Guidelines.

The Exchange Contractors, as a responsible agency, would consider the new and expanded certified FEIR when making their next discretionary decision about the proposed Project. In connection with such decision, the Exchange Contractors would be required make written findings with respect to any significant effects relevant to implementation of their portion of the proposed Project identified in the EIR. (See CEQA Guidelines, § 15096.)

1.6 References

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Table 1-1: DPCR Impact Summary-Downstream Terrestrial Biological Resources

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.4 Biological Resources – Terrestrial			
BIO-TERR-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-4: 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.	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-6: Conflict with Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	No Impact	No mitigation is required.	No Impact
BIO-TERR-7: Spread invasive plant species such that there would be a substantial effect on special-status species, sensitive communities, or wetlands.	Less than Significant	No mitigation is required.	Less than Significant
BIO-TERR-DS-8: Substantially reduce the habitat of a fish or wildlife species	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-DS-9: Cause a fish or wildlife population to drop below self-sustaining levels	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-DS-10: Threaten to eliminate a plant or animal community	Less than Significant	No mitigation is required	Less than Significant
BIO-TERR-DS-11: Substantially reduce the number or restrict the range of an endangered, rare, or threatened species	Less than Significant	No mitigation is required	Less than Significant

3.4 Biological Resources—Downstream Terrestrial

This section evaluates the potential for terrestrial biological impacts associated with Del Puerto Creek downstream of the Del Puerto Canyon Reservoir Project (Project) facilities. The easternmost project facilities are the proposed pump station on the Delta-Mendota Canal (DMC), which is east of I-5. *Terrestrial resources* include vegetation and natural communities, wildlife, special-status species, wetlands and other waters. Note that, although wetlands are transitional ecosystems that exhibit characteristics of both terrestrial and aquatic ecosystems, they are addressed here for completeness. Information about potential terrestrial resources in the study area was obtained from a desktop analysis using available land cover data, terrestrial special-status species occurrence databases, and field surveys focused on wildlife/habitat reconnaissance.

3.4.1 Environmental Setting

The discussion below defines the terms used in this evaluation and describes the terrestrial conditions of the region and study area.

Study Area

As discussed in Chapter 1, *Introduction*, of this PRDEIR, the Court of Appeal's Opinion does not specify the geographic scope of the analysis to downstream terrestrial species. Rather, the Court of Appeal's Opinion consistently refers only to impacts on terrestrial species "downstream" along Del Puerto Creek. As such, the Court of Appeal has left it to the District's informed and reasonable discretion to define an appropriate study area to analyze potential impacts to downstream terrestrial species.

The District has opted to take a very conservative approach to this analysis. While the Court of Appeal's Opinion could reasonably be interpreted to limit the study area to the bed and banks of Del Puerto Creek, or slightly beyond this area to include vegetation with roots extending into the creek, the District has chosen to analyze a substantially broader area to ensure a comprehensive assessment of potential impacts to downstream terrestrial species.

For this analysis, the approximately 105-acre study area, located downstream of the proposed Project facilities, includes a variable-width buffer. This buffer extends outward from the Del Puerto Creek channel along a 7.4-mile segment, from a location immediately east of Interstate 5 (I-5), to the confluence of Del Puerto Creek and the San Joaquin River. This portion of the creek on the valley floor east of I-5 is termed "lower Del Puerto Creek", and has a distinctly different flow regime and hydrology than the upper portions of the creek in the foothills west of I-5.

As described in Chapter 1, *Introduction*, of this PRDEIR, the proposed Project's reservoir would inundate the existing segment of Del Puerto Creek west of I-5, with the proposed spillway extending to the edge of I-5. The DMC, which runs north to south through the study area, is the proposed location of the reservoir's intake facilities. The DMC marks the easternmost boundary of the Project footprint, as the conveyance pipeline follows Del Puerto Creek between the reservoir and the proposed pumping plant on the DMC.

The study area includes the entire reach of Del Puerto Creek downstream of I-5, referred to as lower Del Puerto Creek in this PRDEIR to distinguish this area from the segment of Del Puerto Creek west of I-5 that runs through the proposed Project site. The extent of the variable-width buffer along Del Puerto Creek was defined based on the extent of adjacent agricultural lands and was designed to encompass the full range of existing habitat types that may support terrestrial or semi-terrestrial species along the creek. The study area includes the full extent of riparian habitats along Del Puerto Creek, including riparian wetlands, seasonal wetlands, grasslands, orchards, and vineyards. These habitats are representative of the ecological conditions that could be affected by altered flow regimes resulting from operation of the proposed reservoir. These habitats are known to support a variety of terrestrial or semi-terrestrial species,

including amphibians, reptiles, birds, and mammals. In addition, the study area captures adjacent upland habitats that may support terrestrial species independent of direct hydrological inputs.

The study area is in the Central Valley east of I-5 and north of the City of Patterson in Stanislaus County. The surrounding landscape consists mainly of flat agricultural land that slopes gently to the east. Elevations range from approximately 180 feet above sea level near I-5 to about 45 feet above sea level where Del Puerto Creek discharges to the San Joaquin River.

The climate in the study area is characterized by hot, dry summers and cool, relatively wet winters, depending on the water-year type. The average high temperatures range from 100.0°F in July to 60.1°F in January; the average low temperatures range from 37.8°F in December to 61.6°F in July. The average annual precipitation is 12.2 inches, with precipitation falling entirely as rain, mostly between October 15 and March 31 (National Oceanic and Atmospheric Administration 2025).

The defining feature of the study area is Del Puerto Creek, an intermittent stream that is tributary to the San Joaquin River and within the Sacramento-San Joaquin River Basin. Natural creek flows in the study area are highly variable, occurring mainly during the rainy season (generally October 15 – March 31) when the majority of annual rainfall occurs. The creek is often dry between rain events. Surface flows upstream of the study area generally cease by late spring or early summer, although there can be some ponding and flow, depending on location and hydrology. Inundation and surface flows in lower Del Puerto Creek are supported primarily by agricultural drainage during the summer and fall. Flows in lower Del Puerto Creek continue to be supplied by irrigation water (return flow from surrounding croplands) during the dry season (generally April 1 – October 14) augmented by operational spills from the West Stanislaus Irrigation District (WSID), which occur from March through November. Creek flows are not supported by the California Aqueduct or the DMC, which do not discharge to the creek.

Lower Del Puerto Creek, located entirely downstream of the proposed dam infrastructure, has been substantially altered by historical and ongoing physical disturbances. These disturbances have transformed the creek into a simple conveyance channel with little vegetative cover in some places. Adjacent agriculture has constrained the channel to the width of the streambed, bank, and a variably sized riparian strip ranging from approximately 10 feet to approximately 100 feet on either side of the channel. Intensive agricultural activities have altered water and sediment quality in the study area, with pesticide concentrations sometimes reaching levels that are acutely toxic to sensitive invertebrates (Weston et al. 2008; Ensminger et al. 2009; Hall and Anderson 2018). In general, the upland areas beyond the narrow riparian strip of Del Puerto Creek are so altered by current and historic agriculture activities (dry row crops, orchards, vineyards) that they do not provide potential habitat for special status terrestrial wildlife.

Vegetation Types

Vegetation and land cover data within the study area were compiled using a combination of site field-level surveys and existing vegetation mapping data within the Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG), combined with data from the National Hydrography Dataset (NHD) (CALVEG 2025; NHD 2025). In addition, aerial photography data were interpreted remotely for the vegetation maps using ArcGIS Pro 3.3 with NAIP 2020/22 and Maxar 10/2023 imagery.

Land cover in the study area has been highly altered by roadway infrastructure (e.g., highway and canal crossings), agricultural return flows, channelization and vegetation clearing for agricultural use, and water quality degradation. Historical and ongoing physical disturbances within the study area have transformed Del Puerto Creek into a simple conveyance channel with minimal vegetative cover. Seven vegetation types were mapped from aerial photographs. **Table 3.4-1** provides estimates for each vegetation type in the study area. The locations of each vegetation type are shown in **Figure 3.4-1** through **Figure 3.4-3.**

The most abundant plant community is grassland. Remnant, highly fragmented patches of riparian woodlands and wetlands are also present along Del Puerto Creek, and a few isolated seasonal wetlands are scattered across the study area.

Table 3.4-1: Land Cover Types in the Study area Study Area and Approximate Acreages

Vegetation/Land Cover Type	Amount in Study Area (acres)
Grassland [a]	17.91
Coastal Scrub	1.16
Intermittent Stream	10.41
Riparian Woodland	16.47
Riparian Wetland	15.77
Seasonal Wetland	0.02
Ornamental Trees	0.31
Orchard	2.49
Vineyard	0.75
Unvegetated Areas	0.08
Developed/Disturbed	39.56
Canal	0.67
Total	105.59

[a] The Grasslands land cover type in the study area includes primarily ruderal habitats that support non-native grasses and forbs

Figure 3.4-1: Vegetation Map, Sheet 1 of 3

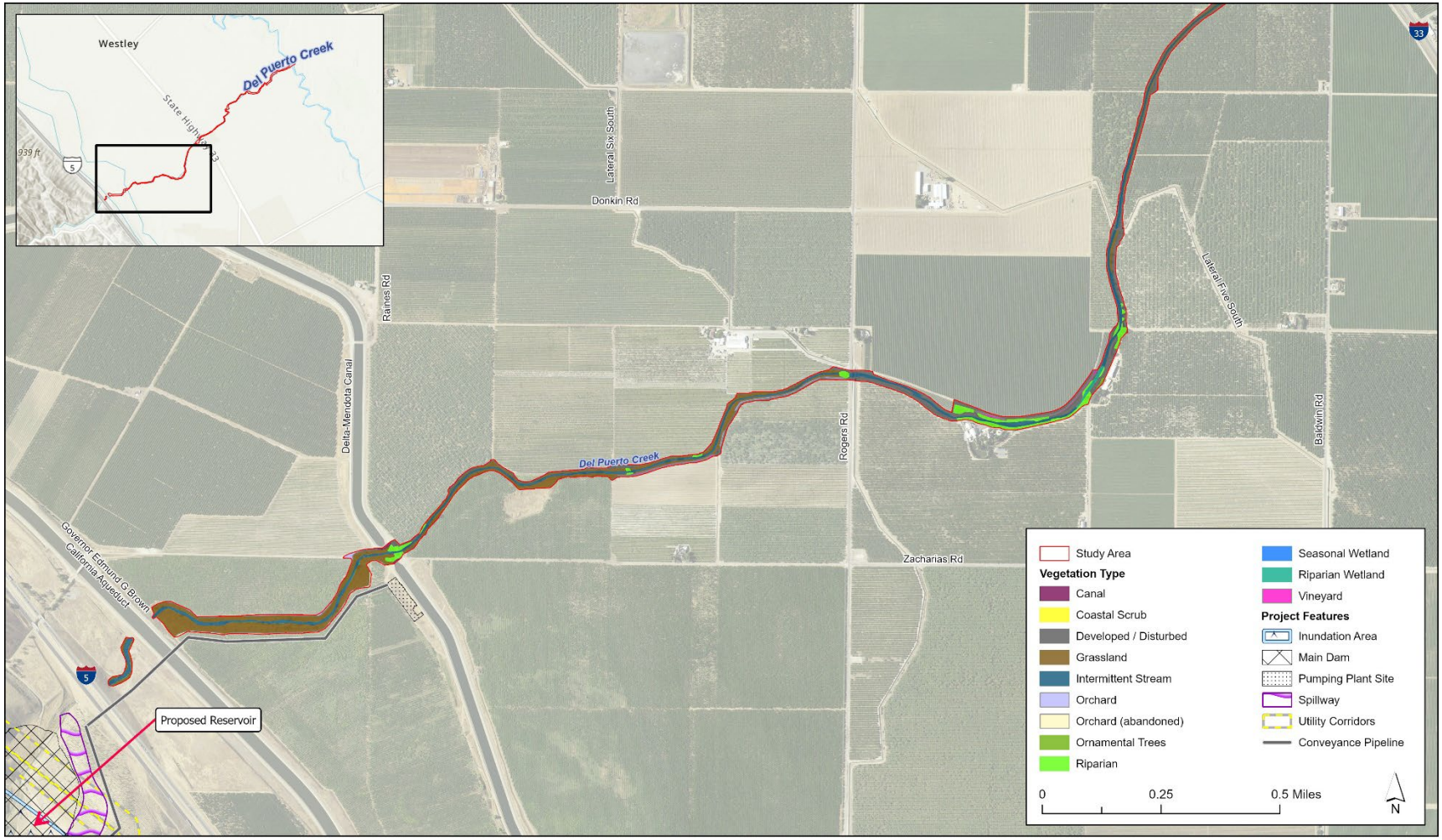


Figure 3.4-2: Vegetation Map, Sheet 2 of 3

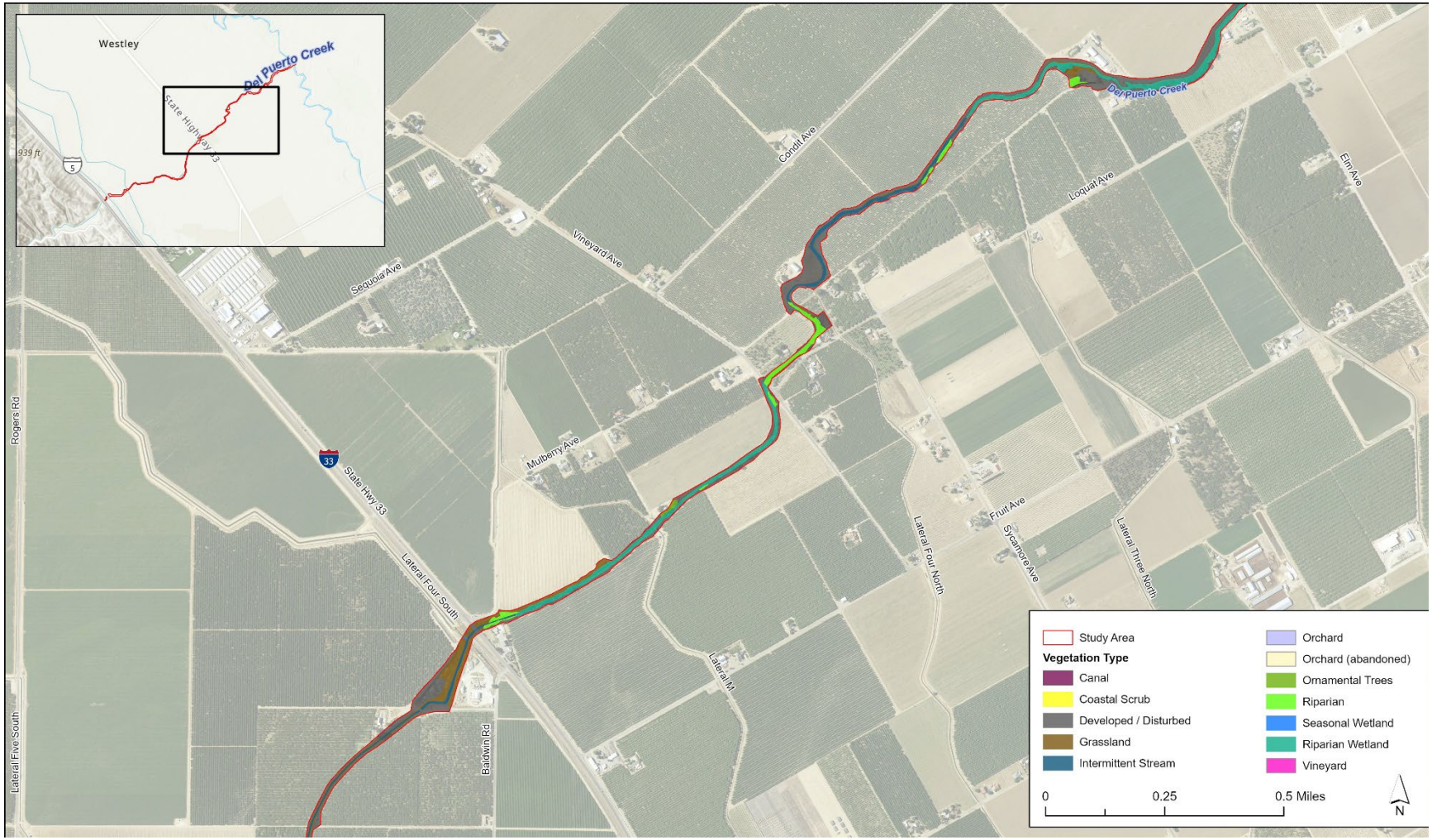
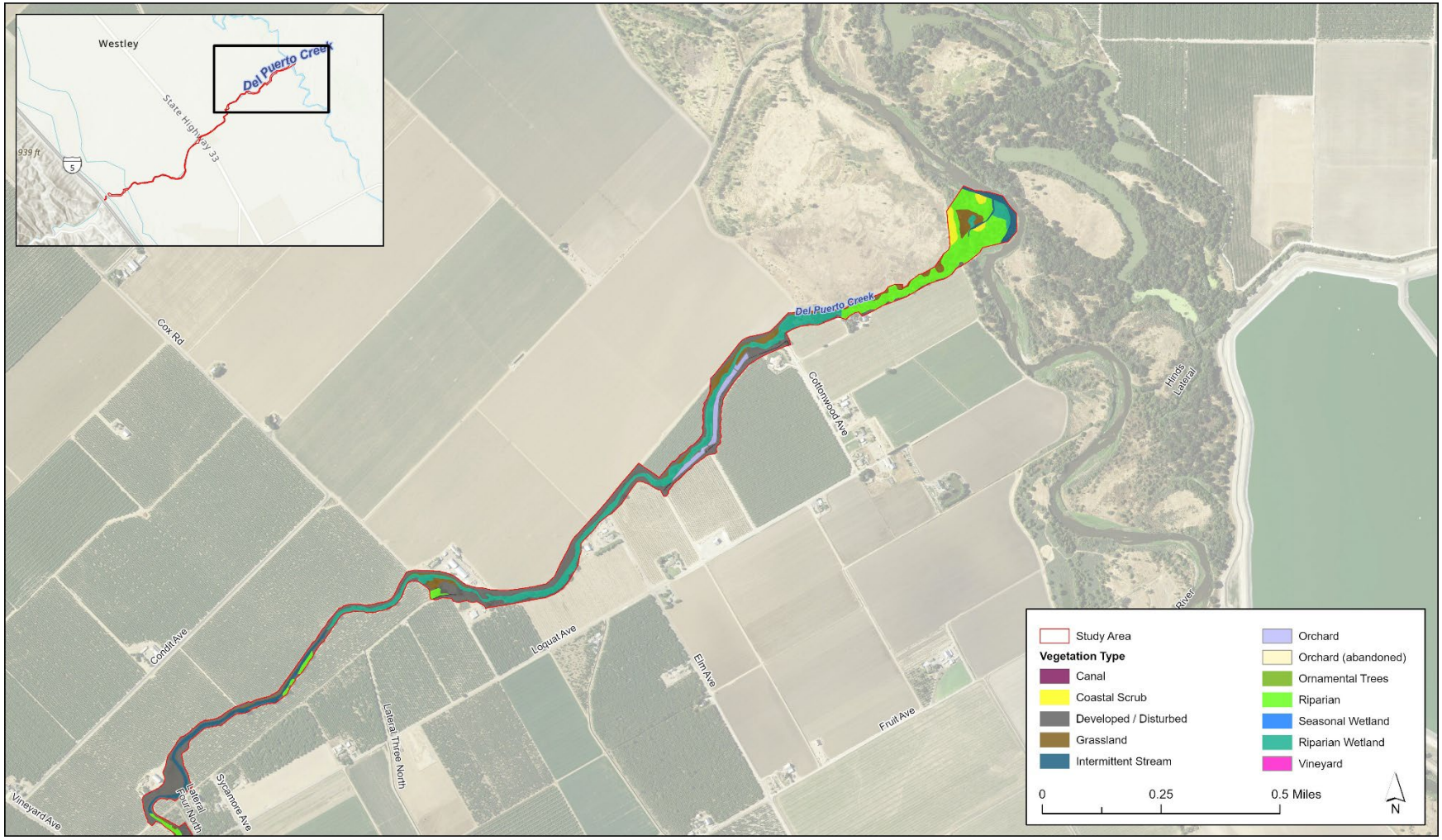


Figure 3.4-3: Vegetation Map, Sheet 3 of 3



Grassland

Most of the study area vegetation consists of grassland, an herbaceous community dominated primarily by naturalized annual grasses and forbs, which are intermixed with other native and naturalized species; perennial and annual grasses and forbs; and field crops, including fruits, vegetables, nuts, and grains. Grassland is found throughout the study area, occupying approximately 17.91 acres. This vegetation occurs as an edge along the top-of-bank between graded agriculture roads and the streambed. This plant community is ruderal/disturbed and may be sprayed with herbicide or graded at intervals. Plant composition is generally non-native grasses, forbs, and other adventitious plants.

Coastal Scrub

Coastal scrub is a shrub-dominated community that occurs in the Coast Ranges, which have a maritime influence on the climate. Coastal scrub is present in small patches in the study area, occupying approximately 1.16 acres.

Intermittent Stream

Approximately 10.41 acres of intermittent streams are present in the study area, which are supported primarily by agricultural return flows, particularly in the summer and fall.

Riparian Woodland

Sections of Del Puerto Creek where trees are present were mapped as riparian woodland. This vegetation type occupies approximately 16.47 acres, primarily in the eastern portion of the study area. Large oaks (Quercus lobata), willows (Salix spp.), walnut (Juglans sp.), and other trees form the overstory, and a dense understory of willow (Salix spp.) may occur.

Riparian Wetlands

Riparian wetlands are present in the Del Puerto Creek channel and along the banks within the floodplain. Approximately 15.77 acres of riparian wetlands are present in the study area. These wetlands are characterized primarily by herbaceous plants.

Seasonal Wetlands

Seasonal wetlands are freshwater wetlands that support ponded or saturated soil conditions during spring and winter and are dry through the summer and fall until winter rainfall begins to saturate the soil. About 0.02 acres of seasonal wetlands were identified in the study area using existing land cover data.

Ornamental Trees

Several small stands of ornamental trees are present in the study area near the former California Department of Forestry station and adjacent to orchard and residential areas. These occupy approximately 0.31 acre of the study area.

Orchards

Portions of the study area were planted with orchard crops sometime prior to 1998. The land cover identified as orchard comprises both orchards and vineyards and occupies approximately 2.49 acres of the study area. Beyond the study area boundary, this vegetation type is extensive.

Vineyard

Several small vineyards are present in the study area adjacent to orchard and residential areas. These occupy approximately 0.75 acre of the study area.

Canals

Two canals also cross the study area, the California Aqueduct and the DMC. Both of these canals have concrete-lined banks. The DMC is flanked by a paved road on the east side and a gravel and dirt road on the west side. The canals make up about 0.67 acre of the study area.

Developed/Disturbed

Although the majority of the study area is undeveloped and vegetated, some areas are developed with roads, buildings, or canals. I-5 is a four-lane divided highway that is located on the border of the study area to the west, with unpaved shoulders and a mowed median strip. Graded dirt roads occur on both sides of the creek. Housing, farm buildings, cross streets, agricultural staging areas, and other non-vegetated/disturbed areas occur throughout the study area. Developed areas occupy approximately 39.56 acres of the study area.

Wetlands and Other Waters

The wetlands subject to federal and/or state jurisdiction are riparian woodland, riparian wetland, and seasonal wetland, as described in the preceding paragraphs. Waters of the United States and Waters of the State are regulated by the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Boards, respectively. The estimates for these vegetation types are preliminary because a formal wetland delineation has not been prepared or submitted to federal and state agencies for their formal jurisdictional review under the (federal) Clean Water Act (CWA) and the (state) Porter-Cologne Water Quality Control Act (Porter-Cologne). The extent to which federal and state agencies may exert jurisdiction under these statutes is likely to differ because of differences in federal and state laws and regulations.[1]

Natural Communities of Special Concern

Natural communities of special concern are habitats considered sensitive because of their high species diversity, high productivity, unusual nature, limited distribution, or declining status. Local, state, and federal agencies consider these habitats important, and compensation for loss of sensitive communities is generally required by agencies. The California Natural Diversity Database (CNDDB) contains a current list of the rare natural communities throughout the state (California Department of Fish and Wildlife [CDFW] 2025). The U.S. Fish and Wildlife Service (USFWS) considers certain habitats, such as riparian

[1] In general, the category Waters of the State is broader than the category Waters of the United States, particularly in the aftermath of the United States Supreme Court's decision in *Sackett v. Environmental Protection Agency*, 598 U.S. 651 (2023). In that case, the court held that the statutory term "Waters of the United States," as found in the CWA, describes "only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as 'streams, oceans, rivers, and lakes.'" Wetlands adjacent to such waters come within the term where "the wetland has a continuous surface connection with that water, making it difficult to determine where the 'water' ends and the 'wetland' begins."

In contrast, the term "Waters of the State" is broadly defined in Porter-Cologne as "*any* surface water or groundwater, including saline waters, within the boundaries of the state." (Cal. Wat. Code, § 13050(e), italics added.) Anyone proposing to discharge "waste" (including soils) into such waters is subject to regulation under Porter-Cologne, including both point and nonpoint source dischargers. In 2019, the State Water Resources Control Board adopted by Resolution 2019-0015 the "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" ("Procedures"), to be included in the Water Quality Control Plans for Inland Surface Waters, Enclosed Bays, and Estuaries of California. Based on the expansive concept of the Waters of the State, the Procedures set forth a definition of wetlands far broader than the recently-narrowed federal definition. Moreover, effective January 2025, Water Code section 16201 states that "[i]t is the policy of the state to ensure no net loss and long-term gain in the quantity, quality, and permanence of wetlands acreage and values in California."

communities, important to wildlife. The USACE and U.S. Environmental Protection Agency (EPA) consider stream habitats important for water quality and wildlife.

One Natural Community of Special Concern, riparian woodland, is present in the study area. This natural community is present in the form of small, highly fragmented patches that collectively total approximately 16.47 acres. These patches are generally confined to narrow bands along Del Puerto Creek and are interspersed with developed, agricultural, and disturbed lands. The fragmented nature of this riparian woodland habitat reflects the historical and ongoing physical alterations to the Del Puerto Creek corridor, including channelization and vegetation clearing for adjacent agricultural land uses, as discussed previously. Despite their limited extent, these patches may provide important habitat functions for certain terrestrial species, particularly those that rely on riparian woodlands for foraging, movement, or nesting.

Special-Status Species

Appendix C, *Special Status Species Tables* (Tables 1 and 2), lists special-status plant and wildlife species, respectively, that are known to occur or have the potential to occur in the geographic region (i.e., within 15 miles of the study area). Identification of these species was based on online database searches, species distribution and habitat requirements data, and is supported by reconnaissance-level field surveys in July 2025 and September 2025. Details of the field survey are described in the subsection below, *Field Survey Results*.

For the purposes of this PRDEIR, special-status species are plants and animals that are legally protected under federal or state law, along with species that are considered sufficiently rare by the scientific community to qualify for listing under either the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). (See CEQA Guidelines § 15380(d) ["[a] species not included in any listing … shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria" for listing].) Special-status plants and animals are those species in any of the categories listed below.

- Species listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.11 [listed animals], 50 Code of Federal Regulations [CFR] 17.12 [listed plants], and various notices in the *Federal Register* [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (81 FR 87246, December 2, 2016).
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5).
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code [CFGC] 1900 et seq.).
- Plants with a California Rare Plant Rank (CRPR) of 1 or 2 (CDFW 2025).
- Animal species of special concern on the CDFW Special Animals List (CDFW 2025).
- Animals fully protected in California (CFGC Section 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

Database Searches

As part of this assessment, a qualified biologist reviewed available literature and databases to determine the potential presence of special-status species or other sensitive biological resources within the study area. The following sources were reviewed:

- California Native Plant Society (CNPS) (online *Inventory of Rare and Endangered Plants of California*) (CNPS 2025) (Appendix B, *Species Lists*).

- CNDDB nine-quadrangle special-status plant and animal records search for the study area (California Department of Fish and Wildlife [CDFW] 2025) (Appendix B, *Species Lists*).
- USFWS Information for Planning and Consultation [IPaC] list of endangered and threatened species that may occur in or be affected by the proposed Project (USFWS 2025) (Appendix B, *Species Lists*).
- U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles for Patterson and Copper Mountain (USGS 1971, 1978).
- eBird (bird sightings, species distribution maps, and seasonal trends) (eBird 2025)
- iNaturalist (species identification and mapping) (iNaturalist 2025)

This information was used to develop lists of special-status species and other sensitive biological resources that could be present within a 15-mile radius of the study area. Species were considered potentially present within the study area if they were known to occur within a 5-mile radius of the study area, or if potentially suitable habitat for the species were known to be present in the study area.

Field Survey Results

A comprehensive reconnaissance-level survey of the study area was conducted by ICF biologists on July 14, 2025. The entire study area was surveyed on foot, with observations recorded for wildlife species encountered, the presence of suitable habitat for special-status plant and wildlife species, and a general assessment of Del Puerto Creek's overall wildlife habitat value within the study area. In addition, a protocol-level elderberry shrub survey was conducted by ICF biologists on September 9, 2025. Protocol-level surveys for special-status wildlife species have not been conducted specifically for this PRDEIR.[2]

As noted from review of aerial photography and confirmed by surveys within the study area, Del Puerto Creek is narrow in most places and averages approximately 50 feet wide, from top of streambank to top of streambank. The banks of the creek are steep, generally greater than 45° slope, and densely vegetated with naturalized or invasive plants, including the ground cover woodbine (*Parthenocissus inserta*), vining Himalayan blackberry (*Rubus armeniacus*), and highly invasive giant reed (*Arundo donax*). Shrubs, including sandbar willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), coyote brush (*Baccharis pilularis*), and others, provide low structure both within the streambed and on creek banks and at top-of-bank. Bulrush (*Schoenoplectus* sp.) is present in the creek at high densities between Vineyard Avenue and Cox Road. An overstory of small California walnut (*Juglans californica*), cottonwoods (*Populus fremontii*), and large valley oaks (*Quercus lobata*) provides sparse shade across most of the creek; however, the overstory becomes denser and much more developed east of Elm Avenue approaching the confluence with the San Joaquin River. Shrub diversity increases in the eastern part of the study area, with large black willow (*Salix gooddinii*) and shrubby seep willow (*Baccharis salicifolia*) becoming dense. A mix of introduced annual grasses and forbs is also present, including ripgut brome (*Bromus diandrus*), wild oat

[2] In its Opinion (see Appendix A), the Court of Appeal rejected an attack on the FEIR's overall biological resource analysis based on the fact that the biological "studies were reconnaissance-level rather than protocol-level[.]" (Opinion, p. 16.) The court found that the District had provided an ample justification for relying on data base searches and "reconnaissance level field studies" in lieu of protocol-level surveys. As the FEIR explained, "[p]rotocol level surveys would be conducted during the appropriate season and in accordance with accepted methods prior to the start of construction, and preconstruction surveys would be conducted during the appropriate time frame as described in the mitigation measures presented in the Draft EIR prior to initial ground disturbing activities associated with project construction." (*Ibid*.; see also *Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1396-1397 [court reject the notion that CEQA requires protocol-level surveys "as a matter of law"]; *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1125 [court rejects the petitioner's assertion that CEQA compelled the respondent county to follow the study protocols recommended by the (then) California Department of Fish and Game].)

