Balance Hydrologics, Inc.®

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May 14, 2015

LOMC Clearinghouse
847 South Pickett Street
Alexandria, Virginia 22304-4605
Attn: LOMC Manager

RE: Request for a Conditional Letter of Map Revision for Areas of Overland Flood Hazard East of California State Route 33, City of Patterson, California, NFIP Community Panel Numbers 06099C0732E and 06099C0755E

To Whom It May Concern:

Attached you will find our application materials requesting a Conditional Letter of Map Revision (CLOMR) for an area of overland flood hazard located east of California State Route 33 (SR33) in the City of Patterson, County of Stanislaus, California. The requested map revision is associated with the proposed development of the Villages of Patterson planning area. The sponsor of this CLOMR application is the City of Patterson with technical work completed jointly with GDR Engineering of Ceres, California.

Location of the Requested Revision

This map revision request addresses currently mapped flood hazards in an area bounded by the Union Pacific Railroad (UPRR) tracks on the west, Eucalyptus Avenue on the north, Sycamore Avenue on the east, and Walnut Avenue on the south.[1] The flooding characteristics of the area covered by this CLOMR application are discussed in the Flood Insurance Study for Stanislaus County, California (FIS, September 26, 2008) and mapped on the currently effective Flood Insurance Rate Maps (FIRMs, Community Panel Numbers 06099C0732E and 06099C0755E, effective September 26, 2008). As it is an area of overland flood hazard, there is no flood profile information in the FIS.

Summary of Currently Effective Mapping

As indicated on the FIRM panels, the requested map revision area includes a Special Flood Hazard Area (SFHA) designated as Zone AO (Depth 1). Zone AO is defined as an area subject

[1] The respective FIRM panels call out the railroad tracks as "Southern Pacific Railroad", reflecting ownership of the corridor at the time the currently-effective mapping was prepared.

to overland flow flood hazard in the 1-percent-chance flood event (100-year flood) where average depths have been determined.

The Zone AO area corresponds to the potential release of floodwaters from an approximately 1,000-foot long section of the UPRR tracks located just to the east of SR33. The UPRR tracks trend in a generally northwest to southeast alignment at this point and are cited in the FIS as one of the principal controls on the depth and direction of overbank flows for the west side tributary creeks in the County that eventually drain to the San Joaquin River. In this case, the primary source of overbank flows is Del Puerto Creek at and near Rogers Road approximately 2.5 miles to the west-northwest as shown on the adjacent FIRM Panel Number 06099C0731E.

Requests for information to the FEMA Library and U.S. Army Corps of Engineers related to the previous hazard mapping work for Del Puerto Creek provided the HEC-2 hydraulic model output used for the detailed study of said creek, but the only specific information on the overland flood hazard were the respective work maps overlain on USGS topographic map bases. That said, the mapped extent of the SFHA overland flood hazard is consistent with more recent topographic mapping used in this request, which confirms that the UPRR tracks are indeed the local high point with a lower elevation section centered just to the southeast of the Olive Avenue crossing. Flows that overtop the tracks at this location would travel overland in a generally northeasterly direction, with the Zone AO currently mapped as terminating at the Lateral No. 6 North irrigation ditch (locally known as "Lateral C") approximately 1,000 feet west of Sycamore Avenue. Hydrologic calculations (see below), land slope, and lateral width of the Zone AO are consistent with the designation of "Depth 1" on the currently-effective mapping.

Portions of the study area also include SFHA Zone X (with hatching) designations. Since the currently-effective mapping of Del Puerto Creek does not include the 0.2-percent-chance flood event (500-year flood), these areas are presumed to represent the hazard from shallow overland flooding associated with the 1-percent-chance flood event with depths averaging less than one foot.

Basis for the Request

The requested CLOMR is associated with proposed development in the Villages of Patterson planning area. Previous studies completed for this area include a Specific Plan and an Environmental Impact Report (EIR) carried out per the requirements of the California Environmental Quality Act (CEQA). The previous studies recognized and required planning for development in a manner that addresses the flood hazard posed by potential overbank flows originating from Del Puerto Creek.[2]

A key aspect of the planning requirements is to provide analyses (and associated updating of the flood hazard mapping) that reasonably show flood hazard are not significantly increased in adjacent areas. A particular location of concern in this regard is the Zone AH area located to the

[2] Contributions to localized flooding from Salado Creek have previously been addressed by construction of a 96-inch diameter drain line originating just east of the UPRR tracks proceeding northwesterly on North First Street and then northeasterly under Olive Avenue to an outfall at the San Joaquin River.

west of SR33, which represents the pooling of overbank flows that would occur with overflow of the railroad tracks. Wholesale fill of the area east of the tracks was identified as potentially obstructing enough of the overland release path that Zone AH base flood elevations might increase and/or potentially directing flow to locations not currently mapped as SFHA areas. Therefore, this CLOMR is based on planning for the collection, conveyance, and dispersion of potential overland flows in a select number of specifically designed arterial street corridors such that properties within and adjacent to the Villages of Patterson planning area are not subject to significantly increased flood hazards. This arterial street network is illustrated on the Work Map included as Figure 1 with this request. The work map base topography is per aerial survey information prepared by GDR Engineering, displayed with horizontal control per California State Plane Zone 3 (NAD83) with elevations per the North American Vertical Datum of 1988 (NAVD88).

Hydrology

As discussed above, specific information related to the mapping of the Zone AO SFHA in the study area was not located. However, several concurrent lines of evidence were used to identify an appropriate design discharge associated with the 1-percent-chance flood event. Firstly, the HEC-2 model output from the currently-effective detailed study of Del Puerto Creek was reviewed to assess the magnitude of previously predicted overbank flows (see Appendix A for a copy of the model files received). The HEC-2 modeling was based on a 1-percent-chance discharge of 7,960 cfs at Interstate 5 (see FIS, page 18, Table 2) reduced to 2,200 cfs at the downstream limit of the mapped Zone AO overflow, which include breakouts to both the north and south.[3] Prorating the difference for the respective lengths of the breakouts and allowing for minor losses through overland flow attenuation yields an estimate of 2,300 cfs for the peak discharge at the UPRR tracks, which would function in this case as a transverse overflow weir. This value was back-checked against the width of the Zone AO in the study area and an average land slope of 0.3 percent, and the resulting flow depths (using Manning's equation and roughness of 0.05 for highly furrowed agricultural lands) was indeed found to be on the order of one foot.

Hydraulic Modeling

Since the study area includes only Zone AO SFHAs, there is no currently-effective hydraulic modeling for the site. However, per the requirements of the Specific Plan and EIR, detailed modeling was carried out to assess whether the proposed configuration and geometries of the proposed arterial street system are appropriate for collecting, conveying, and then dispersing a total peak discharge of 2,300 cfs. All hydraulic modeling was carried out using version 4.1.0 of the U.S. Army Corps of Engineers' HEC-RAS software package. Digital files associated with the modeling have been uploaded to the Clearinghouse portal for this CLOMR request. The main conveyance pathways will be Kern and English Birch Avenues which will be characterized

[3] The FIS calls out the Q100 as 7,960 cfs at Interstate 5, but the detailed study reach extends upstream only as far as the Delta Mendota Canal, with the overall limit of study at the California Aqueduct. Therefore, the FIS hydrology appears to not account for the limitations of peak flow through the 16-foot diameter pipe that carries the creek under the Aqueduct. Peak flood flows, but not necessarily flood volumes, would likely be markedly lower if the upstream conveyance restriction was included.

by depressed travelway elevations and extensive lateral ditches. Flow dispersion at the downslope end will be provided by the roadway elevation for the reconstructed Sycamore Avenue and a large ditch along the west side of the avenue. The project will also enlarge an existing stormwater detention basin located to the north and east of the intersection of Olive Avenue and Sycamore Avenue, although no flow attenuation is specifically being claimed for that feature. The Lateral C irrigation ditch will be put in an underground pipe as part of the development.

The hydraulic modeling was completed for the purposes of providing supporting technical information for revising the limits of the overland flood hazard. Though the modeling was carried out to FEMA hydraulic analysis standards, it is not specifically intended to establish published base flood elevations.

Modeling Results

All hydraulic model cross-sections are illustrated on Figure 1. Summary results of the model runs in terms of the predicted water surface elevations are included in the attached Table 1, with detailed model output provided Appendix B.

Pertinent aspects of the modeling include the following:

1. *Conveyance pathways.* The geometries and locations of the main arterial streets lead to a varied conveyance configuration. English Birch Avenue, located near the center of the railroad overflow section, is predicted to convey the majority of the flow. Olive Avenue is constrained by the location of underground utilities and therefore would carry the least flow. The difference would be accommodated by conveyance along Kern Avenue.

2. *Upslope base flood elevations.* The modeling confirms that the elevation of the railroad tracks acting as a weir and predicted flood elevations along the North First Street alignment are consistent with avoiding a backwater effect that would increase Zone AH flood elevations to the west.

3. *Downslope flood elevations.* The terminal cross-sections in the HEC-RAS model show that dispersion of overland flows along Sycamore Avenue will result in shallow overland flood depths that average less than 0.5 feet.

Proposed Map Revisions

The proposed annotated FIRM panels are illustrated in the attached Figures 2 and 3. For consistency with the currently-effective mapping, the proposed revisions would maintain the Zone AO designation, but with substantial revision of the Zone AO boundaries to reflect the anticipated extent of flooding. This would include extension of the Zone AO designation easterly to Sycamore Avenue. Average depths at all points within the AO zones are consistent with a "Depth 1" designation, except for the alignments of North First Street and English Birch Avenue where Zone AO (Depth 2) appropriately reflects the higher predicted flow depths.

Additional Information

We are certainly aware of the FEMA's requirements with respect to compliance with the Federal Endangered Species Act (ESA). Therefore, this request includes ESA clearance documentation, which is included as Appendix C.

Closing

We appreciate all efforts to review the enclosed application forms and additional materials for compliance with the requirements of the National Flood Insurance Program.

Do not hesitate to contact Balance Hydrologics with any questions related to the CLOMR application, the supporting documentation or the modeling work performed.

Thank you again for your prompt attention to this request.

Sincerely,

BALANCE HYDROLOGICS, Inc.

Edward D. Ballman, P.E.
Principal Engineer

Attachments: LOMR Application MT-2 Forms 1 and 2
Table 1
Figures 1 through 3
Appendices A, B, and C
Digital hydraulic model and workmap posted separately to Clearinghouse portal

cc: Mr. Ken Irwin, P.E., City of Patterson
Mr. Max Garcia, P.E., GDR Engineering

MT-2 FORMS

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.
PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).
ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.
DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

☒ CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☐ LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
060390	Patterson, City of	CA	06099C	0732E	09/26/08
060390	Patterson, City of	CA	06099C	0755E	09/26/08

2. a. Flooding Source: Overbank flow from Del Puerto Creek

   b. Types of Flooding: ☐ Riverine ☐ Coastal ☒ Shallow Flooding (e.g., Zones AO and AH)
   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Villages of Patterson

4. FEMA zone designations affected: AO, X (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

   a. The basis for this revision request is (check all that apply)

   ☒ Physical Change ☒ Improved Methodology/Data ☐ Regulatory Floodway Revision ☐ Base Map Changes
   ☐ Coastal Analysis ☒ Hydraulic Analysis ☐ Hydrologic Analysis ☐ Corrections
   ☐ Weir-Dam Changes ☐ Levee Certification ☐ Alluvial Fan Analysis ☐ Natural Changes
   ☒ New Topographic Data ☐ Other (Attach Description)

   Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

Structures: ☐ Channelization ☐ Levee/Floodwall ☐ Bridge/Culvert

☐ Dam ☒ Fill ☐ Other (Attach Description)

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $6,500

☐ No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Edward D. Ballman, P.E.	Company: Balance Hydrologics, Inc.	
Mailing Address: 800 Bancroft Way, Suite 101 Berkeley, California 94710	Daytime Telephone No.: 510-704-1000	Fax No.: 510-704-1001
	E-Mail Address: eballman@balancehydro.com	
Signature of Requester (required):	Date: May 14, 2015	

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title:	Community Name: City of Patterson	
Mailing Address: 1 Plaza P.O. Box 667 Patterson, California 95363	Daytime Telephone No.:	Fax No.:
	E-Mail Address:	
Community Official's Signature (required):	Date:	

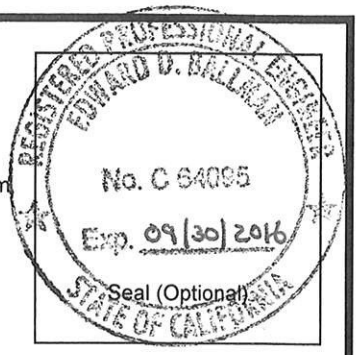
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Edward D. Ballman, P.E.	License No.: C64095		Expiration Date: 09/30/2016
Company Name: Balance Hydrologics, Inc.	Telephone No.: 510-704-1000		Fax No.: 510-704-1001
Signature:	Date: 05/14/2015	E-Mail Address: eballman@balanchydro.com	

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☒ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☐ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans



Seal (Optional)

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Overbank flooding from Del Puerto Creek

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☒ Not revised (skip to section B) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☐ Precipitation/Runoff Model → Specify Model: _____
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? ☐ Yes ☐ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation..

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit*	Sycamore Avenue	N/A (overland)		
Upstream Limit*	UPRR tracks	N/A (overland)		

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: HEC-RAS to support Zone AO revision

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4.

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name: N/A	Plan Name:	File Name:	Plan Name:	
Corrected Effective Model*	File Name: N/A	Plan Name:	File Name:	Plan Name:	
Existing or Pre-Project Conditions Model	File Name: N/A	Plan Name:	File Name:	Plan Name:	
Revised or Post-Project Conditions Model	File Name: VoP Proposed	Plan Name: CLOMR	File Name: N/A	Plan Name: N/A	NAVD 88
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

* For details, refer to the corresponding section of the instructions.

☒ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☒ Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information: Provided by GDR Engineering (NAVD 88 datum)

Source: Aerial photograph with field survey control Date: May 2004

Accuracy: 0.5 feet

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

☒ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? ☐ Yes ☒ No

   a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:

      - The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
      - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.

   b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA? ☐ Yes ☐ No
      If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.

2. Does the request involve the placement or proposed placement of fill? ☒ Yes ☐ No

   If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☐ No

   If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

TABLES

Table 1. HEC-RAS model water surface elevations, Villages of Patterson

Cross-section	WSE
West of First	
4+00	99.2
3+25	Structure
2+25	95.5
1+25	94.8
Kern Avenue	
58+40	95.0
57+90	94.9
56+90	94.7
55+90	94.4
53+90	94.0
50+90	93.7
47+90	93.1
45+90	92.3
44+90	92.1
44+60	92.2
44+20	92.1
43+30	92.0
42+30	91.8
40+30	91.2
39+80	90.7
39+30	91.1
38+80	90.6
38+30	90.5
37+30	90.4
34+30	89.3
31+30	88.3
28+30	87.3
25+30	85.7
22+30	84.5
19+30	83.5
16+30	82.0
15+30	81.7
14+30	81.6
13+80	81.2
13+30	81.3
12+80	80.7
12+30	80.3
11+30	80.0
10+30	79.6
7+30	78.3
5+30	77.5
3+30	77.4
2+30	77.4
1+40	77.5
0+90	77.5

Cross-section	WSE
Olive Avenue	
49+60	95.2
49+40	94.9
49+00	94.6
48+00	92.1
46+00	91.0
43+00	90.1
40+00	89.2
37+00	88.3
34+00	87.4
31+00	86.4
28+00	85.8
27+25	85.6
26+50	85.5
25+75	85.2
25+00	84.7
22+00	83.7
19+00	83.0
16+00	81.7
13+29	81.1
10+00	80.2
7+00	79.3
5+00	78.7
3+00	78.0
2+00	78.0
1+00	78.1
Downslope North	
6+00	76.4
5+00	76.1
Downslope South	
9+00	76.9
8+00	76.6

Cross-section	WSE
English Birch Avenue	
55+12	94.9
54+62	93.9
53+78	92.4
52+94	92.3
51+60	92.0
50+22	91.5
47+72	91.2
45+37	91.1
43+08	90.2
41+36	89.9
40+36	89.9
39+86	89.4
39+36	90.0
38+86	88.9
38+36	88.8
37+33	88.4
34+33	87.6
31+33	86.6
28+53	86.1
27+53	86.0
27+03	85.6
26+53	86.1
26+03	85.0
25+53	84.8
24+53	84.6
22+33	84.0
19+33	82.9
15+33	82.1
14+33	82.0
13+83	81.6
13+33	82.2
12+83	81.1
12+33	80.9
11+33	80.6
7+33	79.4
5+33	78.9
3+33	78.1
2+33	78.0
1+43	78.1
0+93	78.1

WSE = water surface elevation (ft, NAVD) for the 1-percent-chance flood event
Stationing as per the study Work Map (Figure 1)

FIGURES

KERN AVENUE

OLIVE AVENUE

ENGLISH BIRCH AVENUE

A

A

LEGEND

- Lettered FEMA cross-section
- Modeled post-project cross-section
- Zone X boundary (currently effective)
- Zone X boundary (post-project)
- Zone AO boundary (currently effective)
- Zone AO boundary (post-project)
- 85 — 1-ft Existing Major Contour
- 1-ft Existing Minor Contour
- 90 — 1-ft Post Project Major Contour
- 1-ft Post Project Minor Contour
- Limit of Grading
- Property Line

NOTES

1. REFERENCED TO NAVD88
2. TOPOGRAPHY PROVIDED BY GDR ENGINEERING, INC.

0' 125' 250' 500'

SCALE: 1" = 250'

N

Balance Hydrologics, Inc.

800 Bancroft Way · Suite 101
Berkeley, CA 94710
tel (510) 704-1000 · *fax* (510) 704-1001
www.balancehydro.com

DATE	BY	SUBMITTALS / REVISIONS

REGISTERED PROFESSIONAL ENGINEER
EDWARD D. BALLMAN
No. C64095
Exp. 09-30-16
CIVIL
STATE OF CALIFORNIA

VILLAGES OF PATTERSON

WORKMAP

CITY OF PATTERSON, STANISLAUS COUNTY, CALIFORNIA

PROJECT NUMBER
213151

SCALE
1" = 250'

FIGURE
1

W:\PROJECTS\213151 VILLAGES OF PATTERSON\WORKMAPS\CLOMR\FEMA WORKMAP 5-12-15.DWG

LEGEND

- CURRENTLY EFFECTIVE FLOOD ZONE BOUNDARY
- POST PROJECT FLOOD ZONE BOUDARY
- POST PROJECT ZONE AO
- POST PROJECT ZONE X

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0732E

FIRM

FLOOD INSURANCE RATE MAP

STANISLAUS COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 732 OF 1075

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PATTERSON, CITY OF	060360	0732	E
STANISLAUS COUNTY	060384	0732	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06099C0732E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

FIGURE 2. ANNOTATED FIRM PANEL 0732E

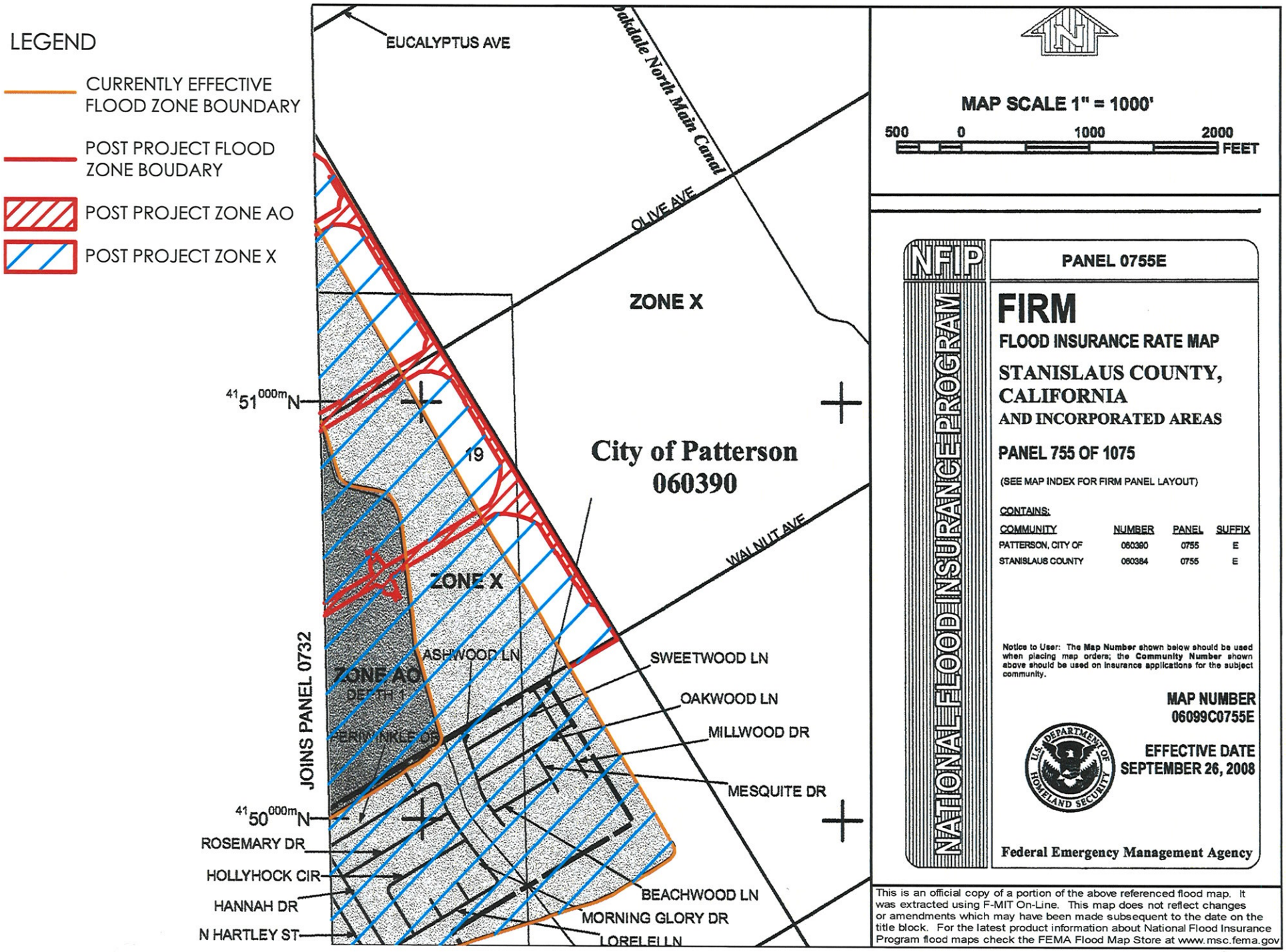

FIGURE 3. ANNOTATED FIRM PANEL 0755E

APPENDICES

APPENDIX A

Selected Pages from Del Puerto Creek HEC-2 Model Output

DEL PUERTO CREEK

THIS RUN EXECUTED 2 JUN 87 7:17:14

Series

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
**************************************************

C
T1      STANISLAUS CO FIS
T2      DELPUE01  FASRUN07 DELPU01D
T3      DEL PULPUERTO CREEK

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
       0.      2.       0.       0.  0.005000     0.00     0.0      0.     36.000   0.000
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    1.000     0.000   -1.000    0.000    0.000    0.000   -1.000    0.000    0.000    0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   38.000    43.000    1.000    2.000    3.000    5.000   26.000   42.000    4.000    8.000
   58.000    25.000   39.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
   38.000    43.000   23.000    1.000   24.000   40.000   41.000   42.000   10.000   11.000
    6.000     7.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********
   -10.000   -10.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