(*Avena fatua*), soft brome (*B. hordeaceus*), and Mediterranean rye (*Hordeum murinum*), weedy forbs milk thistle (*Silybum marinum*), Italian thistle (*Carduus pycnocephalus*), bindweed (*Convolvulus arvensis*), and yellow star thistle (*Centaurea solstitialis*). Native forbs and perennials, including jimson weed (*Datura wright*), and mugwort (*Artemesia douglasiana*) are conspicuous in places. A broad, flat ruderal terrace occurs in the northwestern portion of the study area, which is dominated by a monoculture of invasive perennial pepperweed (*Lepidium latifolium*). California ground squirrels (*Otospermophilus beecheyi*) and their burrows are very common in many places, as are Botta's pocket gopher (*Thomomys bottae*).

Surrounding agricultural land uses adjacent to the study area include almond (*Prunus dulcis*) orchards; field crops, including fruits, vegetables, nuts, and grains; and a few fallow or dry-farmed row crops in places. All orchards and field crops are currently maintained, and drip irrigation appears to be running continuously. Inputs of water to the creek from these adjacent fields are visible and obvious. Water volume was estimated to be between 5-10 cubic feet/second (cfs) during the reconnaissance-level surveys, which is a substantial flow for the arid mid-summer climate conditions of the northern San Joaquin Valley. Evidence of subsidized perennial inundation was indicated by the presence of two beaver (*Castor canadensis*) dams and beaver-felled creekside trees. Large American bullfrogs (*Lithobates catesbeianus*) were also observed in the deeper, quieter sections of the creek, further suggesting the presence of a longer/perennial hydroperiod in lower Del Puerto Creek. A concrete water conveyance ditch runs along the southeastern edge of the creek. Leaks in this structure may provide additional water inputs to the creek, which was filled to its high-water mark during the reconnaissance-level surveys.

Special-Status Plants

Thirty-seven special-status plant species have the potential to occur in or within 15 miles of the study area (CDFW 2025; CNPS 2025) (Appendix C, *Special-Status Species Tables*, Table 1). No special-status plants were observed during reconnaissance-level field surveys. Protocol-level botanical field surveys for special-status plant species have not been conducted within the study area due to the lack of suitable habitat in the study area for listed special-status plant species. Of the 37 species that occur within 15 miles of the study area, 13 special-status plant species are not known to occur in the study area itself and are not expected to be present due to the absence of suitable habitat. An additional 21 special-status plant species have potentially suitable habitat in the study area; however, there are no records of their presence in the study area. As such, these species are not addressed further. All of these species are included in Appendix C, *Special-Status Species Tables*, Table 1.

Of the 37 species within 15 miles of the study area, three species have a low potential to occur: Vernal pool smallscale (*Atriplex persistens*), Brewer's clarkia (*Clarkia breweri*), and Jepson's woolly sunflower (*Eriophyllum jepsonii*). The study area contains 0.02 acres of seasonal wetlands and is marginal habitat for vernal pool smallscale, which requires alkaline vernal pools. The nearest known occurrence of this species is approximately 8 miles east of the study area. The other two species, Brewer's clarkia and Jepson's woolly sunflower, require coastal scrub, chaparral or rocky soils. Approximately 1.16 acres of coastal scrub occurs in the eastern portion of the study area; however, the nearest known occurrences of these two species are 8 and 7 miles, respectively, from the study area (Appendix C, *Special-Status Species Tables*, Table 1).

Four special-status plant species have been observed or documented in the grassland habitat within the proposed Project site to the west of the study area: big tarplant (*Blepharizonia plumosa ssp. plumosa*), Lemmon's jewelflower (*Caulanthus lemmonii*), San Benito poppy (*Eschscholzia hyoecoides*), and diamond-petaled California poppy (*Eschscholzia rhombipetala*). However, the grasslands within the study area are very disturbed and are dominated by ruderal plant species. Therefore, the potential for these four species to occur within the study area is considered low.

In addition, one special-status plant, California alkali grass (*Puccinella simplex*), was observed in wetland habitat within the proposed Project site west of I-5. This species typically grows in saline soils and

alkaline plains, which differ from the riparian wetland conditions found in the study area. Because the soil characteristics in the study area are generally unsuitable for this species, its potential to occur downstream is considered low.

Special-Status Wildlife

Using publicly available online resources and the process described above in the *Database Searches* subsection, a total of 22 special-status wildlife species were determined to have the potential to occur within a 15-mile radius of the study area. This initial list was used as a starting point for evaluating wildlife species that have the potential to be present in the study area. Species were considered to be potentially present if they were known to occur within a 5-mile radius of the study area, or if suitable habitat is present in the study area (Appendix C, *Special-Status Species Tables*, Table 2). Based on this analysis, three special-status wildlife species were excluded from further consideration: California condor (*Gymnogyps californianus*), riparian woodrat (*Neotoma fuscipes riparia*), and the riparian brush rabbit (*Sylvilagus bachmani riparius*). These species are not expected to occur within the study area due to the absence of recorded occurrences and lack of suitable habitat. As such, they are not addressed further.

Nine species have low potential to occur in the study area: Conservancy fairy shrimp (*Branchinecta conservatio*), Vernal pool fairy shrimp (*Branchinecta lynchi*), Vernal pool tadpole shrimp (*Lepidurus packardi*), Crotch's bumble bee (*Bombus crotchii*), California tiger salamander (*Ambystoma californiense*), Western spadefoot (*Spea hammondii*), Tricolored blackbird (*Agelaius tricolor*), Western burrowing owl (*Athene cunicularia*), and Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). The nine wildlife species that have potential to occur in the study area or could be affected by the proposed Project are discussed further below.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is federally listed as threatened. It occurs throughout the Central Valley from Shasta County to Fresno County (USFWS 2017). There is one documented CNDDB occurrence for valley elderberry longhorn beetle approximately 3.8 miles northeast of the study area (CDFW 2025).

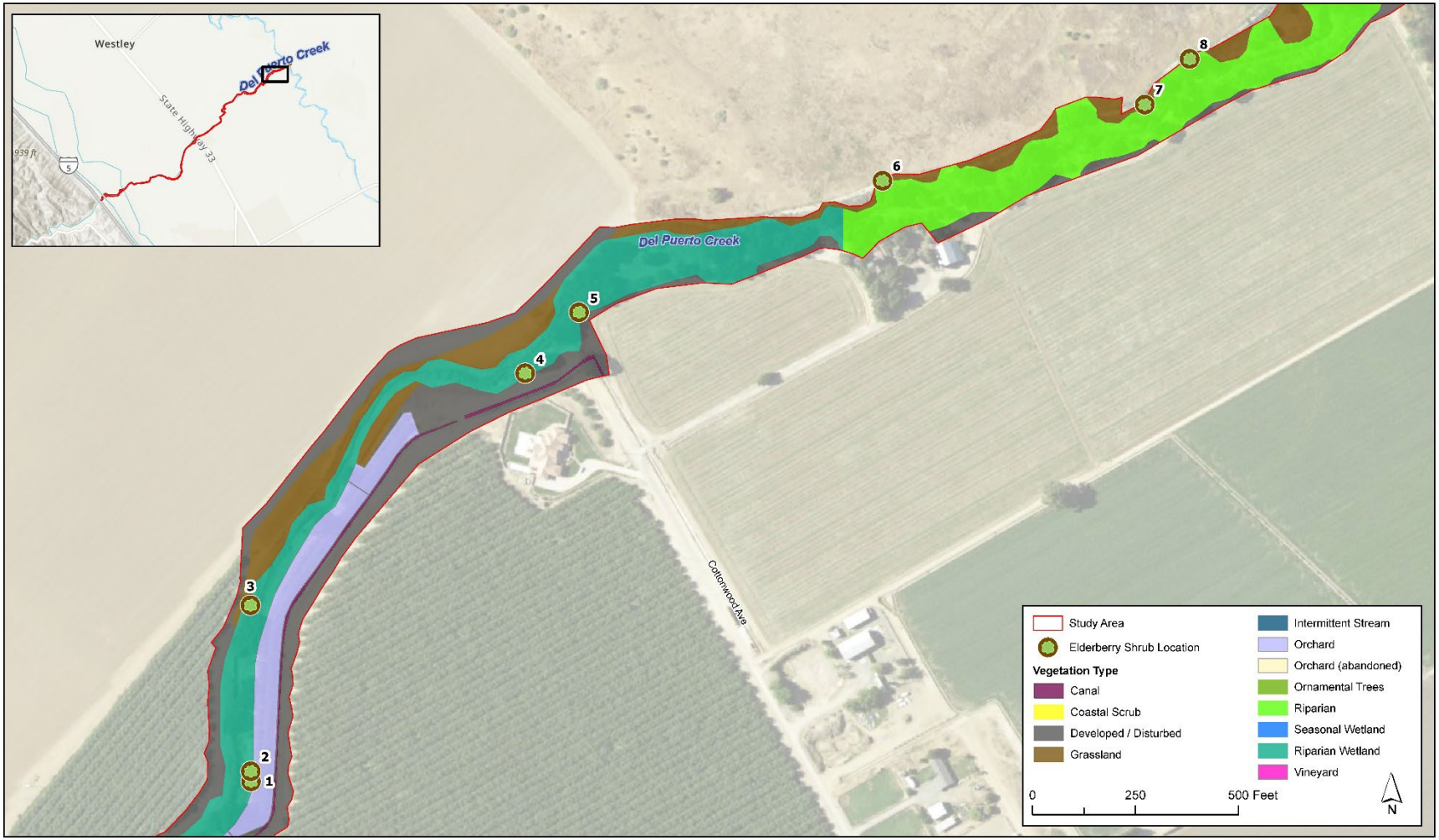
Suitable habitat for valley elderberry longhorn beetles includes both riparian and non-riparian areas where elderberry shrubs (*Sambucus nigra* ssp. *cerulea*), the obligate host plant for valley elderberry longhorn beetle, are present. In riparian settings, elderberry shrubs are commonly found where their roots can reach the water table and are not subject to prolonged inundation. In non-riparian areas, elderberry shrubs are typically present in oak woodland and annual grassland habitats (USFWS 2017).

Valley elderberry longhorn beetle emergence, mating, and egg-laying occurs from March to July, in conjunction with the elderberry flowering season. Adult beetles lay eggs on leaves or stem junctions; after hatching, larvae bore into the elderberry stem to pupate and emerge as adults through an exit hole approximately one month later. The presence of an exit hole is the only exterior evidence of the beetle's use of an elderberry shrub (USFWS 2017).

The existing riparian corridor in the study area is highly fragmented and degraded, with vegetation limited to narrow, discontinuous patches. These conditions are the result of long-term physical and chemical disturbances, which reduce the likelihood of elderberry shrub establishment.

Notwithstanding these habitat conditions, elderberry shrubs were identified during a formal protocol-level elderberry shrub survey in September 2025. The documented elderberry shrubs were primarily concentrated on both northern and southern banks of Del Puerto Creek, east of Elm Avenue, near its confluence with the San Joaquin River. The approximate locations of these elderberry shrubs are shown in **Figure 3.4-4**, with some locations representing clusters of elderberry shrubs. A total of twelve elderberry shrubs were identified within the study area. All of these shrubs contained stems greater than

Figure 3.4-4: Approximate Locations of Elderberry Shrubs



1 inch in diameter, which indicates the potential for valley elderberry longhorn beetle presence per USFWS guidance (USFWS 2017). A total of five exit holes were documented on these shrubs.

Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) was designated as a candidate species by USFWS in December 2020. Monarch butterfly is migratory and found east and west of the Rocky Mountains in North America (USFWS 2024a). The western North American population winters along the Pacific Coast of California. Individuals in this population migrate through California and the inter-mountain west during spring and summer, returning to wintering grounds in the fall.

The western North American monarch butterfly overwintering sites exist along a 621-mile (1,000-kilometer) section of the Pacific Coast from Mendocino County, California, to Baja California, Mexico (USFWS 2020; Pelton et al. 2016). Most overwintering sites are within 1.5 miles (2.4 kilometers) of the Pacific Ocean or San Francisco Bay (Pelton et al. 2016). These groves consist of blue gum (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), Monterey cypress (*Cupressus macrocarpa*), and other tree species (89 FR 100662 [December 12, 2024]).

The breeding, foraging, and migratory habitat for monarch butterflies generally consists of all areas with the required habitat components, including milkweeds (*Asclepias* sp.) (obligate egg-laying and larvae habitat), nectar sources, and roosting structures. Monarch butterflies use a wide variety of flowers for nectaring, but females use milkweeds exclusively as larval host plants; the species breeds only where milkweed is found (87 FR 26152, 26169 [May 3, 2022]). Milkweeds are not shade tolerant and therefore occur in open habitats, such as riparian and oak woodlands, annual grasslands, seasonal wetlands, upland riparian areas, along the edges of agricultural lands, and in disturbed and developed areas (Xerces Society for Invertebrate Conservation 2019). While female monarch butterflies require milkweed for breeding, the habitat requirements for monarch butterfly migration are not particularly specialized. As a result, monarch butterflies can occur in a wide variety of habitat types.

There are no CNDDB occurrences of monarch butterfly within 5 miles of the study area; however, CNDDB tracks only overwintering monarch butterflies (CDFW 2025). One monarch butterfly occurrence from 2023 was recorded along Del Puerto Creek, upstream of the study area, on the west side of I-5 during migration. In addition, one monarch butterfly occurrence was recorded north of the study area along the San Joaquin River in 2024 (iNaturalist 2025). These observations suggest that the broader Del Puerto Creek corridor, which provides areas of open grasslands and scattered riparian shrubs, may provide limited stopover or foraging habitat during migration, particularly if nectar-producing plants are present.

Given the absence of known milkweed in the study area, it is unlikely that the area supports monarch breeding. While the study area may offer marginal value as a migratory corridor, the limited floral resources and the fragmented condition of riparian and grassland habitats in the study area suggest that its role in supporting monarchs is likely minimal and transient in nature.

California red-legged frog

The California red-legged frog is listed as a threatened species under the ESA and is a CDFW Species of Special Concern. The species inhabits permanent water bodies such as marshes, streams, lakes, and ponds with dense riparian vegetation, and primarily breeds in ponds from November to April (Thomson et al. 2016). While some frogs disperse to aquatic, riparian, and upland habitats in summer, many remain near breeding sites year-round (66 FR 14628; Bulger et al. 2003; Fellers and Kleeman 2007). They use various upland habitats to access breeding and foraging areas, typically staying within 200 feet (60 meters) of water, though some individuals have been recorded traveling up to 1.7 miles (2.8 kilometers) during the breeding season (Bulger et al. 2003; Fellers and Kleeman 2007).

The USFWS generally considers potentially suitable dispersal habitat to include grasslands within 1 mile of suitable aquatic habitat. Although movements could occur at any time of year, the study area is characterized by hot dry summers, so long-range dispersal events are most likely to occur during the rainy season, generally October 15 to March 31. Suitable upland habitat in the study areas includes grasslands within 300 feet of aquatic habitat that contain numerous small mammal burrows and soil cracks that could be used by California red-legged frogs as refugia during summer months, when ponds and streams may experience drier conditions.

The closest CNDDB occurrence for California red-legged frog is approximately 15 miles south and 14.75 miles west of the study areas (CDFW 2025). Potential aquatic habitat for California red-legged frogs is present within the study area.

Foothill yellow-legged frog

The foothill yellow-legged frog is listed as an endangered species under the ESA and is a CDFW Species of Special Concern. The historical distribution of foothill yellow-legged frog extended from the Willamette River drainage in Oregon south to at least the Upper San Gabriel River in Los Angeles County, California. The current distribution of the foothill yellow-legged frog generally follows the historical distribution of the species, except for the range contractions in the southern and, to a lesser extent, northern parts of the species' range (USFWS 2023).

Foothill yellow-legged frog is a stream-obligate species that occurs in a wide variety of vegetation types, including valley-foothill hardwood, valley-foothill riparian, mixed chaparral, and wet meadow (USFWS 2023). Adults are found in or along the edges of streams where they feed on terrestrial and aquatic invertebrates, including snails, moths, water striders, beetles, spiders, and ants. Tadpoles consume algae, diatoms, and detritus (USFWS 2023).

The closest CNDDB occurrence for foothill yellow-legged frog is approximately one mile west of the study area (CDFW 2025). Potential aquatic and upland habitats are present within the study area.

Northwestern Pond Turtle

Northwestern pond turtle is proposed for listing as threatened under the ESA and is a CDFW Species of Special Concern. Critical habitat has not yet been designated, and no recovery plan has been developed. Northwestern pond turtles are a highly aquatic species and can be found in a variety of habitat types, including streams, rivers, sloughs, lakes, ponds, reservoirs, marshes, seasonal ponds, and other wetland habitats (Thomson et al. 2016). They require basking sites such as partially submerged logs, rocks, floating vegetation, or open mud banks for thermoregulation. Access to suitable upland habitats with loose soils for nesting, dispersal, and overwintering is also required (Thomson et al. 2016). The proximity of the nesting site to aquatic habitat is dependent on availability; the nest site is usually within 300 feet of aquatic habitat but can be up to 1,640 feet away (Thomson et al. 2016). Northwestern pond turtles are active year-round in warmer locations. They spend winter months in colder climates in a state of dormancy, often burrowing into loose soil or leaf litter on land or using undercut banks, snags, rocks, or bottom mud in ponds (Thomson et al. 2016). Breeding occurs from spring through fall, with nesting taking place from spring to early summer. Females lay one to 13 eggs, which hatch in the fall, although the young may remain in the nest until the following spring (Thomson et al. 2016).

There are no CNDDB occurrences within 5 miles of the study area; the closest occurrence is approximately 10 miles southeast of the confluence of Del Puerto Creek and the San Joaquin River (CDFW 2025). However, northwestern pond turtle was documented in upper Del Puerto Creek, within the Project site, during surveys at the proposed Project site in 2024. Potential habitat for northwestern pond turtle is present in the study area, particularly closer to the San Joaquin River where flow and inundation are primarily perennial. However, surrounding upland habitat is of low quality due to the constrained width and steep nature of the banks of Del Puerto Creek and very dense bankside ground coverage.

Suitable upland habitat beyond the banks is further limited due to the surrounding intensive agricultural uses.

Golden Eagle

Golden eagle is a California fully protected species and protected under the federal Bald and Golden Eagle Protection Act. This species occurs in foothills and mountains throughout California below 11,500 feet and can be found during the nonbreeding season in lowlands, such as the Central Valley. Golden eagles prefer large, open landscapes such as grasslands, shrublands, and foothills for foraging, and they nest on cliffs, tall trees, or other elevated structures that provide wide views of their territory. Breeding occurs from late January through August, with peak breeding from March through July (USFWS 2024b). Golden eagles forage on lagomorphs, rodents, and other mammals, birds, and reptiles in grasslands, deserts, savannahs, and early successional forest and shrub habitats (Zeiner et al. 1990).

There are no CNDDB occurrences within 5 miles of the study area. The closest CNDDB occurrence is approximately 13 miles to the south (CDFW 2025); however, there are golden eagle nesting territories in Del Puerto Canyon, upstream of the study area (ICF 2024). Although potential foraging habitat for golden eagle is present in the study area, it is limited by the agricultural land uses in the study area. Potential nesting habitat occurs west of the study area in areas with cliffs and escarpments, as well as limited marginal quality habitat in trees surrounded by intensive agriculture and residences adjacent to the study area.

Least Bell's Vireo

Least Bell's vireo is both federally- and state-listed as endangered. Historically, the species nested in riparian habitat throughout the Central Valley, western Sierra Nevada, and coastal valley and foothills. The current breeding population is now restricted to mainly Southern California. Nesting on the San Joaquin River west of Modesto has been documented once in in recent years. However, there have been no sustained populations and no documented nesting occurrences since 2016 (eBird 2025). The vireo has not meaningfully re-colonized sites in central California, primary due to lack of suitable habitat (Preston *et al*. 2021). The species has not been observed nesting in the region in recent years.

Least Bell's vireos inhabit dense riparian vegetation for nesting and require a dense, stratified canopy for foraging. There is one CNDDB record within 5 miles of the study area, upstream of the Project site within Del Puerto Canyon; however, the specific location is unknown (from 1928; occurrence #509). In addition, there is another recorded occurrence along the San Joaquin River, approximately 5.5 miles northwest of the study area (CDFW 2025). The majority of the study area lacks the dense riparian vegetation required by the species for nesting and foraging. However, oak riparian with a dense understory of willow does occur near the confluence of Del Puerto Creek with the San Joaquin River. Least Bell's vireo is highly unlikely to occur in the study area beyond the confluence of Del Puerto Creek with the San Joaquin River.

Swainson's Hawk

Swainson's hawk is state-listed as threatened. The species occurs in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert (Zeiner et al. 1990). The Swainson's hawk nests in riparian habitats or isolated roadside trees adjacent to foraging habitat. Preferred nest trees include valley oaks, Fremont's cottonwood, willows, sycamores, and walnut trees (California Department of Fish and Game [CDFG] 1994). Foraging occurs in grasslands, pastures, alfalfa, and grain fields (Zeiner et al. 1990). Swainson's hawks migrate north to California to establish nesting territories in early March (CDFG 1994). Nests are a platform composed of sticks, bark, and leaves in a tree, bush, or utility pole, typically 4 to 100 feet above the ground (Zeiner et al. 1990).

There are five CNDDB occurrences within 5 miles of the study area, with the closest occurrences overlapping the upstream and downstream ends of the study area (CDFW 2025). Potential nesting habitat

for Swainson's hawk includes riparian woodlands and ornamental trees; potential foraging habitat includes annual grasslands.

White-tailed Kite

White-tailed kite is a California fully protected species. The species occurs in lowland areas west of the Sierra Nevada from the Sacramento Valley to western San Diego County. It is usually found near agricultural areas (Zeiner *et al*. 1990). White-tailed kites typically nest in tall trees near open grasslands, wetlands, or agricultural fields, where they forage for small mammals (CDFW 2005). Nests are found near the tops of dense oak, willow, or other trees, typically 20 to 100 feet above the ground. These are composed of loosely piled sticks and twigs (Zeiner *et al*. 1990). Breeding occurs from February to October, with peak breeding from May to August.

There are no CNDDB occurrences within 5 miles of the study area. The closest CNDDB occurrence is approximately 23 miles from the study area (CDFW 2025). Potential nesting habitat for white-tailed kite is present in riparian woodlands and ornamental trees in the study area; potential foraging habitat is present in narrow strips of grassland throughout the study area.

San Joaquin Kit Fox

The San Joaquin kit fox is federally listed as endangered and state-listed as threatened. Historically, the species occurred in the semi-arid habitats of the San Joaquin Valley and in the arid grasslands of the adjacent foothills from as far north as Tracy in San Joaquin County and La Grange in Stanislaus County to Kern County. The current range of the species extends north to south from Contra Costa and Alameda Counties to Kern County as well as to the Carrizo Plain in eastern San Luis Obispo County (USFWS 2010). The northern range for the species consists of a narrow band of habitat along the western edge of the San Joaquin Valley from San Luis Reservoir in Merced County north to central Alameda and Contra Costa Counties. San Joaquin kit fox observations in the northern range are rare; no populations are known to be present (Cypher et al. 2013). The northern part of the range is characterized by highly fragmented habitat with medium suitability; this consists primarily of dense grasslands dominated by wild oats, which may not be sufficient to sustain persistent populations of kit fox (Cypher et al. 2013).

Optimal habitats for San Joaquin kit foxes are generally arid shrublands and grasslands characterized by sparse or no shrub cover, sparse ground cover with patches of bare ground, short vegetative structure (herbaceous vegetation less than 18 inches tall), and sandy to sandy-loam soils. Kit foxes are strongly linked to areas where kangaroo rats are abundant. They generally avoid steep terrain. Slopes under 5 percent are optimal for kit foxes; slopes greater than 15 percent are unsuitable. Tall and dense vegetation is less optimal because it creates conditions that make it difficult for kit foxes to detect approaching predators or capture prey. Kit foxes have been observed foraging in orchards; however, orchard use would require an open understory to facilitate predator detection (Cypher *et al*. 2007).

Based on studies conducted in areas of highly suitable habitat, the average home range size for San Joaquin kit fox is approximately 1,344 acres (Cypher et al. 2013). Den ranges (roughly equivalent to home ranges) for kit foxes in the Los Banos Valley averaged 1,169 acres, ranging from 212 to 3,104 acres (Constable *et al*. 2009).

A San Joaquin kit fox habitat model developed by Cypher *et al*. (2013) identified areas of medium and high habitat suitability across the species' range. The GIS dataset produced for this study was obtained from the U.S. Bureau of Reclamation for use in considering the Project's location relative to this range-wide model. The portion of Stanislaus County where the study area lies has narrow areas of fragmented low- to moderate- or moderate- to high-quality habitat from the Sperry Avenue-Diablo Grande Parkway/I-5 interchange north to the area near the Stanislaus county line. Although the data are not to be interpreted at the project level, they do reveal the general lack of suitable San Joaquin kit fox habitat in this region and suggest that this portion of the species' range may serve as only a narrow dispersal corridor between areas to the north and south.

Potentially suitable habitat for San Joaquin kit fox in the study area includes the annual grasslands in areas with slopes of less than 15 percent**.** Only 18 acres of grassland habitat is present within the study area, which is unlikely to provide sufficient area for a kit fox home range.

There are four CNDDB occurrences within 5 miles of the study area, with the closest occurrence inside the study area (CDFW 2025). The occurrence within the study area was reported in 1973 as being near the mouth of Del Puerto Canyon. The next-nearest CNDDB occurrence is approximately 1.5 miles southeast of the study area; this was reported in 2004 as roadkill on the west side of I-5 (CDFW 2025). An occurrence 2.25 miles to the north was reported in 1990 as a road mortality incident, with evidence found in the median of I-5.

Based on the background information presented above and the results of the reconnaissance-level survey on July 14, 2025, the likelihood of an established San Joaquin kit fox population in the study area is very low. However, during the reconnaissance-level survey of study area, a small canid was observed at a distance in adjacent upland habitat. Although it was unclear whether the animal was a San Joaquin kit fox or a juvenile coyote, the canid appeared to be injured and was moving erratically. Overall, the availability of suitable dispersal habitat is limited, particularly as the creek receives agricultural runoff and becomes more perennial in the eastern portion of the study area. However, there is potential for the San Joaquin kit fox to utilize the study area as transient or dispersal habitat.

Wildlife Corridors

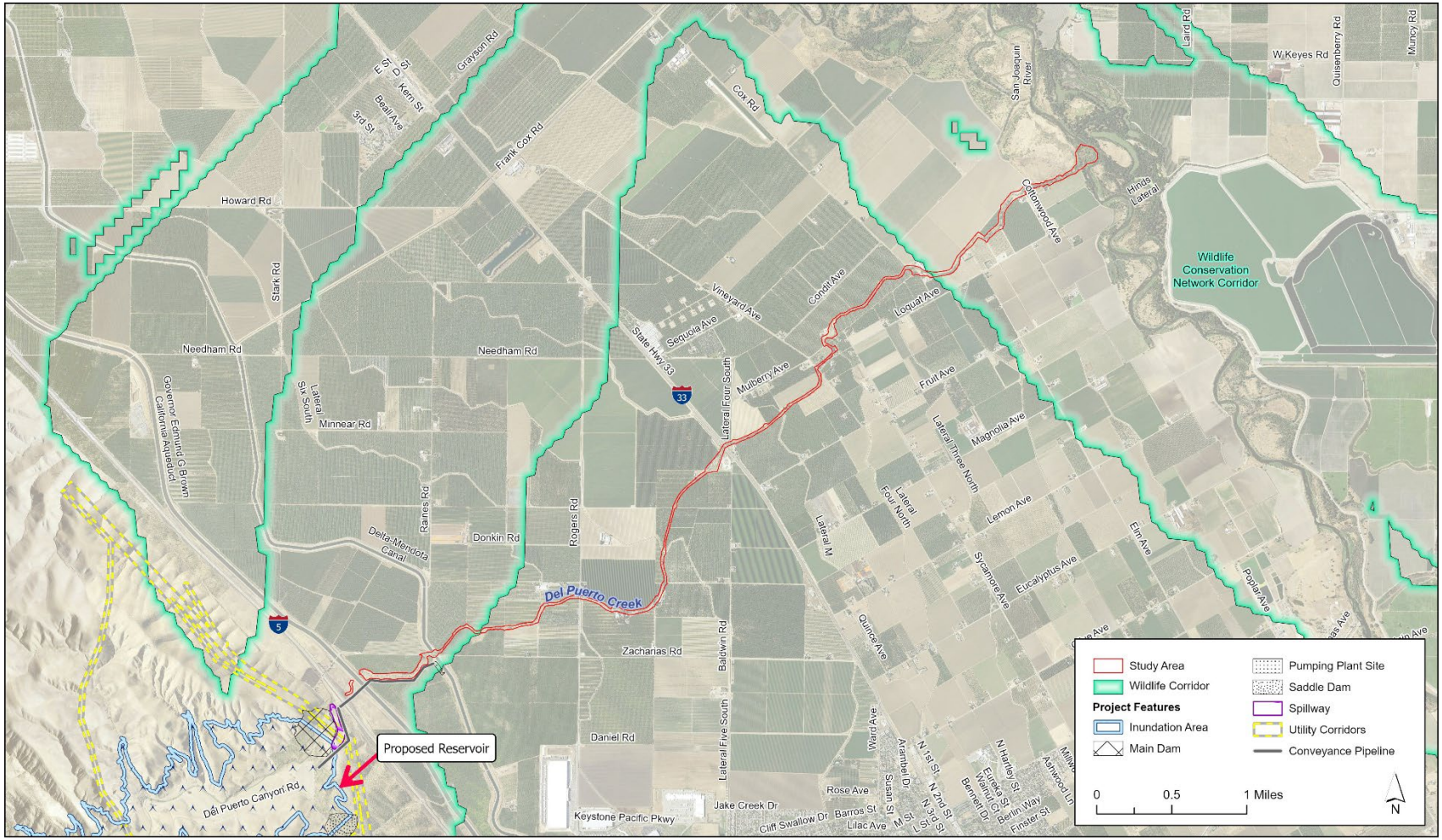
The environmental setting for wildlife corridors is presented in the Del Puerto Canyon Reservoir Project Final Environmental Impact Report (2020 Final EIR) and is incorporated by reference in this PRDEIR pursuant to CEQA Guidelines Section 15150. The 2020 Final EIR describes habitat connectivity and wildlife movement corridors along Del Puerto Creek, including areas downstream of I-5, which overlap the study area in this PRDEIR. This information from the 2020 Final EIR has been incorporated into this section to provide important context for evaluating potential impacts to terrestrial species and wildlife corridors resulting from changes in flow regimes.