QT     9.000  1800.000  1600.000  1400.000  1200.000  1000.000   800.000   600.000   400.000   200.000
NC     0.035     0.035     0.055     0.300     0.600     0.000     0.000     0.000     0.000     0.000
X1     1.000    11.000   181.000   219.000     0.000     0.000     0.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    41.700     0.000    44.200    74.000    40.100   107.000    36.900   149.000    38.400   181.000
GR    30.200   192.000    29.200   200.000    30.500   208.000    39.100   219.000    40.700   231.000
GR    40.600   400.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   850.000    14.000   181.000   219.000  1200.000   500.000   850.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    44.200     0.000    44.500    54.000    46.300    66.000    46.700    74.000    42.600   107.000
GR    39.400   149.000    40.900   181.000    32.700   192.000    31.700   200.000    33.000   208.000
GR    41.600   219.000    43.200   231.000    43.200   300.000    43.100   400.000     0.000     0.000
```

X1	3120.000	15.000	162.000	218.000	2270.000	2270.000	2270.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	50.200	0.000	56.100	54.000	51.500	72.000	52.500	162.000	42.300	195.000
GR	38.800	196.000	38.500	200.000	38.300	204.000	51.100	218.000	52.400	244.000
GR	53.500	260.000	51.500	264.000	53.900	268.000	51.900	282.000	50.900	400.000
X1	7580.000	13.000	172.000	212.000	4460.000	4460.000	4460.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	65.000	0.000	65.200	127.000	67.400	140.000	67.600	147.000	68.700	172.000
GR	55.700	197.000	56.600	200.000	55.900	203.000	66.300	212.000	66.600	216.000
GR	67.500	236.000	64.900	238.000	64.600	400.000	0.000	0.000	0.000	0.000
X1	8270.000	10.000	173.000	215.000	780.000	600.000	690.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	67.800	0.000	67.900	127.000	70.700	173.000	58.200	195.000	58.000	200.000
GR	58.300	203.000	68.800	215.000	69.700	237.000	67.800	240.000	67.300	400.000
X1	8970.000	10.000	175.000	217.000	780.000	600.000	700.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	70.600	0.000	70.600	130.000	72.700	175.000	60.400	196.000	60.200	200.000
GR	60.500	203.000	71.200	217.000	72.000	238.000	70.700	243.000	70.200	400.000
X1	9670.000	10.000	177.000	218.000	780.000	600.000	700.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	73.300	0.000	74.800	159.000	74.600	177.000	62.900	196.000	62.700	200.000
GR	63.000	203.000	73.600	218.000	74.100	240.000	73.300	246.000	73.100	400.000
X1	10370.000	10.000	178.000	220.000	780.000	600.000	700.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	76.000	0.000	77.000	160.000	76.500	178.000	65.200	197.000	65.000	200.000
GR	65.300	203.000	75.900	220.000	76.300	242.000	75.900	249.000	75.900	400.000
X1	11070.000	10.000	180.000	221.000	780.000	600.000	700.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	78.800	0.000	78.900	134.000	79.600	181.000	78.500	180.000	67.600	197.000
GR	67.500	200.000	67.800	203.000	78.500	221.000	78.600	276.000	78.700	400.000
NC	0.035	0.035	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13850.000	10.000	154.000	220.000	3500.000	2000.000	2780.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	86.900	0.000	87.700	154.000	85.600	170.000	77.900	197.000	77.500	200.000
GR	77.600	203.000	85.000	220.000	85.800	230.000	86.400	300.000	85.700	400.000
NC	0.035	0.035	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14770.000	18.000	173.250	226.250	1740.000	240.000	920.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DT	2.000	173.250	91.800	90.600	226.250	91.800	90.600	0.000	0.000	0.000
GR	91.800	0.000	91.800	173.250	82.900	173.250	81.600	185.750	90.600	185.750
GR	90.600	187.250	80.600	197.600	80.600	199.600	80.600	199.600	90.600	200.750
GR	82.000	200.750	82.300	212.750	90.600	218.750	90.600	214.250	82.100	214.250
GR	83.400	226.250	91.800	226.250	91.800	400.000	0.000	0.000	0.000	0.000

	VINEYARD									
X1	14790.000	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	9.000	2100.000	1900.000	1700.000	1500.000	1300.000	1100.000	900.000	700.000	500.000
X1	17470.000	13.000	165.000	217.000	2260.000	3100.000	2680.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	99.900	0.000	100.000	130.000	100.700	165.000	92.900	185.000	92.700	195.000
GR	90.700	197.000	90.700	200.000	90.500	203.000	96.700	207.000	99.000	217.000
GR	99.400	224.000	99.400	245.000	99.400	400.000	0.000	0.000	0.000	0.000
QT	9.000	2400.000	2200.000	2000.000	1800.000	1600.000	1400.000	1200.000	1000.000	800.000
X1	19300.000	18.000	144.500	255.500	0.000	0.000	1830.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	2.000	144.500	110.400	109.000	255.500	110.400	109.000	0.000	0.000	0.000
GR	110.400	0.000	110.400	144.500	107.600	144.500	106.000	171.500	109.000	171.500
GR	109.000	172.500	97.400	172.500	97.400	199.500	109.000	199.500	109.000	200.500
GR	101.000	200.500	101.000	227.500	109.000	227.500	109.000	228.500	102.000	228.500
GR	106.000	255.500	110.400	255.500	110.400	400.000	0.000	0.000	0.000	0.000
	HWY 33									
X1	19340.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19390.000	51.000	110.500	289.500	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	2.000	110.500	111.500	107.800	289.500	111.500	107.800	0.000	0.000	0.000
GR	111.500	0.000	111.500	110.500	105.500	110.500	105.200	124.500	107.800	124.500
GR	107.800	125.500	105.200	125.500	104.900	139.500	107.800	139.500	107.800	140.500
GR	104.900	140.500	104.600	154.500	107.800	154.500	107.800	155.500	104.600	155.500
GR	104.300	169.500	107.800	169.500	107.800	170.500	104.300	170.500	104.000	184.500
GR	107.800	184.500	107.800	185.500	104.000	185.500	103.700	199.500	107.800	199.500
GR	107.800	200.500	103.700	200.500	103.400	214.500	107.800	214.500	107.800	215.500
GR	103.400	215.500	103.100	229.500	107.800	229.500	107.800	230.500	103.100	230.500
GR	102.800	244.500	107.800	244.500	107.800	245.500	102.800	245.500	97.800	252.500
GR	102.800	259.500	107.800	259.500	107.800	260.500	102.800	260.500	103.800	274.500
GR	107.800	274.500	107.800	275.500	103.800	275.500	107.800	289.500	111.500	289.500
GR	111.500	400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SPRR									
X1	19406.000	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20600.000	8.000	185.500	214.500	1194.000	1194.000	1194.000	0.000	0.000	0.000
BT	2.000	185.500	113.500	112.000	214.500	113.500	112.000	0.000	0.000	0.000
GR	109.000	0.000	113.500	185.500	105.000	185.500	102.500	198.000	102.500	202.000
GR	105.000	214.500	113.500	214.500	109.000	400.000	0.000	0.000	0.000	0.000

PVT RD

X1	20310.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X1	21100.000	15.000	136.000	217.000	490.000	490.000	490.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	111.200	0.000	111.300	11.000	112.800	26.000	111.100	136.000	109.000	149.000
GR	108.900	165.000	108.100	179.000	105.000	193.000	104.400	200.000	105.100	207.000
GR	111.100	217.000	110.300	230.000	110.200	250.000	110.800	400.000	113.000	500.000
X1	22090.000	12.000	180.000	220.000	1075.000	900.000	990.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	117.600	0.000	116.600	100.000	115.200	140.000	112.600	180.000	109.300	193.000
GR	108.800	200.000	109.500	207.000	111.300	210.000	115.500	220.000	115.600	230.000
GR	115.400	250.000	115.800	400.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23080.000	12.000	180.000	220.000	1075.000	900.000	990.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	122.300	0.000	121.600	100.000	120.500	140.000	117.100	180.000	113.700	193.000
GR	113.000	200.000	113.800	207.000	115.300	210.000	120.100	220.000	120.800	230.000
GR	120.600	250.000	120.800	400.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	24070.000	12.000	180.000	220.000	1075.000	900.000	990.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	127.200	0.000	126.500	100.000	125.800	140.000	121.600	180.000	118.000	193.000
GR	117.200	200.000	118.000	207.000	119.400	210.000	124.800	220.000	126.200	230.000
GR	125.800	250.000	125.800	400.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	9.000	2600.000	2400.000	2200.000	2000.000	1800.000	1600.000	1400.000	1200.000	1000.000
X1	25060.000	13.000	175.000	223.000	1075.000	900.000	990.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	132.000	0.000	131.400	141.000	131.200	151.000	130.100	159.000	128.700	175.000
GR	124.700	183.000	122.400	195.000	121.300	200.000	122.200	208.000	131.200	223.000
GR	131.400	231.000	130.900	255.000	130.900	400.000	0.000	0.000	0.000	0.000
X1	26880.000	13.000	168.000	236.000	1620.000	2020.000	1820.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	139.300	0.000	139.600	117.000	141.000	135.000	141.800	150.000	140.700	168.000
GR	128.300	195.000	127.600	200.000	129.900	205.000	132.500	207.000	140.500	236.000
GR	140.500	247.000	140.500	262.000	140.600	400.000	0.000	0.000	0.000	0.000
X1	28080.000	7.000	168.000	237.000	1200.000	1200.000	1200.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	146.000	0.000	148.300	150.000	148.100	168.000	134.700	200.000	139.700	215.000
GR	148.200	237.000	147.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	28670.000	0.000	0.000	0.000	590.000	590.000	590.000	0.000	3.800	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1  28680.000    11.000   184.000   216.000    10.000    10.000    10.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
BT      2.000   186.000   150.000   149.500   216.000   153.200   149.500     0.000     0.000     0.000
GR    149.000     0.000   150.200   184.000   143.000   186.000   139.000   199.000   149.500   199.000
GR    149.500   201.000   139.000   201.000   138.500   208.500   143.000   216.000   153.200   216.000
GR    150.000   400.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

      ROGERS RD
X1  28720.000     0.000     0.000     0.000    40.000    40.000    40.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      9.000  3200.000  3000.000  2800.000  2600.000  2400.000  2200.000  2000.000  1800.000  1600.000
X1  30820.000    11.000   169.000   237.000  2260.000  1220.000  2100.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    158.100     0.000   157.900   158.000   158.000   169.000   157.800   176.000   152.200   183.000
GR    152.200   200.000   151.900   237.000   161.400   237.000   161.400   247.000   161.200   257.000
GR    160.900   400.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      9.000  8300.000  8150.000  7900.000  7700.000  7500.000  7300.000  7100.000  6900.000  6700.000
X1  33640.000    13.000   499.000   562.000  2950.000  2700.000  2820.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    180.000     0.000   171.500   340.000   171.200   474.000   171.000   488.000   171.000   499.000
GR    161.700   526.000   162.200   540.000   162.300   554.000   166.400   562.000   166.800   579.000
GR    167.400   590.000   169.100   740.000   178.000  1000.000     0.000     0.000     0.000     0.000

X1  34500.000    15.000   142.000   258.000   860.000   860.000   860.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
BT      2.000   142.000   184.600   182.900   158.000   184.600   182.900     0.000     0.000     0.000
GR    184.600     0.000   184.600   142.000   180.000   142.000   170.700   180.000   182.900   180.000
GR    182.900   181.000   170.400   181.000   165.800   200.000   170.400   219.000   182.900   219.000
GR    182.900   220.000   170.700   220.000   180.000   258.000   184.600   258.000   184.600   460.000

      DMC
X1  34516.000     0.000     0.000     0.000    16.000    16.000    16.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  36000.000     8.000  1240.000  1380.000  1484.000  1484.000  1484.000     0.000     0.000     0.000
GR    195.000     0.000   190.000   800.000   185.000  1100.000   180.000  1240.000   171.000  1260.000
GR    171.000  1320.000   180.000  1380.000   200.000  1460.000     0.000     0.000     0.000     0.000

X1  37000.000     6.000  1080.000  1180.000  1000.000  1000.000  1000.000     0.000     0.000     0.000
GR    200.000     0.000   180.000  1080.000   174.000  1100.000   174.000  1150.000   180.000  1180.000
GR    200.000  1240.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
EJ      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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= Delta Mendota Canal upstream of breakout

Corresponds to the FIS Q100 = 7,960 cfs

APPENDIX B

HEC-RAS Model Files

HEC-RAS Plan: Plan 21 Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Downslope North	600	PF 1	610.00	75.80	76.39		76.41	0.003047	1.24	491.79	1609.00	0.40
Downslope North	500	PF 1	610.00	75.40	76.05	75.90	76.08	0.003505	1.32	462.73	1534.46	0.42
Kern	5840	PF 1	610.00	93.28	94.97	94.69	95.21	0.001584	4.03	163.17	143.77	0.62
Kern	5790	PF 1	610.00	92.75	94.92		95.12	0.001477	3.56	171.54	151.49	0.59
Kern	5690	PF 1	610.00	92.55	94.65	94.24	94.93	0.002076	4.29	143.10	173.83	0.74
Kern	5590	PF 1	610.00	92.35	94.38	94.05	94.73	0.001914	4.72	129.34	111.80	0.68
Kern	5390	PF 1	610.00	91.95	94.04	93.65	94.36	0.001712	4.56	133.81	90.07	0.65
Kern	5090	PF 1	610.00	91.35	93.72		93.95	0.000973	3.85	158.61	87.56	0.50
Kern	4790	PF 1	610.00	90.75	93.10	92.78	93.54	0.001841	5.29	115.37	126.59	0.73
Kern	4590	PF 1	610.00	90.35	92.32	92.32	92.98	0.004276	6.50	93.87	73.32	1.01
Kern	4490	PF 1	610.00	90.02	92.06		92.47	0.002836	5.14	118.63	93.00	0.80
Kern	4460	PF 1	610.00	89.89	92.17		92.36	0.000988	3.50	174.44	120.00	0.51
Kern	4420	PF 1	610.00	89.76	92.09	91.49	92.31	0.001021	3.77	161.60	96.00	0.51
Kern	4330	PF 1	610.00	89.47	92.04		92.23	0.000699	3.48	175.44	87.92	0.43
Kern	4230	PF 1	610.00	89.27	91.84		92.03	0.021868	3.45	176.85	98.30	0.43
Kern	4030	PF 1	610.00	88.87	91.17		91.42	0.001120	4.01	152.11	87.59	0.54
Kern	3980	PF 1	610.00	89.20	90.72	90.72	91.30	0.003965	6.11	99.85	86.82	1.00
Kern	3930	PF 1	610.00	88.70	91.06		91.10	0.000190	1.64	372.35	278.76	0.25
Kern	3880	PF 1	610.00	88.90	90.55	90.43	91.03	0.002969	5.55	109.83	87.04	0.87
Kern	3830	PF 1	610.00	88.55	90.54		90.87	0.001724	4.59	132.96	86.89	0.65
Kern	3730	PF 1	610.00	88.27	90.39		90.70	0.001601	4.47	136.61	87.56	0.63
Kern	3430	PF 1	610.00	87.64	89.33	89.33	89.91	0.004547	6.13	99.43	87.39	1.01
Kern	3130	PF 1	610.00	86.42	88.30		88.73	0.002809	5.30	115.19	87.16	0.81
Kern	2830	PF 1	610.00	85.19	87.33	86.88	87.63	0.004596	4.42	138.16	87.68	0.62
Kern	2530	PF 1	610.00	83.97	85.68	85.67	86.25	0.004439	6.10	99.97	86.00	1.00
Kern	2230	PF 1	610.00	82.74	84.53	84.45	85.04	0.003561	5.68	107.36	86.60	0.90
Kern	1930	PF 1	610.00	81.52	83.50	83.23	83.88	0.003983	4.94	123.44	87.11	0.73
Kern	1630	PF 1	610.00	80.29	81.99	81.99	82.58	0.004534	6.13	99.45	86.00	1.01
Kern	1530	PF 1	610.00	79.84	81.68		82.14	0.003141	5.48	111.25	86.73	0.85
Kern	1430	PF 1	610.00	79.53	81.60		81.90	0.001304	4.37	139.64	86.86	0.61
Kern	1380	PF 1	610.00	79.67	81.19	81.19	81.77	0.003965	6.11	99.85	86.82	1.00
Kern	1330	PF 1	610.00	79.07	81.31		81.36	0.000243	1.79	340.66	271.01	0.28
Kern	1280	PF 1	610.00	79.16	80.69	80.69	81.28	0.004099	6.13	99.55	87.03	1.01
Kern	1230	PF 1	610.00	78.70	80.33	80.31	80.89	0.004242	6.03	101.24	86.84	0.98
Kern	1130	PF 1	610.00	78.20	79.99	79.89	80.49	0.003497	5.67	107.63	86.84	0.90
Kern	1030	PF 1	610.00	77.84	79.62	79.54	80.13	0.003638	5.73	106.43	86.94	0.91
Kern	730	PF 1	610.00	76.62	78.32	78.32	78.90	0.004577	6.15	99.25	86.70	1.01
Kern	530	PF 1	610.00	75.80	77.54	77.50	78.09	0.003401	5.94	102.72	86.98	0.96
Kern	330	PF 1	610.00	75.05	77.43		77.66	0.000965	3.84	158.93	87.34	0.50
Kern	230	PF 1	610.00	74.75	77.42		77.57	0.000499	3.03	201.23	93.80	0.36

HEC-RAS Plan: Plan 21 Profile: PF 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Kern	140	PF 1	610.00	74.06	77.49		77.52	0.000079	1.36	450.40	186.47	0.15
Kern	90	PF 1	610.00	73.52	77.50	74.96	77.51	0.000024	0.75	822.36	373.19	0.08
Downslope	900	PF 1	1690.00	75.95	76.93		76.97	0.003138	1.64	1032.06	2275.74	0.43
Downslope	800	PF 1	1690.00	75.75	76.59	76.31	76.64	0.003500	1.68	1003.43	2302.43	0.45
West of 1st	400	PF 1	2300.00	97.55	99.19	98.16	99.21	0.000111	1.05	2379.23	1821.07	0.15
West of 1st	325		Inl Struct									
West of 1st	225	PF 1	2300.00	94.58	95.48	95.16	95.57	0.001848	1.84	1010.74	1323.80	0.41
West of 1st	125	PF 1	2300.00	92.10	94.84	94.84	95.18	0.010603	4.67	492.83	739.61	1.01
Olive Avenue	4960	PF 1	240.00	93.95	95.19	94.78	95.23	0.000729	1.66	144.40	259.73	0.34
Olive Avenue	4940	PF 1	240.00	94.00	94.91	94.91	95.17	0.005212	4.15	57.86	195.16	1.00
Olive Avenue	4900	PF 1	240.00	93.50	94.59	94.59	94.87	0.004675	4.22	56.84	307.06	0.99
Olive Avenue	4800	PF 1	240.00	90.84	92.12	92.12	92.43	0.004587	4.47	53.78	202.72	0.99
Olive Avenue	4600	PF 1	240.00	89.27	90.98		91.28	0.002994	4.41	54.42	51.32	0.75
Olive Avenue	4300	PF 1	240.00	88.37	90.07		90.38	0.003006	4.42	54.34	51.20	0.76
Olive Avenue	4000	PF 1	240.00	87.47	89.18	88.89	89.48	0.002959	4.39	54.68	177.80	0.76
Olive Avenue	3700	PF 1	240.00	86.57	88.26		88.57	0.003091	4.47	53.74	50.42	0.76
Olive Avenue	3400	PF 1	240.00	85.66	87.40		87.68	0.002745	4.25	56.42	56.45	0.75
Olive Avenue	3100	PF 1	240.00	84.77	86.41		86.75	0.003510	4.69	51.19	46.54	0.79
Olive Avenue	2800	PF 1	240.00	83.87	85.82		86.00	0.001659	3.39	70.74	80.17	0.64
Olive Avenue	2725	PF 1	240.00	84.40	85.59	85.59	85.80	0.005207	3.69	65.11	150.76	0.99
Olive Avenue	2650	PF 1	240.00	84.05	85.50		85.55	0.000691	1.74	138.03	223.89	0.39
Olive Avenue	2575	PF 1	240.00	84.00	85.21	85.21	85.42	0.005171	3.71	64.71	147.84	0.99
Olive Avenue	2500	PF 1	240.00	82.97	84.69		84.99	0.002882	4.34	55.30	54.15	0.76
Olive Avenue	2200	PF 1	240.00	82.07	83.73		84.06	0.003309	4.59	52.34	48.30	0.78
Olive Avenue	1900	PF 1	240.00	81.17	83.03	82.58	83.25	0.002085	3.77	63.58	68.85	0.69
Olive Avenue	1600	PF 1	240.00	80.27	81.68	81.68	82.20	0.006390	5.80	41.40	40.44	1.01
Olive Avenue	1329	PF 1	240.00	80.15	81.08		81.18	0.001590	2.62	91.73	170.10	0.63
Olive Avenue	1000	PF 1	240.00	78.46	80.16		80.46	0.003067	4.45	53.91	50.59	0.76
Olive Avenue	700	PF 1	240.00	77.55	79.25		79.56	0.003005	4.42	54.34	51.21	0.76
Olive Avenue	500	PF 1	240.00	76.95	78.69		78.97	0.002764	4.26	56.36	55.36	0.74
Olive Avenue	300	PF 1	240.00	76.35	77.95		78.32	0.003846	4.85	49.50	44.76	0.81
Olive Avenue	200	PF 1	240.00	76.05	78.04		78.11	0.000579	2.11	113.78	112.02	0.37
Olive Avenue	100	PF 1	240.00	75.12	78.08	76.05	78.08	0.000017	0.48	496.74	337.00	0.07
English Birch	5512	PF 1	1450.00	93.20	94.92	94.92	95.45	0.005191	5.88	246.49	232.00	1.01
English Birch	5462	PF 1	1450.00	92.50	93.89	93.89	94.46	0.005273	6.05	239.47	214.00	1.01
English Birch	5378	PF 1	1450.00	90.62	92.39		92.93	0.003235	5.90	245.60	159.48	0.84
English Birch	5294	PF 1	1450.00	89.96	92.32		92.70	0.001519	4.95	292.77	139.80	0.60
English Birch	5160	PF 1	1450.00	89.57	92.04		92.48	0.001681	5.36	270.50	124.00	0.64
English Birch	5022	PF 1	1450.00	89.11	91.52		92.15	0.002478	6.39	226.96	109.55	0.78
English Birch	4772	PF 1	1450.00	88.36	91.23		91.66	0.001271	5.22	277.58	109.58	0.58

HEC-RAS Plan: Plan 21 Profile: PF 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
English Birch	4537	PF 1	1450.00	88.06	91.12		91.39	0.000765	4.22	343.78	128.81	0.45
English Birch	4308	PF 1	1450.00	87.39	90.21	89.98	91.04	0.002645	7.32	197.98	87.67	0.86
English Birch	4136	PF 1	1450.00	86.87	89.93		90.61	0.001887	6.62	219.15	87.80	0.74
English Birch	4036	PF 1	1450.00	86.65	89.85		90.43	0.001307	6.10	237.78	86.97	0.65
English Birch	3986	PF 1	1450.00	86.85	89.40	89.26	90.31	0.002735	7.66	189.29	86.96	0.91
English Birch	3936	PF 1	1450.00	86.30	89.98		90.03	0.000128	1.81	800.12	368.91	0.22
English Birch	3886	PF 1	1450.00	86.45	88.88	88.88	89.91	0.003475	8.16	177.72	87.14	1.01
English Birch	3836	PF 1	1450.00	86.05	88.75	88.56	89.61	0.002779	7.47	194.16	86.98	0.88
English Birch	3733	PF 1	1450.00	85.66	88.39	88.26	89.30	0.003076	7.68	188.84	87.42	0.92
English Birch	3433	PF 1	1450.00	84.76	87.56	87.36	88.41	0.002746	7.41	195.72	87.64	0.87
English Birch	3133	PF 1	1450.00	83.86	86.58	86.47	87.52	0.003199	7.75	187.02	86.97	0.93
English Birch	2853	PF 1	1450.00	83.01	86.08	85.61	86.76	0.001883	6.61	219.38	87.94	0.74
English Birch	2753	PF 1	1450.00	82.80	86.00		86.58	0.001307	6.10	237.78	86.97	0.65
English Birch	2703	PF 1	1450.00	83.00	85.55	85.41	86.46	0.002735	7.66	189.29	86.96	0.91
English Birch	2653	PF 1	1450.00	82.45	86.13		86.18	0.000128	1.81	800.12	368.91	0.22
English Birch	2603	PF 1	1450.00	82.60	85.03	85.03	86.06	0.003475	8.16	177.72	87.14	1.01
English Birch	2553	PF 1	1450.00	82.20	84.84	84.71	85.75	0.003012	7.65	189.48	86.98	0.91
English Birch	2453	PF 1	1450.00	81.81	84.56	84.41	85.45	0.002965	7.59	191.05	87.56	0.91
English Birch	2233	PF 1	1450.00	81.16	83.98	83.75	84.82	0.002655	7.34	197.51	87.67	0.86
English Birch	1933	PF 1	1450.00	80.26	82.91	82.86	83.89	0.003479	7.96	182.24	87.46	0.97
English Birch	1533	PF 1	1450.00	79.05	82.12	81.65	82.80	0.001883	6.61	219.38	87.94	0.74
English Birch	1433	PF 1	1450.00	78.84	82.04		82.62	0.001307	6.10	237.78	86.97	0.65
English Birch	1383	PF 1	1450.00	79.04	81.59	81.45	82.50	0.002735	7.66	189.29	86.96	0.91
English Birch	1333	PF 1	1450.00	78.49	82.17		82.22	0.000128	1.81	800.11	368.91	0.22
English Birch	1283	PF 1	1450.00	78.64	81.07	81.07	82.10	0.003475	8.16	177.73	87.14	1.01
English Birch	1233	PF 1	1450.00	78.24	80.89	80.75	81.79	0.002999	7.64	189.73	86.98	0.91
English Birch	1133	PF 1	1450.00	77.85	80.61		81.49	0.002888	7.53	192.59	87.57	0.89
English Birch	733	PF 1	1450.00	76.66	79.41	79.26	80.31	0.003020	7.62	190.18	87.14	0.91
English Birch	533	PF 1	1450.00	76.06	78.90	78.66	79.73	0.002617	7.31	198.32	87.44	0.86
English Birch	333	PF 1	1450.00	75.46	78.05	78.05	79.09	0.003759	8.16	177.79	87.60	1.01
English Birch	233	PF 1	1450.00	75.01	78.00		78.14	0.000489	3.01	482.44	212.00	0.35
English Birch	143	PF 1	1450.00	74.47	78.07		78.09	0.000053	1.19	1213.90	391.81	0.12
English Birch	93	PF 1	1450.00	73.75	78.08	75.07	78.09	0.000020	0.77	1887.90	546.00	0.07

APPENDIX C

ESA Compliance

From: Justin Sloan [mailto:justin_sloan@fws.gov]
Sent: Monday, March 09, 2015 10:31 AM
To: Daniel Duke
Subject: RE: Villages of Patterson Biological Assessment for comment

Daniel,

I have no comments on the assessment.

Thanks,
Justin

From: Daniel Duke [mailto:dduke@harveyecology.com]
Sent: Tuesday, March 03, 2015 12:16 PM
To: Justin Sloan
Cc: Susan Christopher
Subject: RE: Villages of Patterson Biological Assessment for comment

Justin,

I just wanted to follow up on the email below to see if you have any comments on our Biological Assessment.

Thank you in advance,

Daniel

From: Daniel Duke
Sent: Thursday, February 26, 2015 8:46 PM
To: 'Justin Sloan'
Cc: Susan Christopher
Subject: Villages of Patterson Biological Assessment for comment

Justin,

Per your recommendation during our phone conversation on January 16th, I have attached the Villages of Patterson Biological Assessment for your review and comment. The project proposes mixed-use development on 305 acres northeast of the City of Patterson. No natural communities are present on the project site; the site contains developed and agricultural areas, and the only aquatic features are unvegetated concrete-lined drainage ditches conveying periodic flows. Our evaluation determined that the site would not support any federally listed or candidate species due to lack of suitable habitat. San Joaquin kit fox would not occur even on a transitory basis because

there are substantial barriers (I-5, SR-33 and aqueducts) between the locations of recent, nearby observations and the project site. Therefore, there would be no direct, indirect, or cumulative effects of the proposed project on federally listed or candidate species. Designated critical habitat is not present on or adjacent to the site, and therefore would not be affected.

As we discussed, the project proponent will use this analysis to demonstrate compliance with the ESA for Federal Emergency Management Agency (FEMA) approval of a Conditional Letter of Map Revision. We would appreciate any comments that you may have on the Biological Assessment prior to our submittal to FEMA.

Thank you,

Daniel

Daniel Duke
Associate, Wildlife Ecology
H. T. Harvey & Associates | Ecological Consultants
7815 N. Palm Avenue, Suite 310 | Fresno, CA 93711
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H.T. HARVEY & ASSOCIATES
Ecological Consultants

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Ecological Consultants

Biological Assessment for Phase I of the Villages of Patterson Project, Stanislaus County

Project #2634-02

Prepared for:

South Olive Associates
11 Plaza Circle, Suite G
Patterson, CA 95363

Prepared by:

H. T. Harvey & Associates

February 2015

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Executive Summary

Phase I of the Villages of Patterson Project would establish a framework for development of an approximately 305-acre project site northeast of the city of Patterson, Stanislaus County, California. The project requires a Conditional Letter of Map Revision (C-LOMR) from the Federal Emergency Management Agency (FEMA) as the project would, upon construction, affect the hydrologic or hydraulic characteristics within an existing flood zone. Compliance with the federal Endangered Species Act (ESA) must be documented by FEMA prior to issuance of the C-LOMR. Several federally listed threatened and endangered species are known to occur in the vicinity of the project site, but none have potential to occur on the site because suitable environmental conditions for these species are absent. Per the requirements of Section 7 of the ESA, potential impacts on listed species and their designated critical habitat is analyzed in this biological assessment (BA).

The project site occurs in an area that has been modified by agricultural and urban development. Five land use types were found to occur on the project site: row crop, orchard, ruderal, developed, and concrete-lined drainage ditch. No natural communities occur on the project site because all areas have been modified or converted to developed or agricultural land uses. All offsite areas surrounding the site also have been converted to agricultural or urban development.

Federally listed species that have been documented to occur in the vicinity of the project site, and were evaluated for the purposes of this analysis are:

- San Joaquin kit fox (*Vulpes macrotis mutica*)
- Riparian brush rabbit (*Sylvilagus bachmani riparius*)
- California tiger salamander *(Ambystoma californiense*)
- California red-legged frog *(Rana draytonii*)
- Least Bell's vireo (*Vireo bellii pusilus*)
- Giant garter snake (*Thamnophis gigas*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Longhorn fairy shrimp (*Branchinecta longiantenna*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)

The California Central Valley steelhead (*Oncorhynchus mykiss irideus*) is known to occur in the vicinity of the project site, but is under the jurisdiction of National Marine Fisheries Service instead of USFWS, and therefore is not covered in this BA. An additional twenty-three federally listed or candidate species were identified as occurring in the region, but excluded from the analysis due to the project site being outside of the species' range. No designated critical habitat occurs on, or nearby, the project site.

The proposed action would not have any direct, indirect, or cumulative effects on federally listed or candidate species or designated critical habitat. None of the species evaluated have been recorded on, or in areas immediately adjacent to, the project site. Suitable environmental conditions are not present on the site for any of these species because all areas of the site have been converted to agricultural or urban land uses, and would not support these species. Owing to the presence of I-5, irrigation canals of substantial depth and width, and intervening areas of highly developed land, there is no connectivity between the project site and potential habitat areas either to the west of I-5 or along the San Joaquin River to the east. Because the species would not occur on the site, there would be no direct effects. None of the species have potential to occupy areas surrounding the project site in the future, because these areas are expected to continue to be under intensive agriculture or experience increased urban development. Therefore, there would be no indirect effects at present or at a later time. In addition, the project would not affect potential prey or predators because the covered species would not occur in the immediate vicinity of the project site. No designated critical habitat occurs on, or nearby the site; therefore, there would be no direct or indirect effects on critical habitat. Because there are no direct or indirect effects of the proposed action on covered species or critical habitat, there would also be no cumulative effects.

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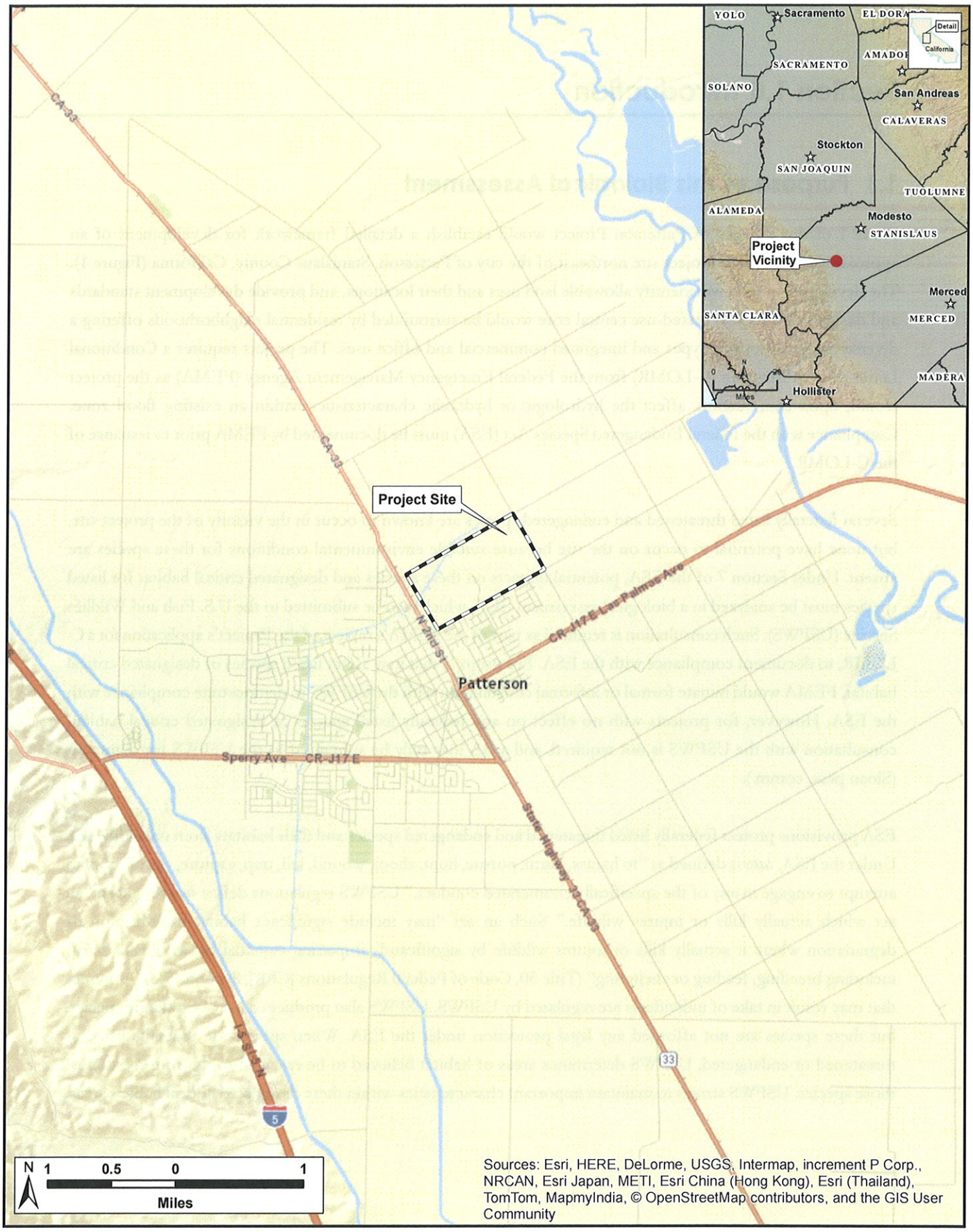
Section 1.0 Introduction

1.1 Purpose of This Biological Assessment

Phase I of the Villages of Patterson Project would establish a detailed framework for development of an approximately 305-acre project site northeast of the city of Patterson, Stanislaus County, California (Figure 1). The development plan will identify allowable land uses and their locations, and provide development standards and design guidelines. A mixed-use central core would be surrounded by residential neighborhoods offering a diverse range of housing types and integrated commercial and office uses. The project requires a Conditional Letter of Map Revision (C-LOMR) from the Federal Emergency Management Agency (FEMA) as the project would, upon construction, affect the hydrologic or hydraulic characteristics within an existing flood zone. Compliance with the federal Endangered Species Act (ESA) must be documented by FEMA prior to issuance of the C-LOMR.

Several federally listed threatened and endangered species are known to occur in the vicinity of the project site, but none have potential to occur on the site because suitable environmental conditions for these species are absent. Under Section 7 of the ESA, potential impacts on these species and designated critical habitat for listed species must be analyzed in a biological assessment (BA), which is to be submitted to the U.S. Fish and Wildlife Service (USFWS). Such consultation is required as part of the FEMA's review of the Project's application for a C-LOMR, to document compliance with the ESA. For projects that may affect listed species or designated critical habitat, FEMA would initiate formal or informal consultation with the USFWS to demonstrate compliance with the ESA. However, for projects with no effect on any federally listed species or designated critical habitat, consultation with the USFWS is not required, and a BA may only be submitted to the USFWS for comment (Sloan pers. comm.).

ESA provisions protect federally listed threatened and endangered species and their habitats from unlawful take. Under the ESA, *take* is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." USFWS regulations define *harm* to mean "an act which actually kills or injures wildlife." Such an act "may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (Title 50, Code of Federal Regulations [CFR], Section 17.3). Activities that may result in take of individuals are regulated by USFWS. USFWS also produces a list of candidate species, but these species are not afforded any legal protection under the ESA. When species are federally listed as threatened or endangered, USFWS determines areas of habitat believed to be essential to the conservation of those species. USFWS strives to maintain important characteristics within these designated critical habitat areas.



N:\Projects\2634-01\02\Reports\Fig 1 Vicinity Map.mxd

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Figure 1: Vicinity Map
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1.2 Project Location

The Villages of Patterson project site is located to the northeast and outside of the boundaries of the City of Patterson, in unincorporated Stanislaus County, western San Joaquin Valley, California. The project site is bounded to the northwest by Olive Street, to the southeast by Walnut Avenue, to the northeast by Sycamore Avenue, and to the southwest by North 1st Avenue (Figure 2).

The project site occurs on the Patterson and Crows Landing U.S. Geological Survey [USGS] 7.5-minute quadrangles (USGS 1981). Onsite elevations range from 77 to 91 feet above mean sea level.

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Figure 2: Land Use Types
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1.3 Action Area

The *action area* as defined in 50 CFR 402.02 includes all areas in which federally listed species could be affected directly or indirectly by the proposed action. The *effects of the action* to be analyzed in the BA are defined as the direct and indirect effects of the action, together with the cumulative effects of other activities that may also affect the target species, including those effects that occur at a different location or time.

The action area for the Project includes the project site as shown in Figure 2. No effects are anticipated to extend outside of this area because there are no natural habitats that could support federally listed species on the site or in adjacent areas. In addition, there are no natural streams or rivers for which there could be downstream effects from activities related to the project.

1.4 Consultation to Date

No consultation has been undertaken to date on this project.

Section 2.0 Environmental Setting

2.1 Project Site Description

The project site occurs in an area that has been greatly modified by agricultural and urban development. A large portion of the site is actively and intensively farmed. Associated rural residential housing and farm support structures are interspersed in this area. A new school is located on the project site northwest of Walnut Avenue. The project site is bounded by dense urban development to the southeast, south, and southwest. Agricultural land is present to the northwest, north, and northeast. The topography on the project site has very little slope. Two constructed, concrete-lined, irrigation canals cross the property (Figure 2). Onsite land use types including the concrete-lined ditches are described in detail in Section 2.3.

2.2 Climate and Soils on the Project Site

The climate of the San Joaquin Valley is characterized by hot, dry summers and cool, moist winters with frequent heavy fog. Weather patterns in the San Joaquin Valley are influenced by the California Coast Ranges to the west and the Sierra Nevada to the east. The Coast Ranges produce a rain shadow effect, with the majority of moisture falling on the coastal side of the mountains. The average annual precipitation in the region, as measured at Newman, California, is 10.7 inches (Western Regional Climate Center 2015). The average maximum temperature is 77 degrees Fahrenheit (°F) and the average low is 47°F (Western Regional Climate Center 2015).

The soils underlying the project site are moderately well drained with slow permeability, with the potential to flood (NRCS 2015). A summary of the soil types present on the project site is provided in Table 1 below.

Table 1. Soil Types on the Phase I Villages of Patterson Project Site

Soil type	Slope Percentage
Capay clay	0-2%
Capay clay, wet	0-2%
Capay clay, rarely flooded	0-2%
El Solyo silty clay loam, rarely flooded	0-2%
Vernalis-Zacharias complex, rarely flooded	0-2%

Source: NRCS 2015.

2.3 Natural Communities and Land Use Types

H. T. Harvey & Associates (HTH) ecologists conducted reconnaissance-level field surveys to evaluate natural communities on the Villages of Patterson Phase I and II project sites in 2006, and prepared the *Villages of Patterson Biotic Study* (HTH 2006). Additionally, the Phase I project site was surveyed on 21 January 2015 by HTH to evaluate whether onsite environmental conditions had changed since previous surveys. The purpose of these surveys was to describe and map existing land use types, document the presence of any natural communities, and assess the site for its potential to support federally listed species.

Five land use types were found to occur on the project site: row crop, orchard, ruderal, developed, and concrete-lined drainage ditch (Table 2; Figure 2). No natural communities were found to occur on the project site, because all areas had been modified or converted to developed or agricultural land uses.

Table 2. Summary of Land Use Types Present on the Phase I Project Site

Type	Acres
Row crop	216.61
Orchard	27.36
Ruderal	4.46
Developed	53.87
Concrete-lined drainage ditch	2.65
Total	304.95

Row Crop

Row crops and disked fields make up the majority of the project site (216.61 acres). Dominant crops include oats (*Avena sativa*), wheat (*Triticum aestivum*), and alfalfa (*Medicago sativa*). Black mustard (*Brassica nigra*) is also found sporadically throughout the fields. The crops are flood-irrigated using water diverted from the concrete-lined drainage ditches on the site to irrigation trenches located on the periphery of the fields. This land use category includes earthen drainage ditches around the edges of the fields. In these ditches, vegetation has been actively removed through herbicide application or excavation. No hydrophytic vegetation was observed in these ditches during the surveys.

Orchard

Apricot (*Prunus armeniaca*), black walnut (*Juglans nigra*), English walnut (*Juglans regia*), and almond (*Prunus dulcis*) orchards represent approximately 27.36 acres of the project site. The orchards are maintained with few weeds, and the understory was primarily barren soil at the time of the surveys. The large orchard in the northeast corner of the project site is drip-irrigated.

Ruderal

Ruderal areas represent approximately 4.46 acres of the project site. These areas contain assemblages of plants that thrive in disturbed areas, especially weedy, nonnative annual forbs and grasses. Human-caused disturbances that facilitate these species include mowing, herbicide application, and vehicle or farm equipment use. Ruderal species observed on the project site included ripgut brome (*Bromus diandrus*), filaree (*Erodium* sp.), black mustard, shepherd's purse (*Capsella bursa-pastoris*), and yellow star-thistle (*Centaurea solstitialis*). A large proportion of ruderal areas consist of bare ground.

Developed

Approximately 53.87 acres of the project site consists of developed areas, including houses, roads, barns and other outbuildings, and a school with associated landscaped areas and playing fields. Native and ornamental trees and shrubs, including coast live oak (*Quercus agrifolia*), date palm (*Phoenix* sp.), pine (*Pinus* sp.), and eucalyptus (*Eucalyptus* sp.), are present in the developed areas. Some components of the ruderal category may also occur in these areas.

Concrete-lined Drainage Ditch

Concrete-lined drainage ditches make up approximately 2.65 acres of the project site and are represented by two laterals: Lateral Four North, extending from Highway 33 on the western boundary of the project site to Olive Avenue to the northwest; and Lateral Three North (also called Salado Creek), which runs from Walnut Avenue to Olive Avenue. Both of the laterals are approximately 8 feet wide at the top and 6 feet wide at the bottom, with a maximum depth of approximately 2.5 feet. At the time of the survey, the Lateral Four North did not contain water, whereas Lateral Three North contained water and had small, shallow puddles with mosquitofish (*Gambusia affinis*). Except for small numbers of mosquitofish, the water in Lateral Three North was devoid of other aquatic life, such as invertebrates or algae.

During the surveys, the two concrete-lined drainage ditches on the project site were completely devoid of aquatic vegetation, and there was evidence that the channels and tops of banks are actively maintained free of vegetation. Ponded water would not accumulate in the ditches because water would be flowing if present, and residual puddles from irrigation flows or rainwater are unlikely to persist.

Section 3.0 Species Evaluated

Surveys were conducted to assess the suitability of onsite habitats for supporting federally listed and candidate wildlife species. Prior to the surveys, a list of threatened, endangered, or candidate species documented to occur in the vicinity of the project site was compiled from a search of the California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife [CDFW] 2014) and an official list obtained from the Sacramento Fish and Wildlife Office online species list generator (USFWS 2015), which is included as Appendix A.

The CNDDB was queried for occurrences of federally listed or candidate species within the USGS Patterson and Crows Landing 7.5-minute quadrangles, in which the project site occurs, and the eight surrounding quadrangles. The results of the CNDDB search are provided in Appendix B.

Table 3 lists all federally listed and candidate species recorded in the CNDDB ten-quadrangle search area and those on the official USFWS list for the project area. HTH evaluated the potential for occurrence within the project site based on species' habitat associations (i.e., natural communities, soils, and hydrologic conditions), distribution patterns (i.e., whether the project site is within the species' local geographic distribution and elevational range), and distance to recent recorded localities. For animal species with a continuous distribution or a dispersed pattern that overlapped the Project site geographically and at the same elevational range, the occurrence of appropriate natural communities on the site and resources necessary for key life history functions were evaluated. CNDDB records were considered for how recent observations have been recorded and land use changes that subsequently occurred, as well as other factors that may influence the reliability of species identification of unverified records in the CNDDB. Other sources used in this analysis included published literature, species reports, conference proceedings, surveys performed by HTH in the area, and interpretation of aerial photography.

In Table 3, *present* would indicate that the species or its sign was found during the reconnaissance surveys, or that records obtained during the background review described above contained species observations from the project site. *Possible* would indicate that, although the species has not been recorded on the site, habitat conditions on the project site are appropriate and the species is known to occur in the Project vicinity *Unlikely* would indicate that the species has not been recorded on the site and habitat on the project site is marginal, but the species could occur on a transitory basis because there are recent records of the species in the vicinity and the project site is within the species' local distribution. None of these designations were applicable to the species evaluated (Table 3). *Absent* indicates that a full complement of focused or protocol-level surveys was conducted and the results were negative, the site does not support suitable conditions that provide habitat for the species, or that the site is outside the species' range (approximately 25 miles to nearest recent observations, depending on biogeography).

The search yielded a list of 35 federally listed or candidate species recorded in the vicinity of the project site (Table 3). None of these species have potential to occur on the project site—the rationale for this evaluation is summarized in Table 3. Eleven of these species that have recently been recorded in the vicinity are described in

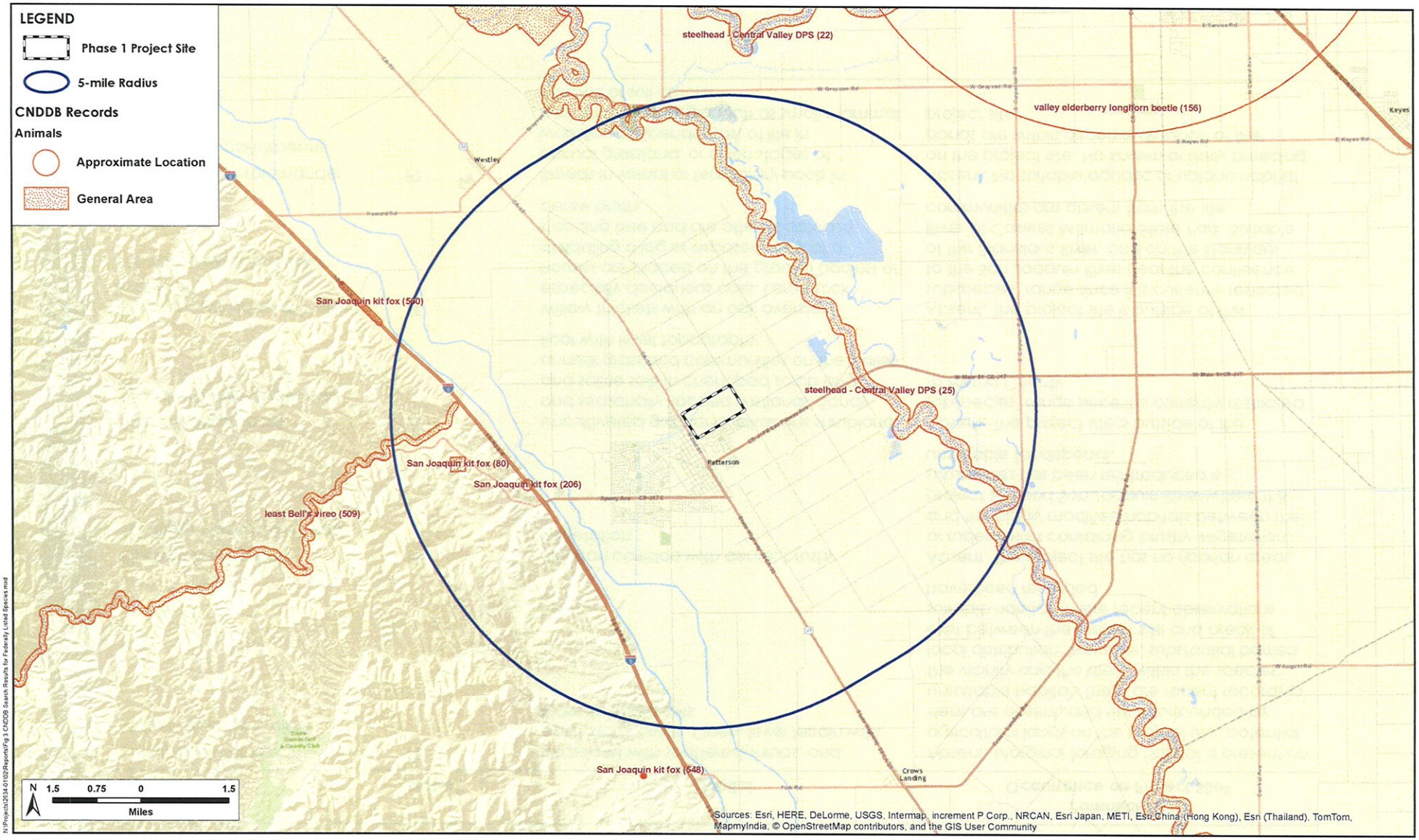
detail in Sections 3.2 through 3.12, and an in-depth analysis of the potential for occurrence on the project site is provided.

3.1.1 Species Excluded from Analysis

The California Central Valley steelhead (*Oncorhynchus mykiss irideus*) is known to occur in the vicinity of the project site (Figure 3), but there is no suitable aquatic habitat on the site. In addition, this subspecies is under the jurisdiction of National Marine Fisheries Service instead of USFWS, and therefore is not covered under this BA.

Additionally, 23 federally listed or candidate species on the official USFWS list for the project (Appendix A) were determined to be absent from the project site because the site is outside of the species' range and/or suitable communities or other environmental conditions critical for key life history features are absent from the project site. These species include:

- Fresno kangaroo rat (*Dipodomys nitratoides exilis*)
- Riparian (San Joaquin Valley) woodrat (*Neotoma fuscipes riparia*)
- Yosemite toad (*Bufo canorus*)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- California least tern (*Sternula antillarum browni*)
- Blunt-nosed leopard lizard (*Gambelia sila*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Green sturgeon (*Acipenser medirostris*)
- Delta smelt (*Hypomesus transpacificus*)
- South Central California steelhead (*Oncorhynchus mykiss*)
- Central Valley spring-run chinook salmon (*Oncorhynchus tshawytscha*)
- Winter-run chinook salmon, central population (*Oncorhynchus tshawytscha*)
- Large-flowered fiddleneck (*Amsinckia grandiflora*)
- Chinese Camp brodiaea (*Brodiaea pallida*)
- Succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*)
- Hoover's spurge (*Chamaesyce hooveri*)
- Santa Clara Valley dudleya (*Dudleya setchellii*)
- Colusa grass (*Neostapfia colusana*)
- San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)
- Hairy Orcutt grass (*Orcuttia pilosa*)
- Hartweg's golden sunburst (*Pseudobahia bahiifolia*)
- Greene's tuctoria (*Tuctoria greenei*)
- Red Hills vervain (*Verbena californica*)



N:\Projects\2634-01\02\Reports\Fig 3 CNDDB Search Results for Federally Listed Species.mxd

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Figure 3: California Natural Diversity Database Search Results for Federally Listed Species
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Table 3. Federally Listed Species and Potential for Occurrence on the Project Site

Name	Status[1]	Habitat	Potential for Occurrence on Project Site[2]
San Joaquin kit fox *Vulpes macrotis mutica*	FE	Grassland with scattered shrubs, and agricultural areas. Open, level terrain with loose-textured soils.	Absent. Marginal foraging habitat is present on agricultural lands on the project site, potential dens are absent, and site is surrounded by unsuitable habitat. There are recent records in the vicinity and the site is within the species' local distribution; however, substantial barriers exist between the project site and areas of suitable habitat where recent observations have been recorded.
Riparian brush rabbit *Sylvilagus bachmani riparius*	FE	Riparian corridors with dense, brushy vegetation.	Absent. The project site has no riparian areas or ruderal sites containing brushy vegetation, and the highly modified habitats between the project site and San Joaquin River where this subspecies has been reintroduced is unsuitable for dispersal.
Fresno kangaroo rat *Dipodomys nitratoides exilis*	FE	Uncultivated grassland, alkali sink shrubland, and seasonally flooded wetlands. Sandy and saline soils in chenopod scrub and annual grassland communities on the Valley floor with level topography.	Absent. The project site is outside of this subspecies' range since it is currently restricted to Fresno County.
Riparian (San Joaquin Valley) woodrat *Neotoma fuscipes riparia*	FE	Willow thickets with an oak overstory, especially deciduous oaks. Large stick houses are placed on the ground against or straddling a log or exposed roots of a standing tree and are often located in dense brush.	Absent. The project site is outside of this subspecies' range since it is currently restricted to the San Joaquin River near the confluence of the Stanislaus River, and on the Stanislaus River at Caswell Memorial State Park. Suitable communities are absent from the site.
California tiger salamander *Ambystoma californiense*	FT	Breeds in vernal or temporary pools in annual grassland, or open stages of woodlands. Spends most of life in subterranean refugia such as small mammal burrows or soil cracks.	Absent. No suitable aquatic or upland habitat on the project site. No known or likely breeding ponds are within dispersal distance of the project site.

Name	Status[1]	Habitat	Potential for Occurrence on Project Site[2]
California red-legged frog *Rana draytonii*	FT	Breeds in ponds and pools, usually with long-duration ponding (e.g., through July). Uses a variety of aquatic and wetland habitats for foraging, cover, and aquatic refugia. May disperse long distances over uplands, particularly during the wet season.	Absent. No suitable aquatic habitat on the project site. Surrounded by unsuitable habitat, with no potentially suitable aquatic sites identified on aerial photography within the dispersal distance of this species.
Yosemite toad *Bufo canorus*	FC	Wet meadows, seasonal ponds and wetlands in the high Sierra Nevada from 6400 to 11,320 feet elevation. Lodgepole pine and subalpine conifer forests.	Absent. The project site is greatly outside the species' geographical and elevational range, since it is restricted to high elevations in the Sierra Nevada. Suitable communities and breeding habitats are absent from the site.
Least Bell's vireo *Vireo bellii pusilus*	FE	Early successional shrubs along perennial or ephemeral streams.	Absent. The subspecies is rare in the vicinity of the project site and suitable communities and nesting structure are not present on the site.
Western yellow-billed cuckoo *Coccynzus americanus occidentalis*	FT	Valley foothill and desert riparian communities. Associated with densely foliaged and deciduous trees and shrubs, especially willows. Breeds in river bottoms and other mesic habitats.	Absent. The project site is greatly outside of this subspecies' current range since breeding populations are restricted to the Sacramento and Kern rivers. Other possible breeding locations are in eastern and southern California. Suitable communities and nesting structure are not present on the site.
California least tern *Sternula antillarum browni*	FE	Forages in shallow estuaries & lagoons. Nests on beach or tidal flat with sparse or no vegetation. Roosts on beaches.	Absent. The project site is outside of this subspecies' range and suitable communities are absent from the site.
Giant garter snake *Thamnophis gigas*	FT	Freshwater marshes and low gradient streams with emergent vegetation; rice fields; can use drainage canals and irrigation ditches with mud substrate with permanent water sources.	Absent. No suitable aquatic habitats are present on project site and surrounding lands are unsuitable for dispersal from the San Joaquin River. Nearest known breeding population is over 26 miles from the project site.
Blunt-nosed leopard lizard *Gambelia sila*	FE	Semiarid grasslands, alkali flats & washes; prefers flat areas with sparse shrubs (ephedra, saltbush).	Absent. The project site is outside of the species' range since it occurs from southern Merced County south through the San Joaquin Valley and Carrizo Plain.

Name	Status[1]	Habitat	Potential for Occurrence on Project Site[2]
Alameda whipsnake (=Alameda striped racer) *Masticophis lateralis euryxanthus* (=*Coluber lateralis euryxanthus*)	FT	Open areas in canyons, rocky hillsides, chaparral scrublands, open woodlands, pond edges, and stream courses.	Absent. The project site is outside of the subspecies' range because it occurs only in a small area on the east side of the San Francisco Bay in Contra Costa and Alameda counties, and parts of San Joaquin and Santa Clara Counties. Suitable habitat conditions are not present on the project site.
Green sturgeon *Acipenser medirostris*	FT	Spend the majority of their lives in near shore oceanic waters, bays, and estuaries. Younger green sturgeon reside in fresh water, with adults returning to freshwater to spawn when they are about 15 years of age.	Absent. The project site does not have suitable aquatic habitat for this species.
Delta smelt *Hypomesus transpacificus*	FT	Endemic to the Sacramento-San Joaquin River Delta, where it is pelagic and euryhaline. Spawning is in river channels and tidally influenced backwater sloughs upstream of the mixing zone where saltwater meets freshwater.	Absent. The project site does not have suitable aquatic habitat for this species and it is outside of this species' range.
Central Valley steelhead *Oncorhynchus mykiss*	FT	Endemic to the Central Valley hydrographic basin. Historically spawned in upper stream reaches and smaller tributaries, but currently is confined to areas below dams. Preferred spawning areas have gravel substrates. Juveniles migrate to ocean and return as adults to freshwater to spawn; adults migrate back to ocean after spawning.	Absent. The project site does not have suitable aquatic habitat for this species.
South Central California steelhead *Oncorhynchus mykiss*	FT	Spawn and young reared in cool streams and rivers with high dissolved oxygen. Juveniles migrate to ocean or are resident inland (rainbow trout). Spawning areas are riffles or pool tails with gravel substrate.	Absent. The project site does not have suitable aquatic habitat for this species.

Name	Status[1]	Habitat	Potential for Occurrence on Project Site[2]
Central Valley spring-run chinook salmon *Oncorhynchus tshawytscha*	FT	Spring-run Chinook enter the Sacramento River from late March through September. Adults occupy cool water habitats through the summer, and then spawn in the fall from mid-August through early October. Spring-run juveniles migrate to the ocean after emergence, or remain in freshwater and migrate as yearlings.	Absent. The project site does not have suitable aquatic habitat for this species.
Winter-run chinook salmon, central population *Oncorhynchus tshawytscha*	FE	Adults migrate from the ocean to San Francisco Bay from November through May, and enter the Sacramento River from December through early August. Adults spawn in the upper mainstream Sacramento River from mid-April through August. Fry and smolts emigrate downstream from July through March through the Sacramento River, reaching the Delta from September through June.	Absent. The project site does not have suitable aquatic habitat for this species.