Wildlife corridors are landscape features that facilitate the connectivity and movement of wildlife between two or more habitat areas (Soule and Gilpin 1991; Beier and Loe 1992). The connectivity of wildlife populations and habitats is critical for the conservation of plant and animal species; wildlife and habitat connectivity are important elements of a landscape's ecological value and function. Wildlife corridors are important because they facilitate habitat and population connectivity, species movement, seasonal migration, dispersal, genetic interchange, and access to food, shelter, and other resources. Regional-scale and local-scale corridors and habitat areas that facilitate wildlife movement and connectivity exist within the Project footprint and Project vicinity.

The area surrounding and within the study area provides an opportunity for local movement and landscape-scale connectivity for a wide variety of species, including invertebrates, reptiles, amphibians, birds, and small and medium-size mammals. The landscape features and habitats in the region provide the structure and function needed to facilitate the movement of a wide variety of species. These include riparian corridors, wetlands, grasslands, and agriculture areas.

The study area is near several regionally recognized wildlife corridors, as depicted in **Figure 3.4-5**. A corridor along the San Joaquin River overlaps both the eastern and western portions of the study area and supports riparian and upland species movement. The University of California, Davis Core Reserves and Corridors study identified approximately 57.6 acres of corridor along the downstream end of the study area as part of a regional linkage that connects conservation lands to the north and south (Huber et al. 2010; DPWD 2020).

Figure 3.4-5. Wildlife Corridors within the Study Area



In addition, according to CDFW's Areas of Conservation Emphasis (ACE) program, approximately 119.9 acres of the study area overlaps hexagons that have been ranked 1, 3, and 4 for connectivity (on a scale of 1 to 5). Approximately 23.7 percent of the study area is within an ACE Connectivity Rank of 1, indicating limited connectivity opportunity; 22 percent of the study area is within a Connectivity Rank of 3, indicating connections with implementation flexibility; and 54.2 percent of the study area is within a Connectivity Rank of 4, indicating conservation planning linkages are present. Higher connectivity values are generally found both west of I-5, and near the San Joaquin River and lower Del Puerto Creek, aligning with the wildlife corridors shown in **Figure 3.4-5**. The Bay Area and Beyond Critical Linkages and California Essential Habitat Connectivity projects do not show direct overlap; however, both identify adjacent areas as important for maintaining regional habitat connectivity. As such, habitat within the study area contributes to a broader network of ecological linkages (DPWD 2020).

Migratory Birds

Non-special-status migratory birds have the potential to nest in the study area. Although not considered special-status wildlife species, their occupied nests and eggs are protected by CFGC Sections 3503 and 3503.5 and the Migratory Bird Treaty Act.

No nesting bird surveys were conducted as part of the reconnaissance-level surveys. Bird observation records reviewed in the Cornell Lab of Ornithology's online bird observation database, eBird, indicates that at least 116 bird species have been observed in the vicinity of the study area (eBird 2025). It is assumed that migratory birds covered under the MBTA are present and use riparian vegetation, banks, and the ground for nest-building and breeding.

Non-Special-Status Roosting Bats

Roosting non-special-status bats have the potential to forage and roost in trees in the study area. CDFW typically recommends that substantial roost colonies of non-special-status bats (such as Mexican free-tailed bat) be protected from disturbance, especially during maternal roosting and hibernation.

3.4.2 Regulatory Framework

The regulatory framework is the same as presented in the 2020 Final EIR and therefore not repeated here.

3.4.3 Impact Analysis

Methodology for Analysis

This section evaluates potential indirect impacts to terrestrial biological resources located in the study area, which for this analysis is entirely downstream of the proposed Project infrastructure. The analysis has been conducted to address the specific deficiency identified by the Court of Appeal in *Sierra Club et al. v. Del Puerto Water District et al,* regarding the absence of downstream terrestrial impact analysis in the 2020 Final EIR. Accordingly, the focus is on potential changes to downstream terrestrial habitat and effects on species that could result from altered flow conditions during Project construction and operation.

The potential for significant impacts on downstream terrestrial biological resources is focused on the study area described in Section 3.4.1. This area includes the full extent of riparian and adjacent upland habitats that could be impacted by changes in flow patterns resulting from the proposed Project.

CEQA distinguishes between direct and indirect environmental impacts to ensure a comprehensive evaluation of a project's potential effects. Direct impacts are those that result immediately from the implementation of a project and are typically confined to the project footprint or immediate vicinity. These impacts are caused by project activities such as grading, excavation, vegetation removal, or construction of facilities. For example, the removal of native vegetation during site grading would directly affect habitat for wildlife species present at the time of construction.

Indirect impacts are caused by implementation of the proposed Project, but occur later in time, or at a distance from the Project site. These impacts are still reasonably foreseeable and may result from changes in environmental conditions due to the Project. For instance, a project that alters surface water flow patterns could indirectly affect downstream riparian vegetation or aquatic habitat by changing hydrologic regimes, even if no construction activities or project facilities are present in those areas.

This analysis considers whether changes resulting from Project construction or operations could result in reasonably foreseeable indirect impacts to terrestrial wildlife species or sensitive habitats within the study area. The potential for indirect effects on species downstream is evaluated with respect to changes in flow volume, timing, and hydrologic dynamics in Del Puerto Creek.

The methodology reflects the professional standards and information cited throughout this section. Identification and evaluation of impacts is based on the environmental characteristics of the study area and existing hydrologic information from the 2020 Final EIR. Focused or protocol-level surveys are not warranted for this analysis, as the reconnaissance-level survey provided sufficient coverage and data to support the impact analysis in this PRDEIR. No special-status species were detected, though in some instances potentially viable habitat conditions were identified; however, habitat conditions suggest a low likelihood of the actual presence of such species. Given the limited scope of potential impacts and the dominance of generalist species in the study area, the reconnaissance-level survey adequately characterizes biological resources and informs the impact analysis provided herein.

Species Not Evaluated Further

Although California red-legged frog and foothill yellow-legged frog were evaluated in the 2020 Final EIR, they have been excluded from the downstream terrestrial impact analysis presented here due to the absence of suitable habitat and lack of nearby occurrences. No CNDDB records for California red-legged frog exist within 5 miles of the study area; the nearest known occurrence is over 15 miles to the south (CDFW 2025). While lower Del Puerto Creek provides some potential habitat for the California red-legged frog, there are no records of occurrences from the valley floor east of I-5 in the area, or from the San Joaquin River. Habitat is considered very low quality due to lack of nearby records and breeding habitat. Upland habitat is also limited due to intensive agricultural land use.

Similarly, the foothill yellow-legged frog has only one CNDDB occurrence within 5 miles, approximately 3 miles southwest of the study area and upstream along Del Puerto Creek. Aquatic habitat (higher-order streams with relatively steep slope, rocky/cobble substrates, clear water, and sandy/gravelly pool tail-outs) is not present within the study area. Based on these factors, neither California red-legged frog nor foothill yellow-legged frog is expected to occur in the study area and neither species is discussed further.

Thresholds of Significance

This analysis relies on the language found in the sample initial study questions set forth in Appendix G of the CEQA Guidelines, as updated in December 2018, to determine whether the Project would have a significant impact on downstream terrestrial resources. In particular, an impact on terrestrial biological resources would be considered significant if the Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas) 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; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Table 3.4-2 provides a summary of the location within this document of the various species impact analysis.

In addition, Section 3.4.4 *Mandatory Findings of Significance,* includes an evaluation of whether conditions exist that would require a finding that impacts on terrestrial biological resources are significant under Public Resources Code section 21083(b) and CEQA Guidelines section 15065(a).

Table 3.4-2: Summary of Impact Discussion Locations

Impact Number and Thresholds of Significance	Sub-Impact Number	Species or Habitat Evaluated
Impact BIO-TERR-DS-1: Substantial Adverse Effect on Listed, Candidate, Sensitive, or Special-Status Species	Impact BIO-TERR-DS-1a	Special-status plants
	Impact BIO-TERR-DS-1b	Valley elderberry longhorn beetle
	Impact BIO-TERR-DS-1c	Monarch butterfly
	Impact BIO-TERR-DS-1d	Least Bell's vireo
	Impact BIO-TERR-DS-1e	Northwestern pond turtle
	Impact BIO-TERR-DS-1f	Special-status birds and nesting migratory birds, including white-tailed kite, golden eagle, and Swainson's hawk
	Impact BIO-TERR-DS-1g	San Joaquin kit fox
Impact BIO-TERR-DS-2: Substantial Adverse Effect on Riparian Habitat or Other Sensitive Natural Community	None	Riparian vegetation or sensitive natural communities
Impact BIO-TERR-DS-3: Substantial Adverse Effect on State or Federally Protected Wetlands	None	Wetlands
Impact BIO-TERR-DS-4: Interference with the Movement of Native Resident or Migratory Fish or Wildlife Species, or Established Native Resident or Migratory Wildlife Corridors, or Use of Native Wildlife Nursery Sites	None	Species identified in Impacts BIO-TERR-DS-1, 2, and 4
Impact BIO-TERR-DS-5: Conflict with Local Policies or Ordinances Protecting Biological Resources	None	Species identified in Impacts BIO-TERR-DS-1, 2, and 3
Impact BIO-TERR-DS-6: Conflict with Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other Approved Local, Regional, or State Habitat Conservation Plan	None	None
Impact BIO-TERR-DS-7: Spread of Invasive Plant Species Such that There Would Be a Substantial Effect on Special-status Species, Sensitive Communities, or Wetlands	None	Species identified in Impacts BIO-TERR-DS-1, 2, and 3

Impact BIO-TERR-DS-1: Substantial Adverse Effect on Listed, Candidate, Sensitive, or Special-Status Species on Del Puerto Creek Downstream of Delta-Mendota Canal

Impact BIO-TERR-DS-1a: Impacts on Special-Status Plants and Their Habitats

Construction and Operation Impacts

Special-status plant species potentially present downstream of the proposed Project are primarily associated with riparian corridors, grasslands, and adjacent upland habitats. The following four species have been observed or documented in the grassland habitat within the Project footprint west of I-5. Big tarplant grows in open grasslands and is sensitive to competition from invasive species and habitat fragmentation (CNPS 2025a). San Benito poppy grows in grassland slopes, oak woodlands, and chaparral habitats, favoring open, sunlit areas with well-drained soils (CNPS 2025b). Diamond-petaled California poppy is found in grasslands and requires alkaline and clay soils that are also well-drained (CNPS 2025c). Lemmon's jewelflower occurs in grasslands and open woodlands, where it depends on minimal canopy cover and seasonal rainfall for germination and flowering (CNPS 2025d). In addition, another special-status plant, California alkali grass, was observed in wetland habitat within the proposed Project site upstream of the study area.

The proposed Project would not result in direct temporary construction-related impacts in the study area because construction activities would not occur, and no land cover would be converted downstream of the Project footprint. Hazardous materials and chemicals that may be used during construction, such as gasoline, engine oil, lubricants, and other fluids, have the potential to indirectly impact downstream terrestrial species through accidental spills, leaks, or surface runoff. While aquatic plant species are highly sensitive to chemical contamination, terrestrial plant species are generally less vulnerable to chemical contamination than aquatic plants due to limited exposure pathways. Unlike aquatic plants, which can be directly immersed in contaminated water, terrestrial plants primarily encounter contaminants through soil and occasional surface water contact. Natural processes in soil, such as infiltration, dispersion, and degradation, can reduce the bioavailability and toxicity of contaminants before they reach terrestrial plant species (Alori et al. 2022). With implementation of standard construction best management practices (BMPs) and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), construction impacts on special-status plants or their habitat would be less than significant.

Operation of the proposed Project would primarily involve the managed release of water from the reservoir and maintenance activities within the Project facilities, including debris removal, dredging, vegetation and erosion control, structural inspections, and occasional intensive procedures like dewatering and mechanical excavation. These maintenance activities would not occur in the study area.

Implementation of the proposed Project would alter the volume and timing of flows in lower Del Puerto Creek downstream of the proposed dam, as runoff from the creek would be captured and stored in the reservoir. By regulating stormwater runoff and diverting a portion of Del Puerto Creek's natural flow, reservoir operations would reduce unregulated rainy season flows (generally October 15 – March 31) and alter the seasonal flow regime below the dam. However, two key factors limit the extent to which these reduced flows are expected to adversely affect terrestrial species that rely directly or indirectly on creek flows.

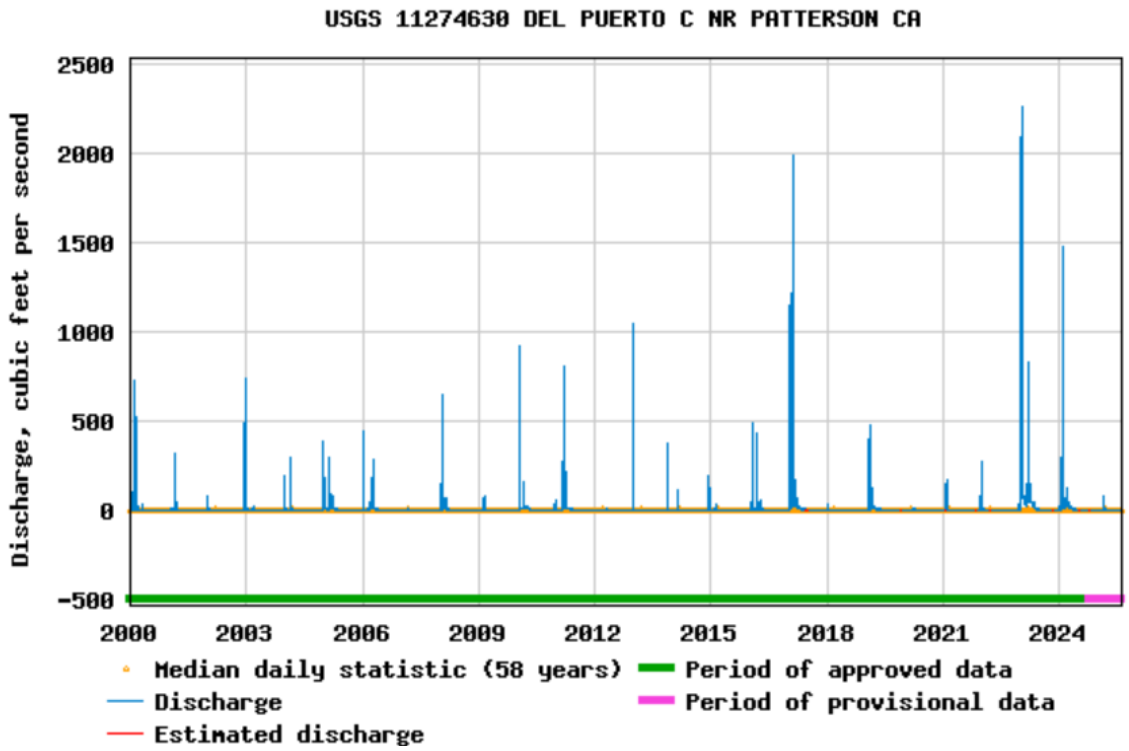
The first factor is the existing degraded baseline condition of the lands along and adjacent to the creek. East of the proposed reservoir, lower Del Puerto Creek has been heavily impacted by intensive agricultural activities that have occurred for many decades. These historical and present disturbances have led to channel simplification, agricultural runoff, a proliferation of noxious/invasive plants, and degraded water quality.

The second factor is the existence of dry season flows (generally April 1 – October 14) in lower Del Puerto Creek that are supported by irrigation return flows from agricultural land uses surrounding the

study area, which discharge to all portions of the creek in the study area from I-5 east to the San Joaquin River. Flows in Del Puerto Creek east of I-5 are also supported by operational spills from WSID, which estimates that it discharges about 2 cfs of water from March through November with spills occurring at Rogers Road (about 1.5 miles east of I-5) and other areas downstream along Del Puerto Creek.

Streamflow data from four locations, including a USGS stream gauge, were quantified to estimate existing flows in lower Del Puerto Creek. The USGS stream gauge west of I-5 shows that during the rainy season (generally October 15 – March 31), flows in Del Puerto Creek are generally present and variable, as depicted in **Figure 3.4-6**. In contrast, during the dry season (generally April 1 – October 14), flows are much lower or even absent at this location. Locations where streamflow were estimated are provided in **Figure 3.4-7.** Additional stream flow data is presented in Appendix D, *Estimated Streamflow in Lower Del Puerto Creek.*

Figure 3.4-6: Del Puerto Creek Flows 2000 to 2025 (cfs)



Source: USGS National Water Information System

Stream flow data from locations where flows are estimated downstream indicate a steady supply of streamflow during the dry season (generally April 1 – October 14), even when the upstream USGS gaging station is recording little to no flow. In many years, natural flows fall below 500 cfs, and in extremely dry years, flows entering lower Del Puerto Creek may not exceed 20 cfs, as depicted in **Figure 3.4-8**. Median flows over the past 58 years are under 10 cfs, as indicated by the yellow points in both **Figure 3.4-6** and **Figure 3.4-8.**

Figure 3.4-7. Stream Gauge Locations of Measured and Estimated Return Flows

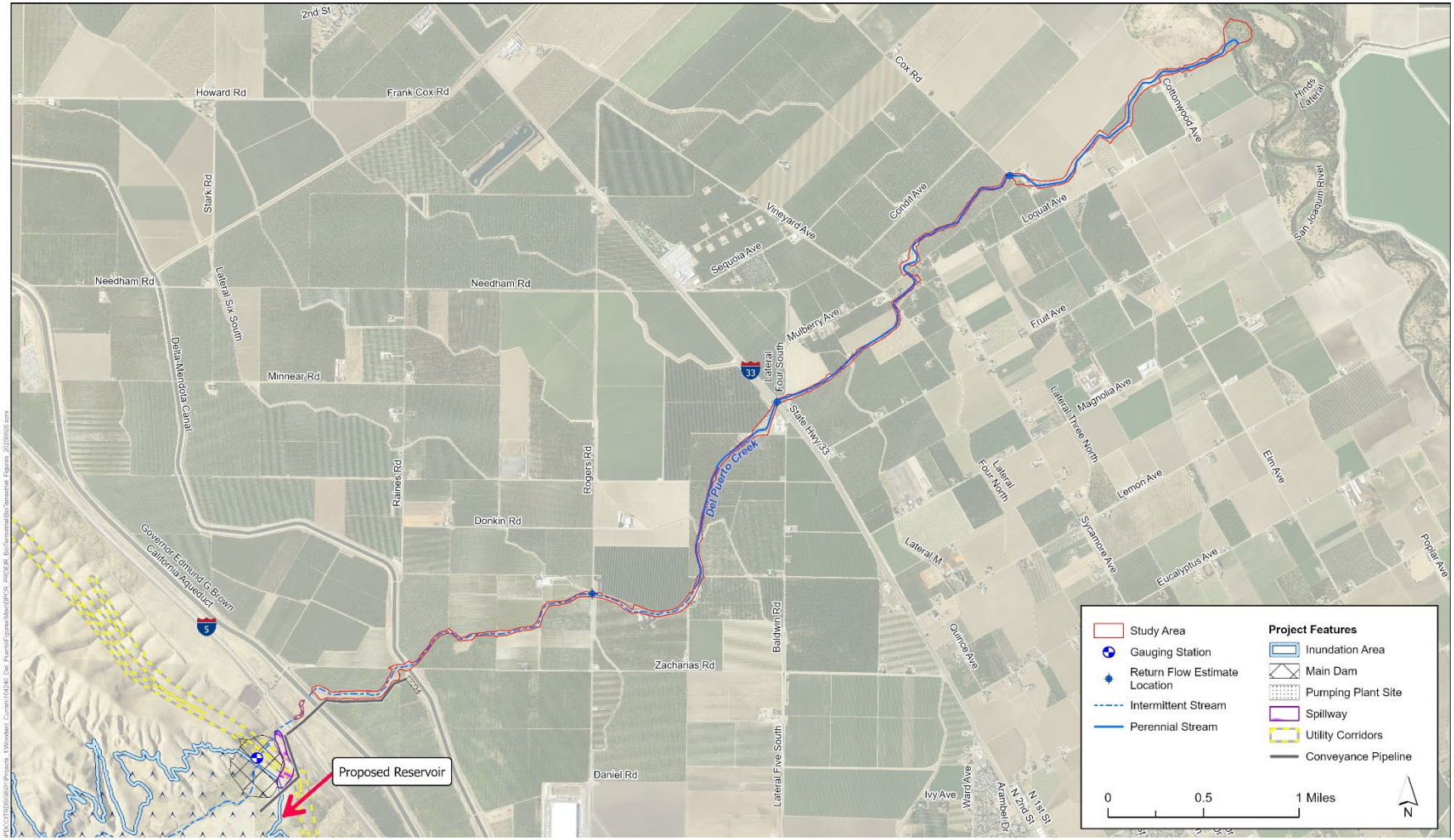
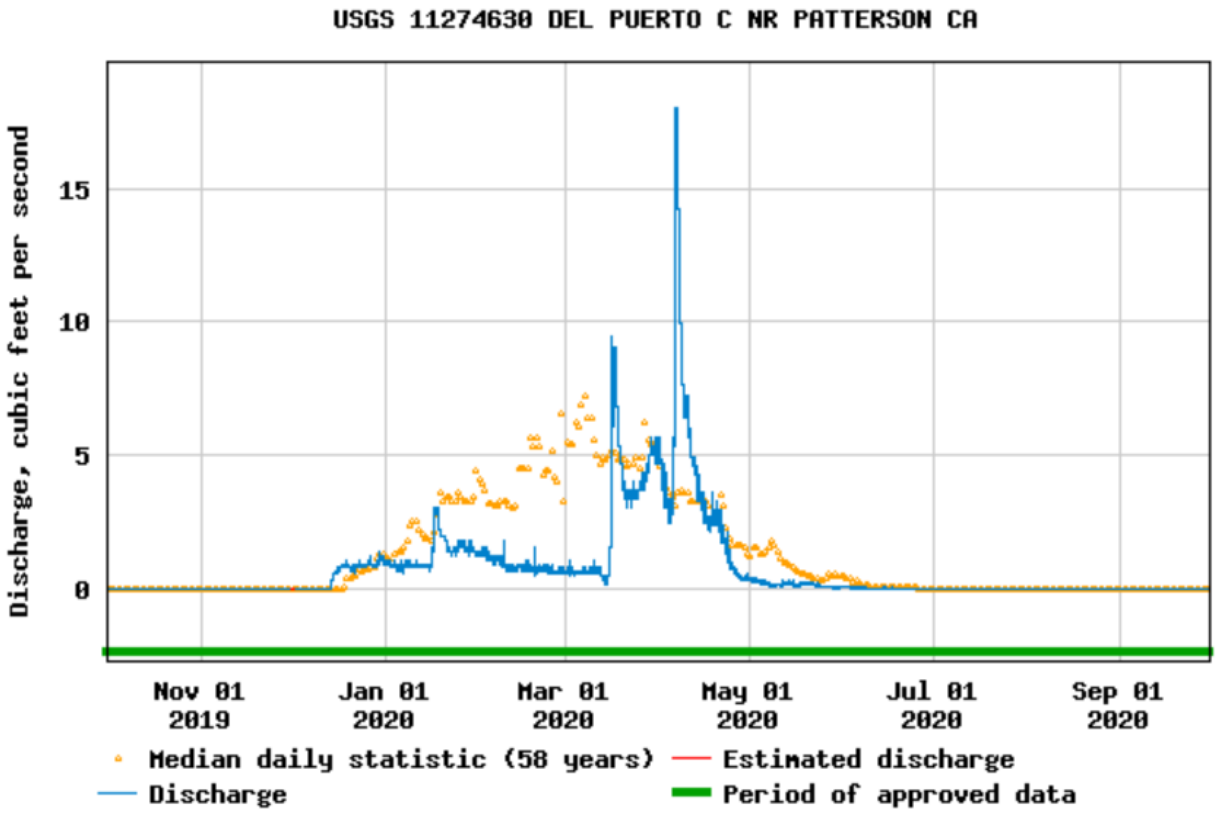


Figure 3.4-8: Del Puerto Creek Flows 2019-2020 Water Year (cfs)



These data indicate that streamflow in lower Del Puerto Creek east of I-5 no longer follows natural seasonal patterns and that irrigation return flows, which are provided by the agricultural land uses surrounding the study area and are augmented by WSID operational spills, maintain creek flow during dry periods. These irrigation return flows supplement the natural runoff from rainfall that would normally flow down the creek. During certain times of the year, these irrigation return flows and operational spills are the only source of water in some portions of the creek. Overall, the streamflow patterns in lower Del Puerto Creek show that it is often hydrologically disconnected from upstream portions of the creek. As such, changes in flows as a result of the proposed Project are not expected to materially impact flows in lower Del Puerto Creek, particularly during the dry season when upstream contributions to flows downstream are minimal or absent.

In addition, the Project includes environmental flow commitments designed to preserve the timing and relative magnitude of major flow events in Del Puerto Creek. Under the proposed Project, for each natural flow event in Del Puerto Creek exceeding 500 cfs, water would be released in a pattern that mimics the natural flow regime. These environmental flow commitments follow the “functional flow” approach, which is designed to replicate the key characteristics of the natural flow regime that drive important geomorphic and ecological processes that support native species (Marineau et al. 2017).

Studies have shown that maintaining the key characteristics of the natural flow regime is essential for sustaining riparian plant diversity and recruitment (Poff et al. 1997; Richter et al. 2006). Key characteristics preserved under the natural flow regime include peak flows and base flows, which help maintain sediment transport, recharge groundwater, and support riparian vegetation (Yarnell, et al. 2015).

Plant species in this region are also adapted to these intermittent hydrologic conditions and rely primarily on subsurface moisture, seasonal groundwater recharge, and residual soil moisture to survive (Stromberg et al., 1996; Griggs, 2009). As such, these return flows are expected to maintain the habitat quality and the specific hydrologic and geomorphic conditions necessary for preservation of special-status plant species in the study area. For instance, irrigation return flows from nearby agricultural land uses would maintain soil moisture levels critical for maintaining suitable habitat for diamond-petaled California poppy, San Benito poppy, and Lemmon's jewelflower. In addition, by maintaining natural sediment dynamics and potentially reducing accumulations of sediment laden with pesticides and other contaminants, Project operations may indirectly reduce the spread of invasive species, which would result in favorable conditions for big tarplant.

Given the preservation of the natural flow regime in the study area by the Project's environmental flow commitments, as well as the preservation of irrigation return flows provided by surrounding agricultural land uses augmented by WSID operational spills, impacts to special-status plant species and their habitats are expected to be minimal under Project operations, despite reductions in the overall volume of flows during the rainy season. No measurable change in the extent or quality of habitat for special-status plant species is anticipated. Therefore, impacts would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not affect special-status plant species downstream because construction would not occur in the study area and the existing land cover would remain unchanged. Standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Construction impacts would be less than significant.

In addition, the proposed Project would include environmental commitments to mimic natural flow patterns in lower Del Puerto Creek and irrigation return flows and operational spills would be unchanged and would continue to support special-status plant species. Therefore, impacts on special-status plant species that occur downstream of the proposed Project are not anticipated. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-1b: Impacts on Valley Elderberry Longhorn Beetle

Construction and Operation Impacts

Elderberry shrubs, the host plant for the valley elderberry longhorn beetle, were documented in the study area during reconnaissance-level surveys conducted in July 2025 and a formal protocol-level survey in September 2025. A total of twelve elderberry shrubs were identified within the study area. All of these shrubs contained stems greater than 1 inch in diameter, which indicates the potential for valley elderberry longhorn beetle presence per USFWS guidance (USFWS 2017). A total of five exit holes were documented on these shrubs. The presence of suitable habitat indicates that there is a potential for valley elderberry longhorn beetle occurrence in the study area.

As discussed previously, no construction would occur in the study area, and no land cover would be converted. Therefore, no direct impacts to valley elderberry longhorn beetle habitat would occur during Project construction. While aquatic species are highly sensitive to chemical contamination due to their direct exposure to contaminants, terrestrial species are generally less vulnerable to these substances. This is because exposure pathways for terrestrial plant species, such as contact with contaminated soil, are limited. In addition, natural processes such as infiltration, dispersion, and degradation in soil can reduce the bioavailability and toxicity of contaminants before they reach terrestrial habitats and species (Alori et

al. 2022). As such, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), indirect impacts to downstream terrestrial species during upstream construction activities would be minimized; therefore, potential impacts on valley elderberry longhorn beetle during construction would be less than significant.

Elderberry shrubs, like other native riparian species, are adapted to the intermittent flow conditions of Del Puerto Creek and primarily rely on seasonal moisture availability rather than continuous surface water. During Project operation, as discussed in further detail under Impact BIO-TERR-DS-1a, during the dry season (generally April 1 – October 14), lower Del Puerto Creek primarily receives inflows from irrigation runoff that is provided by the agricultural lands surrounding the creek (see **Figure 3.4-7**). These irrigation return flows would remain unchanged under the proposed Project. The Project would also implement environmental commitments, which are designed to replicate the timing, relative magnitude, duration, and variability of the existing unregulated rainy season flows (generally October 15 – March 31) in the study area. The Project's environmental flow commitments, as well as irrigation return flows and operational spills, are expected to maintain the habitat quality and the specific hydrologic and geomorphic conditions, such as soil moisture, sediment transport, and channel structure that support native riparian species (Yarnell et al., 2015; Marineau et al., 2017). Therefore, potential impacts on valley elderberry longhorn beetle or its habitat during Project operation would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact potential valley elderberry longhorn beetle habitat in the study area because construction activities would not occur in the study area. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Thus, construction impacts would be less than significant.

Operation of the proposed Project includes environmental commitments to maintain natural flow patterns in Del Puerto Creek, which would continue to support riparian habitats associated with elderberry shrubs and, therefore, valley elderberry longhorn beetle. In addition, irrigation return flows and operational spills, which provide a consistent source of inflow to the creek, are expected to remain unchanged under the proposed Project. Thus, impacts on the valley elderberry longhorn beetle or its potential habitat would be less than significant.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-1c: Impacts on Monarch Butterfly

Construction and Operation Impacts

Monarch butterflies require milkweed for breeding and a variety of nectar-producing plants for foraging and migration. Milkweed is not shade tolerant and typically grows in open areas. The study area provides limited areas of open grasslands and scattered riparian shrubs, which may provide stopover or foraging habitat during monarch butterfly migration. Although individual monarchs have been observed near the study area during migration, no milkweeds have been observed. The limited floral resources suggest the area does not support breeding and offers only minimal, temporary value as a migratory corridor.