Conservancy fairy shrimp *Branchinecta conservatio*	FE	Ephemeral pools located in swales formed by old braided alluvium and filled by winter rains, or vernal pools; lasting until June; usually large and turbid; surrounded by grassland.	Absent. This species has specific habitat requirements (long-lasting ephemeral swales) that are absent from the project site.
Longhorn fairy shrimp *Branchinecta longiantenna*	FE	Vernal pools surrounded by grassland, depressions in sandstone, and clay- or grass-bottomed pools in swales; pools fill in winter and remain until June; sensitive to water quality – needs low conductivity, total dissolved solids and alkalinity.	Absent. No vernal pools or natural wetlands occur on the project site.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	Vernal pools, ephemeral swales, basalt flow depression pools, depressions in sandstone rock outcrops; can occur in roadside ditches and puddles on pavement; usually with clear or tea-colored water; grass or mud bottoms; needs low total dissolved solids, conductivity, alkalinity, and chloride; water temperatures 43 – 68 °F.	Absent. No vernal pools or natural wetlands occur on the project site.

Name	Status[1]	Habitat	Potential for Occurrence on Project Site[2]
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	Vernal pools and swales in unplowed grasslands in old alluvial soils underlain by hardpan or mud; clear to turbid water.	Absent. No vernal pools or natural wetlands occur on the project site.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Riparian and upland habitats in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*) or red elderberry (*S. racemosa*).	Absent. No elderberry shrubs were found during reconnaissance surveys of the project site, which are required for all life stages. Subspecies is found only in substantial patches of riparian habitat containing the host plant, and such patches are not present on the site.
Large-flowered fiddleneck *Amsinckia grandiflora*	FE	Cismontane woodland, valley and foothill grassland communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Chinese Camp brodiaea *Brodiaea pallida*	FT	Valley grassland, wetlands, and riparian communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Succulent owl's-clover *Castilleja campestris* ssp. *succulenta*	FT	Vernal pools in valley grassland, foothill woodland, freshwater wetlands, and wetland-riparian communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Hoover's spurge *Chamaesyce hooveri*	FT	Vernal pools, valley and foothill grassland; pools on volcanic mudflow or clay substrate.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Santa Clara Valley dudleya *Dudleya setchellii*	FE	Valley grassland and foothill woodlands. Strict endemic on serpentine soils.	Absent. Project site is outside of the species' range, and suitable soils and communities do not occur on the project site.
Colusa grass *Neostapfia colusana*	FT	Vernal pools, usually in large or deep vernal pool bottoms, adobe soils.	Absent. Project site is outside of the species' range, and suitable soils and communities do not occur on the project site.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT	Vernal pools in valley grassland, freshwater wetlands, and wetland-riparian communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Hairy Orcutt grass *Orcuttia pilosa*	FE	Vernal pools in valley grassland, freshwater wetlands, and wetland-riparian communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.

Name	Status[1]	Habitat	Potential for Occurrence on Project Site[2]
Hartweg's golden sunburst *Pseudobahia bahiifolia*	FE	Valley grassland and foothill woodland communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Greene's tuctoria *Tuctoria greenei*	FE	Vernal pools in valley grassland, freshwater wetlands, and wetland-riparian communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.
Red Hills vervain *Verbena californica*	FT	Seeps in valley grassland, freshwater wetlands, and wetland-riparian communities.	Absent. Project site is outside of the species' range, and suitable communities do not occur on the project site.

Notes:

[1] FE = Federally listed as endangered.
FT = Federally listed as threatened.
FC = Federal candidate for listing.

[2] Present = Species or sign of their presence observed on the site; records exist of the species' occurrence on the site
Possible = Species or sign not observed on the site, but suitable habitat is present and the species is known from the Project vicinity
Unlikely = Onsite habitat is marginal but species could occur on a transitory basis, and/or the site is slightly outside the species' local distribution, and was not seen during the surveys
Absent = Species or sign were not observed during focused surveys despite the presence of appropriate habitat; suitable habitat is absent; or Project site is outside of the species' range

3.2 San Joaquin Kit Fox (*Vulpes macrotis mutica*)

3.2.1 General Distribution

Prior to 1930, the range of the San Joaquin kit fox included most of the San Joaquin Valley and adjacent foothills. The species' range extended from southern Kern County north to Tracy in San Joaquin County on the west side of the valley, and on the east side of the valley, its range extended north to La Grange in Stanislaus County (Grinnell et al. 1937). Additional kit fox localities include the Hollister area of San Benito County, areas of the Salinas River Valley of San Luis Obispo and Monterey counties, the Carrizo Plain, and a narrow band of suitable habitat in Contra Costa, San Joaquin, and northeastern Alameda counties (Jensen 1972; Swick 1973). Populations of the San Joaquin kit fox appear to be increasingly isolated from one another owing to developments such as cities, aqueducts, irrigation canals, surface mining, road networks, petroleum fields, and other industrial projects (USFWS 1998a, 2010).

3.2.2 Habitat and Biology

The San Joaquin kit fox typically occurs in annual grassland or mixed shrub/grassland habitats throughout low, rolling hills and in valleys (Morrell 1972). These foxes will use grazed grassland habitat, as well as grasslands with scattered shrubs or structures such as power lines and wind turbines. They also live adjacent to, and forage in, tilled and fallow fields and irrigated row crops (Warrick et al. 2007). They are primarily nocturnal, and their diet varies geographically, seasonally, and annually, but throughout most of the species' range, diet consists primarily of rodents, rabbits, ground-nesting birds, and insects (Scrivner et al. 1987; Spiegel et al. 1996). Giant kangaroo rats (*Dipodomys ingens*) are a favored prey item (Cypher et al. 2000). San Joaquin kit foxes require underground dens for temperature regulation, shelter, reproduction, and predator avoidance (Morrell 1972). They commonly modify and use dens constructed by other animals, such as California ground squirrels (*Otospermophilus beecheyi*), American badgers (*Taxidea taxus*), and coyotes (*Canus latrans*), and will use human-made structures as well (USFWS 1998). Dens are usually in loose-textured soils in areas with low slopes (USFWS 1998a).

3.2.3 Distribution in the Project Vicinity

Populations were recorded in the late 1980s in Merced County at San Luis Reservoir (Briden et al. 1987), Grasslands Wildlife Management Area, and Kesterson Unit of the San Luis NWR (NWR) on the valley floor (Paveglio and Clifton 1988). Smaller populations and isolated sightings of kit foxes are also known from other parts of the San Joaquin Valley floor, including Madera County and eastern Stanislaus County (Williams 1990). San Joaquin kit fox are unable to maintain long-term occupancy in agricultural areas such as those on the valley floor of western Stanislaus County. Moreover, the habitats between agricultural fields and the steeper foothills affect prey type and availability, as well as predation and competition with other carnivores (Cypher et al. 2000). Central Stanislaus County is considered to be a linkage area between satellite populations in Contra Costa County

to the north and western Merced and central Merced (USFWS 2010). The nearest core population is the Ciervo-Panoche population (USFWS 2010).

There have been four observations within approximately 5 miles of the project site along or just west of Interstate 5 (I-5) (Figure 3), and the most recent observation was from 2004 (CDFW 2014). Two consisted of mortalities from vehicle strikes (CDFW 2014). Other observations occurred in an orchard 6.7 miles south of the project site, and at Lone Tree Mineral Springs 12 miles northwest of the project site (CDFW 2014).

3.2.4 Potential for Occurrence on the Project Site

Habitats on the project site are unsuitable for all key life history requirements of this species. No dens would occur on the site because of soil tilling and other disturbance factors, and none were seen during reconnaissance surveys. Several additional factors reduce the suitability of agricultural lands for kit foxes. Agricultural lands are used more frequently (in comparison to natural lands) by nonnative red foxes (*Vulpes vulpes*) and domestic dogs (*Canis lupus familiaris*), which compete with or kill kit foxes (Cypher et al. 2001). Although foxes occasionally forage in tilled and fallowed fields, they typically den in natural habitat adjacent to such agricultural lands (Bell 1994). Land management practices would negatively affect the abundance of prey. The urban setting around the site also is generally unsuitable for this species, although in some areas San Joaquin kit foxes adapt to urban environments (Cypher and Frost 1999).

The nearest known locations are from west of both I-5 and SR-33, and there are no recent observations near the project site. There are substantial barriers to dispersal between these areas and the project site owing to the presence of the two highways (which would be a major source of mortality by vehicle strike), aqueducts, and dense urban developments. Although it is possible that San Joaquin kit foxes could cross some of these features on overpasses or through culverts, they are unlikely to occupy areas very far from suitable habitat to the west. Therefore, this subspecies is not expected to occur on the project site.

3.3 Riparian Brush Rabbit (*Sylvilagus bachmani riparius*)

3.3.1 General Distribution

The riparian brush rabbit is endemic to riparian forests along the San Joaquin and Stanislaus rivers and their tributaries on the valley floor. At the time of its description by Orr (1935), the subspecies had likely been extirpated from much of its historical range (USFWS 2000); however, Orr (1940) believed that riparian brush rabbits occurred from the Delta region in the north to Stanislaus County in the south (Orr 1940). By the 1970s, the riparian brush rabbit was thought to be limited to a single population at Caswell Memorial State Park, on the Stanislaus River in southern San Joaquin County (Williams and Basey 1986).

In 1998, the California State University, Stanislaus, Endangered Species Recovery Program discovered a new population of riparian brush rabbits on private lands near Lathrop (Williams et al. 2002; Williams and Hamilton

2002). Rabbits captured from this population were used as breeders in a captive breeding program initiated by USFWS in 2001. In 2002, captive-bred rabbits were used to reestablish a population at a historical locality on the San Joaquin River NWR, San Joaquin County (Bureau of Reclamation 2013). The present distribution of this subspecies therefore includes three isolated populations, located at Caswell Memorial State Park, the San Joaquin River NWR, and private land in the South Delta near Paradise Cut, the city of Lathrop, and Mossdale.

3.3.2 Habitat and Biology

The riparian brush rabbit is found along riparian corridors with dense, brushy habitats. Such brush typically consists of short to medium-height shrubs and forbs with dense cover from approximately ground height up to 6 feet. Riparian brush rabbits have been captured in areas vegetated by grasses and weeds (Williams and Hamilton 2002), and movements documented by Hamilton (2010) indicate that brush rabbits will move through less brushy areas when dispersing.

Brush rabbits prefer areas with a mix of low and tall shrubs, small trees, and open patches of grass and herbaceous plants. Structures that provide cover, such as woody debris or dense thickets of California blackberry (*Rubus ursinus*), California wild rose (*Rosa californica*), coyote brush (*Baccharis pilularis*), golden currant (*Ribes aureum*), or marsh baccharis (*Baccharis glutinosa*) are also associated with use by this subspecies (Williams 1988). Riparian brush rabbits are most active in the early evening and early morning (Pearson 1959; Chapman 1974). They do not hibernate, migrate, or exhibit any other seasonal movement. Their home ranges are smaller than those of other members of the genus *Sylvilagus* and typically conform to the size and shape of available habitat (Chapman 1971). The reproductive season of brush rabbits typically lasts from January to June (Orr 1940; Mossman 1955). Peak breeding of riparian brush rabbits coincides with months with higher precipitation (Hamilton 2010), but there are few accounts of riparian brush rabbit reproduction in the wild. Female brush rabbits give birth in a well-concealed nest lined with fur and dried grass (Orr 1940; Chapman 1974). The young stay in the nest for about 2 weeks and are nursed only at night (Chapman 1974). Young rabbits reach maturity in 4–5 months (Orr 1940).

3.3.3 Distribution in the Project Vicinity

This subspecies was been reintroduced to the San Joaquin River NWR from 2002 to 2013 (Bureau of Reclamation 2013; CDFW 2014). In the first phase of the project, from 2002 to 2005, 325 captive-bred individuals were released to the refuge (Hamilton 2010, Kelt et al. 2014), and the population has been supplemented annually (CDFW 2014). This population is 5.5 to 9.6 miles north of the project site. All other populations are farther to the north along the San Joaquin River and the lower portions of its tributaries.

3.3.4 Potential for Occurrence on the Project Site

No suitable habitat for the riparian brush rabbit is present on the project site. All areas have been modified for agriculture or other types of development, and no riparian areas or ruderal sites containing brushy vegetation are present. It is possible that reintroduced riparian brush rabbits at the San Joaquin River NWR could expand their population and local distribution over time. In this case, they could occupy areas of riparian habitat along the San

Joaquin River, which are approximately 2 miles east of the project site (Bureau of Reclamation 2013). All intervening areas have been highly modified for agriculture and would not be suitable for dispersal. Therefore, this species is not expected to occur on the project site.

3.4 California Tiger Salamander (*Ambystoma californiense*)

3.4.1 General Distribution

The California tiger salamander is endemic to California, and occurs in the Coast Ranges from Sonoma to Santa Barbara counties, and in the Central Valley from Yolo County to Tulare County (California Department of Fish and Game [CDFG] 2010). It is a lowland species, found below 1500 feet elevation (Shaffer et al. 1993; Stebbins 2003). USFWS recognizes three distinct populations based upon data indicating that the Sonoma County and Santa Barbara County populations are genetically distinct and geographically isolated from the Central population, and likely warrant recognition at the species level (Shaffer et al. 1993). The Central population encompasses four regions: Central Valley, Southern San Joaquin, East Bay, and Central Coast.

3.4.2 Habitat and Biology

The California tiger salamander is a principally terrestrial species, spending most of its adult life in underground refugia consisting mainly of burrows excavated by small mammals such as California ground squirrels, kangaroo rats (*Dipodomys* spp.), and Botta's pocket gophers (*Thomomys bottae*). It occurs primarily in grasslands, foothills, and oak woodland habitats (Shaffer et al. 1993; Stebbins 2003). During the winter and spring, adults return to aquatic habitats, hundreds to several thousand feet from their burrows, to breed. California tiger salamanders breed in long-lasting rain pools, seasonal ponds, vernal pools, pools of slow-moving streams, stock ponds, other artificial impoundments, and permanent ponds lacking predatory fish (Stebbins 2003). Preferred breeding habitats consists of pond environments that persist a minimum of 3 to 4 months on an annual basis. During years with below-normal rainfall, they may not move to breeding pools to reproduce and remain in underground refugia (Jennings and Hayes 1994). Following breeding, adults move away from breeding ponds on nights with high relative humidity, and they continue to move to different burrow systems further from the pond over the next 1 to 4 months (Loredo et al. 1996; Trenham et al. 2001). Juveniles emigrate from ponds from June through September at night and occupy burrows upland habitats for 4 to 6 years, progressively moving farther away from their natal pond each year.

3.4.3 Distribution in the Project Vicinity

Natural vernal pools in the vicinity of Modesto were documented to have larvae and adults on numerous occasions in the 1990s (CDFW 2014). These pools are approximately 8 miles north of the project site. Another breeding pond was documented in 2002 approximately 13 miles west of the project site (CDFW 2014). A large population was found at multiple sites in the Kesterson Unit of the San Luis National Wildlife Refuge (NWR) 18 to 30 miles southeast of the project site in the early 1990s (CDFW 2014). Therefore, the project site is within the local distribution of this species.

3.4.4 Potential for Occurrence on the Project Site

No suitable aquatic or upland habitat is present on the project site. No features that would contain water long enough for the larval period of this species are present on the site. California tiger salamanders require upland habitat for burrows throughout most of their life, and no areas exist on the site or within the salamander's dispersal distance from the project site. All such areas have been converted to agriculture, and tilling or other farming activities would remove burrows or cause mortality to individuals. In addition, the urban land uses are incompatible with habitat for this species, and they are highly vulnerable to mortality from vehicle strikes while dispersing to and from breeding ponds. This species can use agricultural lands for dispersal, but no known or likely breeding ponds are within the dispersal distance for this species.[1] Therefore, this species is not expected to occur on the project site.

3.5 California Red-legged Frog *(Rana draytonii)*

3.5.1 General Distribution

The California red-legged frog is endemic to Baja California, in Mexico, and to California, and occurs at elevations from sea level to 5000 feet. It is found in the Coast Ranges from Marin County to Ventura County, with a few isolated localities remaining in the foothills of the Sierra Nevada, in the San Joaquin Valley, and in southern California (Jennings and Hayes 1994; USFWS 2002). Historically, this species was also found throughout the Central Valley, the western slope of the Sierra Nevada from Shasta County to Tulare County, and the coastal regions of southern California, but few populations remain in these areas and are isolated and fragmented remnants of historical populations. Large populations remain in the Central Coast, Marin County, and the vicinity of San Francisco Bay (Lannoo 2005). Many of the largest remaining populations occur in stock ponds that have undergone cattle grazing for about 150 years (Lannoo 2005).

3.5.2 Habitat and Biology

California red-legged frogs occupy ephemeral and permanent ponds, intermittent and perennial streams, springs, well boxes, artificial impoundments (i.e., stock ponds, reservoirs), marshes, dune ponds, lagoons, riparian forests, blackberry thickets, scrub habitats, annual grasslands, and oak woodlands. Preferred aquatic habitat is characterized by dense shoreline or emergent vegetation, such as willows (*Salix* spp.), cattails (*Typha* spp.), and bulrushes (*Schoenoplectus* spp.), with still or slow-moving water at least 2.3 feet deep (Hayes and Jennings 1989). However, these frogs also occupy ponds or pools with little or no emergent vegetation. Other features in stream habitats that appear to be important for refuge are undercut banks and willow rootballs (USFWS 2005a). Ephemeral sites must retain water at least into July/August for the tadpoles to reach metamorphosis.

[1] Searcy and Shaffer (2011) found that 95% of individuals are within 6125 feet of breeding ponds.

Adults not already at the breeding sites begin moving to these areas during the first heavy rainstorms of the season, usually in November through December. Egg-laying occurs in the shallow (0.8–3.0-foot-deep) margins of ponds or stream pools, in areas with a low to moderate amount of aquatic vegetation (Cook 1997; Christopher 2000). Larvae typically metamorphose between July and September, but occasionally they may overwinter as tadpoles and transform the following spring (Fellers et al. 2001). Metamorphs are active during the day and at night, unlike the adults, which are usually more active at night. Tadpoles undergoing metamorphosis and metamorphs occupy areas with shallow water and low to moderately dense cover by aquatic plants. Metamorphs disperse to upland areas in July through February, where they apparently remain throughout the winter.

In the late spring and summer, adults mostly remain at their breeding sites, but some individuals move to other aquatic or upland habitats (Tatarian 2008). They may be found clustered in small areas of deep water such as well boxes, or temporarily occupy damp leaf litter or other cover while in transit to other water bodies. After the first substantial fall rains, and prior to the breeding season, a portion of the adult population moves away from aquatic sites into upland areas (Tatarian 2008). While in upland habitats, adult frogs take cover under dense leaf litter and shrubby vegetation such as willows, blackberry (*Rubus* spp.) thickets, cape ivy (*Delairea odorata*), nettles (*Urtica* spp.), downed trees or logs, rootballs, crevasses under rocks or in the ground, and in small mammal burrows (Rathbun et al. 1993; Christopher 2004; Tatarian 2008).

3.5.3 Distribution in the Project Vicinity

California red-legged frogs were documented in a farm pond between I-5 and the Delta-Mendota Canal in 1993 (CDFW 2014), 15 miles south of the project site. Extant populations are present at numerous localities in the vicinity of the Lawrence Livermore Laboratory, between Livermore and Tracy (CDFW 2014). The nearest of these localities is about 20 miles northwest of the project site. Breeding was documented in 2003 at Henry Coe State Park 20 miles southwest of the project site (CDFW 2014). Although once thought to be extirpated from the Central Valley floor (Stebbins 2003), recent surveys have documented the species to be extant at numerous locations in this region at elevations considered to be "valley floor" (Alvarez et al. 2015).

3.5.4 Potential for Occurrence on the Project Site

No suitable aquatic habitats are present on the project site. The two concrete-lined ditches have inadequate water depth, and lack emergent, aquatic, and bank vegetation. Water in these ditches would be insufficient in duration for the larval period of this species. Although there is a slight potential for this species to occur in stock ponds or other human-made aquatic features off site, producing individuals that could disperse through the project site, no such suitable aquatic habitats were identified on aerial photographs within the dispersal distance of this species from the project site.[2] Therefore, this species is not expected to occur on the project site.

[2] Radio-tagged California red-legged frogs have been found to move up to 1.7 miles between aquatic sites in coastal habitats (Bulger et al. 2003), and up to 233 feet in terrestrial habitats at an inland location in Contra Costa County (Tartian 2008).

3.6 Least Bell's Vireo (*Vireo bellii pusilus*)

3.6.1 General Distribution

The least Bell's vireo is a small, Neotropical migratory songbird that is sparsely distributed along waterways in southern California and northern Baja California, Mexico (Brown 1993). In California, the least Bell's vireo was historically distributed throughout much of the state, including the Central Valley, the central and southern Coast Ranges, local areas of the eastern Sierra Nevada, and the southwestern portion of the state (Franzreb et al. 1994; Kus 2002). The species was once purported to be common to locally abundant throughout its range (Grinnell and Miller 1944). However, riparian habitat in California is estimated to have declined by up to 98% since European settlement (Riparian Habitat Joint Venture [RHJV] 2004), and this extensive habitat destruction, exacerbated by the population pressure of parasitism by brown-headed cowbirds (*Molothrus ater*), caused precipitous population declines (Kus et al. 2010). As a result, the subspecies has been extirpated from most of its former range, and most breeding populations are restricted to a few small, remnant populations in riparian drainages south of Santa Barbara County. The greatest abundance of least Bell's vireos occurs in San Diego County (Franzreb et al. 1994).

3.6.2 Habitat and Biology

The least Bell's vireo is characterized as a riparian-obligate breeder (Kus 1998), using dense thickets of early successional willow shrubs and other low bushes along perennial or ephemeral streams (Franzreb et al. 1994; Kus et al. 2010). Early successional to mid-seral riparian forests with a dense understory provide important nesting habitat for this endangered bird (Howell et al. 2010). A plant community consisting of low-growing willows, coyote bush (*Baccharis pilularis*), and California wild rose, with an understory of mugwort (*Artemesia douglasiana*), gumplant (*Grindelia camporum* var. *camporum*), California blackberry, and beardless wild rye (*Elymus triticoides*), has been demonstrated to provide highly suitable habitat structure and offers nest concealment and protection from predators (Dettling et al. 2012). Ideal least Bell's vireo nesting habitat includes a wide (greater than 800 feet) riparian corridor with dense shrub growth extending vertically from 2 to 10 feet, few trees greater than approximately 3.2 inches in diameter at breast height (dbh) forming the canopy, and an open canopy (Kus 2002; Sharp and Kus 2006; Kus et al. 2010).

Least Bell's vireos arrive on their breeding grounds in California from mid-March to early April and begin departing to their wintering grounds in Mexico in late July; some (primarily birds of the year) may remain on the breeding grounds until late September (Garrett and Dunn 1981; Salata 1983). In southern California, breeding territory sizes average between 1.5 and 2.5 acres (range 0.5 to 7.5 acres) (USFWS 1998b). Least Bell's vireos exhibit high breeding-site fidelity, returning to the same territory (even nesting in the same shrub) over multiple years (Kus 2002). Females select suitable trees or shrubs with dense cover, and the pair constructs a cup-shaped nest approximately 3–6 feet off the ground using leaves, bark, willow catkins, spider webs, and other materials (Bent 1950; Barlow 1962). Nests tend to be placed in forked branches of willows and mule fat (*Baccharis glutinosa*), but a variety of other riparian trees and shrubs are also used.

Least Bell's vireos forage by gleaning insects from vegetation closely associated with their breeding habitat. Their diet consists of a variety of insects and arachnids, including beetles, grasshoppers, moths, and particularly caterpillars and spiders (Chapin 1925; Brown 1993). Least Bell's vireos preferentially forage in mid-level vegetative strata (10–20 feet high), but they will forage at all levels of the riparian canopy (Grinnell and Miller 1944; Miner 1989). They may also forage in upland vegetation adjacent to riparian corridors, particularly later in the season (Gray and Greaves 1981; Salata 1983).

3.6.3 Distribution in the Project Vicinity

Nests were found in 2005, 2006, and 2007 on the west side of the San Joaquin River NWR in a revegetated area approximately 7 miles north of the project site (CDFW 2014). Singing males have been documented in the refuge as recently as 2012 (Cornell Lab of Ornithology 2015). Historical records exist of observations from 2 to 18 miles (imprecise locality) west of the project site in Del Puerto Canyon (Figure 3), but there are no recent records from this area (CDFW 2014). Another historical nesting record is from Delhi, southeast of Turlock, approximately 19 miles southeast of the project site (CDFW 2014). Therefore, the project site is within the regional distribution of this subspecies.

3.6.4 Potential for Occurrence on the Project Site

No riparian habitat exists on the project site. Because this subspecies is a riparian obligate breeder (Kus 1998), it would not breed on the site. There are recent records from San Joaquin River NWR, but least Bell's vireos are not expected to occur on the project site, even on a transitory basis within orchards or landscaped areas.

3.7 Giant Garter Snake (*Thamnophis gigas*)

3.7.1 General Distribution

The giant garter snake is endemic to California Central Valley floor from Buena Vista Lake, southwest of Bakersfield in Kern County, to Butte County in the north (Fitch 1940; Hansen and Brode 1980; USFWS 1999; USFWS 2012a). Agricultural and flood control activities have eliminated the giant garter snake from the southern third of its historical range in the former Buena Vista and Tulare lake beds (Hansen and Brode 1980; Hansen 1988; USFWS 2012; Hansen and Gause 2015). It is currently restricted to limited areas in mid-San Joaquin Valley in the vicinity of Los Banos, and is more widespread in the Sacramento Valley from Cosumnes River north to Butte County (USFWS 2012a; Hansen and Gause 2015).

3.7.2 Habitat and Biology

Giant garter snakes are strongly associated with aquatic habitats, including wetlands, marshes, sloughs, ponds, small lakes, low-gradient streams, other waterways, and agricultural wetlands such as rice fields (Fitch 1940; Hansen and Brode 1980; Hansen 2009; USFWS 2012a). Their requirements include water persisting through their active season; emergent vegetation for refuge and foraging; open or grassy banks for basking; and adjacent upland

habitat for refuge from flood flows (USFWS 2012a). They typically overwinter in small mammal burrows and crevices above prevailing flood elevations and near aquatic foraging habitat (Hansen and Hansen 1990). Generally giant garter snakes spend the cool winter months in dormancy or in periods of reduced activity, and emerge from their overwintering sites from March to early April to begin courtship, which spans into June (Hansen and Brode 1993; Wylie et al. 1997). Females brood their young internally and give birth to live young from late July through early September; brood size is variable, ranging from 10 to 46 young (average 23) (Hansen and Hansen 1990). Upon birth, the young immediately scatter into dense cover and absorb their yolk sacs, after which they independently forage (USFWS 1999). Giant garter snakes remain active in aquatic habitats until the onset of cool fall temperatures (Hansen and Hansen 1990).

Typical daily activity consists of emerging from burrows after sunrise, basking to reach active temperatures, and foraging or courting for the remainder of the day (Hansen and Brode 1993). The diet of giant garter snakes consists predominantly of aquatic prey, such as fish and amphibians. The snakes take advantage of aquatic habitats that trap and concentrate prey such as carp (*Cyprinus carpio*), mosquitofish, other small fish, crayfish (*Pacifastacus leniusculus*), and American bullfrogs (*Lithobates catesbeianus*) (USFWS 1999, 2012).

3.7.3 Distribution in the Project Vicinity

The mid-San Joaquin Valley populations of the giant garter snake are located from 17 to 50 miles southeast of the project site, in the historical floodplain of the San Joaquin River where there are extensive areas of wetlands managed for waterfowl ("grassland wetlands" of Merced County). The nearest population is at Los Banos Creek between the San Joaquin River and the city of Los Banos (CDFW 2014). This population was found in the 1990s, and has persisted until at least 2007 (Wylie 1998; USFWS 2012a; CDFW 2014). The Volta State Wildlife Area is the only site in this region where breeding has been documented in recent years (Hansen and Gause 2015), and this area is just over 26 miles southeast of the project site. The next nearest population to the north is at the Cosumnes River Preserve, a distance of at least 55 miles north-northwest of the project site.

3.7.4 Potential for Occurrence on the Project Site

The project site would be considered to be slightly outside of this species' current local range, where there is a gap in the snake's present distribution. However, it likely was present historically throughout wetlands associated with the San Joaquin River in the vicinity of the project site. These areas have been converted to intensive agriculture, and would be unsuitable for dispersal between the river and the project site. No rice fields or managed wetlands are present in this part of the San Joaquin Valley. No suitable aquatic habitats are present on the project site. The concrete-lined ditches contain no aquatic, emergent, or bank vegetation, which is needed for basking and foraging. Water in the ditches is of insufficient duration and depth. Adjacent upland habitat containing small mammal burrows for refuge from flood flows is not present at the site. Therefore, this species is not expected to occur on the project site.

3.8 Conservancy Fairy Shrimp (*Branchinecta conservatio*)

3.8.1 General Distribution

The remaining populations of the conservancy fairy shrimp are restricted to northern and central California and portions of southern California. Populations are found at several disjunct locations: the Vina Plains in Tehama and Butte counties; the Sacramento NWR in Glenn County; the Jepson Prairie in Solano County; Yolo Basin Wildlife Area in Yolo County; and Grasslands Ecological Research Area in Merced County; the southern Sierra Nevada foothills in Merced County; a single location in Stanislaus County; and the Los Padres National Forest in Ventura County (Eng et al. 1990; USFWS2005b).

3.8.2 Habitat and Biology

The conservancy fairy shrimp ranges in size from 0.55 to 1.06 millimeters long (Eng et al. 1990). Fairy shrimp have delicate elongate bodies, large stalked compound eyes, no carapace (shell), and 11 pairs of swimming legs. They swim or glide gracefully upside down by means of complex beating movements of the legs that pass in a wave-like anterior to posterior direction. Conservancy fairy shrimp populations live in ephemeral freshwater habitats, such as vernal pools and swales. None are known to occur in running, marine, or permanent bodies of water. Eriksen and Belk (1999) observed the species to most commonly occur in very large, turbid, neutral-pH playa pools and vernal lakes that are filled by winter and spring rains and typically remain inundated into June.

Eggs that are dormant in the soil hatch when pools fill, usually starting in November (Geer and Foulk 2000). The egg bank in the soil may comprise eggs from several years of breeding (Donald 1983). Conservancy fairy shrimp are reported to mature as rapidly as 19 days; however, a longer maturation time with an average of 49 days is more typical (Eriksen and Belk 1999). During reproduction, the females carry the fertilized eggs in an oval or elongate ventral brood sac. The eggs are either dropped to the bottom or remain attached until the female dies and sinks (Pennak 1989). A key adaptation of the fairy shrimp is the production of drought-resistant eggs. When the vernal pools dry, the eggs remain on the surface of the pool or embedded within the top few centimeters of soil. Only one cohort is produced each year, and adult shrimp normally disappear long before the pools dry (Eriksen and Belk 1999; USFWS 2005b).

3.8.3 Distribution in the Project Vicinity

This species was detected in 1991 in an alkali sink vernal pool complex on the south side of Riley Slough (CDFW 2014), 10 miles west of Modesto and 9.2 miles north of the project site. These shrimp also were found in 1995 at claypan vernal pools in the San Luis NWR, approximately 20 miles southeast of the project site (CDFW 2014). Therefore, the project site is within the local distribution of this species.

3.8.4 Potential for Occurrence on the Project Site

No natural vernal pools or wetlands occur on the project site because all areas have been converted to agriculture or residential development. There are no human-made features that could support ephemeral ponds in which this species could persist. Although limited water would pond in tire ruts, in earthen ditches, and in the concrete-lined ditches, it would not persist long enough to support this species. In addition, mosquitofish observed in the concrete-lined ditches would prey on this species and thus preclude its presence. Therefore, this species does not occur on the project site.

3.9 Longhorn Fairy Shrimp (*Branchinecta longiantenna*)

3.9.1 General Distribution

Longhorn fairy shrimp are endemic to vernal pools in the Central Valley and Carrizo Plain (USFWS 2006, 2012). Although previously thought to have extended into the northern Central Valley and southern California, their distribution is now known to be more restricted, but was probably more widespread in the regions in which it is presently known to occur (USFWS 2006, 2012). There are only five documented "populations" (i.e., clusters of localities, with each population representing one vernal pool complex) of the longhorn fairy shrimp. The CNDDB reports 11 occurrences, but some of these populations have not been verified (USFWS 2012b). The five known populations of longhorn fairy shrimp are (1) areas in and adjacent to the Carrizo Plain National Monument, San Luis Obispo County; (2) areas in the San Luis NWR Complex, Merced County; (3) areas in the Brushy Peak Preserve, Alameda County; (4) areas in the Vasco Caves Preserve, near the town of Byron in Contra Costa County; and (5) areas in the proposed Alkali Sink Conservation Bank east of Mendota in Fresno County (USFWS 2005b; HTH 2009).

3.9.2 Habitat and Biology

Vernal pools that longhorn fairy shrimp inhabit generally have very low conductivity, total dissolved solids, and alkalinity (Eng et al. 1990). However, longhorn fairy shrimp have been observed to occur in turbid, alkaline pools on the Carrizo Plain (Helm 1998) and in alkaline grassland vernal pools at the San Luis NWR (USFWS 2005b). In Alameda and Contra Costa counties, they occur in small, clear pools on sandstone outcrops (USFWS 2006). During the dry season, longhorn fairy shrimp embryos are contained in a protective, impenetrable shell and remain viable in the soil for decades. Following winter and spring rains and the inundation of vernal pools, eggs hatch and the fairy shrimp mature and reproduce in the same season before the pools dry (Eriksen and Belk 1999). Longhorn fairy shrimp required a minimum of 23 days, but averaged 43 days, to reach maturity in artificial pools described by Helm (1998).

3.9.3 Distribution in the Project Vicinity

This species was found in 1994 at vernal pools at the San Luis NWR more than 20 miles southeast of the project site (CDFW 2014). A 2009 survey of 15 vernal pools in the Kesterson Unit of the San Luis NWR documented longhorn fairy shrimp at one pool (Helm Biological Consulting 2009). It was also found in the vicinity of Byron

more than 30 miles northwest of the project site (CDFW 2014). Lastly, this species has been documented 2 miles north of Los Banos (USFWS 2012b). Therefore, the project site is within the distribution of this species, but there are no known records from less than 20 miles of the site.

3.9.4 Potential for Occurrence on the Project Site

No natural vernal pools or wetlands occur on the project site because all areas have been converted to agriculture or residential development. There are no human-made features that could support ephemeral ponds in which this species could persist. Although limited water would pond in tire ruts, in earthen ditches, and in the concrete-lined ditches, it would not persist long enough to support this species. In addition, mosquitofish observed in the concrete-lined ditches would prey on this species and thus preclude its presence. Therefore, this species does not occur on the project site.

3.10 Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

3.10.1 General Distribution

It is likely that the historical distribution of this species coincides with the historical distribution of vernal pools in California's Central Valley and southern Oregon (USFWS 2006). The present distribution of the vernal pool fairy shrimp is restricted to Shasta County south through the Central Valley into Tulare County, and along the central Coast Ranges from northern Solano County south into Ventura County (USFWS 2003). The vernal pool fairy shrimp is currently found in 28 counties across the Central Valley and Coast Ranges of California, and in Jackson County of southern Oregon (USFWS 2006). Although the range of this species is widespread, the shrimp occurs only sporadically in local vernal pool complexes (Eng et al. 1990).

3.10.2 Habitat and Biology

Although vernal pool fairy shrimp inhabit a wide variety of ephemeral aquatic habitat types, the pools that they inhabit generally have low conductivity, total dissolved solids, alkalinity, and chloride levels. These pools are typically clear to tea-colored and occur most commonly in grass- or mud-bottomed swales or basalt lava flow depressions in unplowed grasslands. Single populations, however, are known to occur in a sandstone rock outcrop and an alkaline vernal pool (USFWS 1994). Pools can be quite large, although they more commonly occur in small vernal pools less than 0.05 acre in area (Helm 1998).

Vernal pool fairy shrimp mature rapidly and can reach reproductive age in 18 days and complete their life cycle in 9 weeks under optimal conditions; however, 41 days to reach sexual maturity is more common (Helm 1998). Vernal pool fairy shrimp are the shortest-lived fairy shrimp, with a maximum lifespan of 139 days (average is 90 days) (Eriksen and Belk 1999). Vernal pool fairy shrimp eggs can remain dormant in the soil for several decades, hatching when conditions are appropriate.

3.10.3 Distribution in the Project Vicinity

This species was detected in 1991 in an alkali sink vernal pool complex on the south side of Riley Slough, 10 miles west of Modesto and 9.2 miles north of the project site (CDFW 2014). This species was found in 2000 and 2003 in ephemeral pools along railroad tracks 5.5 miles northeast of Modesto and 17.8 miles northeast of the project site (CDFW 2014). It was also found in 1995 at claypan vernal pools at the San Luis NWR approximately 20 miles southeast of the project site (CDFW 2014). Therefore, the project site is within the local distribution of this species.

3.10.4 Potential for Occurrence on the Project Site

No natural vernal pools or wetlands occur on the project site because all areas have been converted to agriculture or residential development. There are no human-made features that could support ephemeral ponds in which this species could persist. Although limited water would pond in tire ruts, in earthen ditches, and in the concrete-lined ditches, it would not persist long enough to support this species. In addition, mosquitofish observed in the concrete-lined ditches prey on this species and thus preclude its presence. Therefore, this species does not occur on the project site.

3.11 Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)

3.11.1 General Distribution

Vernal pool tadpole shrimp were historically distributed throughout vernal pool regions of the Central Valley and Central Coast (USFWS 2006). This species currently occurs in vernal pools in a much reduced area of the Central Valley, and in the San Francisco Bay NWR in Alameda County (USFWS 2006).

3.11.2 Habitat and Biology

Vernal pool tadpole shrimp occur in a wide variety of ephemeral wetland habitats, including varying soil types and sizes of ephemeral water bodies (Helm 1998). Female tadpole shrimp produce up to six clutches of eggs per season, totaling more than 800 eggs. Eggs are deposited on vegetation at the bottom of the pool. A portion of the eggs will hatch immediately, while the rest enter diapause. Adults remain present and reproductively actively until the pools evaporate. Populations survive through the dry summer months as diapaused eggs in the pool sediment. Some of these eggs will hatch when the pool fills with water in subsequent seasons, while the remaining eggs remain in the sediment (USFWS 1994). Eggs in sediment may represent the products of several breeding seasons. Helm (1998) found that vernal pool tadpole shrimp took a minimum of 25 days to mature, and the average age at first reproduction was 54 days.

3.11.3 Distribution in the Project Vicinity

In the San Joaquin vernal pool region, vernal pool tadpole shrimp are known from the Grasslands Wildlife Management Area, private land in Merced County, and from single locations in Tulare and Kings counties (USFWS 2006). This species was found in 1999 in tire ruts 5.5 miles northeast of Modesto (CDFW 2014) and 17.8 miles northeast of the project site. It was also found in 1995 at claypan vernal pools at the San Luis NWR approximately 20 miles southeast of the project site (Helm Biological Consulting 2009; CDFW 2014). Therefore, the project site is within the local distribution of this species.

3.11.4 Potential for Occurrence on the Project Site

No natural vernal pools or wetlands occur on the project site because all areas have been converted to agriculture or residential development. There are no human-made features that could support ephemeral ponds in which this species could persist. Although limited water would pond in tire ruts, in earthen ditches, and in the concrete-lined ditches, it would not persist long enough to support this species. In addition, mosquitofish observed in the concrete-lined ditches prey on this species and thus preclude its presence. Therefore, this species does not occur on the project site.

3.12 Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

3.12.1 General Distribution

Currently, the valley elderberry longhorn beetle is known from 201 occurrence records at 26 locations, which are distributed from southern Shasta County south to Kern County (USFWS 2012c). The valley elderberry longhorn beetle is found in riparian habitats in the Central Valley of California and associated foothills below 3000 feet elevation. It is dependent on, and found only in association with, its host plant, blue elderberry (*Sambucus mexicana*) or red elderberry (*S. racemosa*) (USFWS 2012c). Although the beetles can be locally common, they typically occur at very low densities (Collinge et al. 2001; Talley et al. 2007). Also, the species is not evenly distributed across its known range, and beetles are often found in population clusters (Barr 1991; Collinge et al. 2001).

3.12.2 Habitat and Biology

The species inhabits riparian and upland habitats in discrete clusters where elderberry plants grow. Local aggregations of valley elderberry longhorn beetles are influenced by habitat patch characteristics such as the size of the patch, presence of large shrubs and diversity of stem sizes, and habitat connectivity (Talley 2007; Talley et al. 2007).

The entire valley elderberry longhorn beetle life cycle depends on the elderberry shrub. After mating, the female lays her eggs in the crevices of the elderberry bark. Upon hatching (after approximately 10 days), the larvae bore

into the center of the stems where they feed on moist woody material (pith), creating a gallery of tunnels inside the stems (Talley et al. 2006). After 1 to 2 years, the larvae chew through the bark to create an exit hole for future use (Halstead and Oldham 1990). Exit holes are slightly oval and are approximately 0.3–0.4 inch in diameter (Barr 1991). They plug the exit hole with wood shavings, and pupate inside a chamber in the stem (Barr 1991). The larvae metamorphose into adults, which emerge through the exit hole mid-March through mid-June (Barr 1991; Talley et al. 2007). Adults live only a few days to a few weeks, and they feed on elderberry foliage, flowers, and nectar until they mate and complete their life cycle (Talley et al. 2007).

Because adult beetles are very difficult to detect during focused surveys, the current survey protocol (USFWS 1999) involves searching elderberry shrubs for exit holes. Some holes can be misidentified as being valley elderberry longhorn beetle exit holes but are actually made by the non-listed California elderberry longhorn beetle (*D. c. californicus*), horntails, woodwasps, Bostrichidae beetles, woodpeckers, or solitary bees, or are holes in the stem from branches that have broken off (USFWS 1989, 2012c).

3.12.3 Distribution in the Project Vicinity

Exit holes were found in 1984 at the San Joaquin River NWR and in the vicinity of Tuolumne River near Modesto, but adults have not been seen at these localities (CDFW 2014). The nearest of these locations is about 8 miles north of the project site. As described above, identification based on exit holes may not be reliable, and little is known about these unverified accounts. Adults of the species were documented at the Merced River at the town of Livingston in the 1980s (CDFW 2014), at least 23 miles southeast of the project site. Adults were verified in 2002 at the Lawrence Livermore Laboratory 22 miles northwest of the project site (CDFW 2014). Therefore, the project site may be within the historical distribution of the subspecies.

3.12.4 Potential for Occurrence on the Project Site

No elderberry shrubs were found during reconnaissance surveys of the project site. This species is entirely dependent on red and blue elderberries for all life history stages. Because the host plant appears to be absent, this species does not occur.

Section 4.0 Critical Habitat in the Action Area

No critical habitat is present in the action area (Figure 3).

Section 5.0 Effects

Direct effects are those that are caused by or will result from, and occur contemporaneously with, the proposed action. Indirect effects are those that are caused by or will result from the proposed action but occur later in time or are possibly removed by distance. This section evaluates the direct and indirect effects of the proposed action on each of the covered species and designated critical habitat.

5.1 San Joaquin kit fox

5.1.1 Direct Effects

Because this species would not occur on the site, there would be no direct effects. Habitat suitable for the San Joaquin kit fox does not occur on the site, and there are substantial barriers to dispersal between suitable habitat areas to the west where there have been recent observation and the project site. Therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.1.2 Indirect Effects

The San Joaquin kit fox is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increased urban development. Therefore, there would be no indirect effects in the future. In addition, the project would not affect potential prey or predators of the San Joaquin kit fox because the species does not occur in the immediate vicinity of the project site. Owing to the presence of I-5 and SR-33, irrigation canals of substantial width and depth, and intervening areas of highly developed land, there is no connectivity (for predators or prey) between the project site and areas to the west that could be occupied by the San Joaquin kit fox.

5.2 Riparian Brush Rabbit

5.2.1 Direct Effects

Because this species would not occur on the project site, there would be no direct effects. Habitat suitable for the riparian brush rabbit does not occur on the site, and habitat between the San Joaquin River and the project site is unsuitable for dispersal. Therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.2.2 Indirect Effects

The riparian brush rabbit is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increasing urban development. Therefore, there would be no indirect effects in the future. In addition, the project would not affect potential prey or predators of the riparian brush rabbit because the species does not occur in the immediate vicinity of the project site. There is no connectivity of predators or prey

between the project site and areas that could be occupied by the riparian brush rabbit in the future along the San Joaquin River due to intervening areas of highly developed land.

5.3 California Tiger Salamander

5.3.1 Direct Effects

Because this species would not occur on the site, there would be no direct effects. Habitat suitable for the California tiger salamander does not occur on the site, and there are no suitable breeding ponds off site within the dispersal distance of the salamander. Therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.3.2 Indirect Effects

The California tiger salamander is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increasing urban development. Therefore, there would be no indirect effects in the future. In addition, the project would not affect potential prey or predators of the California tiger salamander because the species does not occur in the immediate vicinity of the project site.