As discussed previously, no construction would occur in the study area, and no land cover would be converted. Therefore, no direct impacts to monarch butterfly habitat would occur during Project construction. In addition, as discussed in further detail under Impact BIO-TERR-DS-1a, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to

downstream terrestrial species during upstream construction activities would be minimized; therefore, impacts on monarch butterfly during construction would be less than significant.

While downstream flows would be reduced during Project operation, as discussed in further detail under Impact BIO-TERR-DS-1a, surface flows in lower Del Puerto Creek during the dry season (generally April 1 – October 14) are provided primarily by irrigation season runoff from surrounding agricultural land uses augmented by WSID operational spills. Nonetheless, the Project would implement environmental flow commitments designed to preserve the timing and relative magnitude of major flow events to replicate key hydrologic characteristics that support native species. Species in this region have likely become adapted to these intermittent hydrologic conditions and rely primarily on soil moisture, sediment transport, and channel structure. As such, the combined effect of the Project's environmental commitments and irrigation return flows and operational spills would maintain existing habitat (e.g., potential monarch butterfly migration habitat) within the study area during Project operation.

Given the absence of construction activities in the study area, implementation of the Project's environmental commitments, which are intended to maintain existing hydrologic patterns, and maintenance of irrigation inputs and operational spills in lower Del Puerto Creek that will preserve streamflow in the dry season (generally April 1 – October 14), habitats in the study area that function as potential migratory corridors for the monarch butterfly would be preserved. Therefore, impacts due to Project operations would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not affect potential monarch butterfly habitat downstream because construction would not occur downstream and existing land cover would remain unchanged. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Construction impacts would be less than significant.

The proposed Project includes environmental commitments to maintain natural flow patterns in Del Puerto Creek. In addition, irrigation return flows and operational spills, which provide a source of inflow to the creek during the dry season (generally April 1 – October 14), are expected to remain unchanged under the proposed Project. These flows would maintain existing habitat in the study area and preserve the study area's function as a potential migratory corridor for the monarch butterfly. Impacts on monarch butterfly or its potential migratory habitat would be less than significant.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-1d: Impacts on Least Bell's Vireo

Construction and Operation Impacts

The study area lies within the historic range of the least Bell's vireo, but there are no known occurrences of least Bell's vireo in the study area. Most of the study area lacks the dense riparian vegetation required by the species, although oak riparian habitat with a dense understory of willow does occur near the confluence of Del Puerto Creek and the San Joaquin River. The existing riparian habitat in the study area is limited due to intensive agriculture and degraded water quality. As such, least Bell's vireo is highly unlikely to occur in the study area.

In addition, as discussed in further detail under Impact BIO-TERR-DS-1a, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to downstream terrestrial species during upstream construction activities would be minimized; therefore, impacts on least Bell's vireo during construction would be less than significant.

Project operations would result in changes to flows in lower Del Puerto Creek, which may result in indirect impacts to riparian habitat that is suitable for least Bell's vireo. However, as discussed in further detail under Impact BIO-TERR-DS-1a, the minimal changes in hydrological conditions associated with Project operations are unlikely to produce a measurable change in quantity or quality of potential least Bell's vireo habitat. Even if potential breeding habitat were impacted by changes in hydrology in lower Del Puerto Creek, these changes would not result in harm to individual least Bell's vireos due to the limited suitable habitat in the study area.

Native riparian species, which provide potential habitat for least Bell's vireo, are adapted to the intermittent flow conditions of Del Puerto Creek and primarily rely on seasonal moisture availability rather than continuous surface water. The Project's environmental flow commitments are designed to sustain the ecological conditions necessary to support these riparian communities. In addition, irrigation return flows and operational spills, which provide a consistent source of inflow to the creek, are expected to remain unchanged under the proposed Project. Finally, the limited suitable habitat that does exist in the study area for the least Bell's vireo is concentrated near the confluence of the San Joaquin River, where habitat is supported by river flows, which will continue its flow regimes irrespective of the proposed Project. Therefore, impacts to potential least Bell's vireo habitat during Project operation would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact least Bell's vireo habitat in the study area because no construction is planned in the study area, and no land cover would be altered. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Construction impacts would be less than significant.

Although the study area lies within the historic range of the least Bell's vireo, the species has not been observed nesting in the region in recent years. The study area provides limited suitable habitat for the least Bell's vireo. Given the lack of recent observations and the marginal habitat, the species is unlikely to occur in the study area. If least Bell's vireo was to occur in the study area in the future, the Project's environmental commitments would ensure that major flow events in lower Del Puerto Creek continue to be released downstream in the rainy season. Irrigation return flows and operational spills, which maintain flows in Del Puerto Creek in the dry season (generally April 1 – October 14), would not be reduced. As a result, impacts to potential least Bell's vireo habitat during Project operation would be less than significant.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-1e: Impacts on Northwestern Pond Turtle

Construction and Operation Impacts

The northwestern pond turtle has potential to occur in lower Del Puerto Creek. Suitable aquatic habitat for northwestern pond turtle is present in the eastern portion of the study area, where lower Del Puerto Creek experiences more consistent flows due to accumulation of inflows from irrigation runoff throughout the study area during the irrigation season and the year-round hydrologic connectivity with the San Joaquin River. This portion of the study area may also receive individuals from nearby populations of northwestern pond turtle in the San Joaquin River. Most soils beyond the top of bank are deeply compacted, which limits the availability of upland nesting sites for northwestern pond turtle.

As discussed in further detail under Impact BIO-TERR-DS-1a, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to downstream terrestrial

species during upstream construction activities would be minimized; therefore, impacts on northwestern pond turtle during construction would be less than significant.

Project operation would alter flow patterns in Del Puerto Creek, which may result in indirect impacts to aquatic habitat that is suitable for northwestern pond turtle. However, as discussed in further detail under Impact BIO-TERR-DS-1a, the minimal changes in hydrological conditions associated with Project operations are unlikely to produce a measurable change in quantity or quality as the suitable habitat for the northwestern pond turtle, which is concentrated in the eastern portion of the study area that receives agricultural return flows. In addition, the Project would implement environmental flow commitments designed to mimic the natural flow regime, which would preserve the timing and relative magnitude of major flow events to replicate the key hydrologic characteristics that support aquatic habitat for the northwestern pond turtle.

As such, any changes in hydrological conditions are unlikely to produce a measurable change in the quantity or quality of potential aquatic habitat for the northwestern pond turtle. Impacts due to Project operation would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact northwestern pond turtle habitat in the study area because no construction is planned in the study area, and no land cover would be altered. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Construction impacts would be less than significant.

Project operation would result in changes to flows in Del Puerto Creek; however, the Project's environmental flow commitments and continued irrigation return flows and operational spills are expected to maintain suitable aquatic habitat in the study area. Because upland nesting habitat is already limited due to compacted soils from long-term agricultural use, and hydrologic changes would be minimal in the study area, impacts to the northwestern pond turtle would be less than significant, and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-1f: Impacts on Special-Status Birds and Nesting Migratory Birds

Construction and Operation Impacts

Riparian communities that are present in the study area provide nesting and foraging habitats for many bird species, as these areas offer vegetation for cover and nesting, as well as access to water and abundant prey. As discussed in further detail under Impact BIO-TERR-DS-1a, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to downstream terrestrial species during upstream construction activities would be minimized; therefore, impacts on nesting or foraging habitat for special-status bird species during construction would be less than significant.

During Project operations, as discussed in further detail under Impact BIO-TERR-DS-1a, continued irrigation runoff and operational spills during the dry season (generally April 1 – October 14) is expected to support existing habitat conditions in the entire study area in lower Del Puerto Creek. In addition, with implementation of the Project's environmental commitments, downstream flows would mimic the existing flow regime to preserve the timing and relative magnitude of major flow events to replicate the key hydrologic characteristics that support native species.

The quality of nesting habitat for many birds remains limited due to the narrow, fragmented nature of the riparian corridor and the impacts of intensive agricultural activity in surrounding areas. Additionally, changes to flows in Del Puerto Creek are not expected to impact suitable foraging habitat for raptors in

nearby agricultural fields, as these areas are either dry-farmed or irrigated using water sources that are independent of Del Puerto Creek. Therefore, impacts on special-status bird species and their habitat due to Project operation would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact special-status birds or nesting migratory bird habitat in the study area because no construction is planned in the study area, no land cover would be altered, and no trees would be removed. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Construction impacts would be less than significant.

Project operations would result in changes to flows in Del Puerto Creek; however, the Project's environmental flow commitments and continued agricultural runoff are expected to maintain suitable nesting and foraging habitat for special-status birds and nesting migratory birds in the study area. Downstream flows during Project operation, combined with continued irrigation runoff and operational spills during the dry season (generally April 1 – October 14), are expected to continue to support existing nesting habitat in the study area. Surrounding agriculture provides foraging habitat, which would be unchanged as a result of the Project. Impacts on special-status birds and their habitat due to Project operations would be less than significant, and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-1g: Impacts on San Joaquin Kit Fox

Construction and Operation Impacts

San Joaquin kit fox typically inhabits arid grasslands, scrublands, and open habitats with loose, friable soils that are suitable for denning (Cypher et al. 2007). It is currently unknown where and how frequently San Joaquin kit fox disperses through the study area. Considering the habitat suitability data and the potential for suitable habitat in the study area, additional movement corridors for San Joaquin kit fox are along I-5 and California Aqueduct corridors (Cypher et al. 2013).

While San Joaquin kit fox does not depend on surface water or riparian vegetation in the same way as reptiles or nesting birds, lower Del Puerto Creek can still serve as a movement or dispersal pathway. Generally, kit fox corridors often contain sparsely vegetated, relatively undisturbed terrain, which the kit fox prefers for traveling between habitat patches. Although much of the kit fox's historical range has been fragmented or degraded by agricultural development, urbanization, and infrastructure expansion, the stream channel and adjacent agricultural lands in the study area can still provide dispersal and even denning opportunities if certain habitat conditions are met.

No construction would occur in the study area, and no land cover would be converted. Therefore, no direct impacts on San Joaquin kit fox would occur during Project construction. As discussed in further detail under Impact BIO-TERR-DS-1a, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to terrestrial species during construction activities would be minimized; therefore, impacts on San Joaquin kit fox habitat during construction would be less than significant.

During Project operations, as discussed in further detail under Impact BIO-TERR-DS-1a, continued irrigation runoff and operational spills during the dry season (generally April 1 – October 14) is expected to support existing habitat conditions in the study area. In addition, with implementation of the Project's environmental commitments, downstream flows would mimic the natural flow regime. Changes to flows in lower Del Puerto Creek are not expected to impact movement or dispersal pathways for San Joaquin kit fox in nearby agricultural fields, as these areas are either dry-farmed or irrigated using water sources that

are independent of Del Puerto Creek. Therefore, impacts on San Joaquin kit fox due to Project operation would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact movement or dispersal pathways for San Joaquin kit fox in the study area because no construction is planned in the study area, and no land cover would be altered. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected species in the study area during upstream construction activities. Thus, construction impacts would be less than significant.

Project operation may result in changes to flows in lower Del Puerto Creek; however, the Project's environmental flow commitments and continued irrigation runoff and operational spills are expected to maintain existing movement or dispersal pathways for San Joaquin kit fox in the study area or the surrounding area. Reductions in the overall volume of water released by the Project into lower Del Puerto Creek should not affect the mobility of the fox or its ability to forage within the study area. Therefore, impacts on San Joaquin kit fox during Project operations would be less than significant, and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-2: Substantial Adverse Effect on Riparian Habitat or Other Sensitive Natural Community along Del Puerto Creek Downstream of DMC

Construction and Operation Impacts

As discussed previously, no construction would occur in the study area, and no land cover would be converted. In addition, as discussed above under Impact BIO-TERR-DS-1b, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to downstream terrestrial species during upstream construction activities would be minimized; therefore, impacts on riparian habitats or other sensitive natural communities in the study area would be less than significant.

As shown in **Table 3.4-1**, there are approximately 10.41 acres of intermittent stream, 16.47 acres of riparian woodland, 15.77 acres of riparian wetland, and 0.02 acre of seasonal wetlands in the variable-width buffer within the lower Del Puerto Creek study area, where flows are primarily due to irrigation return flows and operational spills or the influence of the San Joaquin River. These habitat types comprise the existing riparian communities and other sensitive natural communities in the study area. While riparian habitats and other sensitive natural communities do exist in the study area, the study area has been heavily modified by intensive agricultural activities. It currently supports only limited riparian habitat and other sensitive natural communities.

As discussed in further detail under Impact BIO-TERR-DS-1a, although dam and reservoir operations under the proposed Project could influence the volume and timing of downstream flows to Del Puerto Creek, flows in lower Del Puerto Creek are primarily maintained by irrigation return flows and operational spills, which would remain unchanged under the proposed Project. In addition, the Project includes environmental flow commitments designed to preserve the timing and relative magnitude of major flow events in Del Puerto Creek to replicate the key characteristics of the natural flow regime that drive important geomorphic and ecological processes that support native species (Marineau et al. 2017). As such, irrigation return flows, operational spills, and the Project's environmental commitments would continue to maintain riparian habitats in lower Del Puerto Creek.

In addition, as discussed previously, plant species in this region are also adapted to these intermittent hydrologic conditions and rely primarily on subsurface moisture, seasonal groundwater recharge, and residual soil moisture to survive (Stromberg et al., 1996; Griggs, 2009). This includes the riparian plant

species and communities in the study area that have become adapted to the region's naturally variable flow patterns, including the extended dry seasons. By preserving the existing flow dynamics, the proposed Project would maintain the physical and ecological processes that currently support riparian habitat and other sensitive natural communities in the study area. Impacts on riparian habitat or other sensitive natural communities would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact riparian habitats and other sensitive natural communities in the study area because no construction is planned in the study area, and no land cover would be altered. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected habitats in the study area during upstream construction activities. Construction impacts would be less than significant.

Project operations would result in changes to flows in Del Puerto Creek; however, the Project's environmental flow commitments and continued irrigation runoff and operational spills are expected to maintain the structure and function of riparian habitats and other sensitive natural communities in the study area. Downstream flows during Project operation, combined with continued agricultural runoff during the dry season (generally April 1 – October 14), are expected to continue to support these habitats. Therefore, impacts on riparian habitats and other sensitive natural communities during Project operation would be less than significant, and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-3: Substantial Adverse Effect on State or Federally Protected Wetlands on Del Puerto Creek Downstream of DMC

Construction and Operation Impacts

No construction would occur in the study area, and no land cover would be converted. In addition, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts during construction activities would be minimized; therefore, impacts on state or federally protected wetlands in the study area would be less than significant.

As discussed previously and shown in **Table 3.4-1**, there are approximately 10.41 acres of intermittent stream, 16.47 acres of riparian woodland, 15.77 acres of riparian wetland, and 0.02 acre of seasonal wetlands in the study area. These habitat types comprise the potential state or federally protected wetlands in the study area, and all are east of I-5 in the portions of the study area that receive agricultural return flows and operational spills. These acreages are preliminary because the study area has not been subject to a formal wetland delineation with jurisdictional review by the USACE; however, the conclusions of the analysis would still apply, as they are based on conservative assumptions regarding the presence and protection of wetland resources.

While the proposed Project would reduce overall flow volumes in the study area, scientific research indicates that wetland health is more strongly influenced by the frequency and duration of inundation, such as seasonal or periodic flooding, than by the total annual volume of water flow (EPA 2008). As discussed in further detail under Impact BIO-TERR-DS-1a, flows in lower Del Puerto Creek are primarily maintained by irrigation return flows and operational spills that would remain unchanged under the proposed Project. Nonetheless, the Project would also implement environmental commitments that follow the "functional flow" approach, which are designed to replicate the key characteristics of the natural flow regime that drive important geomorphic and ecological processes that support native species (Marineau et al. 2017). These flows are intended to preserve key hydrologic processes that support wetland habitats, including sediment transport, soil moisture retention, and vegetation recruitment.

By preserving these flow dynamics, Project operations are not expected to reduce the extent or quality of existing protected wetlands. As such, impacts on state or federally protected wetlands would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction of the proposed Project would not impact state or federally protected wetlands in the study area because no construction is planned in the study area, and no land cover would be altered. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream protected wetlands in the study area during upstream construction activities. Construction impacts would be less than significant.

Project operations would result in changes to flows in lower Del Puerto Creek; however, the Project's environmental flow commitments and continued irrigation runoff and operational spills are expected to maintain the structure and function of state or federally protected wetlands in the study area. Downstream flows during Project operation, combined with continued agricultural runoff during the dry season (generally April 1 – October 14), are expected to continue to support these habitats. Therefore, impacts on state or federally protected wetlands during Project operation would be less than significant, and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-4: Interference with the Movement of Native Resident or Migratory Wildlife Species, or Established Native Resident or Migratory Wildlife Corridors, or Use of Native Wildlife Nursery Sites on Del Puerto Creek Downstream of DMC

Construction and Operation Impacts

No construction would occur in the study area, and no land cover would be converted. In addition, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts during construction activities would be minimized; therefore, impacts on terrestrial wildlife movement would be less than significant.

Changes in flow dynamics can influence terrestrial wildlife movement by altering the availability and quality of habitat corridors, potentially increasing their exposure to edge effects or human-related disturbances. For species that rely on riparian habitats for movement or dispersal, such as the San Joaquin kit fox and other terrestrial species, maintaining natural hydrologic conditions is essential for preserving connectivity between habitat patches.

As discussed in further detail under Impact BIO-TERR-DS-1a, although dam and reservoir operations under the proposed Project could influence the volume and timing of downstream flows to Del Puerto Creek, flows in the entirety of lower Del Puerto Creek are primarily maintained by irrigation return flows and operational spills that would remain unchanged under the proposed Project. Nonetheless, the Project would also implement environmental commitments that are designed to replicate the timing, relative magnitude, duration, and variability of the existing unregulated rainy season flows (generally October 15 – March 31) in the study area. By preserving flow dynamics, existing habitat conditions and specific hydrologic and geomorphic conditions would be maintained with little or no alteration, and reductions in flow volume would have minimal impacts on existing wildlife corridors and native wildlife nursery sites.

In addition, the existing landscape in the study area is fragmented and agriculturally dominated, which inherently limits habitat connectivity. By avoiding further disruption to the natural flow regime, Project operations would not exacerbate or worsen existing fragmentation. Therefore, impacts on wildlife corridors or native wildlife nursery sites during Project operation would be less than significant, and no mitigation is required.

Significance before Mitigation

Construction of the proposed Project would not impact terrestrial wildlife movement in the study area because no construction is planned in the study area, and no land cover would be altered. In addition, standard construction BMPs and pollution prevention measures would be implemented to minimize indirect impacts to downstream wildlife corridors and native wildlife nursery sites in the study area during upstream construction activities. Construction impacts would be less than significant.

Project operation may result in changes to flow volumes in Del Puerto Creek; however, the Project's environmental flow commitments and continued irrigation runoff and operational spills are expected to maintain the structure and function of wildlife corridors and native wildlife nursery sites in the study area. Therefore, impacts on wildlife movement, native wildlife nursery sites, or wildlife corridors in the study area during Project operation would be less than significant, and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Impact BIO-TERR-DS-5: Conflict with Local Policies or Ordinances Protecting Biological Resources on Del Puerto Creek Downstream of DMC

Construction and Operation Impacts

The Stanislaus County General Plan contains several policies regarding the protection of sensitive biological resources. Policy 2 of the Stanislaus County General Plan, Conservation/Open Space Element, requires mitigation measures for impacts on sensitive species and habitats, such as riparian habitats (Stanislaus County 2016). Seasonal wetlands, riparian habitats, and sensitive species are present in the study area; however, as discussed throughout this section, the proposed Project would have less-than-significant impacts to terrestrial biological resources related to reduced flows in the study area. Because the proposed Project's effects in the study area would avoid conflicts with the goals of the Stanislaus County General Plan, impacts would be less than significant, and no mitigation would be required.

Significance before Mitigation

The Stanislaus County General Plan includes policies to protect sensitive biological resources. It requires mitigation for impacts on sensitive species and habitats. Although seasonal wetlands, riparian habitats, and sensitive species are present in the study area, the proposed Project would result in less-than-significant impacts on these resources. Therefore, the proposed Project's effects in the study area would not conflict with local policies or ordinances protecting biological resources. Impacts would be less than significant, and no mitigation would be required.

Mitigation Measure

No mitigation measures are required.

Impact BIO-TERR-DS-6: Conflict with Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other Approved Local, Regional, or State Habitat Conservation Plan

Construction and Operation Impacts

The study area is within the plan area for the Pacific Gas and Electric (PG&E) San Joaquin Operation and Maintenance Habitat Conservation Plan (PG&E HCP) (Jones & Stokes 2006). The PG&E HCP, however, applies only to PG&E's utility-related maintenance and minor construction activities; it does not authorize or apply to activities associated with the proposed Project. The study area does not fall within the boundaries of any natural community conservation plan (NCCP) or other approved local, regional, or state HCP that would apply to the proposed Project. Accordingly, implementation of the proposed Project would not conflict with any provisions of an adopted HCP or NCCP operative in, or applicable to, the study area, and no mitigation measures would be required.

Significance before Mitigation

Because the PG&E HCP does not cover the proposed Project, and no other HCP or NCCP is applicable within the study area, the proposed Project would not conflict with any adopted conservation plan. No impact would occur.

Impact BIO-TERR-DS-7: Spread Invasive Plant Species Such that There Would Be a Substantial Effect on Special-status Species, Sensitive Communities, or Wetlands on Del Puerto Creek Downstream of the DMC

Construction and Operation Impacts

No construction would occur in the study area, and no land cover would be converted. With implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts during construction activities would be minimized; therefore, construction activities would not result in the spread of invasive plant species, and no impact would occur. Altered hydrologic conditions such as changes in the natural flow regime can create favorable conditions for invasive plant species that are adapted to disturbance or altered moisture regimes. For example, species like saltcedar (*Tamarix*) and non-native cattails have been shown to thrive under modified flow conditions, often outcompeting native vegetation. Invasive plant species are already present in many riparian and agricultural landscapes in California, and their establishment is often facilitated by disturbances, such as seasonal water availability, as invasive species may benefit from increased nutrient runoff and prolonged wet or dry periods associated with altered hydrology.

In the context of the proposed Project, while the Project's environmental commitments are designed to mimic the natural hydrologic regime, the altered flow pattern, including abundant runoff from adjacent agriculture during the dry season (generally April 1 – October 14), has already influenced habitat conditions to be favorable for invasive species. Many parts of the study area have already established very dense populations of invasive plant species, especially giant reed (*Arundo donax*) in the stream channel and on banks. Also occurring higher up the banks are stands of tree tobacco (*Nicotiana glauca*) and numerous escaped landscape trees. Because the proposed Project does not involve land disturbance in the study area, and changes to the existing flow regime from irrigation return flows and operational spills in lower Del Puerto Creek would remain unchanged, the risk of exacerbating invasive species spread is considered low. Therefore, impacts related to the spread of invasive species during Project operation would be less than significant, and no mitigation would be required.

Significance before Mitigation

Construction and operation of the proposed Project would not result in a substantial spread of invasive plant species that would impact special-status species, sensitive communities, or wetlands. No land disturbance would occur and, while Project operation may result in changes to flow volumes in Del Puerto Creek, the Project's environmental flow commitments and continued irrigation runoff and operational spills are expected to maintain the structure and function of habitat for special status-species, sensitive communities, and wetlands study area. Impacts would be less than significant, and no mitigation would be required.

Mitigation Measures

None.

Cumulative Impact Analysis

The geographic scope of cumulative impacts on terrestrial resources encompasses the study area and areas within one mile of the study area. If the proposed Project, as well as the past, present, and reasonably foreseeable future projects listed in **Table 3.0-1** of the 2020 Final EIR, would adversely affect the same

terrestrial biological resources, they could result in significant cumulative impacts on terrestrial biological resources.

Cumulative impacts on downstream terrestrial biological resources would not occur during construction of the proposed Project because there would be no Project-related construction on Del Puerto Creek downstream of the Project footprint. None of the cumulative projects listed in **Table 3.0-1** would have adverse impacts on Del Puerto Creek flows or adjacent habitat. In addition, impacts on downstream terrestrial biological resources would be less than significant during Project operations, as described in Impacts BIO-TERR-DS-1a through 1g, BIO-TERR-DS-2, BIO-TERR-DS-3, and BIO-TERR-DS-4. The proposed Project would contribute to reductions in existing flows during operation downstream of the proposed dam; however, as explained above, the flows necessary to maintain existing habitat conditions in lower Del Puerto Creek would continue to be released as part of the proposed Project's environmental commitments.

As discussed in the 2020 Final EIR, the proposed Project as a whole would incrementally contribute to cumulatively considerable impacts because of the temporary and permanent loss of habitat and disruption of wildlife corridors. However, with implementation of the Project's environmental commitments and the mitigation measures identified in the 2020 Final EIR, cumulative impacts on terrestrial biological resources would be less than cumulatively considerable (i.e., less than significant).

The City of Patterson (City) is proposing a water supply project to capture and divert uncontrolled stormwater flows from Del Puerto Creek to infiltration ponds for groundwater recharge (RMC Water and Environment 2018). As mitigation for potential Project impacts on the City's proposed future water supply project, the Project Partners have developed an agreement with the City to provide water and allow implementation of the City's recharge project. Any water supplied to the City as mitigation for Project impacts on the City's future water supply project would be in addition to water released as part of the proposed Project's environmental commitments. The City's recharge project would therefore not combine with the proposed Project to result in a cumulatively considerable contribution to reductions in flows.

With implementation of the Project's environmental commitments, the Project is designed to replicate, in relative terms, the key existing conditions that support terrestrial habitats and species in the downstream reaches of Del Puerto Creek east of the Project site. These commitments ensure that flow regimes and habitat characteristics remain consistent, in terms of flow patterns, with current conditions, which are critical to sustaining biological resources both upstream and downstream of the proposed Project. As explained earlier, moreover, the Project will not change the amounts or timing of agricultural return flows or operational spills that make their way into lower Del Puerto Creek. These flows will continue to support existing terrestrial resources dependent in whole or in part on flows in the creek.

Additional development in the cumulative study area would also be required to comply with applicable federal and state regulatory programs for the protection of terrestrial biological resources. These requirements commonly result in the avoidance of significant and unavoidable adverse effects to terrestrial biological resources.

In addition, the proposed mitigation measures in the 2020 Final EIR would either avoid impacts, compensate for impacts, or replace habitat for the Project as a whole. This would ensure that habitat conditions are maintained and that the overall Project does not contribute incrementally to any cumulatively considerable impact when combined with other projects in the region.

Significance Determination

The proposed Project, viewed as a whole, would result in significant impacts to terrestrial biological resources during construction and operation. However, with implementation of the Project's environmental commitments and the mitigation measures identified in the 2020 Final EIR, cumulative impacts on terrestrial biological resources would be less than significant. As explained above in

connection with numerous individual topics, the Project will not cause any significant impacts on downstream terrestrial biological resources within the study area, even in the absence of mitigation. All developments in the area must comply with environmental regulations, ensuring that cumulative impacts remain minimal. In addition, the proposed mitigation measures in the 2020 Final EIR, which apply to the Project as a whole, would either avoid impacts, compensate for impacts, or replace habitat. Overall, the cumulative impacts from past, present, and reasonably foreseeable future projects, together with the proposed Project, would be significant, but the proposed Project's incremental contribution to cumulative impacts on terrestrial biological resources would not be cumulatively considerable.

Mitigation Measures

No mitigation measures are required beyond those included in the 2020 Final EIR.

3.4.4 Mandatory Findings of Significance

Under CEQA Guidelines Section 15065(a)(1), a lead agency must find that a project may have a significant effect on the environment if it has the potential to:

- Substantially reduce the habitat of a fish or wildlife species;
- Cause a fish or wildlife population to drop below self-sustaining levels;
- Threaten to eliminate a plant or animal community; or
- Substantially reduce the number or restrict the range of an endangered, rare or threatened species.

The following discussion evaluates whether these specific effects would result from the Project, requiring a finding that impacts on terrestrial biological resources are significant.

Impact BIO-TERR-DS-8: Substantially reduce the habitat of a fish or wildlife species

The Court of Appeal Opinion that required this PRDEIR did not find any problems with the manner in which the 2020 Final EIR addressed the impacts on aquatic species, including fish, in lower Del Puerto Creek. Rather, the only identified deficiency was related to the issue of terrestrial biological resources downstream from Project facilities. Even so, because section 15065(a)(1) mentions fish, it is noted, for the readers' convenience, that the 2020 Final EIR determined that impacts to aquatic resources would be less than significant with implementation of mitigation for potentially significant sediment supply impacts (as discussed in Section 3.5 of the 2020 Final EIR). The 2020 Final EIR determined that, although a portion of the creek would be permanently inundated under the proposed Project, the existing fish habitat is limited and degraded, and suitable habitat remains upstream. As such, the proposed Project would not substantially reduce the habitat of fish species.

As discussed throughout Section 3.4.3 of this PRDEIR, the proposed Project would not result in construction activities within lower Del Puerto Creek downstream of the Project footprint. As such, no direct habitat disturbance would occur in this area. In addition, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to habitat of downstream terrestrial wildlife species during upstream construction activities would be minimized or avoided entirely.

As discussed throughout Section 3.4.3 of this PRDEIR, during Project operation, the Project's environmental commitments would be implemented, which are designed to replicate the timing, relative magnitude, duration, and variability of the existing unregulated rainy season flows (generally October 15 – March 31) in Del Puerto Creek. In addition, during the dry season (generally April 1 – October 14), lower Del Puerto Creek east of I-5 primarily receives inflows from irrigation runoff from the agricultural land uses surrounding the study area and operational spills from WSID. These irrigation return flows and operational spills would remain unchanged under the proposed Project. The Project's environmental flow

commitments, as well as irrigation return flows and operational spills, are expected to maintain the habitat quality and the specific hydrologic and geomorphic conditions, such as soil moisture, sediment transport, and channel structure that support the native habitat of wildlife species. Therefore, the proposed Project would not substantially reduce the habitat of downstream terrestrial wildlife species.

Impact BIO-TERR-DS-9: Cause a fish or wildlife population to drop below self-sustaining levels

While, impacts to fish species are outside the scope of this PRDEIR, as mentioned immediately above, it is noted, for the readers' convenience, that the 2020 Final EIR determined that impacts to aquatic resources would be less than significant with implementation of mitigation for potentially significant sediment supply impacts (as discussed in Section 3.5 of the 2020 Final EIR). The 2020 Final EIR determined that while reservoir operations may create a migration barrier, native fish populations are expected to persist in upstream habitat, resulting in a less-than-significant impact overall. As such, fish populations are not expected to drop below self-sustaining levels due to the proposed Project.