5.4 California Red-legged Frog

5.4.1 Direct Effects

Because this species would not occur on the site, there would be no direct effects. Habitat suitable for the California red-legged frog does not occur on the site, and there are no suitable breeding ponds off site within the dispersal distance of the frog. Therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.4.2 Indirect Effects

The California red-legged frog is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increasing urban development. Therefore, there would be no indirect effects in the future. In addition, the project would not affect potential prey or predators of the California red-legged frog because the species does not occur in the immediate vicinity of the project site.

5.5 Least Bell's Vireo

5.5.1 Direct Effects

Because this species would not occur on the site, there would be no direct effects. Habitat suitable for the least Bell's vireo does not occur on the site; therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.5.2 Indirect Effects

The least Bell's vireo is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increasing urban development. Therefore, there would be no indirect effects in the future. In addition, the project would not affect potential prey or predators of the least Bell's vireo because the species would not forage on the project site or spend any substantial amount of time there.

5.6 Giant Garter Snake

5.6.1 Direct Effects

Because this species would not occur on the site, there would be no direct effects. Habitat suitable for the giant garter snake does not occur on the site, and there are no occupied habitats off site within the dispersal distance of the snake. Therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.6.2 Indirect Effects

The giant garter snake is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increasing urban development. Therefore, there would be no indirect effects in the future. In addition, the project would not affect potential prey or predators of the giant garter snake because the species does not occur in the immediate vicinity of the project site.

5.7 Conservancy Fairy Shrimp

5.7.1 Direct Effects

Because this species would not occur on the site, there would be no direct effects. Habitat suitable for the conservancy fairy shrimp does not occur on the site; therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.7.2 Indirect Effects

The project would not affect potential prey or predators of the conservancy fairy shrimp because the species does not occur in the immediate vicinity of the project site.

5.8 Longhorn Fairy Shrimp

5.8.1 Direct Effects

Because the species would not occur on the site, there would be no direct effects. Habitat suitable for the longhorn fairy shrimp does not occur on the site; therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.8.2 Indirect Effects

The project would not affect potential prey or predators of the longhorn fairy shrimp because the species does not occur in the immediate vicinity of the project site.

5.9 Vernal Pool Fairy Shrimp

5.9.1 Direct Effects

Because the species would not occur on the site, there would be no direct effects. Habitat suitable for the vernal pool fairy shrimp does not occur on the site; therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.9.2 Indirect Effects

The project would not affect potential prey or predators of the vernal pool fairy shrimp because the species does not occur in the immediate vicinity of the project site.

5.10 Vernal Pool Tadpole Shrimp

5.10.1 Direct Effects

Because the species would not occur on the site, there would be no direct effects. Habitat suitable for the vernal pool tadpole shrimp does not occur on the site; therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.10.2 Indirect Effects

The project would not affect potential prey or predators of the vernal pool tadpole shrimp because the species does not occur in the immediate vicinity of the project site.

5.11 Valley Elderberry Longhorn Beetle

5.11.1 Direct Effects

Because the species would not occur on the site, there would be no direct effects. Habitat suitable for the valley elderberry longhorn beetle does not occur on the site; therefore, the site would not support this species and no effects on the species would flow directly from the action.

5.11.2 Indirect Effects

The valley elderberry longhorn beetle is not expected to reoccupy areas surrounding the project site, because the area is expected to experience increasing urban development. Therefore, there would be no indirect effects in the

future. In addition, the project would not affect potential predators of the valley elderberry longhorn beetle because the species does not occur in the immediate vicinity of the project site.

5.12 Critical Habitat

5.12.1 Direct Effects

There would be no direct effects of the proposed action on designated critical habitat because no critical habitat occurs on the project site.

5.12.2 Indirect Effects

No critical habitat occurs in areas adjacent to the project site, and none is likely to become established in the vicinity because all areas are in private ownership and have already been developed to urban or agricultural uses. Therefore, there would be no indirect effects of the proposed action on offsite critical habitat, or on critical habitat that may be designated in the future.

Section 6.0 Cumulative Effects

Cumulative effects include the effects of future State, tribal, local, or private actions affecting listed species and their critical habitat that are reasonably certain to occur in the action area considered in this BA. These effects include activities that are not part of the proposed action, but may act in concert with effects resulting directly or indirectly from the proposed action. Because the project would have no direct or indirect effects on any federally listed or candidate species or designated critical habitat, there would be no cumulative effects as a result of the proposed action.

Section 7.0 Conclusions and Determinations

7.1.1 Conclusions

The proposed action would have no direct or indirect effects on any federally listed or candidate species or designated critical habitat. No suitable habitat exists on the project site for any of the federally listed species known to occur in the project vicinity, because all areas of the site have been converted to land uses that have been substantially modified. These land uses do not provide the habitat elements needed for key life history features of these species. Surrounding land uses are unsuitable for dispersal or contain substantial barriers to dispersal, such as aqueducts and freeways. No designated critical habitat occurs on, or nearby the site; therefore, there would be no direct or indirect effects on critical habitat. In addition, the project would not contribute to cumulative effects on any federally listed species or critical habitat.

7.1.2 Determinations

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the San Joaquin kit fox. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the riparian brush rabbit. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the California tiger salamander. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the California red-legged frog. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the least Bell's vireo. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the giant garter snake. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the conservancy fairy shrimp. No suitable habitat exists on the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the longhorn fairy shrimp. No suitable habitat exists on the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the vernal pool fairy shrimp. No suitable habitat exists on the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the vernal pool tadpole shrimp. No suitable habitat exists on the project site; therefore, this species would not occur in impact areas.

Based on the above analysis, it is determined that implementation of the proposed project **will not affect** the valley elderberry longhorn beetle. No suitable habitat exists on or in the immediate vicinity of the project site; therefore, this species would not occur in impact areas.

The action addressed by this BA does not fall within designated critical habitat for any federally listed species. Thus, the project will have **no effect on critical habitat**.

Section 8.0 References

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8.2 Personal Communication

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Appendix A. U.S. Fish and Wildlife Service Species List (USFWS 2015)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

February 5, 2015

Document Number: 150205100909

Susan Christopher
H.T. Harvey & Associates
1241 Johnson Avenue Suite 105
San Luis Obispo, CA 93401

Subject: Species List for Phase I of the Villages of Patterson Project

Dear: Dr. Christopher

We are sending this official species list in response to your February 5, 2015 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 06, 2015.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 150205100909

Current as of: February 5, 2015

Quad Lists

CROWS LANDING (424A)
Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)

Thamnophis gigas
giant garter snake (T)

Mammals

Vulpes macrotis mutica
San Joaquin kit fox (E)

PATTERSON (424B)

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)

Thamnophis gigas
giant garter snake (T)

Mammals

Vulpes macrotis mutica
San Joaquin kit fox (E)

County Lists

Stanislaus County

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)
Critical habitat, Conservancy fairy shrimp (X)

Branchinecta longiantenna
Critical habitat, longhorn fairy shrimp (X)
longhorn fairy shrimp (E)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)
South Central California steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)

Thamnophis gigas
giant garter snake (T)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (T)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)

Neotoma fuscipes riparia
riparian (San Joaquin Valley) woodrat (E)

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Amsinckia grandiflora

large-flowered fiddleneck (E)

Brodiaea pallida
Chinese Camp brodiaea (T)

Castilleja campestris ssp. succulenta
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

Chamaesyce hooveri
Critical habitat, Hoover's spurge (X)
Hoover's spurge (T)

Dudleya setchellii
Santa Clara Valley dudleya (E)

Neostapfia colusana
Colusa grass (T)
Critical habitat, Colusa grass (X)

Orcuttia inaequalis
Critical habitat, San Joaquin Valley Orcutt grass (X)
San Joaquin Valley Orcutt grass (T)

Orcuttia pilosa
Critical habitat, hairy Orcutt grass (X)
hairy Orcutt grass (E)

Pseudobahia bahiifolia
Hartweg's golden sunburst (E)

Tuctoria greenei
Critical habitat, Greene's tuctoria (=Orcutt grass) (X)
Greene's tuctoria (=Orcutt grass) (E)

Verbena californica
Red Hills (=California) vervain (T)

Candidate Species

Amphibians

Bufo canorus

Yosemite toad (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 06, 2015.

Appendix B. CNDDB Search Results (CDFW 2014)

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Taxonomic Group is (Fish or Amphibians or Reptiles or Birds or Mammals or Mollusks or Arachnids or Crustaceans or Insects) and Federal Listing Status is (Endangered or Threatened or Proposed Endangered or Proposed Threatened or Candidate) and Quad is (Crows Landing (3712141) or Patterson (3712142) or Westley (3712152) or Solyo (3712153) or Copper Mtn. (3712143) or Wilcox Ridge (3712133) or Orestimba Peak (3712132) or Newman (3712131) or Gustine (3712038) or Hatch (3712048) or Ceres (3712058) or Brush Lake (3712151))

Map Index Number:	20949	**EO Index:**	17606
Key Quad:	Westley (3712152)	**Element Code:**	AAAAA01180
Occurrence Number:	119	**Occurrence Last Updated:**	2008-11-25

Scientific Name: *Ambystoma californiense*

Common Name: California tiger salamander

Listing Status: **Federal:** Threatened
State: Threatened

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3
State: S2S3

General Habitat:

CENTRAL VALLEY DPS FEDERALLY LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTIES DPS FEDERALLY LISTED AS ENDANGERED.

Micro Habitat:

NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.

Last Date Observed:	1992-02-19	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1992-02-19	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALONG PARADISE ROAD, IN THE VICINITY OF ITS JUNCTION WITH CALIFORNIA AVENUE AND HUNTINGTON ROAD, 8 MILES WNW OF MODESTO.

Detailed Location:

SPECIMENS IN 1991 WERE FOUND IN THE VICINITY OF HUNTINGTON RD X PARADISE RD; THE 1990 AND 1992 SPECIMENS WERE FOUND ALONG CALIFORNIA AVENUE, NEAR PARADISE ROAD.

Ecological:

HABITAT CONSISTS OF VERNAL POOLS.

Threats:

THREATENED BY DEVELOPMENT AND AGRICULTURAL PRACTICES.

General:

1 CTS FOUND DOR ON 14 JANUARY 1990. 5 LARVAE COLLECTED (MRJ-0512, O513, 0625, CAS #179030), 3 APR 1991. SHAFFER SITE 136, 1991. 1992: 2 CTS OBSERVED DURING INTERMITTENT RAIN, 19:15-20:30 HRS (MEASUREMENTS AS FOLLOWS: 85 MM-SVL, 10 MM-SVL).

PLSS:	T03S, R07E, Sec. 36 (M)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4165675 E662880	**Latitude/Longitude:**	37.62378 / -121.15429	**Elevation (feet):**	40

County Summary:	**Quad Summary:**
Stanislaus	Westley (3712152), Ripon (3712162)

Sources:

CAS01S0002	CALIFORNIA ACADEMY OF SCIENCES - 1990-2000 CAS HERPETOLOGY HOLDINGS (INCLUDES STANFORD UNIVERSITY COLLECTIONS) FOR AMBYSTOMA CALIFORNIENSE 2001-02-14
FOR92M0001	FORD, T. - MAP DETAILING AMPHIBIAN LOCALITY INFO IN STANISLAUS COUNTY. 1992-03-29
JEN93U0001	JENNINGS, M. (CALIFORNIA ACADEMY OF SCIENCES) - SPECIMEN COLLECTION REPORT FOR SPECIMENS COLLECTED FROM 16 FEBRUARY 1991 TO 10 MARCH 1993. 1993-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	32577	**EO Index:**	1001
Key Quad:	Gustine (3712038)	**Element Code:**	AAAAA01180
Occurrence Number:	352	**Occurrence Last Updated:**	2012-09-07

Scientific Name: *Ambystoma californiense*

Common Name: California tiger salamander

Listing Status: **Federal:** Threatened

State: Threatened

CNDDB Element Ranks: **Global:** G2G3

State: S2S3

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

General Habitat:

CENTRAL VALLEY DPS FEDERALLY LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTIES DPS FEDERALLY LISTED AS ENDANGERED.

Micro Habitat:

NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.

Last Date Observed:	1994-03-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1994-03-16	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN LUIS NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

KESTERSON UNIT; GENERAL AREA 6.5 MI E OF GUSTINE, SE HWY 140.

Detailed Location:

MAPPED GENERALLY TO THE KESTERSON NATIONAL WILDLIFE REFUGE OF THE SAN LUIS NWR COMPLEX. OBSERVED IN T7S R10E SEC 31 AND 32, AND T8S R10E SEC 5, 6, 7, 8 AND 16.

Ecological:

GRASSLANDS AND GRASSLAND/IODINE BUSH COMMUNITITES INTERSPERSED WITH VERNAL POOLS AND SLOUGH CHANNELS. POOLS USED HEAVILY BY WATERFOWL & SHOREBIRDS; GREAT BLUE HERONS & GREAT EGRETS OBSERVED ACTIVELY FORAGING IN POOLS WITH CTS LARVAE.

Threats:

POTENTIAL THREAT FROM MANAGED WETLANDS: ALTERED HYDROLOGY. PREDATORS: FISH, CRAYFISH, BULLFROGS.

General:

OBSERVED AT 23 OF 69 SITES IN 1993; RELATIVELY HIGH ABUNDANCE OF CTS LARVAE PRESENT. OBSERVED AT 3 OF 7 SITES IN 1994.

PLSS:	T08S, R10E, Sec. 08 (M)	**Accuracy:**	specific area	**Area (acres):**	11,016
UTM:	Zone-10 N4124722 E686963	**Latitude/Longitude:**	37.25030 / -120.89192	**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Ingomar (3712028), Stevinson (3712037), Gustine (3712038)

Sources:

FWS93U0002	U.S. FISH & WILDLIFE SERVICE - MEMORANDUM TO REFUGE FILES: VERNAL POOL SURVEYS ON KESTERSON AND SAN LUIS NWR'S AND GALLO RANCH, MARCH 22 - APRIL 7, 1992 (AMBYSTOMA CALIFORNIENSE & SPEA HAMMONDII). 1993-01-15
PET93F0002	PETERS, M. - FIELD SURVEY FORM FOR AMBYSTOMA CALIFORNIENSE 1993-04-02
PET93R0001	PETERS, M. - VERNAL POOL BIOTA AT SAN LUIS NWR COMPLEX 1993 FIELD SAMPLING REPORT. 1993-XX-XX
PET94R0001	PETERS, M. - CRUSTACEA AND AMPHIBIAN SAMPLING REPORT SAN LUIS NWR COMPLEX 1994 1994-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	12512	**EO Index:**	1453
Key Quad:	Stevinson (3712037)	**Element Code:**	AAAAA01180
Occurrence Number:	353	**Occurrence Last Updated:**	1995-12-05

Scientific Name: *Ambystoma californiense*

Common Name: California tiger salamander

Listing Status: **Federal:** Threatened

State: Threatened

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3

State: S2S3

General Habitat:

CENTRAL VALLEY DPS FEDERALLY LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTIES DPS FEDERALLY LISTED AS ENDANGERED.

Micro Habitat:

NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.

Last Date Observed:	1995-01-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1995-01-27	**Occurrence Rank:**	Good
Owner/Manager:	DPR-GREAT VALLEY GRASSLANDS SP	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

WEST SIDE OF LANDER AVENUE, SOUTH OF SAN JOAQUIN RIVER TO ABOUT 5.5 MILES SOUTH OF STEVINSON.

Detailed Location:

T08S/R10E/SECS 3, 10 AND T07S/R10E/SEC 34.

Ecological:

CLAYPAN VERNAL POOLS WITHIN GRASSLANDS OF INTRODUCED ANNUAL GRASSES (BROMUS SP.) AND NATIVE BUNCH GRASSES (SPOROBOLUS SP.). SITE BISECTED BY SMALL SWALES THAT CONNECT SALT SLOUGH AND SAN JOAQUIN RIVER.

Threats:

HISTORIC LAND ALTERATION-DIKING AND CHANNELS-MAY INCREASE INTRUSION OF FISH AND CRAYFISH DURING HIGH WATER CONDITIONS.

General:

UNKNOWN NUMBERS OBSERVED DURING A FAIRY SHRIMP SURVEY.

PLSS:	T08S, R10E, Sec. 03 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	1,389
UTM:	Zone-10 N4126953 E689413	**Latitude/Longitude:**	37.26991 / -120.86375	**Elevation (feet):**	75

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Stevinson (3712037), Gustine (3712038)

Sources:

WIL95R0001 WILCOX, C. - 60-DAY REPORT FOR SPECIAL STATUS CRUSTACEANS AT GREAT VALLEY GRASSLANDS STATE PARK (BRANCHINECTA CONSERVATIO, LEPIDURUS PACKARDI) 1995-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	24669	**EO Index:**	6563
Key Quad:	Newman (3712131)	**Element Code:**	AAABH01022
Occurrence Number:	61	**Occurrence Last Updated:**	1993-11-16

Scientific Name: *Rana draytonii*

Common Name: California red-legged frog

Listing Status: **Federal:** Threatened

State: None

Rare Plant Rank:

Other Lists: CDFW_SSC-Species of Special Concern
IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2G3

State: S2S3

General Habitat:

LOWLANDS & FOOTHILLS IN OR NEAR PERMANENT SOURCES OF DEEP WATER WITH DENSE, SHRUBBY OR EMERGENT RIPARIAN VEGETATION.

Micro Habitat:

REQUIRES 11-20 WEEKS OF PERMANENT WATER FOR LARVAL DEVELOPMENT. MUST HAVE ACCESS TO ESTIVATION HABITAT.

Last Date Observed:	1993-04-08	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1993-04-08	**Occurrence Rank:**	Poor
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

BETWEEN I-5 AND DELTA-MENDOTA CANAL, 0.5 MILE SOUTH OF POVERTY FLAT, 4.5 MILES SW OF NEWEMAN.

Detailed Location:

FARM POND LOCATED ABOUT 10 FEET WEST OF THE CANAL AND THE CANAL ROAD AND 50 FEET NORTH OF A NEARBY CORRAL.

Ecological:

HABITAT CONSISTS OF A FARM STOCK POND SURROUNDED BY GRAZED, NON-NATIVE GRASSLAND.

Threats:

General:

ONE RED-LEGGED FROG OBSERVED SITTING IN THE POND ON 8 APRIL 1993.

PLSS:	T08S, R08E, Sec. 04 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	22
UTM:	Zone-10 N4126894 E668933	**Latitude/Longitude:**	37.27332 / -121.09461	**Elevation (feet):**	200

County Summary:	**Quad Summary:**
Stanislaus	Newman (3712131)

Sources:

LUK93F0008 LUKE, C. (BIOSYSTEMS ANALYSIS, INC.) - FIELD SURVEY FORM FOR RANA DRAYTONII 1993-04-08

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	78819	**EO Index:**	79763
Key Quad:	Westley (3712152)	**Element Code:**	ABPBW01114
Occurrence Number:	318	**Occurrence Last Updated:**	2011-05-13

Scientific Name: *Vireo bellii pusillus* **Common Name:** least Bell's vireo

Listing Status: **Federal:** Endangered
State: Endangered

CNDDB Element Ranks: **Global:** G5T2
State: S2

Rare Plant Rank:

Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern
IUCN_NT-Near Threatened
NABCI_YWL-Yellow Watch List

General Habitat:

SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.

Micro Habitat:

NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Last Date Observed:	2007-06-01	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2009-XX-XX	**Occurrence Rank:**	Poor
Owner/Manager:	USFWS-SAN JOAQUIN RIVER NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

GENERAL AREA CENTERED 2.5 MI E OF OAKLEA RD AT S RIVER RD, 2.8 MI N OF GRAYSON, ON THE W SIDE OF SAN JOAQUIN RIVER.

Detailed Location:

2005 AND 2006 NESTS FOUND IN T04S R07E SEC 9. 2006 NEST IN HAGEMANN'S FIELD 6 PLOT. 2005 AND 2007 NEST IN HAGEMANN'S FIELD 9 PLOT. MAPPED TO HAGEMANN'S FIELD 6 AND 9 PLOTS.

Ecological:

STARTING IN 2002 PREVIOUSLY FARMED LAND REVEGETATED WITH NATIVE RIPARIAN PLANTS INCLUDING COTTONWOOD, WILLOW, WILDROSE, COYOTEBRUSH, GUMPLANT, MUGWORT & CREEPING WILD RYE. FIRST DOCUMENTED BREEDING IN THE CENTRAL VALLEY IN OVER 50 YEARS.

Threats:

POSSIBLY THREATENED BY INSUFFICENT POPULATION SIZE.

General:

2005: PAIR FLEDGED 2 BROODS IN 3-YR-OLD RESTORED HABITAT; MALE BANDED. 2006: PAIR THAT INCLUDED BANDED MALE FLEDGED 3 (BANDED) IN 3-YR OLD PLANTING. 2007: UNBANDED FEMALE BUILT NEST & LAID 4 EGGS, UNSUCCESSFUL. NONE OBSERVED 2008 OR 2009.

PLSS:	T04S, R07E, Sec. 10 (M)	**Accuracy:**	specific area	**Area (acres):**	208
UTM:	Zone-10 N4163662 E660281	**Latitude/Longitude:**	37.60610 / -121.18416	**Elevation (feet):**	32

County Summary:	**Quad Summary:**
Stanislaus	Westley (3712152)

Sources:

FOR10U0001	FORREST, K. (U.S. FISH AND WILDLIFE SERVICE) - EMAIL REGARDING NESTING LEAST BELL'S VIREO AND THE SAN JOAQUIN NWR 2010-05-05
HOW07F0007	HOWELL, C. (PRBO CONSERVATION SCIENCE) - FIELD SURVEY FORM FOR VIREO BELLII PUSILLUS 2007-05-11
HOW08R0001	HOWELL, C. & M. DETTLING (PRBO CONSERVATION SCIENCE) - LEAST BELL'S VIREO MONITORING, NEST PREDATION THREAT ASSESSMENT, AND COWBIRD PARASITISM THREAT ASSESSMENT AT THE SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE 2008-01-XX
HOW10A0001	HOWELL, C. ET AL. (PRBO CONSERVATION SCIENCE) - LEAST BELL'S VIREO BREEDING RECORDS IN THE CENTRAL VALLEY FOLLOWING DECADES OF EXTIRPATION. WESTERN NORTH AMERICAN NATURALIST 70(1):105-113. 2010-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	59274	**EO Index:**	92604
Key Quad:	Copper Mtn. (3712143)	**Element Code:**	ABPBW01114
Occurrence Number:	509	**Occurrence Last Updated:**	2014-02-11

Scientific Name: *Vireo bellii pusillus* **Common Name:** least Bell's vireo

Listing Status: **Federal:** Endangered
State: Endangered

CNDDB Element Ranks: **Global:** G5T2
State: S2

Rare Plant Rank:

Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern
IUCN_NT-Near Threatened
NABCI_YWL-Yellow Watch List

General Habitat:

SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.

Micro Habitat:

NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Last Date Observed:	1928-05-06	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1928-05-06	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

DEL PUERTO CANYON, WEST OF I-5, EAST OF RED MOUNTAIN.

Detailed Location:

VERBATIM COLLECTION LOCATION WAS "PUERTO CANYON, STANISLAUS CO." WESTERN FOUNDATION OF VERTABRATE ZOOLOGY PLACES LOCATION AT "DEL PUERTO CANYON" IN STANISLAUS COUNTY. EXACT NEST LOCATIONS WERE UNKNOWN AND THEREFORE ENTIRE CANYON WAS MAPPED.

Ecological:

BOTH NEST WERE CONSTRUCTED IN WILLOW TREES.

Threats:

General:

2 NEST/EGG COLLECTIONS CONSISTING OF 4 EGGS EACH COLLECTED ON 1 MAY 1927 AND 6 MAY 1928 BY W. SAMPSON (WFVZ #S 18979 & 18978 RESPECTIVELY); INCUBATION STAGES REPORTED AS "JUST STARTED" IN 1927 AND "FRESH" IN 1928.

PLSS:	T06S, R06E, Sec. 04 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	1,307
UTM:	Zone-10 N4144832 E648630	**Latitude/Longitude:**	37.43840 / -121.31991	**Elevation (feet):**	650

County Summary:	**Quad Summary:**
Stanislaus	Patterson (3712142), Copper Mtn. (3712143), Mt. Boardman (3712144)

Sources:

SAM27S0001	SAMPSON, W. (WESTERN FOUNDATION OF VERTEBRATE ZOOLOGY) - WFVZ EGG COLLECTION #18979 1927-05-01
SAM28S0001	SAMPSON, W. (WESTERN FOUNDATION OF VERTEBRATE ZOOLOGY) - WFVZ EGG COLLECTION #18978 1928-05-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	91324	**EO Index:**	92424
Key Quad:	Winton (3712045)	**Element Code:**	AFCHA0209K
Occurrence Number:	21	**Occurrence Last Updated:**	2014-01-28

Scientific Name: *Oncorhynchus mykiss irideus*

Common Name: steelhead - Central Valley DPS

Listing Status: **Federal:** Threatened

State: None

Rare Plant Rank:

Other Lists: AFS_TH-Threatened

CNDDB Element Ranks: **Global:** G5T2Q

State: S2

General Habitat:

POPULATIONS IN THE SACRAMENTO AND SAN JOAQUIN RIVERS AND THEIR TRIBUTARIES.

Micro Habitat:

□

Last Date Observed:	2013-05-31	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-05-31	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

MERCED RIVER, FROM ITS MOUTH IN THE SAN JOAQUIN TO THE CROCKER HUFFMAN DAM (=SNELLING DIVERSION DAM, RM 52).

Detailed Location:

MAPPED TO RIVER REACH CURRENTLY NAVIGABLE BY STEELHEAD (SH). CROCKER HUFFMAN DAM (CHD) BUILT 1910, ITS FISH LADDER BLOCKED BY CDFW IN 1970S. RSTS NEAR HOPETON (RM37, LATER RM37.5) & NEAR STEVINSON (RM2, LATER RM4.8). VIDEO WEIR AT RM 4.6.

Ecological:

STEELHEAD PRESENT BUT NOT A VIABLE POPULATION; SPORADIC SPAWNERS BETWEEN CHD & HWY J59 (RM42). 2008 OTOLITH STUDY FOUND 1 OUT OF 23 SAMPLED WAS STEELHEAD PROGENY. RESTORATION UNDERWAY BUT FURTHER GRAVEL & FLOW AUGMENTATION NEEDED.

Threats:

DAMS, AGRICULTURAL DIVERSIONS, MINING, LEVEE CONSTRUCTION, LAND USE CONVERSION, AND CLEARING OF RIPARIAN VEGETATION.

General:

ADULTS W/SH MARKINGS CAUGHT 1997-2001. RST CAUGHT 1 IN 1998, 9 IN 2001. YRLY RST CATCH 2005-2013: 11, 23, 0, 0, 9, 383, 4. LOW #S AT STEVINSON SITE MAY REFLECT POOR TRAPPING CONDITIONS, NOT LACK OF EMIGRATION. 1 AD PAST VIDEO WEIR NOV 2012.

PLSS:	T05S, R13E, Sec. 29 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	6,101
UTM:	Zone-10 N4149757 E715368	**Latitude/Longitude:**	37.46963 / -120.56460	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Merced, Stanislaus	Stevinson (3712037), Gustine (3712038), Yosemite Lake (3712044), Winton (3712045), Cressey (3712046), Turlock (3712047), Merced Falls (3712053), Snelling (3712054)

Sources:

BDA06D0001	BAY DELTA AND TRIBUTARIES PROJECT - BAY DELTA AND TRIBUTARIES PROJECT WEBSITE STEELHEAD DOWNLOAD [1/12/2006 BDAT WEBSITE] 2006-01-12
MES02U0001	MESICK, C. - LETTER TO DWR STAFF REGARDING PRESENCE OF STEELHEAD AND SPRING-RUN CHINOOK IN THE SAN JOAQUIN RIVER BASIN. 2002-10-16
MID12R0001	MERCED IRRIGATION DISTRICT - 2012 ANNUAL REPORT: EVALUATION OF JUVENILE CHINOOK SALMON OUTMIGRATION IN THE LOWER MERCED RIVER. 2012-11-XX
MID13R0001	MERCED IRRIGATION DISTRICT - ADULT CHINOOK SALMON MIGRATION MONITORING, LOWER MERCED RIVER, OCTOBER - DECEMBER 2012. 2013-10-XX