As discussed throughout Section 3.4.3 of this PRDEIR, the proposed Project would not result in construction activities within lower Del Puerto Creek downstream of the Project footprint. As such, proposed Project construction would not have the potential to directly affect downstream wildlife. In addition, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), the proposed Project's potential to indirectly harm downstream wildlife through habitat degradation would be minimized.

As discussed throughout Section 3.4.3 of this PRDEIR, during Project operation, the Project's environmental flow commitments, as well as irrigation return flows and operational spills, are expected to maintain, in relative terms, the existing habitat quality and the specific hydrologic and geomorphic conditions, such as soil moisture, sediment transport, and channel structure that support native wildlife habitats in the study area. In addition, native wildlife populations in the study area are likely adapted to the intermittent flow conditions of lower Del Puerto Creek and primarily rely on seasonal moisture availability rather than continuous surface water. As a result, the proposed Project would not cause any wildlife population to drop below self-sustaining levels.

Impact BIO-TERR-DS-10: Threaten to eliminate a plant or animal community

While impacts to fish species are outside the scope of this PRDEIR, it is noted that the 2020 Final EIR determined that impacts to aquatic resources from the Project as a whole would be less than significant with implementation of mitigation for potentially significant sediment supply impacts (as discussed in Section 3.5 of the 2020 Final EIR). The 2020 Final EIR determined that because peak flows would be supported by the Project's environmental commitments, the creek would remain suitable habitat for native fish species. While sediment supply to the San Joaquin River may be impacted under the Project, this would not eliminate any animal community. As such, the Project would not result in the loss of any animal communities in Del Puerto Creek.

As discussed previously, no construction would occur in the study area, and no land cover would be converted. Therefore, no direct impacts would occur to plant or animal communities during Project construction. In addition, as discussed above under Impact BIO-TERR-DS-1b, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to downstream terrestrial plant and animal species and communities during upstream construction activities would be minimized.

As discussed in further detail under Impact BIO-TERR-DS-1a, although dam and reservoir operations under the proposed Project could influence the volume and timing of downstream flows to lower Del Puerto Creek, the Project's environmental flow commitments, as well as irrigation return flows and operational spills, would continue to support existing native plant and animal communities in the study area. Therefore, the Project would not threaten to eliminate any plant or animal communities.

Impact BIO-TERR-DS-11: Substantially reduce the number or restrict the range of an endangered, rare, or threatened species

While impacts to fish species are outside the scope of this PRDEIR, it is noted that the 2020 Final EIR determined that impacts to aquatic resources from the Project as a whole would be less than significant with implementation of mitigation for potentially significant sediment supply impacts (as discussed in Section 3.5 of the 2020 Final EIR). The 2020 Final EIR determined that because peak flows would be supported by the Project's environmental commitments (albeit in lower volumes), lower Del Puerto Creek would remain suitable habitat for native fish species. In addition, although a portion of the creek would be inundated, the habitat in that area is limited and degraded, and suitable habitat would remain upstream for endangered, rare, or threatened species. While sediment supply to the San Joaquin River may be impacted under the Project, this would not restrict the overall range or viability of fish species in Del Puerto Creek. As such, the Project would not substantially reduce the number or restrict the range of an endangered, rare, or threatened fish species in Del Puerto Creek.

As discussed previously, no construction would occur in the study area, and no land cover would be converted. Therefore, no direct impacts would occur to plant or animal communities during Project construction. As discussed above under Impact BIO-TERR-DS-1b, with implementation of standard construction BMPs and pollution prevention measures required under the Stormwater Pollution Prevention Plan (discussed in Section 2.4.10 of the 2020 Final EIR), impacts to downstream terrestrial species during upstream construction activities would be minimized.

As discussed under BIO-TERR-DS-4, the existing landscape in the study area is fragmented and agriculturally dominated, which inherently limits habitat connectivity. The Project's environmental flow commitments, as well as irrigation return flows and operational spills, would continue to support existing hydrologic conditions, preserving connectivity for species that currently use the study area. By avoiding further disruption to the natural flow regime, Project operations would not exacerbate existing fragmentation. With the implementation of these commitments, the Project would not substantially reduce the number or restrict the range of any endangered, rare, or threatened species.

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Chapter 7 EIR Preparers

A list of persons who prepared or reviewed various sections of the EIR, prepared significant background materials, or participated substantially in preparing the EIR is presented below.

7.1 Del Puerto Canyon Reservoir Project Partner Agencies

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- Anthea G. Hansen, General Manager

7.1.2 San Joaquin River Exchange Contractors Water Authority

- Chris White, Executive Director

7.2 EIR Preparation Team

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- Xavier Irias, Project Manager
- Robin Cort, Manager of EIR preparation
- Brian Van Lienden, Hydrology

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- Lauren Lockwood, technical reviewer
- Sara Baker, task manager
- Eric Stitt, terrestrial biological resources
- Megan Jameson, wetlands resources
- Danika Tsao, terrestrial biological resources
- Danielle Vick, terrestrial biological resources
- Dan Schiff, GIS analyst
- Lissa Johnson, GIS analyst

Appendix A Fifth District Court of Appeal Opinion

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Court of Appeal, Fifth Appellate District
Brian Cotta, Clerk/Executive Officer
Electronically FILED on 1/30/2025 by Nicole Acosta, Deputy Clerk

NOT TO BE PUBLISHED IN THE OFFICIAL REPORTS

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

FIFTH APPELLATE DISTRICT

SIERRA CLUB et al., Plaintiffs and Appellants, v. DEL PUERTO WATER DISTRICT, Defendant and Respondent; SAN JOAQUIN RIVER EXCHANGE CONTRACTORS WATER AUTHORITY, Real Party in Interest and Appellant.	F085896/F086218 (Super. Ct. No. CV-20-005193) **OPINION**

APPEAL from a judgment of the Superior Court of Stanislaus County. John R. Mayne, Judge.

Law Office of Donald B. Mooney and Donald B. Mooney for Plaintiffs and Appellants.

Remy Moose Manley, James G. Moose, Christopher L. Stiles and Laura M. Harris; Minasian Law and Andrew John McClure for Defendant and Respondent.

Minasian Law and Andrew John McClure for Real Party in Interest and Appellant.

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The Del Puerto Water District (DPWD)[1] and the San Joaquin River Exchange Contractors Water Authority seek to build a reservoir near Patterson, California to store their water allotments from the Central Valley Project. The Sierra Club et al., challenged the Environmental Impact Report (EIR) for the reservoir project on several grounds. The trial court rejected several of those challenges, but accepted others and ordered the EIR to be decertified.

The Sierra Club appealed the judgment and the Exchange Contractors cross-appealed. The Exchange Contractors also appealed the trial court's denial of their motion to vacate the judgment, and we have consolidated that appeal with this one.

We conclude that each party has at least one meritorious contention, and will reverse the judgment in part and remand with instructions.

BACKGROUND

I. Water in California

Broadly speaking, much of California's water is in the north and much of its demand is in the south. (*Natural Resources Defense Council v. Kempthorne* (2009) 621 F.Supp.2d 954, 959–960.) As a result, the government created """a system of dams, reservoirs, levees, canals, pumping stations, hydropower plants, and other infrastructure""" (*North Coast Rivers Alliance v. Westlands Water Dist.* (2014) 227 Cal.App.4th 832, 840) in order to store surplus flows from the rivers in the north and transport them south. (*San Luis & Delta-Mendota Water Authority v. U.S. Dept. of Interior* (E.D.Cal., Mar. 2, 2015, No. 1:11-cv-00952 LJO GSA) 2015 U.S. Dist. Lexis 24970.) The system, called the Central Valley Project (CVP), delivers water to hundreds of water contractors pursuant to various delivery contracts, primarily for agricultural use in the Central Valley. (*North Coast, supra*, at p. 840.)

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[1] We will refer to Del Puerto Water District and its board of directors, both of which are parties on appeal, as DPWD.

Friant Dam and the Exchange Contract

In the mid-1930's, the federal government wanted the CVP to extend into the Bakersfield area. (*Westlands Water Dist. v. Patterson* (1994) 864 F.Supp. 1536, 1539 (*Westlands Water Dist.*).) To accomplish this, the San Joaquin River would need to be diverted into the Friant-Kern and Madera Canals. (*Ibid*.) This diversion would be effected by building Friant Dam.

To accomplish this, the federal government needed to acquire the water rights necessary for such a diversion. (*State Water Resources Control Bd. Cases* (2006) 136 Cal.App.4th 674, 692.) It did so in 1939 by entering into two contracts with the existing water rights holders (i.e., the Exchange Contractors): a purchase contract and an exchange contract. (*Westlands Water Dist., supra*, 864 F.Supp. at p. 1539.)

"Under the Purchase Contract, the Exchange Contractors sold all their San Joaquin River water rights to the United States, except for 'reserved water,' water to which the Exchange Contractors held vested rights. Simultaneously, under the Exchange Contract, the Exchange Contractors agreed not to exercise their rights to reserved water, so long as they received substitute water from the Federal Delta–Mendota Canal, or other sources delivered to the Mendota Pool." (*Westlands Water Dist., supra*, 864 F.Supp. at p. 1539, fn. omitted.)

CVP's Transportation of Water from Delta

While the Friant Division of the CVP operates on the east side of the Valley, the CVP also has substantial infrastructure on the west side of the Valley. The CVP operates a pumping plant that moves millions of acre-feet of water from the Bay-Delta (Delta) to the Delta-Mendota Canal (DMC), which carries the water south along the western edge of the San Joaquin Valley.[2] (*San Luis & Delta-Mendota Water Authority v. Jewell* (9th

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[2] The DMC also has an inter-connection with the California Aqueduct west of the City of Tracy and connects with the State Water Project (SWP) at the O'Neill Forebay.

Cir. 2014) 747 F.3d 581, 594; *State Water Resources Control Bd. Cases, supra*, 136 Cal.App.4th at p. 692; *In re Bay Delta etc.* (2008) 43 Cal.4th 1143, 1154.) DMC waters are pumped into the San Luis Reservoir for storage.[3] When water is released from the San Luis Reservoir back into the DMC, it can continue on to the Mendota Pool—a small reservoir created by the Mendota Dam. At the Mendota Pool, the DMC waters replace the natural flow of the San Joaquin River. (*State Water Resources Control Bd. Cases, supra*, at p. 692.)

Coordination With SWP

The State of California has its own water project with reservoirs, dams, power plants, pumping plants, canals and aqueducts (SWP). (*Planning & Conservation League v. Department of Water Resources* (2000) 83 Cal.App.4th 892, 898–899.) In 1986, the California Department and Water Resources and the United States Bureau of Reclamation (Reclamation) signed a coordinated operating agreement. The coordinated operating agreement defines each project's responsibility to protect other beneficial uses of water and defines the sharing of excess water between the projects.

II. The Project

The project at issue in this case is a proposed dam and reservoir connected to the DMC, west of the City of Patterson. The proposed reservoir would provide 82,000 acre-feet of storage. The project would also include three saddle dams, a spillway, inlet/outlet works, and conveyance facilities (including a diversion/outfall facility on the DMC, and a pumping plant).

The partners behind the project are DPWD and the Exchange Contractors (the Project Partners). As noted above, the Exchange Contractors receive CVP waters pursuant to the 1939 contracts (and subsequent agreements) with the United States. The

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[3] The San Luis Reservoir also stores water from the SWP delivered by the California Aqueduct.

Exchange Contractors have a contractual water allotment of 840,000 acre-feet during noncritical years. In critical years, the allotment is reduced to 75 percent, or 650,000 acre-feet. The Exchange Contractors desire to stabilize their water supplies by storing water allocated during noncritical years for use during critical years.

DPWD has its own water service contract with Reclamation through which it purchases CVP waters. In some recent drought years, DPWD received no water at all.

The reservoir would store water delivered pursuant to the Project Partners' contracts for delivery of waters from the DMC. The reservoir would also capture some flows from the Del Puerto Creek. These are the only two sources of water anticipated to fill the reservoir. If any other water sources would be used in the future, project-specific environmental review would then be conducted.

Procedural History

In June 2019, DPWD issued a notice of preparation (NOP), generally describing the project as "a reservoir located on Del Puerto Creek in the foothills of the Coast Range Mountains west of Patterson, California and Interstate-5." The reservoir would provide 85,000 acre-feet of water storage. The NOP also noted the project would involve construction of a main dam, four saddle dams, a spillway, inlet/outlet works, conveyance facilities, and electrical facilities; and would involve relocation of existing utilities.

A draft EIR (DEIR) was issued in December 2019, and notice was given that it would be available for public review beginning December 12, 2019.

The final EIR (FEIR) was made available to the public and commenting agencies on October 9, 2020. Pertinent details of the DEIR and FEIR are described below in connection with the issues raised on appeal.

On October 21, 2020, the DPWD Board voted to certify the FEIR and approve the project.

On November 20, 2020, the Sierra Club, California Native Plant Society, Center for Biological Diversity, and Friends of the River (petitioners) filed a petition for writ of

mandate in Stanislaus Superior Court. The petition sought to set aside the FEIR and the approval of the project.

The court accepted briefing, including sealed briefing regarding petitioners' claim the FEIR failed to sufficiently analyze impacts to cultural resources, and heard oral argument. On October 31, 2022, the court issued a ruling rejecting several of petitioners' contentions, but granting the writ "as to failure to adequately address the relocation of Del Puerto Canyon Road." The court addressed the confidential cultural resources issues in a separate minute order dated November 29, 2022, in which it ruled in favor of petitioners.

Pursuant to a stipulation of the parties, the court issued an order on December 27, 2022, making alterations to the details of its October 31, 2022 ruling, but generally reiterating the same substantive ruling.

DISCUSSION

I. The FEIR Was Not Required to Have a Different Project Description or Offer Additional Analysis Concerning the Speculative Possibility Reclamation Might Alter Delta Pumping Operations in the Future

A. *Law*

An EIR must describe the project under consideration, including its location and "[a] general description of the project's technical, economic, and environmental characteristics …." (Cal. Code Regs., tit. 14, § 15124, subds. (a), (c).)

An EIR must also identify and describe both direct and indirect environmental impacts of the project. (Cal. Code Regs., tit. 14, § 15126.2, subd. (a).) This includes both direct physical changes to the environment caused by the project and reasonably foreseeable indirect physical changes that may be caused by the project. (Cal. Code Regs., tit. 14, § 15064, subd. (d).) However, this does not include indirect impacts that are speculative.

B. *Additional Background*

The FEIR concluded that the proposed operation of the project would not affect CVP or SWP pumping operations at the Delta. The FEIR added that the project could provide Reclamation additional flexibility to increase pumping if it so chose, as a result of increased storage capacity and increased flexibility to alter when water would be pumped to Project Partners. The FEIR noted that "[a]ny such modification of Delta pumping *by Reclamation* would be evaluated *by Reclamation* in a separate NEPA[4] document if such pumping is determined to be outside existing certified environmental documentation and/or operating agreements." (Italics added.)

C. *Analysis*

Sierra Club contends the FEIR's project description failed to disclose how the project will affect diversions from the Delta. This, in turn, purportedly also rendered the impacts analysis insufficient. Project Partners respond that the project will not affect diversions from the Delta.

Reclamation increasing (or otherwise altering) Delta outflows is not the project at issue here. The project is construction of a reservoir. And it is the environmental impacts of the project that must be analyzed, not those of some other project that may materialize in the future.

We acknowledge that EIR's must *usually* consider both direct and indirect impacts. However, indirect impacts can literally reverberate into the future indefinitely. As these branches of possibilities grow exponentially into the unknown future, it quickly becomes unhelpful and infeasible to analyze or even identify speculative possibilities. Thus, when indirect impacts are attenuated to the level of speculation, they need not be evaluated.

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4 National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. § 4321 et seq.).

"Courts have made clear that 'CEQA[5] does not require evaluation of speculative impacts.'" (*League to Save Lake Tahoe v. County of Placer* (2022) 75 Cal.App.5th 63, 139.) While an EIR must examine even the *potential* for a project to impact the environment, that "does not mean … that a potential impact, no matter how speculative, must be considered in an EIR." (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437, 1451 (*Save Round Valley Alliance*).)

Specifically, the mere fact that some other future action has been proposed does not necessarily require its inclusion in the EIR. (See *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1127.) Indeed, where future developments are unspecified and uncertain, the EIR is not required to speculate as to future environmental consequences. (*Ibid*.) "It has long been recognized that premature attempts to evaluate effects that are uncertain to occur or whose severity cannot reliably be measured is 'a needlessly wasteful drain of the public fisc.'" (*Citizens for a Sustainable Treasure Island v. City and County of San Francisco* (2014) 227 Cal.App.4th 1036, 1061.) "Evaluation of future environmental effects must await the future decisions that could cause the effects." (*Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188, 196.)

Consequently, across a variety of CEQA contexts, courts have declined to invalidate an EIR for failing to discuss the potential environmental impacts of speculative, hypothetical future responsive actions by third parties.

For example, in *Save Round Valley Alliance*, the proposed project was to subdivide 74 acres into twenty-seven 2.5-acre parcels for development into single family residences. The challengers argued that the EIR should have analyzed what would happen if the future lot owners chose to build *two* residences on each site. The challengers alleged the failure to consider this possibility caused the EIR to persistently

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5 California Environmental Quality Act (CEQA; Pub. Resources Code, § 21000 et seq.).

understate the project's environmental impacts. The court rejected this argument, observing that whether second units would be built "depends initially upon the desires of future lot owners, who are unknown." (*Save Round Valley Alliance, supra*, 157 Cal.App.4th. at p. 1450.) The court continued, "even if the building of some second units might be foreseeable, it is impossible to predict how many units will be built, the size of such units, on which lots they might be built, their location within a lot, the visibility of a second unit from outside the subdivision, or how such units might impact the environment." (*Id* at p. 1450.)

In *Marin Mun. Water Dist. v. KG Land California Corp.* (1991) 235 Cal.App.3d 1652, the project was a water district's moratorium on new water service connections. The trial court concluded the EIR was deficient in several respects, including that it failed to "analyze adequately the potentially significant adverse secondary environmental effects of the moratorium …." (*Id.* at p. 1659.) Specifically, it was acknowledged that after five or six years, the moratorium would create "increased pressure for growth and development in areas outside the District's service area." (*Id* at pp. 1662–1663.) However, the nature and extent of future development and its environmental impacts would depend on what the local agencies in those jurisdictions permitted. The court affirmed the water district's conclusion "that the potential environmental impact of possible future development elsewhere was simply too speculative to evaluate …." (*Id.* at p. 1663.)

In *Yerba Buena Neighborhood Consortium, LLC v. Regents of University of California* (2023) 95 Cal.App.5th 779, the project was a plan to make substantial changes to one of UCSF's campuses, including new buildings. (*Id.* at p. 788.) Challengers to the EIR asserted it should have analyzed indirect impacts the project would have on vehicle miles traveled. (*Id* at p. 807.) The court rejected that challenge, observing it relied "on the speculative assumption that implementation of the [project] will lead to the transit system being overwhelmed and [that] transit users will resort to private automobiles

instead." (*Ibid.*) In other words, the challengers were improperly demanding that the EIR address speculative environmental effects that would be caused by third parties changing their conduct in response to the project.

Analogous here, challengers assert a third party (i.e., Reclamation) will alter its behavior (i.e., increase/alter pumping) after construction of the project, causing environmental impacts that should have been analyzed in the EIR. However, it is speculation to assume the alleged increase of capacity in San Luis Reservoir or the increased flexibility of pumping schedules would lead to Reclamation increasing Delta outflows. It is simply unknown how operations at the Delta may change in the future due to the actions of third parties. (See *Planning & Conservation League v. Department of Water Resources* (2024) 98 Cal.App.5th 726, 755-756.) It was not incumbent on the FEIR to speculate that Reclamation might choose to alter its behavior based on the project and then to analyze the environmental impacts of that speculative possibility.

As an aside, we observe that even if Reclamation did choose to increase pumping from the Delta at some point in the future, that action would either (1) be within limits set by existing approvals, which have already satisfied any applicable environmental review requirements or (2) exceed existing approvals, which would almost certainly necessitate federal and/or state environmental review at that point. The FEIR explains as much: "Any … modification of Delta pumping by Reclamation would be evaluated by Reclamation in a separate NEPA document if such pumping is determined to be outside existing certified environmental documentation and/or operating agreements."

Piecemealing

Sierra Club claims the FEIR's approach fails to account for the whole of the action, and instead chops up a single project into "bite-size pieces."

"Improper piecemealing occurs 'when the purpose of the reviewed project is to be the first step toward future development' or 'when the reviewed project legally compels or practically presumes completion of another action.' [Citation.] By contrast, an EIR

need not analyze 'specific future action that is merely contemplated or a gleam in a planner's eye.'" (*East Sacramento Partnerships for a Livable City v. City of Sacramento* (2016) 5 Cal.App.5th 281, 293 (*East Sacramento Partnerships*).)

In order to accept Sierra Club's contention, we would have to conclude that the construction/operation of Del Puerto Canyon Reservoir and Reclamation's increase of Delta outflows are, in fact, a single project disguised as two. Or, in other words, that the FEIR made a "calculated selection of [a] truncated project concept …." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 200.) That is not what occurred here. While there is a theoretical possibility that Reclamation *could* export additional water, in no way does the construction of the reservoir "'compel[]'" or "'practically presume[]'" an increase in Reclamation's pumping at the Delta. Instead, Sierra Club has "'merely contemplated'" (*East Sacramento Partnerships, supra*, 5 Cal.App.5th at p. 293) that Reclamation *could* hypothetically engage in such action. Building a reservoir and increasing pumping at the Delta are not a single project.

Contradictory Statements

Sierra Club asserts that the FEIR's claim the project will not affect Delta pumping operations is "illogical" because the project was intended to enable DPWD "'to accept water when excess is available that would otherwise be lost due to lack of means to store'" the water. But Sierra Club fails to sufficiently explain how these two concepts are necessarily illogical or contradictory. In theory at least, water could be "lost" to the Project Partners because they lack sufficient storage to accept delivery at the time it is available, resulting in that water instead being stored in San Luis Reservoir or given to other south-of-the-Delta users, without any increase in Delta pumping.

The fact remains that the FEIR clearly concludes that the project will not affect CVP or SWP Delta pumping operations. In this way, the present case is quite distinguishable from *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645 (*Raptor*), on which Sierra Club relies. In that case, the EIR insisted in

several places that the mine expansion project would not result in an increase in mine production. Elsewhere, however, the EIR indicated that the mine might sometimes operate at a new peak capacity of 500,000 tons per year, more than double the prior four-year average production of 240,000 tons per year. (*Id.* at pp. 655–656 & fn. 4.) This was an inherent and irreconcilable conflict in that case's EIR.

Nor is this case like *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70. That case involved a project to renovate a crude oil refinery. The court held the project's EIR was misleading because it "claim[ed] that the Project is designed to allow more flexibility in refining future crude supplies that the EIR describes as 'increasingly heavier,' but on the other hand, denie[d] that the Project will enable the [r]efinery to process heavier crude." (*Id.* at p. 83.) Additionally, the project proponent's filings with the United States Securities and Exchange Commission clearly indicated the project was intended to "'increase the flexibility to process lower API-gravity crude oils ….'" (*Id.* at pp. 83–84.) Here, there is no analogous indication that the FEIR was incorrect or misleading when it stated the project will not cause increased pumping from the Delta.

Baseline

Sierra Club also contends the FEIR used the wrong baseline. "An EIR must include a description of the physical environmental conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.…" (Cal. Code Regs., tit. 14, § 15125, subd. (a).) "An existing conditions baseline shall not include hypothetical conditions, such as those that might be allowed, but have never actually occurred, under existing permits or plans, as the baseline." (*Id.*, subd. (a)(3).)

Specifically, Sierra Club contends the FEIR erred in omitting environmental impacts of increased pumping "solely because the CVP would continue to operate within existing permit limits regardless of Project approval." But that is not why the FEIR omits

environmental impacts of increased pumping in the Delta. The FEIR omits that analysis because the project will not cause increased pumping from the Delta, and therefore the project will not cause the environmental impacts that might result from said increased pumping. Increased pumping would be *caused* by Reclamation's decision to do so, not construction of the proposed reservoir.

III. The EIR Fails to Adequately Analyze Potential Impacts to Downstream Terrestrial Species

Petitioners next contend the FEIR fails to analyze potential impacts to downstream terrestrial species.

A. *Law*

An EIR must discuss significant environmental impacts of the project. (Cal. Code Regs., tit. 14, § 15126.) An EIR must also briefly discuss effects of a project that were determined not to be significant. (*Id.*, § 15128.) Certain impacts on wildlife and/or their habitat are required to be found significant. (*Id.*, § 15065, subd. (a)(1).)

"'[A] reviewing court must determine whether the discussion of a potentially significant effect is sufficient or insufficient, i.e., whether the EIR comports with its intended function of including '''''detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.''''''' (*Natural Resources Defense Council, Inc. v. City of Los Angeles* (2023) 98 Cal.App.5th 1176, 1204.) "The inquiry presents a mixed question of law and fact. As such, it is generally subject to independent review." (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 516 (*Sierra Club*).)

B. *Analysis*

As noted, Sierra Club contends the FEIR fails to properly discuss potential impacts to downstream terrestrial species. We agree. While the FEIR analyzes adjacent issues—e.g., impacts to downstream *aquatic* species and impacts to terrestrial species that are *not* downstream—it does not analyze impacts to downstream terrestrial species.

The study area of the FEIR's section on terrestrial biological resources was: "the footprints of the proposed project infrastructure, the maximum inundation area, areas where utilities may need to be relocated, any areas of potential disturbance related to constructing the proposed project, and a 300 foot buffer around these areas …." In other words, the study included areas that will be disturbed by construction, the areas that will be inundated by water, and a 300-foot buffer. It does not reference downstream Del Puerto Creek, the flows of which will be impacted to some extent by the project (at least in terms of annual volume). Thus, this portion of the FEIR does consider impacts to terrestrial biological resources, but only those in the study area and not those downstream.

In contrast, the FEIR's section on impacts to fish does consider whether there will be downstream impacts. In responding to Sierra Club's contentions, Project Partners emphasize this analysis, which concluded that the operation of the project would ensure that major flow events would be released downstream of the proposed dam in order to mimic the natural patterns of flow variability. Specifically, it observes that,

> "Under proposed project operations, major flow events in Del Puerto Creek would continue to be released downstream of the proposed dam as part of the environmental commitments of the project. These environmental flow requirements include operation of the dam to bypass major flow events in a pattern that preserves key components of the peak flow events (*Section 2.3.1, Reservoir Operations*). This is consistent with the 'functional flow' approach of managing flows in regulated rivers to mimic the natural patterns of flow variability that drive the geomorphic and ecological processes supporting native *aquatic* species (Yarnell et al. 2015)." (Italics added.)

However, this analysis expressly refers to aquatic species. So while it considers impacts to downstream species, it does so for aquatic rather than terrestrial species. Similarly, the Project Partners emphasize pages 2405–2405 of the administrative record, but that section also quite clearly applies to impacts on fish and aquatic species. What is

missing is analysis of whether there will be impacts to species that are both downstream and terrestrial.

It may very well be the case that the project's efforts to mimic natural patterns of flow variability will result in the project having no impacts to downstream terrestrial species. That is a scientific matter on which we offer no input.[6] What matters in the present action is that the FEIR does not expressly conclude as much. As a result, it fails as an informational document to adequately consider a potentially significant environmental impact.

IV. Substantial Evidence Supports the Agency's Methodology in Studying Biological Resources

Sierra Club argues that many of the "biological resources surveys conducted during EIR preparation produced little information because they were poorly timed" (e.g., wet vs. dry years) and were not sufficiently comprehensive.

A. *Standard of Review*

"It is well established an agency has discretion in selecting the methodology to be used in evaluating environmental impact, subject to review for substantial evidence." (*South of Market Community Action Network v. City and County of San Francisco* (2019) 33 Cal.App.5th 321, 337.) The substantial evidence standard "applies to challenges to the scope of an EIR's analysis of a topic, the methodology used for studying an impact and the reliability or accuracy of the data upon which the EIR relied because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1198.)

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[6] If the FEIR had made such a conclusion with respect to downstream terrestrial species, we would review it under the deferential substantial evidence standard. However, since the FEIR omits such analysis/conclusions, it is an issue of law.

However, Sierra Club insists,

> "[this] is not a dispute over methodology, but instead, whether the EIR provided an adequate analysis to inform, which is a question of law. [Citation.] Both [California Native Plant Society] and [Department of Fish and Wildlife] identified the need to properly conduct surveys to make an impact determination. [Citation.] As DPWD's inclusive surveys were reconnaissance level (protocol-level) and/or done at the improper time, the EIR fails to provide an informed understanding of a critical aspect of the Project's environmental impacts."

While Sierra Club posits this is not a "dispute over methodology," it immediately goes on to describe a dispute over methodology.[7] Specifically, whether the FEIR is insufficient because the studies were reconnaissance-level rather than protocol-level or whether they were "done at the improper time." Consequently, we review the Sierra Club's contention under the substantial evidence standard.

B. *Additional Background*

Wildlife surveys and an aquatic resources delineation was conducted in the spring and summer of 2019. Biologists conducted botanical surveys in the fall of 2019, and again in the spring of 2020.

Biologists conducted a general habitat evaluation "to determine whether suitable habitat exists for special-status plant and animal species" from May through July 2019. In addition to wildlife observations made during field surveys, motion-activated trail cameras were placed near the mouth of Del Puerto Canyon in June 2019. Prior to the field surveys, biologists reviewed databases to evaluate whether special-status species or sensitive biological resources could occur in the study area. During the botanical surveys and aquatic resources delineation survey, 297 plant species were observed.

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[7] Sierra Club also contends that *Sierra Club* is the controlling authority on the standard of review issue. But even that case was quite clear that "a decision to use a particular methodology and reject another is amenable to substantial evidence review …." (*Sierra Club, supra*, 6 Cal.5th at p. 514.)

It was determined that five special-status plant species occur or have been reported from the study area. The FEIR acknowledged that the project could result in direct, substantial impacts to these species.

It was also determined that 22 special-status wildlife species may occur in the study area or could be affected by the project.

C. *Analysis*

Sierra Club observes that springtime plant surveys were conducted during a dry year. They point to the FEIR's observation that two special-status species that could have been present were not found in the study area, possibly due to the fact that recent rainfall was 14 percent of normal, which could have caused the species not to produce seedlings. But every study or survey could be made better in some way. A one-year study could have been a two-year study. A two-year study could have been a three-year study. That is, "[a] project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information." (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 415 (*Laurel Heights*).) But just because further study would be helpful does not mean it is necessary. (*Ibid*.) Biologists conducted botanical surveys in the fall of 2019, and again in the spring of 2020, and those surveys identified several species in the study area. While they did not find the two species referenced by Sierra Club, the FEIR appropriately acknowledged that the lack of observation did not exclude the possibility they were present given the lower-than-average rainfall. Indeed, the FEIR even *presumed* the two species were extant in the study area despite not being observed. We conclude Sierra Club has failed to show these botanical studies were insufficient.

Sierra Club similarly observes that wildlife surveys were conducted in "dry months" and not "wet months," even though the project might affect amphibians. Sierra Club cites nothing in the record establishing that amphibians cannot be adequately observed during the dry months of the year—an unstated but necessary premise to its

claim the surveys were insufficient. This relatively undeveloped contention cannot be sustained on substantial evidence review.

Sierra Club also criticizes the use of reconnaissance-level studies rather than protocol-level studies. The FEIR explained its use of reconnaissance-level field studies as follows,

> "reconnaissance level field studies were conducted to evaluate the presence of sensitive plants and wildlife. The evaluation of impacts on biological resources was not exclusively done through the use of databases and maps though these resources were employed to assist in characterization of habitats and identification of species that have been previously found in the project area. This is standard practice for evaluation of potential project effects in CEQA documents because protocol-level surveys can take multiple seasons to complete and the results of surveys are typically valid for a limited period of time and thus may no longer be valid by the time construction begins. Protocol level surveys would be conducted during the appropriate season and in accordance with accepted methods prior to the start of construction, and preconstruction surveys would be conducted during the appropriate time frame as described in the mitigation measures presented in the Draft EIR prior to initial ground disturbing activities associated with project construction. The mitigation measures in the Draft EIR include commitments to conduct protocol-level surveys for sensitive plant species, vernal pool branchiopods, California tiger salamander, California red-legged frog, foothill yellow-legged frog, Swainson's hawk and San Joaquin kit fox. Because protocol level surveys have not been conducted, the EIR assumes presence of species where suitable habitat is present."

Sierra Club criticizes this approach because the fact that a particular survey costs money is not a justification for omitting the information. But that was not the justification. The EIR stated that protocol-level studies were not yet included because they "are typically valid for a limited period of time and thus may no longer be valid by the time construction begins." Consequently, Sierra Club is incorrect to assert that the FEIR "provides zero justification" for the lack of protocol-level surveys.

V. The FEIR Did Not Improperly Defer or Inadequately Discuss Mitigation Measures

Sierra Club contends the FEIR improperly defers mitigation of impacts on special-status plants, foothill yellow-legged frogs, San Joaquin kit foxes, American badgers, riparian and wetlands habitat, and oak woodland habitat. Specifically, Sierra Club asserts the FEIR failed to give a reason for deferral and did not set standards of performance.

A. *Law*

An EIR must describe feasible measures that could minimize significant adverse impacts. (Cal. Code Regs., tit. 14, § 15126.4, subd. (a)(1).) These are referred to as "mitigation measures." The general description of mitigation measures may not be deferred and must be included in the EIR. "[T]he specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will [be] considered, analyzed, and potentially incorporated in the mitigation measure…." (*Id.*, subd. (a)(1)(B).)

B. *Additional Background*

Vernal Pool Branchiopods

Vernal pool fairy shrimp and vernal pool tadpole shrimp were not observed in the study area. However, habitat suitable for vernal shrimp was observed. The construction and operation of the project would result in the permanent loss of up to 1.4 acres of such habitat. That loss would have a substantial adverse effect on federally listed vernal pool branchiopods and was therefore determined to be a significant environmental impact.

To mitigate this significant impact, the FEIR described what it called Mitigation Measure BIO-TERR-1c as follows:

> "At least one year prior to impacting any of the potential vernal pool branchiopod habitat, a biologist with a 10(a)(1)(A) recovery permit for

vernal pool branchiopods shall conduct protocol level surveys for federally listed vernal pool branchiopods following the [United States Fish and Wildlife Service's] 2015 Survey Guidelines for the Listed Large Branchiopods. These surveys require the completion of one dry season survey and one wet season survey. If no federally listed branchiopods are present no further mitigation would be required other than requirements under federal and state laws protecting wetlands. If federally listed branchiopods are determined to be present and are located in permanent disturbance areas then the Project Partners shall compensate for the loss of federally listed vernal pool branchiopod habitat through the purchase of credits from a [United States Fish and Wildlife Service] approved mitigation bank at a conservation acreage of 2:1 protection and 1:1 restoration."

The FEIR concluded this mitigation measure would reduce the environmental impact to less than significant because lost habitat would be replaced.

Foothill Yellow-legged Frog

The FEIR also concluded that the project would cause the permanent loss of habitat for the foothill yellow-legged frog, more favorable conditions for its predators, behavior disruption caused by lighting, and injuries/mortality from maintenance activities and associated traffic. The FEIR determined the loss of habitat and direct injury/mortality constituted a significant environmental impact.

The EIR described Mitigation Measure BIO-TERR-1h as follows,

> "If surveys determine that foothill yellow-legged frog is not present in Del Puerto Creek no further mitigation is necessary. If foothill yellow-legged fro[g] is present, the habitat permanently impacted due to the proposed project shall be fully mitigated by either purchasing property and/or a conservation easement that contains stream habitat of similar quality and quantity and that is currently occupied by foothill yellow-legged frog and/or represents an area that has been historically occupied and where successful recolonization is likely (e.g., known occupation in nearby watershed or tributary). A final mitigation plan shall be developed and approved by [California Department of Fish and Wildlife]. The plan shall include measures for the long-term management of these lands for the benefit of foothill yellow-legged frog and include adaptive management measures."

The FEIR concluded that this measure, combined with others described in the FEIR, would reduce the project's impacts on the foothill yellow-legged frogs to less than significant.

San Joaquin Kit Foxes

The FEIR stated that the contiguous habitat in the project footprint was likely too small to support occupancy of San Joaquin kit foxes. However, it was unknown where and how frequently kit foxes would disperse through the study area. Researchers did locate an entry in the California Natural Diversity Database from the mouth of Del Puerto Canyon and two additional entries reported road mortalities along Interstate 5.

The project would result in the permanent loss of up to 197 acres and would cause temporary disturbance to 82 acres of potential kit fox habitat. Operational and construction activities could cause injury or mortality to kit foxes.

In response, the FEIR presented Mitigation Measure BIO-TERR-1o, which provided for a preconstruction survey to be completed no less than 14, and no more than 30 days before the beginning of ground disturbance. The biologist conducting the survey was required to systematically canvass the area with transects spaced 30–100 feet apart to ensure 100 percent visual observation of the area. If dens were located, they were to be classified as being in one of four defined categories. If dens are located, avoidance buffers will be applied based on the classification of the den.

American Badger

The FEIR found the project would have a substantial adverse effect on the American badger, including permanent loss of up to 973 acres, and temporary effects on up to 530 acres, of potential habitat. The project would also disrupt normal behaviors, potentially cause injury and/or mortality of the American badger.

The FEIR presented Mitigation Measure BIO-TERR-1q, which included a preconstruction survey by a biologist no more than 30 days before ground disturbance. The biologist will conduct den searches with transects of between 30–100 feet, ensuring

100 percent visual coverage of the area. If unoccupied dens are located in the work area, the biologist would either receive permission from the Department of Fish and Wildlife to temporarily block the burrow entrance to prevent badger usage during construction or, if necessary, would collapse the den by hand. If occupied dens are located in the work area, the biologist would consult with the Department of Fish and Wildlife regarding the best practice to encourage the badger to move to alternate dens outside work areas. This Mitigation Measure, along with others, was determined to reduce the impacts of the American badger to less than significant.

Riparian Habitat

The FEIR concluded the project's construction and operation would result in the permanent removal of over 16 acres of riparian woodland and 19 acres of riparian wetlands.

The EIR presented Mitigation Measure BIO-TERR-2, as follows,

> "Riparian habitat shall be created or acquired and permanently protected to compensate for project effects to ensure no net loss of riparian habitat functions and values. Land that could be acquired could include acres upstream of the reservoir or elsewhere that satisfied appropriate compensation ratios. Compensation ratios shall be based on site-specific information and determined through coordination with state and federal agencies [(California Department of Fish and Wildlife, United States Fish and Wildlife Service, United States Army Corp of Engineers, State Water Resources Control Board]). The compensation shall be at a minimum 1:1 ratio (1 acre restored or created for every 1 acre filled) and may be a combination of offsite restoration/creation and mitigation credits. A restoration and monitoring plan shall be developed and implemented concurrently with project construction. The plan shall describe how riparian habitat will be created and monitored, including funding mechanisms and appropriate long-term management measures, and agency reporting requirements."

The FEIR concluded the mitigation measure would reduce impacts on riparian habitat to less than significant.

Wetlands

The FEIR stated that the proposed project would result in the permanent loss of over 32 acres of riparian wetlands, seeps, seasonal wetlands, and ponds, which constituted a significant environmental impact.

Like the mitigation measure for riparian habitat, Mitigation Measure BIO-TERR-3 for wetlands provided for creation or acquisition of suitable wetland habitat to compensate for project effects. The minimum compensation ratio was set at 1:1. The compensation could be a combination of offsite restoration/creation and mitigation credits. A restoration and monitoring plan would be developed and implemented, which would describe how wetland habitat will be created and monitored.

Blue Oak Woodlands

The FEIR observed that the project would result in a loss of 39 acres of blue oak woodlands. The FEIR presented Mitigation Measure BIO-TERR-5 whereby one acre of oak woodland would be preserved, managed and monitored for every acre of oak woodland loss as a result of project implementation. A management plan would be developed for the newly preserved oak woodland.

C. ***Analysis***

Sierra Club contends these portions of the FEIR impermissibly defer formulation of mitigation for the Project's impacts on foothill yellow-legged frogs, San Joaquin kit foxes, etc. It criticizes the FEIR for relying on "unknown provisions of undeveloped plans" as mitigation measures. However, the mitigation measures are the purchasing of mitigation bank credits, substitute property, conservation easements, etc. It is the creation of management plans *for the purchased properties, easements, etc*. that is deferred to a later date—not plans governing the actual construction/implementation of the project.

It would be infeasible to do otherwise. Whether off-site mitigation is even needed is dependent on pre-construction surveys that have not yet occurred. And even presuming such mitigation will be required, the size of offsetting land/easements to

satisfy the stated compensation ratios is presently unknown. Consequently, it is unknown whether and/or how much land/credits will need to be purchased. This also means that the location of the offsetting land/easements is likewise unknown. As a result, a description of the mitigation/management plans for said properties is not currently feasible. For example, how could the FEIR be expected to set forth the details of a plan to manage offsite land for the benefit of foothill yellow-legged frogs when the location, size, terrain, etc. of that land is unknown. Such a plan would obviously have at least some site-specific aspects and therefore cannot be set forth unless and until a site is selected.

The fact is, the cited mitigation measures commit the project proponents to acquisition of credits/land/easements in specific ratios to resources impacted by the project as determined by pre-construction surveys. This is definite enough to constitute a valid mitigation measure. This conclusion is not altered by the fact that the specifics of how the offsetting land/easements themselves will be managed are not described and are instead deferred for future formulation. The aspects of the mitigation measures that *are* presently formulated are sufficiently definite.

We find *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4th 899 (*Rialto*) to be instructive. In that case, the EIR provided that a mammalogist would conduct a habitat assessment in the future and, if certain endangered kangaroo rats were found, the project proponent would consult with United States Fish and Wildlife and/or the City of Rialto "'*to determine the appropriate off-site mitigation*, which requires that mitigation/compensation for the loss of the kangaroo rats be approved through Section 10(a) consultation pursuant to the [federal Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.)], as well as specific measures, including, but not limited to, avoidance, minimization and *purchase of suitable off-site habitat*, *as well as monitoring and funding for the maintenance of the site*.'" (*Id.* at p. 943, italics added.)

The court concluded the mitigation measure was "sufficiently definite to ensure that potential impacts to the … kangaroo rats will be mitigated." (*Id* at p. 946.)

Rialto is closer to the present case than *Raptor*, relied on by Sierra Club. In that case, the EIR deferred formulation of plans for managing *the project itself* in a way to avoid/mitigate impacts in the first instance. (*Raptor, supra*, 149 Cal.App.4th. at pp. 668–670.) The *Raptor* court held that such plans were improperly deferred. (*Id.* at p. 671.) Here, the mitigation measure is the purchase of off-site credits/land, and it is the formulation of management plans for those yet-to-be-acquired, off-site properties that is deferred, not plans to manage the construction/project itself. Because there are clear standards for the mitigating purchases (e.g., defined ratios, requirement of "full" mitigation, etc.), the plans for managing the purchased land/easement themselves are "specific details" that could be deferred. (See Cal. Code Regs., tit. 14, § 15126.4, subd. (a)(1)(B).)

Sierra Club next contends the FEIR fails to prove that these mitigation measures are achievable, since there is not an endless supply of mitigation bank credits or special-status wildlife habitat for sale. But the fact that a mitigation measure involves finite resources—and nearly all of them do—does not mean the FEIR must affirmatively prove those resources exist. We are aware of no such requirement in CEQA, and it would be surprising to have such a requirement. For example, if a measure mitigating traffic impacts called for construction of an interchange, the EIR is not required to prove or explain that there is enough asphalt in the world to build it. Here, the mitigation measures involve the purchase of mitigation bank credits and/or off-site land purchases/easements. These are common mitigation measures and, absent a comment raising the issue in a manner requiring a response, we will not presume an inadequate supply so as to require explanation in the FEIR.

Using the mitigation of the foothill yellow-legged frog as an example, Sierra Club contends it is unclear how much off-site mitigation will be necessitated if the species is located in pre-construction surveys:

> "Since the EIR projects potentially significant impacts to 31 acres of aquatic habitat and 16 acres of riparian habitat [citation], will that amount of compensatory mitigation be required if frogs are located in pre-construction protocol-level surveys? Or some other amount? The EIR is silent on this issue, a deficiency that infects multiple mitigation measures."

But the EIR is not silent on the issue. Rather, it provides that if frogs are found, the habitat permanently impacted by the proposed project shall be *fully* mitigated through purchases of property/conservation easements. The word "fully" makes clear that off-site mitigation would be at least equivalent to 31 acres of aquatic habitat and 16 acres of riparian habitat.

VI. The FEIR's Statement of Purpose Was Sufficient

Sierra Club argues the FEIR used an impermissibly narrow statement of purpose. Specifically, the FEIR "fails to identify a reasonable basis for its imposition of a[n] 80,000 [acre feet storage] requirement."

A. *Law*

An EIR must contain a "statement of the objectives sought by the proposed project." (Cal. Code Regs., tit. 14, § 15124, subd. (b).) The statement should include "the underlying purpose of the project." (*Ibid.*) A clearly written statement helps the lead agency develop a reasonable range of alternatives to evaluate in the EIR. (*Ibid.*)

However, "CEQA does not restrict an agency's discretion to identify and pursue a particular project designed to meet a particular set of objectives. CEQA simply requires the agency to thereafter prepare and certify a legally adequate EIR …." (*California Oak Foundation v. Regents of University of California* (2010) 188 Cal.App.4th 227, 276–277.) By definition, it is the project proponent who determines what project they are proposing. Consequently, project objectives can be quite narrow. For example, a proponent who

wants to build a waterfront resort can insist its proposed project be waterfront, and not inland. (See *In re Bay-Delta etc., supra*, 43 Cal.4th at p. 1166.) The issue arises when the objective is "artificially" narrow. (*Ibid*.)

B. *Analysis*

As noted above, CEQA is not concerned with narrow project objectives unless they are *artificially* narrow. In other words, when the purported project objectives are insincere attempts to avoid true consideration of a reasonable range of alternatives rather than accurately express the true underlying intent motivating the project proponents. There is no such indication here.

The FEIR's stated project objectives were the following:

1. Increase south of Delta water storage capacity in California's Central Valley by 80,000 acre feet;
2. Provide local water storage in proximity to the DMC and to users;
3. Improve water supply reliability;
4. Increase peak irrigation season water supplies;
5. Improve the ability to manage regional surface water and groundwater resources;
6. Improve regional self-reliance and economic benefit from agricultural production, jobs, and industry multipliers;
7. Develop a cost-effective project that provides water at an affordable cost to landowners; and
8. Avoid displacement of homes and businesses.

Sierra Club contends the FEIR fails to identify a reasonable basis for a project with 80,000 acre feet of storage capacity because the Project Partners only need 70,000 acre feet. But the FEIR did provide a reasonable basis when it stated,

> "In addition to the up to 50,000 [acre feet] storage need identified by the Exchange Contractors and the 20,000 [acre feet] demand for storage identified by DPWD, the Project Partners are working to obtain federal

> funding and accommodate federal benefits that would be commensurate with the funding. The Bureau of Reclamation would have an opportunity to participate in the project for South of Delta benefits providing new water supply and up to 20,000 [acre feet of storage] for wildlife refuges."

Sierra Club has failed to show the stated project objective of providing 80,000 acre feet of storage capacity south of the Delta was *artificially* narrow. Consequently, we see no error in its usage to eliminate alternatives from detailed consideration. Moreover, we note that the FEIR *did* consider an alternative that was smaller in terms of capacity: a reservoir with half of the storage capacity (i.e., 40,000 acre feet).

Sierra Club further contends that the objective to create 80,000 acre feet of storage does not explain the choice of constructing a reservoir instead of using smaller and/or groundwater recharge projects.[8] But creating 80,000 acre feet of storage was only one of eight objectives. Among the other objectives were improving the reliability of the water supply, increasing water supply during peak irrigation season, and improved management of regional water resources. And as the FEIR explained, "Groundwater storage facilities cannot bank large volumes of water in a short period of time and similarly groundwater extraction cannot occur rapidly enough to meet seasonal demands in the same way that is possible with a surface storage facility." In other words, a reservoir satisfies other project objectives in a way that groundwater recharge projects would not.[9]

Sierra Club argues that the fact the project met all eight objectives indicates that, to some extent, the project's approval was a foregone conclusion based on artificially narrow project objectives. But the fact that a project meets all of the stated objectives is

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[8] We do note that groundwater projects *are* also being pursued, including recharge and recovery projects at Orestimba Creek and Los Banos Creek.

[9] Sierra Club observes that the FEIR does not state how often it is necessary to store and release water in a rapid manner. But we see no reason to require that.

Nor do we find relevant Sierra Club's discussion of the downsides to reservoirs. Every project has drawbacks and benefits. CEQA's concern is adequate environmental analysis and disclosure.

only an issue if those objectives are artificially narrow. If, instead, the objectives are properly stated, then it is quite reasonable and even expected that a project would meet all of the objectives formulated by its own proponents.

VII. The FEIR Considered an Adequate Range of Alternatives

Siera Club also challenges the FEIR's discussion of alternatives.

A. *Law*

"An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." (Cal. Code Regs., tit. 14, § 15126.6, subd. (a).)

"Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts." (Cal. Code Regs., tit. 14, § 15126.6, subd. (c).) "[T]he EIR need examine in detail only the [alternatives] that the lead agency determines could feasibly attain most of the basic objectives of the project." (*Id.*, subd. (f).)

B. *Background*

In table 4-6 of the FEIR, 11 potential alternative sites are ranked on four criteria: capacity to surface area, capacity to dam embankment volume, capacity to dam height

and distance to the DMC. The sites were given a cumulative score based on how they did on all four factors.

The proposed project site, Del Puerto Canyon received the best cumulative score. The site with the second-best cumulative score, Lone Tree Creek, was rejected for further consideration because it would have a surface area of 2,900 acres (i.e., more than three times larger than the project footprint). The site with the third-best cumulative score, Little Salado Creek/Crow Creek, was rejected because its dam would be 4.5 miles from the DMC, resulting in a substantially longer conveyance facility, with commensurate increases in energy usage and greenhouse emissions. In addition, multiple commenters during the scoping period urged consideration of the Ingram Canyon site, which had the fourth-best cumulative score. As a result, the Ingram Canyon site was selected as the alternative site that would be considered in detail.

C. *Analysis*

Sierra Club cites *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277 (*Habitat*) for the proposition that an EIR fails to analyze a reasonable range of alternatives if it "fail[s] to consider *any* alternatives that would avoid some of the significant environmental impacts of the project."[10] (*Habitat, supra*, at p. 1303.) Sierra Club contends the FEIR fails "for this exact reason" because the FEIR concludes the alternatives it considered were environmentally inferior to the project. But there is an incongruity between the legal principle Sierra Club cites and the alleged deficiency in the FEIR. An alternative that avoids *some* of the significant impacts of the project is not necessarily the same as an alternative that is, on balance, environmentally superior to the project. That is, an alternative might avoid *some* of the significant impacts of the project yet still be, *on the whole*, environmentally inferior to the project. And

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10 This quotation is actually the court describing one of the parties' contentions, not describing its own holding. (See *Habitat, supra*, 213 Cal.App.4th at p. 1303.)

CEQA does not require that an EIR consider alternatives that are wholistically environmentally superior to the project, but instead requires consideration of alternatives that "avoid or substantially lessen *one or more* of the significant effects." (Cal. Code Regs., tit. 14, § 15126.6, subd. (c), italics added; see *id*., subd. (a) ["would avoid or substantially lessen *any* of the significant effects of the project"], italics added.) The FEIR did that here. For example, the Ingram Canyon alternative would substantially lessen the significant environmental impacts caused by the project's relocation/construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities. While the EIR ultimately concluded the Ingram Canyon alternative was inferior to the project on the whole, that does not change the fact that the alternative would have "substantially lessened" *one or more* of the significant effects of the project.

VIII. The FEIR's Discussion of Alternatives Was Sufficient

Finally, Sierra Club argues the FEIR fails to provide sufficient information regarding the alternatives it did consider. They point to the alternative reservoir sites of Lone Tree Creek and Little Salado Creek/Crow Creek.

A. *Law*

The EIR's analysis of alternatives must "include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project." (Cal. Code Regs., tit. 14, § 15126.6, subd. (d).) "[T]he analysis must be specific enough to permit informed decision making and public participation." (*Laurel Heights, supra*, 47 Cal.3d at p. 406.) "The need for thorough discussion and analysis is not to be construed unreasonably, however, to serve as an easy way of defeating projects. 'Absolute perfection is not required; what is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned.… [¶] When the alternatives have been set forth in this manner, an EIR does not become vulnerable because it fails to consider in detail each and every conceivable

variation of the alternatives stated.' [Citations.] As with the range of alternatives that must be discussed, the level of analysis is subject to a rule of reason." (*Id* at pp. 406–407.)

"If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, *but in less detail than the significant effects of the project as proposed*." (Cal. Code Regs., tit. 14, § 15126.6, subd. (d), italics added.)

B. *Analysis*

Sierra Club faults the FEIR for not going into more detail in its analysis of the Lone Tree Creek and Little Salado Creek/Crow Creek site alternatives. But as long as an EIR considers in sufficient detail a reasonable range of alternatives, *it may eliminate other alternatives from detailed consideration*. (Cal. Code Regs., tit. 14, § 15126.6, subd. (c).) Here, the two alternative sites were eliminated from detailed consideration, so it is not surprising nor improper for the analysis to be truncated. The FEIR quite reasonably assumed that alternatives with triple the footprint or substantially longer conveyance facilities were not deserving of further detailed consideration when another alternative site, Ingram Canyon, *was* being analyzed in further detail.

Sierra Club points to the FEIR's statement that the Ingram Canyon alternative would have greater impacts on air quality, and argues the "basis for this claim is far from clear." Not so, the basis is clear:

> "A dam at Ingram Canyon would entail construction of a slightly larger embankment. Information from preliminary screening reports estimated that the Ingram Canyon dam would have a volume of 7.2 million cubic yards (CY) as compared to an initial estimate of 6.2 million CY for the proposed Del Puerto Canyon dam (note that this number will be refined as design progresses). The Ingram Canyon conveyance facility would also be substantially longer than the conveyance facility for the Del Puerto Canyon site (2.2 miles as compared to 0.9 miles). *Because of the extent of construction required, the Ingram Canyon site would not reduce emissions of criteria pollutants during construction. As noted on page 4-13 of the*

Draft EIR, '*This alternative would generate significant NO_x emissions*, and it is uncertain whether emissions would be fully mitigable.'" (Italics added.)

Additionally, the FEIR explained that the Ingram Canyon site would require almost 95 gigawatt hours per year compared to the project's over 40 gigawatt hours per year, due to increased conveyance facility length and pumping to a higher elevation.

IX. A Challenge to the Sufficiency of the EIR's Discussion of an Alternative's NOx Emissions is Not Cognizable

Finally, Sierra Club contends there is insufficient explanation for how the EIR can conclude mitigation measures will result in the project not creating significant NOx emissions, while being uncertain whether the emissions of the Ingram Canyon alternative are fully mitigatable. Project Partners contend this assertion is not cognizable because Sierra Club failed to exhaust its administrative remedies.

A. *Law*

"'CEQA prohibits a petitioner or appellant from alleging noncompliance with the requirements of CEQA unless the alleged grounds for noncompliance were presented to the public agency either orally or in writing by any person during the public comment period or during the hearing on project approval. [Citations.] When a ground of noncompliance with CEQA was not raised during the comment period or during the public hearing on project approval, the right to raise the issue in a subsequent legal action is waived. The petitioner bears the burden of demonstrating that the issues raised in the judicial proceeding were first raised at the administrative level. [Citation.] "[T]he objections must be sufficiently specific so that the agency has the opportunity to evaluate and respond to them." [Citation.] This requirement is known as the exhaustion doctrine. [Citation.] The rationale behind this rule is that the public agency should have the opportunity to receive and respond to articulated factual issues and legal theories before its actions are subjected to judicial review.'" (*Planning & Conservation League v.*

Castaic Lake Water Agency (2009) 180 Cal.App.4th 210, 250 (*Castaic Lake Water Agency*).)

B. *Analysis*

Project Partners have contended that Sierra Club failed to exhaust its administrative remedies on this issue. Sierra Club has not pointed us to anywhere in the record where this issue was raised. Consequently, Sierra Club failed to carry their "'burden of demonstrating that the issue[] raised in th[is] judicial proceeding w[as] first raised at the administrative level.'" (*Castaic Lake Water Agency, supra*, 10 Cal.App.4th at p. 250.)

X. The FEIR Adequately Addressed the Planned Relocation of Del Puerto Canyon Road

Project Partners, as cross-appellants, contend the court erred in concluding the FEIR did not adequately address the planned relocation of Del Puerto Canyon Road. Sierra Club responds that the Project Partners improperly segments the project by excluding the future relocation of Del Puerto Canyon Road.

A. *Law*

"Improper piecemealing occurs 'when the purpose of the reviewed project is to be the first step toward future development' or 'when the reviewed project legally compels or practically presumes completion of another action.' [Citation.] By contrast, an EIR need not analyze 'specific future action that is merely contemplated or a gleam in a planner's eye.'" (*East Sacramento Partnerships* 5 Cal.App.5th at p. 293.)

B. *Background*

The proposed reservoir will inundate a portion of Del Canyon Road, requiring that portion be relocated. While the FEIR described the proposed alignment of the relocated road, it noted that "[t]he roadway alignment has been developed at a conceptual level and is subject to refinement during design. Any alignment revision would be evaluated to determine if supplemental environmental documentation is required." The proposed new

alignment would essentially follow the shoreline of the new reservoir, including a large number of horizontal curves with relatively small radii.

The FEIR identified Stanislaus County as the agency responsible for approving the proposed relocation of Del Puerto Canyon Road. The FEIR proceeded to evaluate the potential environmental impacts of the road relocation.

A management consultant submitted a comment on the draft EIR on behalf of the Stanislaus County Environmental Review Committee on January 27, 2020. The comment stated, in part,

> "As previously communicated through initial meetings, including the September 16, 2019 meeting between Stanislaus County Public Works and Project Partners, and ongoing discussions with the Project Partners, the alignment shown on page 3.13-2 is not an alignment Stanislaus County Department of Public Works (DPW) will support as the maintaining agency for public highways. The Department of Public Works looks forward to finalizing a new alignment with the Project Partners."

The FEIR responded to the comment acknowledging the county did not "support[]" the roadway alignment depicted in the draft EIR. The FEIR further responded:

> "The roadway alignment evaluated in the EIR would adequately replace the existing road and the Draft EIR has fully evaluated the impacts of the roadway alignment described in the Draft EIR; however, the Project Partners have not foreclosed consideration of other options. [¶] The Project Partners will continue working with County staff to develop an acceptable alignment and understand that further environmental review would be needed for a revised roadway alignment."

The trial court ruled the FEIR did not adequately address the planned relocation of Del Puerto Canyon Road because the roadway location was "unknown."

C. *Analysis*

Sierra Club reads this portion of the FEIR as "acknowledg[ing] that the road relocation identified and discussed in the EIR is not the location and alignment where the road will be located." Not so. After acknowledging the lack of support from the county,

the EIR continued on to insist that the *current* alignment "would adequately replace the existing road." Even the FEIR saying the Project Partners had "not foreclosed consideration of other options" and that environmental review of any such changes would be needed, indicates that it is a *possibility* that different options could be pursued *in the future*. In this way, the FEIR again signaled that the current alignment was the status quo.

Reading the FEIR this way, there is no piecemealing issue. The project proposed relocation of a road and analyzed the relocation of the road. In other words, the analysis of the proposed relocation was not deferred or piecemealed.[11]

Sierra Club insists the county "rejected" the proposed alignment. But a correspondence from a county committee saying another county department will not support the alignment is not the same as the county rejecting the proposed alignment. A county acts on the alignments of its roads through its board of supervisors. (Sts. & Hy. Code, § 940.) Anything short of that, including lack of support from a county department, is not an actual rejection by the approving agency. Of course, opposition from a county's public works department does not bode well for the Project Partners, because it seems as a practical matter that many supervisors vote in accordance with their staff recommendations on these sorts of issues.[12] But the unlikelihood of a proposed project receiving ultimate approval does not erase an EIR's environmental analysis of it. The fact remains that the environmental analysis of the road realignment was presented in the FEIR and was not segmented or deferred to a later date. The trial court erred in concluding otherwise.

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[11] Given these case-specific circumstances, we find the cases cited by the parties unhelpful.

[12] If, due to rejection by the board of supervisors or for some other reason, the Project Partners ultimately seek approval for a different alignment than the one analyzed in the FEIR, they may very well be required to do a subsequent or supplemental EIR to study the new alignment. (See Pub. Resources Code, § 21166.) The FEIR acknowledges as much.

XI. The Court Abused Its Discretion in Denying Project Partners' Motion to Vacate

The Exchange Contractors, as appellants, challenge the court's denial of their motion to vacate a ruling concerning cultural resources.