MID13R0002	MERCED IRRIGATION DISTRICT - EVALUATION OF JUVENILE CHINOOK SALMON OUTMIGRATION IN THE LOWER MERCED RIVER, JANUARY - JUNE 2013. 2013-11-XX
MON07R0001	MONTGOMERY, J. ET AL. - USING ROTARY SCREW TRAPS TO DETERMINE JUVENILE CHINOOK SALMON OUT-MIGRATION ABUNDANCE, SIZE AND TIMING IN THE LOWER MERCED RIVER, CALIFORNIA. 2007-XX-XX
MON08R0001	MONTGOMERY, J. ET AL. - JUVENILE SALMONID OUT-MIGRATION MONITORING AT HATFIELD STATE PARK IN THE LOWER MERCED RIVER, CALIFORNIA. 2008-XX-XX
MON09R0001	MONTGOMERY, J. ET AL. - JUVENILE SALMONID OUT-MIGRATION MONITORING AT HATFIELD STATE PARK IN THE LOWER MERCED RIVER, CALIFORNIA: 2009 ANNUAL DATA REPORT. 2009-XX-XX
NMF09R0001	NATIONAL MARINE FISHERIES SERVICE (NOAA) - CALIFORNIA CENTRAL VALLEY SALMON & STEELHEAD DRAFT RECOVERY PLAN, APPENDIX A: CENTRAL VALLEY WATERSHED PROFILES. 2009-10-XX
VOG05U0001	VOGEL, D. - NARRATIVE REGARDING SCREW TRAP MONITORING ON THE UPPER MERCED RIVER, JULY 2004 - JUNE 2005. 2005-10-11
VOG06U0001	VOGEL, D. - NARRATIVE REGARDING SCREW TRAP MONITORING ON THE UPPER MERCED RIVER, JULY 2005 - JUNE 2006. 2006-08-29
VOG09U0001	VOGEL, D. - NARRATIVE REGARDING SCREW TRAP MONITORING ON THE UPPER MERCED RIVER, JULY 2008 - JUNE 2009. 2009-09-14
ZIM08R0001	ZIMMERMAN, C. ET AL. - MATERNAL ORIGIN AND MIGRATORY HISTORY OF ONCOHYNCHUS MYKISS CAPTURED IN RIVERS OF THE CENTRAL VALLEY, CALIFORNIA. 2008-03-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	91459	**EO Index:**	92517
Key Quad:	La Grange (3712064)	**Element Code:**	AFCHA0209K
Occurrence Number:	22	**Occurrence Last Updated:**	2014-03-28

Scientific Name:	*Oncorhynchus mykiss irideus*			**Common Name:**	steelhead - Central Valley DPS
Listing Status:	**Federal:**	Threatened		**Rare Plant Rank:**	
	State:	None		**Other Lists:**	AFS_TH-Threatened
CNDDB Element Ranks:	**Global:**	G5T2Q			
	State:	S2			

General Habitat:

POPULATIONS IN THE SACRAMENTO AND SAN JOAQUIN RIVERS AND THEIR TRIBUTARIES.

Micro Habitat:

□

Last Date Observed:	2014-01-19	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2014-01-19	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

LOWER TUOLUMNE RIVER, FROM ITS MOUTH IN THE SAN JOAQUIN RIVER TO LA GRANGE DAM (RM52).

Detailed Location:

MAPPED TO LA GRANGE DAM (BUILT 1893), UPSTREAM LIMIT TO ANADROMY. RSTS AT SHILOH 1995-98 (RM3.4), GRAYSON SINCE '99 (RM5.2), WATERFORD SINCE 2006 (RM29.8). SNORKEL SURVEYS FROM DAM TO ~RM31.5. SEINES FROM MOUTH TO DAM. VIDEO WEIR AT RM24.5.

Ecological:

SPAWNING IN 20 MI BELOW DAM. IN 2008 OTOLITH STUDY, 10 OF 147 TROUT (6.8%) WERE SH PROGENY; 1 WAS A SH. INCREASE IN SUMMER POPS AFTER BASE FLOW AUGMENTATION STARTING 1995. SPIKE IN 2011 #S MAY BE HATCHERY TROUT ESCAPED FROM U/S RESERVOIRS.

Threats:

DAM. LOW FLOWS. MINING: GRAVEL DEFICIT, PITS HARBOR PREDATORY BASS. POSSIBLE INTROGRESSION W/OUT-OF-BASIN HATCHERY FISH.

General:

0-51 SEINED, 1983-2012. SNORKEL INDEX: ONLY 1 OBS 1987-94; AVG 420, 2001-2012 (HIGH 1,327 IN 2011). POP ESTS SINCE '08: FROM 109 (MAR '10) TO 56,973 (SEP '11). SOME MIGRATION INDICATED: RST #S FROM 0-11, 2000-12; WEIR #S FROM 0-16, 2009-14.

PLSS:	T03S, R14E, Sec. 19 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	6,353
UTM:	Zone-10 N4171814 E723096	**Latitude/Longitude:**	37.66641 / -120.47058	**Elevation (feet):**	

County Summary:	**Quad Summary:**
Stanislaus	Denair (3712057), Ceres (3712058), La Grange (3712064), Cooperstown (3712065), Paulsell (3712066), Waterford (3712067), Riverbank (3712068), Brush Lake (3712151), Westley (3712152)

Sources:

ANO05D0001	ANONYMOUS - TUOLUMNE RIVER SEINING SURVEYS, 2005 SEINE DATA. 2005-XX-XX
ANO06D0001	ANONYMOUS - TUOLUMNE RIVER SEINING SURVEYS, 2006 SEINE DATA. 2006-XX-XX
ANO07D0001	ANONYMOUS - TUOLUMNE RIVER SEINING SURVEYS, 2007 SEINE DATA. 2007-XX-XX
ANO08D0001	ANONYMOUS - TUOLUMNE RIVER SEINING SURVEYS, 2008 SEINE DATA. 2008-XX-XX
ANO10D0001	ANONYMOUS - TUOLUMNE RIVER SEINING SURVEYS, 2010 SEINE DATA. 2010-XX-XX
BEC11R0002	BECKER, C. ET AL. (FISHBIO) - FALL/WINTER MIGRATION MONITORING AT THE TUOLUMNE RIVER WEIR: 2010 ANNUAL REPORT. 2011-03-XX
CFS04U0001	CRAMER FISH SCIENCES - TUOLUMNE RIVER JUVENILE CHINOOK OUTMIGRATION UPDATES, 2004. 2004-XX-XX
CFS05U0001	CRAMER FISH SCIENCES - TUOLUMNE RIVER JUVENILE CHINOOK OUTMIGRATION UPDATES, 2005. 2005-XX-XX
CFS06U0001	CRAMER FISH SCIENCES - TUOLUMNE RIVER JUVENILE CHINOOK OUTMIGRATION UPDATES, 2006. 2006-XX-XX
CUT10R0001	CUTHBERT, R. ET AL. (FISHBIO) - FALL/WINTER MIGRATION MONITORING AT THE TUOLUMNE RIVER WEIR: 2009/10 ANNUAL REPORT. 2010-03-XX

CUT12R0001	CUTHBERT, C. ET AL. (FISHBIO) - FALL/WINTER MIGRATION MONITORING AT THE TUOLUMNE RIVER WEIR: 2011 ANNUAL REPORT. 2012-03-XX
FIS07U0002	FISHBIO - TUOLUMNE RIVER JUVENILE CHINOOK OUTMIGRATION UPDATES, FEBRUARY 21 - JULY 17, 2007. 2007-XX-XX
FIS08U0001	FISHBIO - TUOLUMNE RIVER JUVENILE CHINOOK OUTMIGRATION UPDATES, FEBRUARY 21 - JUNE 9, 2008. 2008-XX-XX
FIS12R0001	FISHBIO - 2012 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2012 SEINE REPORT AND SUMMARY UPDATE. 2012-XX-XX
FIS14U0001	FISHBIO - TUOLUMNE WEIR UPDATE 2013: EMAIL AND EXCEL SPREADSHEET. 2014-01-21
FOR08R0001	FORD, T. & S. KIRIHARA - 2008 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2008 SEINE REPORT AND SUMMARY UPDATE. 2008-09-XX
FOR09R0001	FORD, T. & S. KIRIHARA - 2008 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2008 SNORKEL AND SUMMARY UPDATE. 2009-03-XX
FOR09R0002	FORD, T. & S. KIRIHARA - 2009 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2009 SEINE REPORT AND SUMMARY UPDATE. 2009-06-XX
FOR09R0003	FORD, T. & S. KIRIHARA - 2009 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2009 SNORKEL REPORT AND SUMMARY UPDATE. 2009-07-XX
FOR10R0001	FORD, T. & S. KIRIHARA (STILLWATER SCIENCES) - TUOLUMNE RIVER ONCORHYNCHUS MYKISS MONITORING REPORT. 2010-01-XX
FOR10R0002	FORD, T. & S. KIRIHARA - 2010 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2010 SEINE REPORT AND SUMMARY UPDATE. 2010-06-XX
FOR10R0003	FORD, T. & S. KIRIHARA - 2010 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2010 SNORKEL REPORT AND SUMMARY UPDATE. 2010-11-XX
GUI12R0001	GUIGNARD, J. & A. FULLER - TUOLUMNE RIVER O. MYKISS ACOUSTIC TRACKING STUDY 2011 TECHNICAL REPORT. 2012-03-XX
NMF09R0001	NATIONAL MARINE FISHERIES SERVICE (NOAA) - CALIFORNIA CENTRAL VALLEY SALMON & STEELHEAD DRAFT RECOVERY PLAN, APPENDIX A: CENTRAL VALLEY WATERSHED PROFILES. 2009-10-XX
SON10R0001	SONKE, C. ET AL. (FISHBIO) - OUTMIGRANT TRAPPING OF JUVENILE SALMONIDS IN THE LOWER TUOLUMNE RIVER, 2010. 2010-12-XX
SON12R0001	SONKE, C. ET AL. (FISHBIO) - OUTMIGRANT TRAPPING OF JUVENILE SALMON IN THE LOWER TUOLUMNE RIVER, 2011. 2012-03-XX
SON13R0001	SONKE, C. & A. FULLER (FISHBIO) - OUTMIGRANT TRAPPING OF JUVENILE SALMON IN THE LOWER TUOLUMNE RIVER, 2012. 2013-03-XX
STI08R0001	STILLWATER SCIENCES - JULY 2008 POPULATION SIZE ESTIMATE OF ONCORHYNCHUS MYKISS IN THE LOWER TUOLUMNE RIVER. 2008-10-XX
STI09R0001	STILLWATER SCIENCES - MARCH AND JULY 2009 POPULATION SIZE ESTIMATES OF ONCORHYNCHUS MYKISS IN THE LOWER TUOLUMNE RIVER. 2009-11-XX
STI10R0001	STILLWATER SCIENCES - MARCH AND AUGUST 2010 POPULATION SIZE ESTIMATES OF ONCORHYNCHUS MYKISS IN THE LOWER TUOLUMNE RIVER. 2010-11-XX
STI12R0001	STILLWATER SCIENCES - SEPTEMBER 2011 POPULATION SIZE ESTIMATES OF ONCORHYNCHUS MYKISS IN THE LOWER TUOLUMNE RIVER. DRAFT. 2012-01-XX
STI12R0002	STILLWATER SCIENCES - 2011 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2011 SEINE REPORT AND SUMMARY UPDATE. 2012-01-XX
STI12R0003	STILLWATER SCIENCES - 2011 LOWER TUOLUMNE RIVER ANNUAL REPORT: 2011 SNORKEL REPORT AND SUMMARY UPDATE. 2012-03-XX
TID04D0001	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, JUN 2004. 2004-XX-XX
TID04D0002	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, AUG 2004. 2004-XX-XX
TID04D0003	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, SEP 2004. 2004-XX-XX
TID05D0001	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, SEP 2005. 2005-XX-XX
TID05R0001	TURLOCK & MODESTO IRRIGATION DISTRICTS - 2005 TEN YEAR SUMMARY REPORT, NEW DON PEDRO PROJECT, FERC PROJECT NO. 2299-024. 2005-04-01
TID06D0001	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, SEP 2006. 2006-XX-XX
TID07D0001	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, JUN-JUL 2007. 2007-XX-XX
TID07D0002	TURLOCK & MODESTO IRRIGATION DISTRICTS - TUOLUMNE RIVER SNORKEL SUMMARY, SEP 2007. 2007-XX-XX
TID12U0001	TURLOCK & MODESTO IRRIGATION DISTRICTS - 2012 TUOLUMNE RIVER REFERENCE COUNT SNORKEL SUMMARY (DATA TABLE). 2012-XX-XX
ZIM08R0001	ZIMMERMAN, C. ET AL. - MATERNAL ORIGIN AND MIGRATORY HISTORY OF ONCOHYNCHUS MYKISS CAPTURED IN RIVERS OF THE CENTRAL VALLEY, CALIFORNIA. 2008-03-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	91542	**EO Index:**	92609
Key Quad:	Lathrop (3712173)	**Element Code:**	AFCHA0209K
Occurrence Number:	25	**Occurrence Last Updated:**	2014-02-27

Scientific Name: *Oncorhynchus mykiss irideus*

Common Name: steelhead - Central Valley DPS

Listing Status: **Federal:** Threatened

State: None

Rare Plant Rank:

Other Lists: AFS_TH-Threatened

CNDDB Element Ranks: **Global:** G5T2Q

State: S2

General Habitat:

POPULATIONS IN THE SACRAMENTO AND SAN JOAQUIN RIVERS AND THEIR TRIBUTARIES.

Micro Habitat:

□

Last Date Observed:	2013-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-XX-XX	**Occurrence Rank:**	Poor
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

LOWER SAN JOAQUIN RIVER, FROM THE MOSSDALE TRAWL SITE (RM 54) TO SACK DAM (RM 182).

Detailed Location:

SMOLTS CAUGHT AT MOSSDALE (MAIN POINT OF ENTRY INTO DELTA) SINCE 1968. BARRIER OPERATED AT HILLS FERRY (RM 118) SINCE 1992 DIVERTS MIGRATING FISH INTO MERCED R. SACK DAM, IMPASSABLE IN LOW-WATER YEARS, IS PRACTICAL U/S LIMIT TO MIGRATION.

Ecological:

STEELHEAD (SH) WIDELY CONSIDERED EXTIRPATED S OF MERCED R; BUT 2012-13 INVENTORY FOUND O. MYKISS ABOVE HILLS FERRY BARRIER, WHICH MAY NOT BE FISH-TIGHT. DESPITE 2006 FLOW SETTLEMENT, "LOW VIABILITY" FOR SH DUE TO LACK OF REARING HABITAT.

Threats:

UPSTREAM HABITAT CUT OFF BY SACK & FRIANT DAMS. WATER TEMPS REACH LETHAL LEVELS IN LOWER RIVER.

General:

YEARLY CATCH AT MOSSDALE TRAWL 0-41 (AVG 8), 1994-2011; MOSLTY UNCLIPPED SMOLTS. NO SH DET ABOVE RM 118 DURING SH MONITORING BEGUN 2012 (BUT FISH ASSEMBLAGE INVENTORY FOUND TROUT). 2 OF 6 SMOLTS SAMPLED IN '08 OTOLITH STUDY WERE SH PROGENY.

PLSS:	T01S, R06E, Sec. 33 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	14,775
UTM:	Zone-10 N4185547 E648244	**Latitude/Longitude:**	37.80528 / -121.31601	**Elevation (feet):**	

County Summary:

Fresno, Madera, Merced, San Joaquin, Stanislaus

Quad Summary:

Poso Farm (3612084), Oxalis (3612085), Santa Rita Bridge (3712015), Delta Ranch (3712016), Turner Ranch (3712026), San Luis Ranch (3712027), Stevinson (3712037), Gustine (3712038), Hatch (3712048), Crows Landing (3712141), Brush Lake (3712151), Westley (3712152), Ripon (3712162), Vernalis (3712163), Lathrop (3712173)

Sources:

BDA06D0001	BAY DELTA AND TRIBUTARIES PROJECT - BAY DELTA AND TRIBUTARIES PROJECT WEBSITE STEELHEAD DOWNLOAD [1/12/2006 BDAT WEBSITE] 2006-01-12
BOR14U0001	U.S. BUREAU OF RECLAMATION - FIELD ACTIVITY ADVISORY, CENTRAL VALLEY STEELHEAD MONIORING PLAN: JANUARY 6 - MARCH 15, 2014. 2014-XX-XX
NMF09R0001	NATIONAL MARINE FISHERIES SERVICE (NOAA) - CALIFORNIA CENTRAL VALLEY SALMON & STEELHEAD DRAFT RECOVERY PLAN, APPENDIX A: CENTRAL VALLEY WATERSHED PROFILES. 2009-10-XX
POR12R0001	PORTZ, D. ET AL. (U.S. BUREAU OF RECLAMATION) - CENTRAL VALLEY STEELHEAD MONITORING PLAN FOR THE SAN JOAQUIN RIVER RESTORATION AREA: 2012 MID-YEAR TECHNICAL REPORT. 2012-07-XX
POR13R0001	PORTZ, D. ET AL. (U.S. BUREAU OF RECLAMATION) - CENTRAL VALLEY STEELHEAD MONITORING PLAN FOR THE SAN JOAQUIN RIVER RESTORATION AREA: 2013 MONITORING RESULTS 2013-05-XX
STO11D0005	STOCKTON FISH AND WILDLIFE OFFICE - MOSSDALE TRAWLS CHINOOK & PELAGIC ORGANISM DECLINE SPECIES 1994-2011 MONITORING DATA. 2011-XX-XX
STO13D0004	STOCKTON FISH AND WILDLIFE OFFICE - MOSSDALE TRAWLS CHINOOK & PELAGIC ORGANISM DECLINE SPECIES 2012-2013 MONITORING DATA. 2013-XX-XX
WOR13U0001	WORKMAN, M. & D. PORTZ - LONG TERM FISH ASSEMBLAGE INVENTORY AND MONITORING STUDY (PRELIMINARY DATA REPORT). 2013-08-XX
ZIM08R0001	ZIMMERMAN, C. ET AL. - MATERNAL ORIGIN AND MIGRATORY HISTORY OF ONCOHYNCHUS MYKISS CAPTURED IN RIVERS OF THE CENTRAL VALLEY, CALIFORNIA. 2008-03-06

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	91811	**EO Index:**	92882
Key Quad:	Westley (3712152)	**Element Code:**	AMAEB01021
Occurrence Number:	16	**Occurrence Last Updated:**	2014-03-24

Scientific Name: *Sylvilagus bachmani riparius* **Common Name:** riparian brush rabbit

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Endangered **Other Lists:**

CNDDB Element Ranks: **Global:** G5T1

State: S1

General Habitat:

RIPARIAN AREAS ON THE SAN JOAQUIN RIVER IN NORTHERN STANISLAUS COUNTY.

Micro Habitat:

DENSE THICKETS OF WILD ROSE, WILLOWS, AND BLACKBERRIES.

Last Date Observed:	2012-11-XX	**Occurrence Type:**	Introduced Back into Native Hab./Range
Last Survey Date:	2012-11-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN JOAQUIN RIVER NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE.

Detailed Location:

MAPPED TO REFUGE PARCEL INCLUDING ORIGINAL RELEASE PENS (37.613, -121.196) & (37.624, -121.202), TELEMETRY PTS & 2004 & '07 COLLECTION LOCATIONS. RELEASES BEGUN IN '05/'06 ON NEWLY-ACQUIRED FAITH RANCH & BUFFINGTON TRACT, LOCATIONS UNKNOWN.

Ecological:

CAPTIVE-BRED RABBITS (FROM OCC#15) INTRODUCED INTO SOFT-RELEASE PENS ON REFUGE, THEN ALLOWED TO DISPERSE. SURVIVAL RATE AFTER 1 YEAR 49% FOR '02 COHORT, 42% FOR '03. EXTANT DESERT COTTONTAIL POPULATION MAY HAVE CO-OPTED BEST HABITAT.

Threats:

FERAL CATS. ARSON (2004), FLOODING (2005-2006).

General:

49 RABBITS RELEASED IN 2002, 187 IN 2003. POPULATION SUPPLEMENTED ANNUALLY 2005-10. 2 MORTALITIES IN 2004, 10 IN '05, & 3 IN '07 COLLECTED FOR SPECIMENS. 2010 THESIS PREDICTED EXTINCTION, BUT 2013 REPORT CLAIMED POPULATION WAS "REBOUNDING."

PLSS:	T03S, R07E, Sec. 33 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	4,200
UTM:	Zone-10 N4165589 E659141	**Latitude/Longitude:**	37.62365 / -121.19665	**Elevation (feet):**	30

County Summary:	**Quad Summary:**
Stanislaus	Westley (3712152), Ripon (3712162)

Sources:

BOR13R0002	U.S BUREAU OF RECLAMATION - FONSI & EA: CONTINUATION OF CONTROLLED PROPAGATION, REINTRODUCTION, & MONITORING OF RIPARIAN BRUSH RABBIT ON THE SAN JOAQUIN RIVER NWR & ADJACENT LANDS THROUGH 2013. 2013-XX-XX
EDG07S0001	EDGARIAN, T. (ENDANGERED SPECIES RECOVERY PROGRAM, CSU STANISLAUS) - MVZ #228169, COLLECTED FROM SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2007-01-18
EDG07S0002	EDGARIAN, T. (ENDANGERED SPECIES RECOVERY PROGRAM, CSU STANISLAUS) - MVZ #228173, COLLECTED FROM SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2007-01-18
EDG07S0005	EDGARIAN, T. (ENDANGERED SPECIES RECOVERY PROGRAM, CSU STANISLAUS) - MVZ #228172, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2007-06-25
ESR04S0002	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228941, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2004-05-26
ESR04S0003	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228940, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2004-08-17
ESR05S0002	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228939, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-03-30
ESR05S0003	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228944, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-03-30
ESR05S0004	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228943, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-03-30
ESR05S0005	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228937, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-04-04
ESR05S0006	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228936, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-04-06
ESR05S0007	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228942, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-04-06
ESR05S0008	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228938, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-04-06
ESR05S0010	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228958, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-04-12
ESR05S0011	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228957, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-04-16
ESR05S0016	ESRP (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - MVZ #228935, COLLECTED AT SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE. 2005-11-22
HAM10U0002	HAMILTON, L. (UNIVERSITY OF CALIFORNIA, DAVIS) - REINTRODUCTION ECOLOGY OF THE ENDANGERED RIPARIAN BRUSH RABBIT (DISSERTATION). 2010-XX-XX
WIL02R0001	WILLIAMS, D.F. ET AL. - CONTROLLED PROPAGATION AND TRANSLOCATION OF RIPARIAN BRUSH RABBITS: ANNUAL REPORT FOR 2002. 2002-07-14
WIL05R0002	WILLIAMS, D.F. ET AL. - CONTROLLED PROPAGATION AND TRANSLOCATION OF RIPARIAN BRUSH RABBITS: ANNUAL REPORT FOR 2003. 2005-07-14

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	53784	**EO Index:**	53784
Key Quad:	Patterson (3712142)	**Element Code:**	AMAJA03041
Occurrence Number:	80	**Occurrence Last Updated:**	2004-01-05

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status:	**Federal:**	Endangered	**Rare Plant Rank:**	
	State:	Threatened	**Other Lists:**	
CNDDB Element Ranks:	**Global:**	G4T2		
	State:	S2		

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1973-10-13	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1973-10-13	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

NEAR MOUTH OF DEL PUERTO CANYON, ABOUT 3.5 MI WEST, 0.75 MI N OF PATTERSON (FROM THE INTERSECTION OF J17 & WARD AVE).

Detailed Location:

MAPPED ACCORDING TO T-R-S GIVEN (T5S, R7E, SE 1/4 OF NW 1/4 OF SEC 28), NOT FROM GENERAL DIRECTIONS.

Ecological:

ANNUAL GRASSLAND.

Threats:

General:

ONE INDIVIDUAL OBSERVED.

PLSS:	T05S, R07E, Sec. 28 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	40
UTM:	Zone-10 N4148926 E658542	**Latitude/Longitude:**	37.47364 / -121.20704	**Elevation (feet):**	400

County Summary:	**Quad Summary:**
Stanislaus	Patterson (3712142)

Sources:

WIL73F0001	WILLIAMS, D. (CALIFORNIA STATE UNIVERSITY, STANISLAUS) - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 1973-10-13

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	62796	**EO Index:**	62850
Key Quad:	Patterson (3712142)	**Element Code:**	AMAJA03041
Occurrence Number:	206	**Occurrence Last Updated:**	2005-10-06

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	2004-08-23	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2004-08-23	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

WEST SHOULDER OF I-5, 3 MILES DIRECTLY WEST OF PATTERSON.

Detailed Location:

LOCATION MAPPED ACCORDING TO UTM COORDINATES.

Ecological:

WEST SIDE INTERSTATE: ANNUAL GRASSLAND W/ RELATIVELY STEEP SOUTHEAST ASPECT & AN ANIMAL PATH LEADING DOWN TO ROADWAY. EAST SIDE INTERSTATE: PATCHY GRASSLAND, ORCHARDS & AQUEDUCT. CURR/SURR LAND USE: INTERSTATE TRAFFIC, GRAZING, ORCHARD.

Threats:

MORTALITY ASSOCIATED WITH VEHICLE STRIKES.

General:

1 ADULT FEMALE FOUND DEAD ALONG ROAD ON 23 AUG 2004. LIKELY KILLED EARLY IN THE MORNING OR NIGHT BEFORE BY VEHICLE STRIKE.

PLSS:	T05S, R07E, Sec. 27 (M)	**Accuracy:**	1/10 mile	**Area (acres):**	0
UTM:	Zone-10 N4148358 E660468	**Latitude/Longitude:**	37.46819 / -121.18539	**Elevation (feet):**	300

County Summary:	**Quad Summary:**
Stanislaus	Patterson (3712142)

Sources:

ROO04F0002 ROOT, M. (U.S. FISH AND WILDLIFE SERVICE) - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 2004-08-23

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	67248	**EO Index:**	67410
Key Quad:	Patterson (3712142)	**Element Code:**	AMAJA03041
Occurrence Number:	548	**Occurrence Last Updated:**	2006-11-28

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1989-04-11	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1989-04-11	**Occurrence Rank:**	Poor
Owner/Manager:	PVT	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.75 MI WSW OF I-5/FINK RD INTERCHANGE.

Detailed Location:

Ecological:

WALNUT ORCHARD ADJACENT TO NON-NATIVE GRASSLAND.

Threats:

PROPOSED PLANNING COMMUNITY WOULD ELIMINATE ORCHARD AND ADJACENT GRASSLANDS.

General:

FORAGING SITE. 1 ADULT OBSERVED DURING NOCTURNAL SUVERY ON 11 APR 1989.

PLSS:	T06S, R07E, Sec. 24 (M)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-10 N4140314 E663652	**Latitude/Longitude:**	37.39515 / -121.15118	**Elevation (feet):**	300

County Summary:	**Quad Summary:**
Stanislaus	Patterson (3712142)

Sources:

VOU89F0001	VOUCHILAS, C. - FIELD SURVEY FORM FOR VALLEY ELDERBERRY LONGHORN BEETLE & VULPES MACROTIS MUTICA 1989-05-18

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	67264	**EO Index:**	67424
Key Quad:	Westley (3712152)	**Element Code:**	AMAJA03041
Occurrence Number:	560	**Occurrence Last Updated:**	2006-11-29

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1990-09-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1990-09-27	**Occurrence Rank:**	Unknown
Owner/Manager:	STATE	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ON I-5, 4.7 MI N OF PATTERSON RD EXIT AND 9 MI N OF CROWS LANDING.

Detailed Location:

PATTERSON RD COULD NOT BE FOUND. MAPPED AT 4.7 MI N OF SPERRY AVE, WHICH IS THE MAIN EXIT FOR PATTERSON. FOX FOUND DEAD ON W SIDE OF MEDIAN OF I-5.

Ecological:

MMEDIATELY EAST OF THE INTERSTATE LIES THE CALIFORNIA AQUEDUCT, AND TO THE WEST IS GRASSLAND OF MODERATE RELIEF.

Threats:

VEHICULAR TRAFFIC.

General:

1 INDIVIDUAL FOUND DEAD ON ROAD ON 27 SEP 1990.

PLSS:	T05S, R07E, Sec. 07 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	64
UTM:	Zone-10 N4153418 E655830	**Latitude/Longitude:**	37.51457 / -121.23674	**Elevation (feet):**	300

County Summary:	**Quad Summary:**
Stanislaus	Westley (3712152)

Sources:

BRI90F0003 BRIDEN, L. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE-BAY DELTA DIVISION) - FIELD SURVEY FORM FOR VULPES MACROTIS MUTICA 1990-09-17

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	67270	**EO Index:**	67430
Key Quad:	Solyo (3712153)	**Element Code:**	AMAJA03041
Occurrence Number:	566	**Occurrence Last Updated:**	2007-01-17

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1973-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1973-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ABOUT 1 MI WSW OF INTERSECTION OF I-5 AND I-580.

Detailed Location:

Ecological:

Threats:

General:

SCAT OBSERVED AT UNKNOWN DATE IN VICINITY. 1 FOX AND 1 ACTIVE DEN SIGHTED IN 1973. 2 SIGHTINGS AND DEN SOMETIME FROM 1972 THROUGH JUL 1975.

PLSS:	T04S, R06E, Sec. 07 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	883
UTM:	Zone-10 N4162418 E645123	**Latitude/Longitude:**	37.59740 / -121.35606	**Elevation (feet):**	420

County Summary:	**Quad Summary:**
San Joaquin	Solyo (3712153)

Sources:

EIP91M0001	EIP ASSOCIATES - PREVIOUS VERIFIED KIT FOX SIGHTINGS (1973-1990?) - FROM AN UNIDENTIFIED ENVIRONMENTAL DOCUMENT - OBTAINED AT A SAN JOAQUIN KIT FOX MEETING ON MAY 7, 1993. 1991-XX-XX
MOR75M0001	MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX
SWI73R0001	SWICK, C.D. - DETERMINATION OF SAN JOAQUIN KIT FOX RANGE IN CCA, SJQ, ALA & TUL COUNTIES, CDFG 1973-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	32577	**EO Index:**	67512
Key Quad:	Gustine (3712038)	**Element Code:**	AMAJA03041
Occurrence Number:	600	**Occurrence Last Updated:**	2007-01-19

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1986-11-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1986-11-16	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN LUIS NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

KESTERSON UNIT; 9.0 KM EAST OF GUSTINE.

Detailed Location:

LOCATIONS IN KESTERSON RES/NWR: "25M W OF CELL 6," "50M W OF CELL 10," "WINDMILL POND," "PARKING LOT 3," "CELLS 9 & 11," "200 M SE & E OF WINDMILL POND," "300 M W OF E GATE," "100M W OF CELL 6," "100M NE OF WINDMILL POND," & MORE IN SOURCE.

Ecological:

Threats:

General:

1 INACTIVE DEN WITH OLD SCAT & PREY REMAINS AND 1 ACTIVE DEN WITH FRESH SCATS AND 1 ADULT AND 1 JUVENILE FOX OBSERVED ON 9 & 13 JUL 1986. 23 INDIVIDUALS OBSERVED BETWEEN 24 JAN AND 16 NOV 1986.

PLSS:	T08S, R10E, Sec. 08 (M)	**Accuracy:**	specific area	**Area (acres):**	11,016
UTM:	Zone-10 N4124722 E686963	**Latitude/Longitude:**	37.25030 / -120.89192	**Elevation (feet):**	73

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Ingomar (3712028), Stevinson (3712037), Gustine (3712038)

Sources:

FWS87R0004	U.S. FISH & WILDLIFE SERVICE - SAN JOAQUIN KIT FOX STUDY, KESTERSON NATIONAL WILDLIFE REFUGE, QUARTERLY PROGRESS REPORT: 1 OCTOBER - 31 DECEMBER FISCAL YEAR 1987. 1987-02-XX
FWS87R0005	U.S. FISH & WILDLIFE SERVICE - SAN JOAQUIN KIT FOX STUDY, KESTERSON NATIONAL WILDLIFE REFUGE, ANNUAL PROGRESS REPORT, FISCAL YEAR 1986. 1987-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	67872	**EO Index:**	67513
Key Quad:	Stevinson (3712037)	**Element Code:**	AMAJA03041
Occurrence Number:	601	**Occurrence Last Updated:**	2007-01-19

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1986-01-30	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1986-01-30	**Occurrence Rank:**	Unknown
Owner/Manager:	DPR-GREAT VALLEY GRASSLANDS SP	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SAN LUIS ISLAND, GREAT VALLEY GRASSLANDS STATE PARK.

Detailed Location:

LOCATION GIVEN AS SECTION 33, MAPPED IN THAT PORTION OF SECTION 33 THAT IS NOT IN KESTERSON NWR.

Ecological:

Threats:

General:

1 INDIVIDUAL OBSERVED ON 30 JAN 1986, 2 INDIVIDUALS OBSERVED ON 6 NOV 1986.

PLSS:	T07S, R10E, Sec. 33 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	223
UTM:	Zone-10 N4128627 E688463	**Latitude/Longitude:**	37.28517 / -120.87402	**Elevation (feet):**	75

County Summary:	**Quad Summary:**
Merced	Stevinson (3712037), Gustine (3712038)

Sources:

FWS87R0004	U.S. FISH & WILDLIFE SERVICE - SAN JOAQUIN KIT FOX STUDY, KESTERSON NATIONAL WILDLIFE REFUGE, QUARTERLY PROGRESS REPORT: 1 OCTOBER - 31 DECEMBER FISCAL YEAR 1987. 1987-02-XX
FWS87R0005	U.S. FISH & WILDLIFE SERVICE - SAN JOAQUIN KIT FOX STUDY, KESTERSON NATIONAL WILDLIFE REFUGE, ANNUAL PROGRESS REPORT, FISCAL YEAR 1986. 1987-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 67815
Key Quad: Orestimba Peak (3712132)
Occurrence Number: 932
EO Index: 67965
Element Code: AMAJA03041
Occurrence Last Updated: 2007-01-17

Scientific Name: *Vulpes macrotis mutica*
Common Name: San Joaquin kit fox

Listing Status: **Federal:** Endangered
State: Threatened
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G4T2
State: S2

General Habitat:
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed: 1975-07-XX
Last Survey Date: 1975-07-XX
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
N OF BENNETT VALLEY, ABOUT 3 MI W OF I-5.

Detailed Location:

Ecological:

Threats:

General:
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

PLSS: T08S, R07E, Sec. 01 (M)
UTM: Zone-10 N4126550 E664053
Accuracy: 2/5 mile
Latitude/Longitude: 37.27108 / -121.14970
Area (acres): 0
Elevation (feet): 450

County Summary:
Stanislaus

Quad Summary:
Orestimba Peak (3712132)

Sources:
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 67816
Key Quad: Orestimba Peak (3712132)
Occurrence Number: 933
EO Index: 67966
Element Code: AMAJA03041
Occurrence Last Updated: 2007-01-17

Scientific Name: *Vulpes macrotis mutica*
Common Name: San Joaquin kit fox

Listing Status: **Federal:** Endangered
State: Threatened
Rare Plant Rank:
Other Lists:

CNDDB Element Ranks: **Global:** G4T2
State: S2

General Habitat:
ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:
NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed: 1975-07-XX
Last Survey Date: 1975-07-XX
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
NW OF BENNETT VALLEY, ABOUT 3.8 MI W OF WHERE I-5 CROSSES POVERTY FLAT.

Detailed Location:

Ecological:

Threats:

General:
SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

PLSS: T07S, R07E, Sec. 35 (M)
Accuracy: 2/5 mile
Area (acres): 0
UTM: Zone-10 N4127406 E662408
Latitude/Longitude: 37.27909 / -121.16806
Elevation (feet): 680

County Summary:
Stanislaus

Quad Summary:
Orestimba Peak (3712132)

Sources:
MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	67817	**EO Index:**	67967
Key Quad:	Orestimba Peak (3712132)	**Element Code:**	AMAJA03041
Occurrence Number:	934	**Occurrence Last Updated:**	2007-01-17

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:**

CNDDB Element Ranks: **Global:** G4T2

State: S2

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1975-07-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1975-07-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

S OF ORESTIMBA CREEK, ABOUT 3.2 MI SW OF INTERSECTION OF ORESTIMBA CREEK RD AND I-5.

Detailed Location:

Ecological:

Threats:

General:

SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

PLSS:	T07S, R07E, Sec. 25 (M)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4129173 E663380	**Latitude/Longitude:**	37.29483 / -121.15671	**Elevation (feet):**	310

County Summary:	**Quad Summary:**
Stanislaus	Orestimba Peak (3712132)

Sources:

MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	67818	**EO Index:**	67968
Key Quad:	Orestimba Peak (3712132)	**Element Code:**	AMAJA03041
Occurrence Number:	935	**Occurrence Last Updated:**	2007-01-17

Scientific Name: *Vulpes macrotis mutica* **Common Name:** San Joaquin kit fox

Listing Status:	**Federal:**	Endangered	**Rare Plant Rank:**	
	State:	Threatened	**Other Lists:**	
CNDDB Element Ranks:	**Global:**	G4T2		
	State:	S2		

General Habitat:

ANNUAL GRASSLANDS OR GRASSY OPEN STAGES WITH SCATTERED SHRUBBY VEGETATION.

Micro Habitat:

NEED LOOSE-TEXTURED SANDY SOILS FOR BURROWING, AND SUITABLE PREY BASE.

Last Date Observed:	1975-07-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1975-07-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

S OF ORESTIMBA CREEK, ABOUT 2 MI SW OF INTERSECTION OF I-5 AND ORESTIMBA CREEK RD.

Detailed Location:

Ecological:

Threats:

General:

SIGHTING SOMETIME FROM 1972 THROUGH JUL 1975.

PLSS:	T07S, R08E, Sec. 30 (M)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4129415 E665429	**Latitude/Longitude:**	37.29666 / -121.13355	**Elevation (feet):**	420

County Summary:	**Quad Summary:**
Stanislaus	Orestimba Peak (3712132)

Sources:

MOR75M0001 MORRELL, S.H. - MAPS (6) SHOWING SAN JOAQUIN KIT FOX DISTRIBUTION AND ABUNDANCE IN 1975. 1975-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	12215	**EO Index:**	27583
Key Quad:	Gustine (3712038)	**Element Code:**	ARADB36150
Occurrence Number:	27	**Occurrence Last Updated:**	2014-11-25

Scientific Name: *Thamnophis gigas* **Common Name:** giant garter snake

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2

State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Last Date Observed:	1976-06-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1976-06-27	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALONG LOS BANOS CREEK, ABOUT 1.2 MILES N OF HWY 140 & SANTA FE GRADE RD INTERSECTION, 3 MILES NE OF GUSTINE POST OFFICE.

Detailed Location:

MAPPED GENERALLY TO PROVIDED LOCATION DESCRIPTION OF "LOS BANOS CRK. N OF HWY 140."

Ecological:

Threats:

General:

MUSEUM COLLECTION MADE ON 27 JUN 1976 BY G. HANSEN (FIELD NOTES # 237).

PLSS:	T07S, R09E, Sec. 34 (M)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4128718 E680867	**Latitude/Longitude:**	37.28750 / -120.95964	**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	Gustine (3712038)

Sources:

BRO80U0001	BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG). 1980-XX-XX
HAN80R0002	HANSON, G.E. & J.M. BRODE - STATUS OF THE GIANT GARTER SNAKE, THAMNOPHIS GIGAS (FITCH), DEPT. OF FISH AND GAME, INLAND FISHERIES ENDANGERED SPECIES PROGRAM, SPECIAL PUBLICATIONS 80-5. 1980-09-XX
HAN88R0001	HANSEN, G.E. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	32431	**EO Index:**	1656
Key Quad:	Ingomar (3712028)	**Element Code:**	ARADB36150
Occurrence Number:	135	**Occurrence Last Updated:**	1995-11-27

Scientific Name: *Thamnophis gigas* **Common Name:** giant garter snake

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2

State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Last Date Observed:	XXXX-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	XXXX-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

EAST OF GUSTINE. VICINITY OF LOS BANOS CREEK AND OLD SANTE FE GRADE.

Detailed Location:

Ecological:

Threats:

General:

SNAKE OBSERVED PRIOR TO, BUT NOT DURING THE 1986-87 STUDY BY G. HANSEN.

PLSS:	T08S, R09E, Sec. 14 (M)	**Accuracy:**	2/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4124109 E682412	**Latitude/Longitude:**	37.24568 / -120.94335	**Elevation (feet):**	75

County Summary:	**Quad Summary:**
Merced	Ingomar (3712028), Gustine (3712038)

Sources:

HAN88R0001 HANSEN, G.E. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	55231	**EO Index:**	55233
Key Quad:	Gustine (3712038)	**Element Code:**	ARADB36150
Occurrence Number:	184	**Occurrence Last Updated:**	2004-04-22

Scientific Name: *Thamnophis gigas* **Common Name:** giant garter snake

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2

State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Last Date Observed:	1997-05-04	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1997-05-04	**Occurrence Rank:**	Good
Owner/Manager:	CITY OF GUSTINE, PVT	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SOUTH OF CARNATION ROAD, 1.5 MILES EAST OF GUSTINE.

Detailed Location:

SITE IS LOCATED IMMEDIATELY WEST OF THE GUSTINE SEWAGE TREATMENT FACILITY AND BORDERED ON THE NORTH BY CARNATION ROAD.

Ecological:

IABITAT CONSISTS OF A MARSHY AREA AND A VEGETATION-BORDERED, 12'-WIDE SLOUGH, ON THE EASTERN EDGE OF A MEADOW; MEADOW IS LOCATED AT THE WESTERN EDGE OF THE MERCED GRASSLANDS.

Threats:

THREATENED BY THE POTENTIAL EXPANSION OF THE GUSTINE SEWAGE TREATMENT FACILITY.

General:

2 JUVENILES OBSERVED ON 3 MAY 1997, AND 1 ADULT AND 1 JUVENILE OBSERVED ON 4 MAY 1997.

PLSS:	T08S, R09E, Sec. 10 (M)	**Accuracy:**	1/10 mile	**Area (acres):**	0
UTM:	Zone-10 N4124700 E680194	**Latitude/Longitude:**	37.25143 / -120.96819	**Elevation (feet):**	76

County Summary:	**Quad Summary:**
Merced	Gustine (3712038)

Sources:

BAR97F0010	BARRY, S. (ENTRIX, INC.) - FIELD SURVEY FORM FOR THAMNOPHIS GIGAS 1997-05-03
BAR97F0011	BARRY, S. (ENTRIX, INC.) - FIELD SURVEY FORM FOR THAMNOPHIS GIGAS 1997-05-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	12512	**EO Index:**	1455
Key Quad:	Stevinson (3712037)	**Element Code:**	ICBRA03010
Occurrence Number:	3	**Occurrence Last Updated:**	1995-12-05

Scientific Name: *Branchinecta conservatio* **Common Name:** Conservancy fairy shrimp

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: None **Other Lists:** IUCN_EN-Endangered

CNDDB Element Ranks: **Global:** G1

State: S1

General Habitat:

ENDEMIC TO THE GRASSLANDS OF THE NORTHERN TWO-THIRDS OF THE CENTRAL VALLEY; FOUND IN LARGE, TURBID POOLS.

Micro Habitat:

INHABIT ASTATIC POOLS LOCATED IN SWALES FORMED BY OLD, BRAIDED ALLUVIUM; FILLED BY WINTER/SPRING RAINS, LAST UNTIL JUNE.

Last Date Observed:	1995-01-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1995-01-27	**Occurrence Rank:**	Good
Owner/Manager:	DPR-GREAT VALLEY GRASSLANDS SP	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

WEST SIDE OF LANDER AVE, S OF SAN JOAQUIN RIVER; TO ABOUT 5.5 MILES S OF STEVINSON.

Detailed Location:

T08S/R10E/SECS 3,10 TO T07S/R10E/SEC 34.

Ecological:

CLAYPAN VERNAL POOLS WITHIN GRASSLANDS OF INTRODUCED ANNUAL GRASSES (BROMUS SP.) AND NATIVE BUNCH GRASSES (SPOROBOLUS SP.). SITE BISECTED BY SMALL SWALES THAT CONNECT SALT SLOUGH AND SAN JOAQUIN RIVER.

Threats:

HISTORIC LAND ALTERATION-DIKING AND CHANNELS-MAY INCREASE INTRUSION OF FISH AND CRAYFISH DURING HIGH WATER CONDITIONS.

General:

>50 ADULTS OBSERVED IN 7 OF 93 POOLS SURVEYED; VOUCHER SPECIMENS WILL BE DEPOSITED IN CAS, BUT AWAITING SPECIES VERIFICATION FROM CRUSTACEAN SPECIALIST; SCAPHIOPUS HAMMONDI AND AMBYSTOMA TIGRIUM CALIFORIENSE ALSO PRESENT.

PLSS:	T08S, R10E, Sec. 03 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	1,389
UTM:	Zone-10 N4126953 E689413	**Latitude/Longitude:**	37.26991 / -120.86375	**Elevation (feet):**	75

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Stevinson (3712037), Gustine (3712038)

Sources:

WIL95R0001 WILCOX, C. - 60-DAY REPORT FOR SPECIAL STATUS CRUSTACEANS AT GREAT VALLEY GRASSLANDS STATE PARK (BRANCHINECTA CONSERVATIO, LEPIDURUS PACKARDI) 1995-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	72482	**EO Index:**	1292
Key Quad:	Gustine (3712038)	**Element Code:**	ICBRA03010
Occurrence Number:	8	**Occurrence Last Updated:**	2014-06-20

Scientific Name: *Branchinecta conservatio* **Common Name:** Conservancy fairy shrimp

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: None **Other Lists:** IUCN_EN-Endangered

CNDDB Element Ranks: **Global:** G1

State: S1

General Habitat:

ENDEMIC TO THE GRASSLANDS OF THE NORTHERN TWO-THIRDS OF THE CENTRAL VALLEY; FOUND IN LARGE, TURBID POOLS.

Micro Habitat:

INHABIT ASTATIC POOLS LOCATED IN SWALES FORMED BY OLD, BRAIDED ALLUVIUM; FILLED BY WINTER/SPRING RAINS, LAST UNTIL JUNE.

Last Date Observed:	1994-03-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1994-03-16	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN LUIS NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

KESTERSON UNIT, SOUTHWEST OF SALT SLOUGH AND EAST BRANCH SALT SLOUGH, SAN LUIS NWR, ABOUT 6 AIR MILES EAST OF GUSTINE.

Detailed Location:

POOL #2 OCCURRED ON T8S, R10E, SEC 5 (APPENDICES A & B FROM 1994 REPORT).

Ecological:

HABITAT CONSISTED MAINLY OF VERNAL POOLS INTERSPERSED WITH GRASSLAND AND ALKALI SINK COMMUNITIES.

Threats:

General:

1994-POOL #2 HAD B. CONSERVATIO PRESENT (APPENDIX A); VOUCHER SPECIMEN SENT TO D. BELK FOR IDENTIFICATION. B. LYNCHI, LEPIDURUS PACKARI & AMBYSTOMA CALIFORNIENSE PRESENT.

PLSS:	T08S, R10E, Sec. 05 (M)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4126585 E686741	**Latitude/Longitude:**	37.26713 / -120.89395	**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	Gustine (3712038)

Sources:

BEL94U0002	BELK, D. - DENTON BELK'S COLLECTION CARDS FOR BRANCHINECTA CONSERVATIO, COLLECTED 1991-94 (PHOTO COPIES) 1994-XX-XX
PET94R0001	PETERS, M. - CRUSTACEA AND AMPHIBIAN SAMPLING REPORT SAN LUIS NWR COMPLEX 1994 1994-XX-XX
PET94S0002	PETERS, M. - PETERS #DB 1171 USNM #1072196, COLLECTED AT KESTERSON NWR, POOL 2 1994-02-22

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	32581	**EO Index:**	1291
Key Quad:	Gustine (3712038)	**Element Code:**	ICBRA03020
Occurrence Number:	8	**Occurrence Last Updated:**	2012-09-05

Scientific Name: *Branchinecta longiantenna* **Common Name:** longhorn fairy shrimp

Listing Status:	**Federal:**	Endangered	**Rare Plant Rank:**	
*** SENSITIVE ***	**State:**	None	**Other Lists:**	IUCN_EN-Endangered
CNDDB Element Ranks:	**Global:**	G1		
	State:	S1		

General Habitat:

ENDEMIC TO THE EASTERN MARGIN OF THE CENTRAL COAST MTNS IN SEASONALLY ASTATIC GRASSLAND VERNAL POOLS.

Micro Habitat:

INHABIT SMALL, CLEAR-WATER DEPRESSIONS IN SANDSTONE AND CLEAR-TO-TURBID CLAY/GRASS-BOTTOMED POOLS IN SHALLOW SWALES.

Last Date Observed:	1994-03-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1994-03-16	**Occurrence Rank:**	Unknown
Owner/Manager:		**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SENSITIVE LOCATION INFORMATION SUPPRESSED.

Detailed Location:

PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological:

GRASSLAND & GRASSLAND/IODINE BUSH COMMUNITIES INTERSPERSED WITH VERNAL POOLS & SLOUGH CHANNELS. POOLS USED HEAVILY BY WATERFOWL & SHOREBIRDS. LINDERIELLA OCCIDENTALIS, LEPIDURUS PACKARDI, AMBYSTOMA CALIFORNIENSE & SPEA HAMMONDII ON SITE.

Threats:

POTENTIAL THREAT FROM MANAGED WETLANDS: ALTERED HYDROLOGY AND PREDATORY FISH, BULLFROGS, CRAYFISH.

General:

PLSS:	**Accuracy:**	nonspecific area	**Area (acres):**	10,532
UTM:	**Latitude/Longitude:**		**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Ingomar (3712028), Stevinson (3712037), Gustine (3712038)

Sources:

PET93R0001	PETERS, M. - VERNAL POOL BIOTA AT SAN LUIS NWR COMPLEX 1993 FIELD SAMPLING REPORT. 1993-XX-XX
PET94R0001	PETERS, M. - CRUSTACEA AND AMPHIBIAN SAMPLING REPORT SAN LUIS NWR COMPLEX 1994 1994-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	72482	**EO Index:**	1290
Key Quad:	Gustine (3712038)	**Element Code:**	ICBRA03030
Occurrence Number:	108	**Occurrence Last Updated:**	2014-10-10

Scientific Name: *Branchinecta lynchi* **Common Name:** vernal pool fairy shrimp

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: None **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MTNS, AND SOUTH COAST MTNS, IN ASTATIC RAIN-FILLED POOLS.

Micro Habitat:

INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

Last Date Observed:	1994-03-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1994-03-16	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN LUIS NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

KESTERSON UNIT; SOUTHWEST OF SALT SLOUGH AT EAST BRANCH SALT SLOUGH.

Detailed Location:

POOL #85 OCCURRED ON T8S, R10E, SEC 5.

Ecological:

HABITAT CONSISTED OF VERNAL POOLS INTERSPERSED WITH GRASSLANDS AND ALKALI SINK COMMUNITIES. B. CONSERVATIO, LEPIDURUS PACKARDI & AMBYSTOMA CALIFORNIENSE PRESENT.

Threats:

POTENTIAL THREAT FROM MANAGED WETLANDS: ALTERED HYDROLOGY, PREDATORS-FISH, CRAYFISH, BULLFROGS.

General:

FOUND IN POOL #85, 1994. VOUCHER SPECIMEN SENT TO D. BELK FOR IDENTIFICATION; DEPOSITED IN USNM (#1072659).

PLSS:	T08S, R10E, Sec. 05 (M)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4126585 E686741	**Latitude/Longitude:**	37.26713 / -120.89395	**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	Gustine (3712038)

Sources:

PET94R0001	PETERS, M. - CRUSTACEA AND AMPHIBIAN SAMPLING REPORT SAN LUIS NWR COMPLEX 1994 1994-XX-XX
PET94S0007	PETERS, M. - USNM #1072659, COLLECTED AT "KESTERSON NATIONAL WILDLIFE REFUGE POOL 85." 1994-02-22

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	12512	**EO Index:**	1454
Key Quad:	Stevinson (3712037)	**Element Code:**	ICBRA10010
Occurrence Number:	39	**Occurrence Last Updated:**	1995-12-05

Scientific Name: *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: None **Other Lists:** IUCN_EN-Endangered

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

Micro Habitat:

POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Last Date Observed:	1995-01-27	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1995-01-27	**Occurrence Rank:**	Good
Owner/Manager:	DPR-GREAT VALLEY GRASSLANDS SP	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

WEST SIDE OF LANDER AVENUE, SOUTH OF SAN JOAQUIN RIVER; TO ABOUT 5.5 MILES S OF STEVINSON.

Detailed Location:

FROM T8S R10E SECS 3,10 TO T7S R10E SEC 34.

Ecological:

CLAYPAN VERNAL POOLS WITHIN GREAT VALLEY GRASSLANDS STATE PARK; NON-NATIVE GRASSES (BROMUS SP.) AND NATIVE BUNCH GRASSES (SPOROBOLUS SP.). SITE BISECTED BY SWALES THAT CONNECT SALT SLOUGH AND SAN JOAQUIN RIVER.

Threats:

HISTORIC LAND ALTERATIONS-DIKING AND CHANNELS-MAY INCREASE INTRUSION OF FISH OR CRAYFISH DURING HIGH WATER CONDITIONS.

General:

>50 ADULTS OBSERVED IN 32 OF 93 POOLS SURVEYED. VOUCHER SPECIMENS COLLECTED AND WILL BE SUBMITTED TO CAS AFTER VERIFICATION BY SPECIALIST. SCAPHIOPUS HAMMONDI AND AMBYSTOMA CALIFORNIENSE ALSO PRESENT.

PLSS:	T08S, R10E, Sec. 03 (M)	**Accuracy:**	nonspecific area	**Area (acres):**	1,389
UTM:	Zone-10 N4126953 E689413	**Latitude/Longitude:**	37.26991 / -120.86375	**Elevation (feet):**	75

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Stevinson (3712037), Gustine (3712038)

Sources:

WIL95R0001 WILCOX, C. - 60-DAY REPORT FOR SPECIAL STATUS CRUSTACEANS AT GREAT VALLEY GRASSLANDS STATE PARK (BRANCHINECTA CONSERVATIO, LEPIDURUS PACKARDI) 1995-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	72482	**EO Index:**	1289
Key Quad:	Gustine (3712038)	**Element Code:**	ICBRA10010
Occurrence Number:	52	**Occurrence Last Updated:**	2011-05-26

Scientific Name: *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: None **Other Lists:** IUCN_EN-Endangered

CNDDB Element Ranks: **Global:** G3

State: S2S3

General Habitat:

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

Micro Habitat:

POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Last Date Observed:	1994-03-16	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1994-03-16	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN LUIS NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

KESTERSON UNIT; SOUTHWEST OF SALT SLOUGH AT EAST BRANCH SALT SLOUGH.

Detailed Location:

4 SITES OCCURRED ON T8S, R10E, SEC 5 (TABLE 1 & APPENDIX B).

Ecological:

HABITAT CONSISTED OF VERNAL POOLS INTERSPERSED WITH GRASSLANDS AND ALKALI SINK COMMUNITIES.

Threats:

POTENTIAL THREAT FROM MANAGED WETLANDS: ALTERED HYDROLOGY, PREDATOS-FISH, CRAYFISH, BULLFROGS.

General:

1994: 4 OF 7 SITES SAMPLED ON KESTERSON NWR HAD TADPOLE SHRIMP PRESENT (TABLE 1); MAPPED ACCORDING TO T/R/SEC PROVIDED IN APPENDIX B; B. CONSERVATIO, B. LYNCHI & AMBYSTOMA CALIFORNIENSE PRESENT.

PLSS:	T08S, R10E, Sec. 05 (M)	**Accuracy:**	3/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4126585 E686741	**Latitude/Longitude:**	37.26713 / -120.89395	**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	Gustine (3712038)

Sources:

PET94R0001	PETERS, M. - CRUSTACEA AND AMPHIBIAN SAMPLING REPORT SAN LUIS NWR COMPLEX 1994 1994-XX-XX
ROG01A0001	ROGERS, D. - REVISION OF THE NEARCTIC LEPIDURUS (NOTOSTRACA). JOURNAL OF CRUSTACEAN BIOLOGY 21(4):991-1006. 2001-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	32577	**EO Index:**	1002
Key Quad:	Gustine (3712038)	**Element Code:**	ICBRA10010
Occurrence Number:	53	**Occurrence Last Updated:**	2008-08-06

Scientific Name:	*Lepidurus packardi*			**Common Name:**	vernal pool tadpole shrimp
Listing Status:	**Federal:**	Endangered		**Rare Plant Rank:**	
	State:	None		**Other Lists:**	IUCN_EN-Endangered
CNDDB Element Ranks:	**Global:**	G3			
	State:	S2S3			

General Habitat:

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

Micro Habitat:

POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Last Date Observed:	1993-04-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1993-04-21	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN LUIS NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

KESTERSON UNIT; 9.0 KM EAST OF GUSTINE.

Detailed Location:

SITES OCCURRED ON T7S/R9E/SEC 36, T7S/R10E/SEC 31 & 32, T8S/R10E/SEC 5,6,8,15 & 16; POOLS USED HEAVILY BY WATERFOWL & SHOREBIRDS.

Ecological:

HABITAT CONSISTS OF GRASSLANDS AND GRASSLAND/IODINE BUSH COMMUNITIES INTERSPERSED WITH VERNAL POOLS AND SLOUGH CHANNELS.

Threats:

POTENTIAL THREATS FROM MANAGED WETLANDS: ALTERED HYDROLOGY, PREDATORS: FISH, CRAYFISH, BULLFROGS.

General:

1993: 51 OF 69 SITES ON KESTERSON NWR HAD TADPOLE SHRIMP PRESENT (TABLE 1); TADPOLE SHRIMP WERE MOST COMMON FAIRY SHRIMP PRESENT ON NWR; BRANCHINECTA LONGIANTENNA, LINDERIELLA OCCIDENTALIS, AMBYSTOMA CALIFORNIENSE & SCAPHIOPUS HAMMONDII OBS

PLSS:	T08S, R10E, Sec. 08 (M)	**Accuracy:**	specific area	**Area (acres):**	11,016
UTM:	Zone-10 N4124722 E686963	**Latitude/Longitude:**	37.25030 / -120.89192	**Elevation (feet):**	70

County Summary:	**Quad Summary:**
Merced	San Luis Ranch (3712027), Ingomar (3712028), Stevinson (3712037), Gustine (3712038)

Sources:

PET93F0001	PETERS, M. - FIELD SURVEY FORM FOR SPEA (=SCAPHIOPUS) HAMMONDII & LEPIDURUS PACKARDI 1993-04-02
PET93R0001	PETERS, M. - VERNAL POOL BIOTA AT SAN LUIS NWR COMPLEX 1993 FIELD SAMPLING REPORT. 1993-XX-XX
SUG93U0001	SUGNET & ASSOCIATES - PRINTOUT OF LOCATION (T-R-S) OF FAIRY SHRIMP SAMPLING. (OBTAINED FROM THE U.S. FISH AND WILDLIFE SERVICE) 1993-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	71510	**EO Index:**	72406
Key Quad:	Gustine (3712038)	**Element Code:**	ICBRA10010
Occurrence Number:	267	**Occurrence Last Updated:**	2008-06-13

Scientific Name: *Lepidurus packardi* **Common Name:** vernal pool tadpole shrimp

Listing Status:	**Federal:**	Endangered	**Rare Plant Rank:**	
	State:	None	**Other Lists:**	IUCN_EN-Endangered
CNDDB Element Ranks:	**Global:**	G3		
	State:	S2S3		

General Habitat:

INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.

Micro Habitat:

POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Last Date Observed:	2006-01-25	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2006-01-25	**Occurrence Rank:**	Excellent
Owner/Manager:	PVT	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.4 MI NORTHWEST OF THE INTERSECTION OF HILLS FERRY RD & KELLEY RD, WEST OF THE SAN JOAQUIN RIVER, 3 MILES NE OF NEWMAN.

Detailed Location:

Ecological:

HABITAT CONSISTS OF PLAYA-LIKE VERNAL POOL IN GRAZED, DRY-LAND PASTURE. IMMEDIATE/SURROUNDING LAND USE IS GRAZING, AGRICULTURE, AND RURAL RESIDENTIAL.

Threats:

General:

4 JUVENILES OBSERVED ON 25 JAN 2006. THIS WAS A INCIDENTAL OBSERVATION DURING VISUAL SURVEY FOR WESTERN SPADEFOOT EGG MASSES - NO EGG MASSES OBSERVED.

PLSS:	T07S, R09E, Sec. 04 (M)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-10 N4135575 E678649	**Latitude/Longitude:**	37.34970 / -120.98299	**Elevation (feet):**	65

County Summary:	**Quad Summary:**
Stanislaus	Gustine (3712038)

Sources:

DRE06F0001 DREIER, J. (WRA, INC.) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2006-01-25

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	39485	**EO Index:**	34487
Key Quad:	Riverbank (3712068)	**Element Code:**	IICOL48011
Occurrence Number:	156	**Occurrence Last Updated:**	1998-08-20

Scientific Name: *Desmocerus californicus dimorphus* **Common Name:** valley elderberry longhorn beetle

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: None **Other Lists:**

CNDDB Element Ranks: **Global:** G3T2

State: S2

General Habitat:

OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).

Micro Habitat:

PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Last Date Observed:	1984-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1984-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	UNKNOWN	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

TUOLUMNE RIVER, AROUND MODESTO.

Detailed Location:

Ecological:

Threats:

General:

EXIT HOLES OBSERVED DURING MAY AND/OR JUNE, NO ADULTS SEEN.

PLSS:	T03S, R09E, Sec. 32 (M)	**Accuracy:**	5 miles	**Area (acres):**	0
UTM:	Zone-10 N4166159 E676795	**Latitude/Longitude:**	37.62556 / -120.99657	**Elevation (feet):**	50

County Summary:

Stanislaus

Quad Summary:

Ceres (3712058), Riverbank (3712068), Brush Lake (3712151), Salida (3712161)

Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ESA86R0001	ESA - PLANNING AND ENVIRONMENTAL SERVICES - BIOLOGICAL DATA REPORT OF "CLEARING AND SNAGGING MODIFICATION PROJECT OF THE LOWER SAN JOAQUIN RIVER AND TRIBUTARIES." (US ARMY CORPS OF ENGINEERS) 1986-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	11821	**EO Index:**	34488
Key Quad:	Ripon (3712162)	**Element Code:**	IICOL48011
Occurrence Number:	157	**Occurrence Last Updated:**	1998-08-20

Scientific Name: *Desmocerus californicus dimorphus* **Common Name:** valley elderberry longhorn beetle

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: None **Other Lists:**

CNDDB Element Ranks: **Global:** G3T2

State: S2

General Habitat:

OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).

Micro Habitat:

PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Last Date Observed:	1984-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1984-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	USFWS-SAN JOAQUIN RIVER NWR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALONG THE SAN JOAQUIN RIVER, WEST OF MODESTO.

Detailed Location:

Ecological:

Threats:

General:

EXIT HOLES OBSERVED DURING MAY AND JUNE SURVEYS, NO ADULTS SEEN.

PLSS:	T03S, R07E, Sec. 33 (M)	**Accuracy:**	1 mile	**Area (acres):**	0
UTM:	Zone-10 N4165883 E659140	**Latitude/Longitude:**	37.62631 / -121.19660	**Elevation (feet):**	30

County Summary:	**Quad Summary:**
Stanislaus	Westley (3712152), Ripon (3712162)

Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ESA86R0001	ESA - PLANNING AND ENVIRONMENTAL SERVICES - BIOLOGICAL DATA REPORT OF "CLEARING AND SNAGGING MODIFICATION PROJECT OF THE LOWER SAN JOAQUIN RIVER AND TRIBUTARIES." (US ARMY CORPS OF ENGINEERS) 1986-01-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	41230	**EO Index:**	41230
Key Quad:	Ceres (3712058)	**Element Code:**	IICOL48011
Occurrence Number:	181	**Occurrence Last Updated:**	1999-06-15

Scientific Name: *Desmocerus californicus dimorphus*

Common Name: valley elderberry longhorn beetle

Listing Status: **Federal:** Threatened

State: None

Rare Plant Rank:

Other Lists:

CNDDB Element Ranks: **Global:** G3T2

State: S2

General Habitat:

OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).

Micro Habitat:

PREFERS TO LAY EGGS IN ELDERBERRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Last Date Observed:	1999-04-09	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1999-04-09	**Occurrence Rank:**	Fair
Owner/Manager:	PVT	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

SOUTH SIDE OF TUOLUMNE RIVER, NORTH OF CERES.

Detailed Location:

SITE CONSISTS OF TWO DISTINCT PATCHES OF ELDERBERRY, ADJACENT TO A GOLF COURSE AND ALMOND AND WALNUT ORCHARDS.

Ecological:

HABITAT CONSISTS OF RIPARIAN, DOMINATED BY COTTONWOOD, VALLEY OAK, BOX ELDER, AND WILLOW (SALIX HINDSIANA, S. LASIANDRA), WITH AN UNDERSTORY THAT INCLUDES ELDERBERRY (SAMBUCUS MEXICANA).

Threats:

THREATENED BY GOLF COURSE AND ORCHARD LANDSCAPE MANAGEMENT ACTIVITIES: VEGETATION CLEARANCE, WEED CONTROL, AND SPRAYING.

General:

TWO PATCHES OF MATURE ELDERBERRY PLANTS, 10-20 FEET IN HEIGHT, CONTAINING NUMEROUS EXIT HOLES, WERE OBSERVED ON 9 APR 1999.

PLSS:	T04S, R09E, Sec. 01 (M)	**Accuracy:**	specific area	**Area (acres):**	2
UTM:	Zone-10 N4164932 E682691	**Latitude/Longitude:**	37.61336 / -120.93011	**Elevation (feet):**	80

County Summary:	**Quad Summary:**
Stanislaus	Ceres (3712058)

Sources:

BUR99F0001	BURWELL, T. (KEA ENVIRONMENTAL) - FIELD SURVEY FORM FOR DESMOCERUS CALIFORNICUS DIMORPHUS 1999-04-09
BUR99F0002	BURWELL, T. (KEA ENVIRONMENTAL) - FIELD SURVEY FORM FOR DESMOCERUS CALIFORNICUS DIMORPHUS 1999-04-09