A. *Background*

The FEIR considered the project's impacts on cultural resources. The FEIR observed that "[m]ost of the study area was previously studied in 1993 as part of the Del Puerto Alternative Reservoir Site project (Bell et al. 1993). During this study, approximately 640 acres of the current project was subject to an archaeological pedestrian survey." We will refer to this as the 1993 Bell Survey. The FEIR concluded that "[b]ecause this survey was conducted over ten years ago and is not considered current, an updated survey was warranted for the current investigation." Accordingly, the FEIR consultant's primary environmental subconsultant ICF International (ICF) conducted pedestrian archaeological surveys in May–July 2019. A total of 10 archaeological sites were located in the area.

ICF also conducted subsurface testing at five of the sites. ICF also conducted records reviews and contacted Native American groups. Ultimately, 11 prehistoric archaeological resources were documented.

A survey and evaluation of all the archaeological sites yielded one unique archaeological resource: site P-50-344. That site was described as follows:

> "Site P-50-344 is a prehistoric occupation site consisting of four bedrock mortars and cupule features, an artifact surface scatter of lithic debitage (stone chips and flakes from making stone tools), groundstone (a stone tool for grinding) fragments, and one obsidian biface tool fragment located along the slope and base of a hill overlooking Del Puerto Creek to the south. Subsurface testing at the site identified a deposit of lithic debitage, a bone awl fragment, burned faunal material, freshwater mussel shell fragments and marine shell beads. The features and artifact deposit at the site are indicative of habitation along Del Puerto Creek, containing information important in prehistory, specifically to the prehistoric inhabitants of the local area. Because the site contains information

> important in prehistory (Criterion 4), and retains enough integrity to convey its significance, it appears eligible for listing in the [National Register of Historic Places] and [California Register of Historical Resources]. The site was evaluated in accordance with Section 15064.5 (a)(2)-(3) of CEQA Guidelines and using criteria outlined in Section 5024.1 of the [Public Resources Code] and is an Archaeological Resource for the purposes of CEQA."

The FEIR ultimately concluded that the project would have significant and unavoidable impacts because it would destroy the site.

2020 ICF Report

ICF created a report inventorying and evaluating the cultural resources at the Del Puerto Reservoir Project site, which we will refer to as the 2020 ICF Report.

Section 106 Report

Apart from CEQA, federal law requires that federally licensed or federally funded undertakings must first consider "the effect of the undertaking on any historic property." (54 U.S.C. § 306108.) Because Reclamation might issue federal funding for the project, the Project Partners underwent what is called the Section 106 cultural resources consultation process. On February 3, 2020, the Project Partners' consultant transmitted a draft cultural report to Reclamation. We will refer to this report as the Section 106 Report. Reclamation provided feedback on the draft in May 2020. ICF sent a final version of the Section 106 Report to Reclamation in September 2021.

The Section 106 Report and the 2020 ICF Report are substantially similar.

Preparation of Administrative Record

Sierra Club elected to prepare the administrative record in this case pursuant to Public Resources Code section 21167.6, subdivision (b)(2). The Project Partners provided documents to Sierra Club's counsel, including "an abbreviated confidential form" of the 1993 Bell Survey. Sierra Club's counsel requested the full 1993 Bell Survey, to which Project Partners' counsel responded the document was likely confidential. Project Partners' counsel later added that neither the Project Partners nor its

consultant possessed the 1993 Bell Survey. Sierra Club's counsel indicated he would likely seek an order from the court compelling disclosure of the document. In order to avoid time-consuming law and motion proceedings, the Project Partners agreed to acquire and provide Sierra Club's counsel with the 1993 Bell Survey. However, the Project Partners would not agree to certifying the administrative record with the 1993 Bell Survey included unless the 2020 ICF Report was also included, because the FEIR expressly relied on the latter and not the former in its cultural resources analysis.

Pursuant to a stipulation of the parties, the court ordered that the 1993 Bell Survey and the 2020 ICF Report be kept confidential.

In a motion dated December 18, 2021, Sierra Club sought discovery of the files of the FEIR consultant's subcontractors and emails sent by Project Partners' consultants (to recipients other than employees of DPWD). On January 21, 2022, the court denied Sierra Club's request. The court determined that the files of the subcontractors to the FEIR consultant were not part of the "'public agency's files on the project.'"

On February 14, 2022, the Project Partners certified the administrative record. Both the 1993 Bell Survey and the 2020 ICF Report were included in the confidential portion of the administrative record.

In early 2022, Sierra Club's counsel informed Project Partners' counsel that he was considering filing a motion to strike the 2020 ICF Report from the administrative record. However, Sierra Club's counsel said he would not file the motion if Project Partners stipulated that, at the time DPWD approved the project, neither the 1993 Bell Survey nor the 2020 ICF Report were in the possession of DPWD or its FEIR consultant. In fact, the 2020 ICF Report *had* been in the possession of both DPWD and its FEIR consultant before project approval. However, because Project Partners' counsel misunderstood an email he had previously received, he believed the proposed stipulation was correct and signed it. According to Project Partners, the stipulation was not initially filed with the court.

The parties began filing merits briefing on the CEQA issues in April 2022. In a sealed brief, Sierra Club argued the FEIR's discussion of cultural resources was insufficient. Project Partners filed a responsive brief, contending that Sierra Club ignored the 2020 ICF Report and its contents. In a reply brief, Sierra Club argued that the 2020 ICF Report was not properly part of the administrative record because it was only in the possession of ICF, and not the Project Partners or their EIR consultant. Sierra Club contended that "[i]f the files were not before the agency, as they were not, then they cannot constitute substantial evidence supporting the agency's decision." As explained above, this assertion is actually incorrect; the 2020 ICF Report *was* in the possession of the Project Partners and their FEIR consultant before project approval. However, through no apparent fault of his own, Sierra Club's counsel believed otherwise due to Project Partners' counsel's mistaken assertion. The mistake still had not come to light when the court ruled on the merits of the cultural resources issues on November 29, 2022.

In its ruling, the court observed that Sierra Club "does not contest that the [2020 ICF Report] is adequate," but, instead, contended the report could not be relied upon. The court rejected Sierra Club's contention that the 2020 ICF Report was not part of the administrative record. However, the court found it "critical[]" that the 2020 ICF Report was not relied upon by the Project Partners, because it was provided "after the agency's decision." Consequently, it ruled in favor of Sierra Club on the merits of the cultural resources issue.

Project Partners' counsel considered filing a motion to vacate this ruling and accordingly contacted ICF, thinking they could explain why the 2020 ICF Report was not provided to the Project Partners or their FEIR consultant before project approval. ICF staffers responded that, in their recollection, they *had* provided the 2020 ICF Report to

the FEIR consultant in early-mid 2020,[13] which in turn provided the report to the Project Partners days later. Through subsequent conversations, Project Partners' counsel came to realize his prior understanding of an October 21, 2021, email from the FEIR consultant was mistaken. In that email, the consultant said he had "access to both reports," which Project Partners' counsel had originally understood to mean the draft and final versions of the Section 106 Report. But Project Partners' counsel *now* understood that "both reports" referred to the Section 106 Report and the *2020 ICF Report*.

Project Partners filed a motion to vacate and amend the judgment pursuant to Code of Civil Procedure sections 663 and 473, subdivision (b).[14] The motion explained the chronology of events through its memorandum of points and authorities and a declaration from Project Partners' counsel. Counsel explained his mistake and apologized to the court. The motion urged the court to amend its prior ruling since it had been based on the mistaken belief that Project Partners and their FEIR consultant were not in possession of the 2020 ICF Report before project approval. Sierra Club opposed the motion.

The court denied the motion. The ruling stated that the stipulation regarding the 2020 ICF Report had been provided in a dispute over whether Sierra Club's prior counsel could file an amicus brief. The court held that a party may not offer a fact for one purpose to its advantage and then later ask the court to disclaim that fact. The ruling also stated the court was "obligated" to accept stipulations as true (unless contrary to law or policy).

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13 Recall that the FEIR was made available to the public and commenting agencies on October 9, 2020.

14 All further undesignated statutory references are to the Code of Civil Procedure.

B. *Law*

Section 663 provides for a motion to set aside a judgment or decree when there was an "[i]ncorrect or erroneous legal basis for the decision, not consistent with or not supported by the facts …." (*Ibid.*) Section 473, subdivision (b), permits a court to "relieve a party or his or her legal representative from a judgment, dismissal, order, or other proceeding taken against him or her through his or her mistake, inadvertence, surprise, or excusable neglect." (*Ibid.*)

We review the trial court's rulings under these statutes for abuse of discretion. (*Conservatorship of Buchenau* (2011) 196 Cal.App.4th 1031, 1038; e.g., *National Secretarial Service, Inc. v. Froehlich* (1989) 210 Cal.App.3d 510, 524 [motion under § 663].) "'Abuse of discretion is a deferential standard of review.'" (*Cadiz Land Co., Inc. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 117.) "Although this standard is deferential, a court abuses its discretion '"where no reasonable basis for the action is shown."'" (*Bui v. Nguyen* (2014) 230 Cal.App.4th 1357, 1367.)

"'The discretion of a trial judge is not a whimsical, uncontrolled power, but a legal discretion, which is subject to the limitations of legal principles governing the subject of its action, and to reversal on appeal where no reasonable basis for the action is shown.'" (*Sargon Enterprises, Inc. v. University of Southern California* (2012) 55 Cal.4th 747, 773.) "To determine if a court abused its discretion, we must thus consider 'the legal principles and policies that should have guided the court's actions.'" (*Ibid.*)

"'[T]he provisions of section 473 … are to be liberally construed and sound policy favors the determination of actions on their merits.'" (*Zamora v. Clayborn Contracting Group, Inc.* (2002) 28 Cal.4th 249, 256.)

C. *Analysis*

The basis provided for the court's ruling is that the stipulation concerning the 2020 ICF Report was provided to the court pursuant to a dispute over whether Sierra Club's prior counsel could file an amicus brief. The court reasoned that it would be unfair to

allow a party to offer a fact "for one purpose" and then disclaim the fact for another purpose. However, the court's factual premise was plainly incorrect. The stipulation was not entered into pursuant to a dispute over amicus briefing. Instead, the stipulation was offered to avert a motion to strike the 2020 ICF Report from the administrative record. In other words, it was offered pursuant to the same issue the court presently faced.

The ruling also stated the court was "obligated" to accept stipulations as true (unless contrary to law or policy). But the entire purpose of section 473, subdivision (b), is to provide relief from what the law would otherwise require or permit in a given situation. Observing that, without an excusable mistake, the law would provide for a particular outcome is no explanation for why relief should not be granted where an excusable mistake *is* present.

Consider a classic section 473, subdivision (b), scenario: an attorney requests relief from a default entered after he or she failed to file a timely answer to a complaint. It would not justify denial of relief to say that the law requires entry of default after the time to answer expires. The question is not the propriety of the court's initial action in response to counsel's mistake, but whether the attorney should be relieved from the court's admittedly proper action due to the attorney's excusable neglect. In sum, the fact that courts are obligated to accept stipulations as true does not explain why the court would deny a section 473, subdivision (b), motion to obtain relief therefrom.

Sierra Club correctly observes that section 663, paragraph 1, only applies where the decision has an "[i]ncorrect or erroneous *legal* basis," not an incorrect factual basis. (*Ibid.*, italics added.) But section 473, subdivision (b), is not so limited. Under that provision, "'mistake' justifying relief may be either a mistake of fact or a mistake of law. 'A mistake of fact exists when a person understands the facts to be other than they are; ….'" (*H.D. Arnaiz, Ltd. v. County of San Joaquin* (2002) 96 Cal.App.4th 1357, 1368.)

In light of the insufficient explanations provided by the trial court, we consider whether its approach was otherwise justified. We conclude it was not. Despite some of the convoluted background, the simple fact is the 2020 ICF report *was* in the possession of the Project Partners and their FEIR consultant prior to project approval.[15] And, as the trial court observed, Sierra Club does not effectively contest the sufficiency of the 2020 ICF report. We will not turn a blind eye to substantial evidence in the record merely because counsel misdescribed it earlier in the case and sought to rectify the good-faith error pursuant to a statute designed exactly for that purpose. We also question what purpose it would serve to invalidate the FEIR on such grounds when everyone knows the substantial evidence exists. What could such a writ effectively require of the Project Partners that would not be a waste of time and resources?

For these reasons,[16] we will reverse the trial court's denial of Project Partners' motion to vacate.

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15 Sierra Club contends the 2020 ICF Report was not part of the administrative record pursuant to the court's January 21, 2022, discovery order regarding the internal files of subcontractors. But the administrative record was certified on February 14, 2022, *after* the January 21, 2022, order *with* the 2020 ICF Report included. As for the incorrect stipulation, we conclude the court should have granted relief from it due to excusable mistake as explained herein.

Sierra Club also posits that the Exchange Contractors failed to argue that the 2020 ICF Report was a mandatory part of the record pursuant to Public Resources Code section 21167.6 as part of their motion to vacate. But they did not need to make that argument because the 2020 ICF Report was already part of the administrative record.

Sierra Club cites the court's November 29, 2022, ruling and says this court is "bound by the facts" as the trial court found them in that order. But that order expressly states, "Respondent contends that the ICF report provides substantial evidence supporting the EIR's conclusions. Petitioner's claim that this should not be part of the administrative record *fails* …." (Italics added.)

16 Also for these reasons, we do not address the other grounds Project Partners advance in defense of their motion to vacate.

DISPOSITION

The court's order denying the motion to vacate filed by DPWD and San Joaquin River Exchange Contractors Water Authority is reversed. The court is directed to enter a new and different order granting the motion consistent with the views expressed in this opinion.

The judgment is reversed in part and the court is directed to enter a new and different judgment consistent with this court's holding that the FEIR was sufficient with respect to the relocation of Del Puerto Canyon Road and cultural resources; and that the FEIR was insufficient with respect to impacts on terrestrial species downstream from the proposed reservoir.

The superior court is directed to issue a peremptory writ of mandate as soon as practicable after it has filed the modified judgment.

The parties shall bear their own costs on appeal.

MEEHAN, J.

WE CONCUR:

DETJEN, Acting P. J.

FAIN, J.*

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* Judge of the Fresno Superior Court, assigned by the Chief Justice pursuant to article VI, section 6 of the California Constitution.

Appendix B Species Lists

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: 04/25/2025 18:29:35 UTC
Project Code: 2025-0088591
Project Name: Del Puerto Canyon Reservoir

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2025-0088591
Project Name: Del Puerto Canyon Reservoir
Project Type: Water Supply Facility - New Constr
Project Description: Proposed offstream reservoir in Stanislaus County, California, involving construction of new saddle dams, conveyance pipeline and pumping plant, and road and utility relocation. Formerly Project Code 2022-0008897
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.481312900000006,-121.21958941735662,14z

Counties: Stanislaus County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

MAMMALS

NAME	STATUS
Riparian Brush Rabbit *Sylvilagus bachmani riparius* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6189	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog *Rana boylii* Population: Central Coast Distinct Population Segment (Central Coast DPS) There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5133	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

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

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Danika Tsao
Address: 980 9th Street, Suite 1200
City: Sacramento
State: CA
Zip: 95814
Email dctsao@gmail.com
Phone: 9162966740

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Bureau of Reclamation

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

35 matches found. Click on scientific name for details

Search Criteria: , 9-Quad include [**3712141:3712151:3712142:3712143:3712153:3712152:3712161:3712163:3712162**]

▲ 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
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1974-01-01	© 2005 Barry Breckling
Acmispon rubriflorus	red-flowered bird's-foot trefoil	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	© 2011 Dean Wm. Taylor, Ph.D.
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 coronata var. *coronata*	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994-01-01	© 1994 Robert E. Preston, Ph.D.

Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	© 2000 Robert E. Preston, Ph.D.
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01	No Photo Available
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	None	None	G3	S3	1B.2	Yes	2001-01-01	No Photo Available
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	© 2019 John Doyen
Cirsium crassicaule	slough thistle	Asteraceae	annual/perennial herb	May-Aug	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Clarkia breweri	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	None	None	G4	S4	4.2	Yes	1974-01-01	No Photo Available
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	©2019 Zoya Akulova
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Cryptantha rattanii	Rattan's cryptantha	Boraginaceae	annual herb	Apr-Jul	None	None	G4	S4	4.3	Yes	1974-01-01	No Photo Available
Eriastrum tracyi	Tracy's eriastrum	Polemoniaceae	annual herb	May-Jul	None	CR	G3Q	S3	3.2	Yes	1974-01-01	© 2012 Neal Kramer

Eriophorum gracile	slender cottongrass	Cyperaceae	perennial rhizomatous herb (emergent)	May-Sep	None	None	G5	S4	4.3		2006-10-31	©2011 Steven Perry
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	Apr-Jun	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1980-01-01	No Photo Available
Eschscholzia hypecoides	San Benito poppy	Papaveraceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	No Photo Available
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1980-01-01	No Photo Available
Fritillaria falcata	talus fritillary	Liliaceae	perennial bulbiferous herb	Mar-May	None	None	G2	S2	1B.2	Yes	1974-01-01	© 2013 Aaron Schusteff
Galium andrewsii ssp. *gatense*	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	Apr-Jul	None	None	G5T3	S3	4.2	Yes	1994-01-01	© 2021 Steve Matson
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	© 2017 John Doyen
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	© 2009 California State University, Stanislaus

Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	© 2009 Zoya Akulova
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1994-01-01	© 2010 Aaron Schusteff
Leptosyne hamiltonii	Mt. Hamilton coreopsis	Asteraceae	annual herb	Mar-May	None	None	G2	S2	1B.2	Yes	1974-01-01	©2012 Aaron Schusteff
Madia radiata	showy golden madia	Asteraceae	annual herb	Mar-May	None	None	G3	S3	1B.1	Yes	1988-01-01	No Photo Available
Malacothamnus hallii	Hall's bushmallow	Malvaceae	perennial deciduous shrub	(Apr)May-Sep(Oct)	None	None	G2	S2	1B.2	Yes	1974-01-01	© 2017 Keir Morse
Navarretia nigelliformis ssp. *radians*	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	None	None	G4T2T3	S2S3	1B.2	Yes	1994-01-01	No Photo Available
Phacelia phacelioides	Mt. Diablo phacelia	Hydrophyllaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1974-01-01	©2019 Steve Matson
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	© 2017 Chris Winchell
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	None	None	G5	S2	2B.2		1974-01-01	No Photo Available

Showing 1 to 35 of 35 entries

Go to top

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Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ripon (3712162) OR Vernalis (3712163) OR Salida (3712161) OR Solyo (3712153) OR Westley (3712152) OR Brush Lake (3712151) OR Copper Mtn. (3712143) OR Patterson (3712142) OR Crows Landing (3712141))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1	None	None	G2T1	S1	1B.2
alkali-sink goldfields *Lasthenia chrysantha*	PDAST5L030	None	None	G2	S2	1B.1
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
big tarplant *Blepharizonia plumosa*	PDAST1C011	None	None	G1G2	S1S2	1B.1
burrowing owl *Athene cunicularia*	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted	None	G5T3	S3	WL
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G2	S2	1B.2
California horned lark *Eremophila alpestris actia*	ABPAT02011	None	None	G5T4Q	S4	WL
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Conservancy fairy shrimp *Branchinecta conservatio*	ICBRA03010	Endangered	None	G2	S2	
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Delta button-celery *Eryngium racemosum*	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
Diablo Range pyrg *Pyrgulopsis diablensis*	IMGASJ0980	None	None	G1	S1	
diamond-petaled California poppy *Eschscholzia rhombipetala*	PDPAP0A0D0	None	None	G1	S1	1B.1
Elderberry Savanna *Elderberry Savanna*	CTT63440CA	None	None	G2	S2.1	
foothill yellow-legged frog - central coast DPS *Rana boylii pop. 4*	AAABH01054	Threatened	Endangered	G3T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
Great Valley Cottonwood Riparian Forest *Great Valley Cottonwood Riparian Forest*	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest *Great Valley Mixed Riparian Forest*	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest *Great Valley Valley Oak Riparian Forest*	CTT61430CA	None	None	G1	S1.1	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	SSC
Hall's bushmallow *Malacothamnus hallii*	PDMAL0Q0F0	None	None	G2	S2	1B.2
hardhead *Mylopharodon conocephalus*	AFCJB25010	None	None	G3	S3	SSC
heartscale *Atriplex cordulata var. cordulata*	PDCHE040B0	None	None	G3T2	S2	1B.2
hoary bat *Lasiurus cinereus*	AMACC05032	None	None	G3G4	S4	
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S3	
Lemmon's jewelflower *Caulanthus lemmonii*	PDBRA0M0E0	None	None	G3	S3	1B.2
lesser saltscale *Atriplex minuscula*	PDCHE042M0	None	None	G2	S2	1B.1
loggerhead shrike *Lanius ludovicianus*	ABPBR01030	None	None	G4	S4	SSC
Menke's cuckoo wasp *Ceratochrysis menkei*	IIHYM71050	None	None	G2	S2	
merlin *Falco columbarius*	ABNKD06030	None	None	G5	S3S4	WL
moestan blister beetle *Lytta moesta*	IICOL4C020	None	None	G2	S2	
Mt. Diablo phacelia *Phacelia phacelioides*	PDHYD0C3Q0	None	None	G2	S2	1B.2
Mt. Hamilton coreopsis *Leptosyne hamiltonii*	PDAST2L0C0	None	None	G2	S2	1B.2
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC
northwestern pond turtle *Actinemys marmorata*	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G2G3	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
prairie wedge grass *Sphenopholis obtusata*	PMPOA5T030	None	None	G5	S2	2B.2
red-flowered bird's-foot trefoil *Acmispon rubriflorus*	PDFAB2A150	None	None	G2	S2	1B.1
redheaded sphecid wasp *Eucerceris ruficeps*	IIHYM18010	None	None	G1G3	S2	
riparian (=San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	AMAFF08081	Endangered	None	G5T1	S1	SSC
riparian brush rabbit *Sylvilagus bachmani riparius*	AMAEB01021	Endangered	Endangered	G5T1	S2	
Sacramento anthicid beetle *Anthicus sacramento*	IICOL49010	None	None	G4	S4	
Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020	None	None	G3	S3	SSC
San Joaquin coachwhip *Masticophis flagellum ruddocki*	ARADB21021	None	None	G5T2T3	S3	SSC
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin pocket mouse *Perognathus inornatus*	AMAFD01060	None	None	G3	S2S3	
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
shining navarretia *Navarretia nigelliformis ssp. radians*	PDPLM0C0J2	None	None	G4T2T3	S2S3	1B.2
showy golden madia *Madia radiata*	PDAST650E0	None	None	G3	S3	1B.1
slough thistle *Cirsium crassicaule*	PDAST2E0U0	None	None	G1	S1	1B.1
snowy egret *Egretta thula*	ABNGA06030	None	None	G5	S4	
song sparrow ("Modesto" population) *Melospiza melodia pop. 1*	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
spiny-sepaled button-celery *Eryngium spinosepalum*	PDAPI0Z0Y0	None	None	G2	S2	1B.2
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
talus fritillary *Fritillaria falcata*	PMLIL0V070	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Tracy's eriastrum *Eriastrum tracyi*	PDPLM030C0	None	Rare	G3Q	S3	3.2
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool smallscale *Atriplex persistens*	PDCHE042P0	None	None	G2	S2	1B.2
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
western ridged mussel *Gonidea angulata*	IMBIV19010	None	None	G3	S2	
western spadefoot *Spea hammondii*	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	

Record Count: 70

Appendix C Special Status Species Tables

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Table 1. *Special-Status Plants with Potential to Occur in the Study Area*

Name	Status* Federal/State/ CNPS	Distribution	Habitat	Occurrence in Downstream study area
Santa Clara thorn mint *Acanthomintha lanceolata*	–/–/4.2	San Francisco Bay Area, interior South Coast Ranges	Woodlands or chaparral on rocky slopes, outcrops, talus; 0–3,940 feet; blooms March–June	Potentially Present: Not known from downstream study area; nearest occurrences in upper Del Puerto Canyon; potential habitat present in downstream study area
Red-flowered bird's-foot trefoil *Acmispon rubriflorus*	–/–/1B.1	Interior North Coast Ranges (Colusa, Tehama Counties); interior South Coast Ranges (Stanislaus County)	Open, grassy areas in oak woodlands; 640–1,605 feet; blooms April–May	Potentially Present: Not known from downstream study area; nearest occurrences 4–9 miles west; potential habitat present in downstream study area
Carlotta Hall's lace fern *Aspidotis carlotta-halliae*	–/–/4.2	Central western California	In crevices of serpentine outcrops; 328–4,590 feet	Not Present: Not known from downstream study area; nearest occurrence 11 miles west; potential habitat not present in downstream study area
Alkali milk-vetch *Astragalus tener var. tener*	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay Area	Playas, valley and foothill grassland on adobe clay, alkaline vernal pools; 5–195 feet; blooms March–June	Potentially Present: Not known from downstream study area; nearest occurrence 10 miles east; potential habitat present
Heartscale *Atriplex cordulata var. cordulata*	–/–/1B.2	Western Central Valley and valleys of adjacent foothills	Saline or alkaline area in chenopod scrub, meadows and seeps, sandy soils in valley and foothill grassland; 0–1,835 feet; blooms April–October	Potentially Present: Not known from downstream study area; nearest occurrence 10 miles east; potential habitat present
Crownscale *Atriplex coronata var. coronata*	–/–/4.2	Southern Sacramento Valley, San Joaquin Valley, eastern inner South Coast Ranges	Alkaline, often clay, soils in chenopod scrub, valley and foothill grassland, vernal pools; 5–1,935 feet; blooms March–October	Potentially Present: Not known from downstream study area; nearest occurrence 10 miles north; potential habitat present
Lesser saltscale *Atriplex minuscula*	–/–/1B.1	Sacramento and San Joaquin Valley, Butte County, and from Merced County to Kern County	Sandy alkaline soils in chenopod scrub, playas, valley and foothill grassland; 50–655 feet; blooms May–October	Potentially Present: Not known from downstream study area; nearest occurrence 10 miles east; potential habitat present
Vernal pool smallscale *Atriplex persistens*	–/–/1B.2	Central Valley from Glenn to Tulare County	Dry beds of vernal pools on alkaline soils; 35–375 feet; blooms June–October	Low Potential to Occur: Not known from downstream study area; nearest occurrence 8 miles east; marginal habitat present in seasonal wetlands

Name	Status* Federal/State/ CNPS	Distribution	Habitat	Occurrence in Downstream study area
Big tarplant *Blepharizonia plumosa*	–/–/1B.1	Interior Coast Range foothills from Contra Costa County to Stanislaus County	Annual grassland on dry hills and plains between 50–1,500 feet; blooms July–October	Potentially Present: Population is the southernmost locality for the species (second-largest known population); potential habitat present in downstream study area
Lemmon's jewelflower *Caulanthus lemmonii*	–/–/1B.2	Southwestern San Joaquin Valley, southeastern San Francisco Bay Area, eastern outer South Coast Ranges, inner South Coast Ranges	Grassland, chaparral, scrub; 245–5,200 feet; blooms March–May	Potentially Present: Historically present at the mouth of Del Puerto Canyon; potential habitat present in downstream study area
Parry's rough tarplant *Centromadia parryi ssp. rudis*	–/–/4.2	Butte, Colusa, Glenn, Lake, Merced, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties	Alkaline soils, vernally mesic seeps, sometimes roadsides, in valley and foothill grassland, vernal pools; 0–330 feet; blooms May–October	Potentially Present: Not known from potential habitat present in downstream study area; nearest occurrence 11 miles north; potential habitat present
Slough thistle *Cirsium crassicaule*	–/–/1B.1	San Joaquin Valley; San Joaquin, Kings, and Kern Counties	Chenopod scrub, riparian scrub, sloughs in swamps and marshes; 10–330 feet; blooms May–August	Not Present: Not known from downstream study area; nearest occurrence 14 miles north; potential habitat not present in downstream study area
Brewer's clarkia *Clarkia breweri*	–/–/4.2	Inner South Coast Ranges, southeast San Francisco Bay, Mount Hamilton Range, Alameda, Fresno, Merced, Monterey, San Benito, Santa Clara, and Stanislaus Counties	Chaparral and cismontane woodland, coastal scrub, talus or dry slopes, often serpentine; 0–4,000 feet; blooms April–May	Low Potential to Occur: Not known from downstream study area; nearest occurrence 8 miles west; potential habitat present in downstream study area
Serpentine collomia *Collomia diversifolia*	–/–/4.3	Inner and high North Coast Ranges, northeastern San Francisco Bay Area	Open, rocky to gravelly areas in serpentine chaparral; 200–2,950 feet; blooms April–July	Not Present: Not known from downstream study area; nearest occurrence 8 miles west; potential habitat not present in downstream study area
Small-flowered morning-glory *Convolvulus simulans*	–/–/4.2	Southern Sierra Nevada foothills, San Francisco Bay Area, San Joaquin Valley and adjacent southern interior Coast Ranges, southern outer South Coast Ranges, western Transverse Ranges, South Coast, Channel Islands, Peninsular Ranges, Baja California	Chaparral openings, coastal scrub, valley and foothill grassland, clay soils in serpentinite seeps; 100– 2,870 feet; blooms April–June	Potentially Present: Not known from downstream study area; nearest occurrence less than 5 miles northwest; potential habitat present in downstream study area

Name	Status* Federal/State/ CNPS	Distribution	Habitat	Occurrence in Downstream study area
Rattan's cryptantha *Cryptantha rattanii*	–/–/4.3	Northern South Coast Ranges	Rocky, gravelly slopes and grassland, coastal scrub, chaparral, foothill woodland; 490–2,560 feet; blooms April–July	Potentially Present: Reported from Del Puerto Canyon; potential habitat present in downstream study area
Tracy's eriastrum *Eriastrum tracyi*	–/–/3.2	Inner North Coast Ranges, disjunct to Mount Hamilton	Grasslands, open areas in chaparral or oak woodland, gravelly shale or clay; 1,030–7,880 ft; blooms June–July	Not Present: Not known from downstream study area; nearest occurrences 6–7 miles west; potential habitat not present in western portion of the downstream study area
Slender cottongrass *Eriophorum gracile*	–/–/4.3	Butte, El Dorado, Lassen, Madera, Mariposa, Nevada, Plumas, San Francisco, Shasta, Sierra, Siskiyou (?), Sonoma, and Tuolumne Counties and Idaho, Oregon, Washington, Wyoming	Acidic soils in bogs and fens, meadows and seeps, upper montane coniferous forest; 4,200–9,515 feet; blooms May–September	Not Present: Not known from downstream study area; nearest occurrence more than 15 miles from downstream study area; potential habitat not present in downstream study area
Jepson's woolly sunflower *Eriophyllum jepsonii*	–/–/4.3	Alameda, Contra Costa, Kern, Monterey, San Benito, Santa Clara, San Luis Obispo, Stanislaus, and Ventura Counties	Chaparral, cismontane woodland, coastal scrub, sometimes serpentinite on dry, rocky slopes; 655–3,365 feet; blooms April–June	Low Potential to Occur: Not known from downstream study area; nearest occurrence 7 miles west in Del Puerto Canyon; potential habitat present in in western portion of the downstream study area
Delta button-celery *Eryngium racemosum*	–/E/1B.1	San Joaquin River delta and floodplains	Seasonally inundated depressions along floodplains; 10–100 feet; blooms June–October	Not Present: Not known from downstream study area; nearest occurrences 5–9 miles east; potential habitat not present in downstream study area
Spiny-sepaled button-celery *Eryngium spinosepalum*	–/–/1B.2	Western San Joaquin Valley, southern Sierra Nevada foothills	Vernal pools, swales, roadside ditches; 325–2,625 feet; blooms April–July	Not Present: Not known from downstream study area; nearest occurrence 3 miles south; potential habitat present in downstream study area
San Benito poppy *Eschscholzia hypecoides*	–/–/4.3	Inner South Coast Ranges	Chaparral, cismontane woodland, valley and foothill grassland on clay substrates; 655–5,250 feet; blooms March–June	Potentially Present: Potential habitat present in downstream study area
Diamond-petaled California poppy *Eschscholzia rhombipetala*	–/–/1B.1	Interior foothills of South Coast Ranges from Contra Costa County to Stanislaus County; Carrizo Plain in San Luis Obispo County;	Grassland, chenopod scrub; on clay soils where grass cover is sparse enough to allow growth of low annuals; 0–3,200 feet; blooms March–May	Potentially Present: Collected historically in downstream study area at the mouth of Del Puerto Canyon; potential habitat present in downstream study area

Name	Status* Federal/State/ CNPS	Distribution	Habitat	Occurrence in Downstream study area
		historically in inner North Coast Ranges		
Talus fritillary *Fritillaria falcata*	–/–/1B.2	San Francisco Bay Area, interior South Coast Ranges	Chaparral, oak woodland, coniferous forest, serpentine talus; 985–5,005 feet; blooms March–May	Not Present: Not known from downstream study area; nearest occurrences 5–13 miles west; potential habitat not present in downstream study area
Serpentine bedstraw *Galium andrewsii subsp. gatense*	–/–/4.2	San Francisco Bay Area, interior South Coast Ranges	Serpentine chaparral, woodlands, open rocky places; 720–4,755 feet; blooms April–June	Not Present: Not known from downstream study area; nearest occurrence 7 miles northwest; potential habitat not present in downstream study area
Hogwallow starfish *Hesperevax caulescens*	–/–/4.2	Alameda, Amador, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Napa, San Diego, San Joaquin, San Luis Obispo, Solano, Stanislaus, Sutter, Tehama, and Yolo Counties	Mesic clay in valley and foothill grassland; 0–1,655 feet; blooms March–June	Potentially Present: Not known from downstream study area; nearest occurrence 0.1 mile east of Ingram Canyon and 2.5 miles north of downstream study area; potential habitat present in downstream study area
Alkali-sink goldfields *Lasthenia chrysantha*	–/–/1B.1	Central Valley in Sacramento, Solano, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern Counties	Vernal pools on alkaline soils; 0–655 feet; blooms February–April	Potentially Present: Not known from downstream study area; nearest occurrence 9 miles east; potential habitat present in downstream study area
Ferris' goldfields *Lasthenia ferrisiae*	–/–/4.2	Occurs in Alameda, Butte, Contra Costa, Colusa, Fresno, Kings, Kern, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, Ventura, and Yolo Counties	Vernal pools on alkaline, clay-based soils; 62–2,295 feet; blooms February–May	Potentially Present: Not known from downstream study area; nearest occurrence 6 miles east; potential habitat present in downstream study area
Serpentine leptosiphon *Leptosiphon ambiguus*	–/–/4.2	San Francisco Bay Area, interior South Coast Ranges, San Joaquin Valley	Serpentine grassland; 0–3,280 feet; blooms April–May	Not Present: Reported from Del Puerto Canyon near downstream study area; potential habitat not present in downstream study area
Mt. Hamilton coreopsis *Leptosyne hamiltonii*	–/–/1B.2	Diablo Range	Openings in chaparral and oak-pine woodland, steep shale talus slopes; 1,970–4,265 feet; blooms March–May	Not Present: Not known from downstream study area; potential habitat not present in downstream study area

Name	Status* Federal/State/ CNPS	Distribution	Habitat	Occurrence in Downstream study area
Showy golden madia *Madia radiata*	–/–/1B.1	Scattered populations in the interior foothills of the South Coast Ranges	Oak woodland, grassland; slopes; 0–3,000 feet; blooms March–May	Potentially Present: Not reported from downstream study area; nearest occurrences 10–18 miles to northwest; potential habitat present in downstream study area
Hall's bushmallow *Malacothamnus hallii*	–/–/1B.2	Contra Costa, Santa Clara, and Merced Counties	Chaparral, coastal scrub; 800–1,350 feet; blooms May–September	Potentially Present: Not reported from downstream study area; nearest occurrences 6–9 miles to northwest; potential habitat present in downstream study area
Shining navarretia *Navarretia nigelliformis subsp. radians*	–/–/1B.2	Interior foothills of South Coast Ranges from Merced County to San Luis Obispo County	Mesic areas with heavy clay soils, swales and clay flats; oak woodland, grassland; 650–3,300 feet; blooms May–June	Potentially Present: Not known from downstream study area; nearest occurrence 3 miles south; potential habitat present in downstream study area
Mt. Diablo phacelia *Phacelia phacelioides*	–/–/1B.2	South Coast Ranges from Contra Costa County to San Benito County	Chaparral, oak woodland, adjacent to trails, rock outcrops and talus slopes; 2,000–3,800 feet; blooms April–May	Not Present: Not known from downstream study area; nearest occurrences 7–10 miles west; potential habitat not present in downstream study area
California alkali grass *Puccinellia simplex*	–/–/1B.2	Scattered locations in the San Francisco Bay Area, Great Valley, Tehachapi Mountains, western Mojave Desert	Seasonally wet alkaline wetlands, sinks, flats, vernal pools, lake margins; 0–3,000 feet; blooms March–May	Potentially Present: Not known from downstream study area; potential habitat present in downstream study area
Prairie wedge grass *Sphenopholis obtusata*	–/–/2B.2	Amador, Fresno, Inyo, Mono, Riverside, San Bernardino, San Diego (?), and Tulare Counties	Moist areas in meadows and seeps, cismontane woodland; 985–6,570 feet; blooms April–July	Potentially Present: Not known from downstream study area; nearest occurrences 10 miles northeast; potential habitat present in downstream study area
Mount Hamilton jewelflower *Streptanthus callistus*	–/–/1B.3	Endemic to Mount Hamilton	Chaparral, oak woodland; 1,970-2,590 feet; blooms May–July	Not Present: Not known from downstream study area; nearest occurrence 16 miles southwest; potential habitat not present in downstream study area

Status explanations:

Federal
– = No status
E = Listed as "endangered" under the federal Endangered Species Act

State
– = No status

E = Listed as "endangered" under the California Endangered Species Act

California Rare Plant Rank
1B = Rare, threatened, or endangered in California and elsewhere
2B = Rare, threatened, or endangered in California but more common elsewhere
3 = Plants about which we need more information
4 = Plants of limited distribution

.1 = Seriously endangered in California
.2 = Fairly endangered in California
.3 = Not very endangered in California

CDFW = California Department of Fish and Wildlife
USFWS = U.S. Fish and Wildlife Service
CNDDB = California Natural Diversity Database

Table 2. *Special-Status Wildlife with Potential to Occur in the Study Area*

Common Name	Scientific Name	Status* Federal/State	Range and General Habitat Description	Potential for Occurrence
Conservancy fairy shrimp	*Branchinecta conservatio*	E/-	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large turbid pools. Inhabit astatic pools in swales formed by old braided alluvium and filled by winter/spring rains; last until June.	**Low.** Minimal suitable habitat is present in the study area. There are no CNDDB records within 5 miles of the study area. The closest CNDDB record is approximately 10 miles north of the study area (from 1991; occurrence #12).
Vernal pool fairy shrimp	*Branchinecta lynchi*	T/–	Occurs in the Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Inhabits vernal pools; also found in sandstone rock outcrop pools.	**Low.** Minimal suitable habitat is present in the study area. There are no CNDDB records within 5 miles of the study area. The closest CNDDB record is approximately 6 miles north of the study area (from 1998; occurrence #799).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E/–	Occurs from Shasta County south to Merced County. Inhabits vernal pools and seasonal stock ponds.	**Low**. Minimal suitable habitat is present in the study area. There are no CNDDB records within 5 miles of the study area. The closest CNDDB record is approximately 12 miles north of the study area (from 2000; occurrence #338).
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T/–	Current range extends throughout the Central Valley, from approximately Shasta County to Fresno County, including valley floor and lower foothills. Majority of occurrences are below 500 feet in elevation.[1] Elderberry shrubs (*Sambucus* sp.) are the host plant. Elderberry shrubs occur in riparian (valley-foothill forest habitat)	**Moderate.** Riparian habitat is present along and lower Del Puerto Creek; if elderberry shrubs are present, these could provide host plants for the species. The closest CNDDB record is approximately 3.8 miles northeast of the study area (from1999; occurrence #181).

[1] U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus). Sacramento, CA.

Common Name	Scientific Name	Status* Federal/State	Range and General Habitat Description	Potential for Occurrence
			and non-riparian (valley oak and blue oak woodland and annual grassland) vegetative communities. USFWS recognizes habitat for valley elderberry longhorn beetle as both riparian and non-riparian areas where elderberry shrubs are present.	
Crotch's bumble bee	*Bombus crotchii*	–/CE	Historically ranged across Southern California, from the Coast Ranges, through the Central Valley, and into the adjacent foothills (CDFW 2019).[2] The species has since substantially declined in the Central Valley; recent records are limited to Southern California, the Bay Area, and the Sacramento Valley (CDFW 2019). Found in open grassland and scrub. Construct nests underground; may rely on mammal burrows for use in nesting. Active from late February to late October. Forage on a wide variety of plants. Bumble bees require a reliable supply of nectar and pollen source throughout the nesting season (Goulson 2010 in Schweitzer et al. 2012).[3]	**Low.** There is one historic Crotch's bumble bee CNDDB occurrence approximately 1.7 miles south of the study area in the city of Patterson (from 1949; occurrence #8). There are no recent records in the Central Valley and/or adjacent Coast Range foothills. The density of floral resources in the study area is low; these are limited to mostly the spring season. Therefore, the study area would most likely not support sufficient nectar and pollen sources during the remainder of the active season.
Monarch butterfly	*Danaus plexippus*	PT/-	Historically ranged from Channel Islands to northern extent of the state, primarily in the coastal and Sierra Nevada ranges, excluding the Central Valley and drier, warmer areas. Occurs from southern British Columbia, Canada, south to multiple western U.S. states, including California. Data suggest populations are currently restricted to high-elevation sites in the Sierras-Cascades and coastal areas, although there are some observations of this species on the northern California coast (CDFW 2019e). Requires floral resources, undisturbed nest sites (e.g., abandoned rodent burrows, underground cavities, log cavities, dead vegetation/leaf litter, abandoned bird nests), and overwintering sites (e.g., friable soil and plant litter and trees). Nests, forages, and overwinters in meadows and grasslands with abundant floral resources; may be found in some natural areas within urban environments. Requires floral resources throughout the	**Moderate.** There is potential for monarch butterfly to be present in the study area, in grasslands and riparian shrubs, during migration or breeding if milkweed is present. There are no CNDDB occurrences of monarch butterfly within 5 miles of the study area (CDFW 2025). One monarch butterfly occurrence from 2023 was recorded during migration along Del Puerto Creek approximately 2 miles upstream of the study area on the west side of I-5 (iNaturalist 2024); milkweed has not been documented in the study area (Western Monarch Milkweed Mapper 2025).

[2] California Department of Fish and Wildlife. 2019. *Report to the Fish and Game Commission, Evaluation of the Petition from the Xerces Society, Defenders of Wildlife, and the Center for Food Safety to List Four Species of Bumble Bees as Endangered under the California Endangered Species Act.* April 4, 2019.

[3] Schweitzer, D.F., N.A. Capuano, B.E. Young, and S.R. Colla. 2012. *Conservation and Management of North American Bumble Bees.* NatureServe, Arlington, VA, and USDA Forest Service, Washington, D.C.

Common Name	Scientific Name	Status* Federal/State	Range and General Habitat Description	Potential for Occurrence
			flight period (from early February to late November) (CDFW 2019). Bumble bees require a reliable supply of nectar and pollen source throughout the nesting season (Goulson 2010 in Schweitzer et al. 2012).	
California red-legged frog	*Rana draytonii*	T/SSC	Found along the coast and coastal mountain ranges of California from Mendocino County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County; in elevations near sea level to about 4,900 feet. Inhabits permanent and semi-permanent aquatic habitat, including creeks and ponds with emergent vegetation. Uses upland areas adjacent to aquatic habitat for cover (small mammal burrows, logs, rocks, leaf litter) and dispersal.	**Moderate.** Del Puerto Creek within the study area represents suitable aquatic habitat. Minimal suitable upland habitat is present within 300 feet of suitable aquatic habitat; dispersal habitat is present within 1 mile of aquatic habitat. The closest CNDDB records for the species are approximately 15 miles south (occurrence #61) and 14.75 miles west (occurrence #1548) of the study area.
California tiger salamander	*Ambystoma californiense*	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County. Most populations in the Central Valley have been extirpated; remaining populations are in grasslands on the edge of the valley and in the surrounding foothills. Breeds during the wet season in vernal pools and ponds (that lack predators) in grassland and oak woodlands with a minimum of 10 weeks of inundation. Adults spend most of the year underground in small mammal burrows, rock crevices, or under fallen logs in upland grassland and oak savannah habitats.	**Low.** Minimal suitable habitat present in the study area. Grasslands in the study area occur in narrow strips surrounded by agricultural fields. There are no CNDDB records within 5 miles of the study area. The closest CNDDB record is 8.5 miles northwest from the study area (occurrence #864).
Foothill yellow-legged frog	*Rana boylii*	T/E	In most of Northern California west of Cascade crest and along western flank of Sierra south to Kern County. Isolated population in San Joaquin County. Absent from Monterey County and San Gabriel Mountains. Range of up to approximately 6,000 feet. Inhabits streams in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby.	**Moderate.** Del Puerto Creek and adjacent riparian habitat represents marginal habitat in the study area due to intermittent flows, agricultural runoff, and limited riparian habitat. There are four CNDDB records within 5 miles of the study area, with the closest record on the southwestern boundary of the study area (from 1954; occurrence #2073).
Western spadefoot	*Spea hammondii*	PT/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in Southern California; west of Sierran-desert range axis. Inhabits shallow streams with riffles and seasonal wetlands, such as vernal and seasonal pools, in	**Low.** Minimal suitable upland habitat (grasslands) and no suitable aquatic habitat is present in the study area. There are four CNDDB records within 5 miles of the study area, with the

Common Name	Scientific Name	Status* Federal/State	Range and General Habitat Description	Potential for Occurrence
			annual grasslands and oak woodlands. Majority of life spent underground.	closest record 3.5 miles southwest of the study area (from 2001; occurrence #281).
California condor	*Gymnogyps californianus*	E/-	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna, and woodland habitats. Mostly south-facing slopes and ravines with rock outcrops, deep crevices, or abundant rodent burrows where shrubs form a vegetative mosaic with oak trees and grasses.	**None.** The study area is outside of the species' current range and lacks suitable habitat.
Northwestern pond turtle	*Actinemys marmorata*	PT/SSC	Occurs throughout California west of the Sierra-Cascade crest. Occurs from the Oregon border in Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada. Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	**Moderate**. Suitable aquatic habitat is present in the study area in Del Puerto Creek, but minimal suitable upland habitat is present. There are no CNDDB records within 5 miles of the study area. The closest CNDDB record is approximately 10 miles west of the study area (from 1988; occurrence #60).
Golden eagle	*Aquila chrysaetos*	–/FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley; winter range spans most of California. Breeding range excludes the Central Valley. Ranges from sea level to around 11,500 feet. Rolling foothills, mountain ranges, sage-juniper flats, and desert. Nests on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grassland, chaparral, and oak woodland with plentiful medium and large-sized mammals.	**Moderate**. Limited suitable nesting foraging habitat is present in the study area; however, golden eagle could be observed flying over the western extent of the study area. There are no CNDDB records within 5 miles of the study area. The closest CNDDB record is approximately 13 miles south of the study area (from 2001; occurrence #85).
Least Bell's vireo	*Vireo bellii pusillus*	E/E	Historically nested in riparian habitat throughout the Central Valley, western Sierra Nevada, and coastal valley and foothills. The current breeding population now restricted to Southern California, with recent documentation of nesting on the San Joaquin River west of Modesto. Inhabits dense riparian vegetation for nesting and a dense, stratified canopy for foraging.	**Moderate**. The study area is in the historic range of the species.[4] There has been only one documented nesting in the San Joaquin Valley in recent years, but there are no sustained populations.[5] The study area supports minimal areas of riparian vegetation, which also lack the dense riparian vegetation required by the species. There is one CNDDB record within Del Puerto Canyon; however, the specific location is unknown (from 1928; occurrence #509).

[4] U.S. Fish and Wildlife Service. 1998. *Draft Recovery Plan for the Least Bell's Vireo*. Portland, OR.

[5] U.S. Fish and Wildlife Service. 2006. *Least Bell's Vireo* (Vireo belli pusillus) *5-year Review Summary and Evaluation*. Carlsbad, CA. September 2006.

Common Name	Scientific Name	Status* Federal/State	Range and General Habitat Description	Potential for Occurrence
Swainson's hawk	*Buteo swainsoni*	–/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Nests in oaks or cottonwoods in or near riparian habitats. Also uses isolated, roadside trees adjacent to foraging habitat. Forages in grasslands, irrigated pastures, alfalfa, grain fields, and various agricultural field and row crops.	**High**. Suitable nesting and foraging habitat are present in the study area; the species was observed during field surveys. There are five CNDDB records within 5 miles of the study area; the closest record was within the study area (from 1936; occurrence #2524).
Tricolored blackbird	*Agelaius tricolor*	–/T	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County and scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties. Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony. Ideal foraging habitat is composed of low-growing, expansive grasslands and other upland habitats with abundant insect prey within generally within 3.11 miles of nesting colony (Shuford and Gardali [eds.] 2008). In some cases, adults will travel much farther to obtain insects for their young; the farthest distance documented is 5.34 miles.6	**Low**. Limited suitable foraging habitat is present in the study area; however, the study area supports minimal areas with emergent marsh or upland nesting sites, which are not large enough to support a nesting colony. There are seven CNDDB records within 5 miles of the study area, with the closest record is adjacent to the eastern end of the study area (from 1972; occurrence #73).
Western burrowing owl	*Athene cunicularia*	–/CE, SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast. Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows.	**Low**. Minimal suitable grassland habitat with small mammal burrows is present in the study area. There are two CNDDB records within 5 miles of the study area; the closest record is approximately 0.5 miles southwest of the study area (from 1991; occurrence #144).
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T/E	Riparian forest nester along the broad bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, and a lower story of blackberry, nettles, or wild grape.	**Low.** The study area supports marginal quality riparian habitat for the species. There is low potential for cuckoo to pass through the study area during migration. The nearest CNDDB occurrence is from more than 5 miles north of the study area at the San Joaquin River National Wildlife Refuge (from 1977; occurrence #141).
White-tailed kite	*Elanus leucurus*	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and	**Moderate**. Suitable nesting and foraging habitat is present in the study area. There are no CNDDB records within 5 miles of

[6] Hamilton, W.J. and R.J. Meese. 2005. *Habitat and Population Characteristics of Tricolored Blackbird Colonies in California.* Final report. Prepared for the California Department of Fish and Game, Habitat Conservation Planning Branch, Sacramento, CA. January 3, 2006.

Common Name	Scientific Name	Status* Federal/State	Range and General Habitat Description	Potential for Occurrence
			foothills to western San Diego County at the Mexican border. Nests in low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging. Also uses trees with dense tops or shrubs near open grassland and agricultural fields.	the study area. The closest CNDDB record is approximately 23 miles from the study area.
Riparian woodrat	*Neotoma fuscipes riparia*	E/SSC	Riparian areas along the San Joaquin, Stanislaus and Tuolumne rivers. Need areas with mix of brush and trees. Need suitable nesting sites in trees, snags or logs.	**None.** No suitable habitat is present within the study area. The nearest CNDDB record is from more than 4 miles north of the study area at Dos Rios Ranch State Park (from 2007; occurrence #10).
Riparian brush rabbit	*Sylvilagus bachmani riparius*	E/E	Riparian areas on the San Joaquin River in northern Stanislaus County. Dense thickets of wild rose, willows, and blackberries.	**None.** No suitable habitat is present within the study area. The nearest CNDDB record is from more than 4 miles north of the study area at Dos Rios Ranch State Park (from 2020; occurrence #16).
San Joaquin kit fox	*Vulpes macrotis mutica*	E/T	Currently distributed throughout the San Joaquin Valley floor and foothills from southern Kern County north to central Contra Costa, eastern Alameda, and southwestern San Joaquin Counties on the west and near La Grange, Stanislaus County, on the east side of the Central Valley. Satellite populations and individuals have been reported on the western edge of the San Joaquin Valley, with the most northern record in Contra Costa County. North of Santa Nella, kit foxes may be only intermittently present, consisting largely of individuals dispersing from populations farther south. There are no known kit fox populations present in the northern range. Arid-adapted, typically occurs in desert-like habitats characterized by sparse or absent shrub cover, sparse ground cover, and short vegetation. Also found in California annual grassland habitat and altered habitat. Associated with open, level loose-textured sandy soils for burrowing, and sufficient prey base (small rodents, preferably kangaroo rats). Uses subsurface dens.	**Moderate.** Grassland in the study area is of marginal quality, occurring in narrow strips interspersed with agriculture and a channelized creek. Lower Del Puerto Creek could be used as a dispersal corridor for San Joaquin kit fox. There are four CNDDB records within 5 miles of the study area; the closest record was within the study area (from 1973, occurrence #80).

* Status explanations:

Federal

E	= listed as endangered under the federal Endangered Species Act
T	= listed as threatened under the federal Endangered Species Act
PT	= proposed for listing as threatened under the federal Endangered Species Act
–	= no listing

State

E	= listed as endangered under the California Endangered Species Act
T	= listed as threatened under the California Endangered Species Act
CT	= candidate for state threatened listing under the California Endangered Species Act
FP	= California fully protected species
SSC	= species of special concern in California
–	= no listing

CDFW = California Department of Fish and Wildlife
USFWS = U.S. Fish and Wildlife Service
CNDDB = California Natural Diversity Database

Appendix D Streamflow Estimates for lower Del Puerto Creek

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Table D-1. Actual and estimated streamflow at four locations in lower Del Puerto Creek downstream of the proposed project.

Date	USGS	WSID[1]	DPWD[2]	DPWD[2]
	Stream gage (I-5)	Rodgers Rd	Hwy 33	Cox Rd
8/12/2025	0	2	1-5	5-20
7/8/2025	0	2	1-5	5-20
6/10/2025	0	2	5-20	5-20
5/13/2025	0.39	2	5-20	5-20
4/8/2025	2	2	5-20	5-20
3/11/2025[3]	2.91	0	1-5	1-5
2/5/2025	3.15	0	NA	1-5
1/14/2025	1.52	0	Dry	Dry
11/25/2024	1.46	0	NA	NA
10/8/2024	0	2	1-5	0
9/10/2024	0	2	5-20	5-20
9/9/2024	0	2	1-5	5-20
8/13/2024	0	2	5-20	5-20
7/9/2024	0.07	2	5-20	5-20
6/11/2024	2.35	2	5-20	5-20
5/14/2024	5.79	2	5-20	5-20
4/9/2024	18.9	2	5-20	5-20
3/12/2024	23.9	0	5-20	5-20
3/11/2024	23.9	0	5-20	5-20
2/13/2024	31.5	0	5-20	5-20
1/4/2024	6.57	0	NA	.01-1
10/10/2023	0.78	2	5-20	5-20
9/12/2023	0.52	2	1-5	5-20
9/11/2023	0.67	2	1-5	5-20
8/8/2023	0.52	2	1-5	5-20
6/13/2023	7.34	2	5-20	5-20
5/2/2023	24.8	2	5-20	5-20
4/11/2023	43.3	2	5-20	5-20
3/13/2023	85.6	0	20-50	20-50
3/7/2023	54.4	0	5-20	5-20
2/14/2023	32.5	0	5-20	5-20
1/10/2023	304	0	NA	20-50
12/5/2022	0	0	NA	Dry
11/9/2022	0	0	Dry	.01-1
10/11/2022	0	2	NA	5-20
9/13/2022	0	2	5-20	5-20
9/12/2022	0	2	1-5	5-20
8/9/2022	0	2	5-20	5-20

Table D-1. Actual and estimated streamflow at four locations in lower Del Puerto Creek downstream of the proposed project.

Date	USGS	WSID[1]	DPWD[2]	DPWD[2]
	Stream gage (I-5)	Rodgers Rd	Hwy 33	Cox Rd
7/12/2022	0	2	1-5	5-20
6/14/2022	0	2	5-20	5-20
5/10/2022	0.15	2	5-20	5-10
4/12/2022	0.5	2	5-20	5-20
3/8/2022	1.19	0	5-20	5-20
3/7/2022	1.37	0	5-20	5-20
2/8/2022	2.71	0	1-5	NA
1/11/2022	5.96	0	1-5	Dry
10/26/2021	0	2	NA	5-20
10/12/2021	0	2	NA	1-5
9/14/2021	0	2	5-20	5-20
9/13/2021	0	2	1-5	5-20
8/10/2021	0	2	1-5	5-20
7/13/2021	0	2	1-5	1-5
6/8/2021	0	2	5-20	5-20
5/11/2021	0	2	1-5	1-5
4/13/2021	0	2	1-5	5-20
3/19/2021	0	2	NA	5-20
3/9/2021	0	0	5-20	5-20
3/8/2021	0	0	1-5	1-5
2/9/2021	0	0	Dry	Dry
1/29/2021	27.8	0	NA	20-50
1/12/2021	0	0	NA	1-5
10/13/2020	0	2	1-5	NA
9/9/2020	0	2	.1-1	0
9/8/2020	0	2	.1-1	5-20
8/11/2020	0	2	5-20	1-5
7/14/2020	0	2	1-5	5-20
6/9/2020	0	2	1-5	5-20
5/12/2020	0.11	2	1-5	5-20
3/10/2020	0.65	0	.1-1	5-20
3/9/2020	0.65	0	1-5	0
2/11/2020	0.9	0	1-5	Dry
1/17/2020	1.56	0	Dry	Dry
12/5/2019	0	0	NA	1-5
10/8/2019	0	2	.1-1	5-20
9/10/2019	0	2	5-20	5-20
9/9/2019	0	2	1-5	5-20

Table D-1. Actual and estimated streamflow at four locations in lower Del Puerto Creek downstream of the proposed project.

Date	USGS	WSID[1]	DPWD[2]	DPWD[2]
	Stream gage (I-5)	Rodgers Rd	Hwy 33	Cox Rd
8/13/2019	0	2	5-20	5-20
7/9/2019	0.01	2	1-5	5-20
6/11/2019	0.97	2	.1-1	1-5
5/14/2019	2.68	2	1-5	.1-1
4/9/2019	8.09	2	5-20	5-20
3/12/2019	23.9	0	5-20	5-20
2/14/2019	73.9	0	NA	20-50
1/17/2019	23.8	0	NA	20-50
11/30/2018	0	0	NA	NA
10/9/2018	0	2	1-5	1-5
9/11/2018	0	2	.1-1	1-5
9/10/2018	0	2	1-5	5-20
8/14/2018	0	2	1-5	1-5
7/10/2018	0	2	NA	1-5
6/12/2018	0.03	2	NA	5-20
5/8/2018	0.44	2	NA	1-5
4/10/2018	2.45	2	NA	Dry
3/12/2018	1.7	0	NA	.1-1
3/2/2018	3.79	0	NA	1-5
2/13/2018	0.85	0	NA	5-20
1/19/2018	13.1	0	NA	NA
10/10/2017	0	2	NA	1-5
9/11/2017	0	2	NA	1-5
8/8/2017	0	2	NA	1-5
7/11/2017	0.01	2	NA	1-5
6/13/2017	3.96	2	NA	5-20
5/9/2017	9.52	2	NA	5-20
3/14/2017	31.5	0	NA	20-50
3/13/2017	31.5	0	NA	5-20
2/14/2017	92	0	Dry	20-50
1/10/2017	257	0	NA	NA
10/11/2016	0	2	.1-1	1-5
9/12/2016	0	2	0.1-1	5-20
9/13/2016	0	2	NA	5-20
8/9/2016	0	2	NA	1-5
7/12/2016	0.02	2	NA	1-5
6/14/2016	0.25	2	NA	5-20
5/10/2016	3.75	2	NA	1-5

Table D-1. Actual and estimated streamflow at four locations in lower Del Puerto Creek downstream of the proposed project.

Date	USGS	WSID[1]	DPWD[2]	DPWD[2]
	Stream gage (I-5)	Rodgers Rd	Hwy 33	Cox Rd
4/11/2016	23.8	2	5-20	5-20
4/12/2016	15.4	2	NA	5-20
2/9/2016	2.14	0	NA	Dry
1/7/2016	0	0	Dry	Dry
10/20/2015	0	2	NA	1-5
9/15/2015	0	2	Dry	1-5
9/14/2015	0	2	Dry	1-5
8/11/2015	0	2	NA	Dry
7/14/2015	0	2	NA	1-5
6/9/2015	0.07	2	NA	5-20
5/12/2015	0.02	2	NA	5-20
4/14/2015	0.19	2	NA	5-20
3/10/2015	1.35	0	NA	5-20
3/9/2015	0.91	0	0.1-1	1-5
2/10/2015	8.54	0	5-20	1-5
1/13/2015	1.92	0	0.1-1	Dry
11/11/2014	0	0	Dry	Dry

[1]Correspondence from West Stanislaus Irrigation District (WSID) indicates they estimate approximately 2 cfs of contribution to streamflow into Del Puerto Creek from March through November due to operational spills near Rodgers Road (see Figure 3.4-6). Therefore, approximately 2 cfs of the estimates provided in the subsequent columns can be attributed to the WSID 6S lateral canal.

[2]Data from the Del Puerto Water District (DPWD) locations were provided by the DPWD and are estimates of streamflow. As noted from footnote 1, except for the estimated 2 cfs that can be attributed to leakage from the WSID 6S lateral canal, the remaining estimates are attributed to agricultural return flows.

[3]Data displayed in blue and in bold are data from the rainy season, generally October 15 – March 31.

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