

**DRAFT
ENVIRONMENTAL ASSESSMENT/
INITIAL STUDY**

**AMERICAN RIVER COMMON FEATURES
LOWER AMERICAN RIVER FEATURES
AS MODIFIED BY WRDA 1999
JACOB LANE LEVEE IMPROVEMENTS
REACH C ELEMENT**

JUNE 2012



**US Army Corps
of Engineers**



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**DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922**

Environmental Resources Branch

**Draft FINDING OF NO SIGNIFICANT IMPACT
American River Watershed Common Features Project
Lower American River Features as Modified by WRDA 1999
Jacob Lane Levee Improvement Project, Reach C Element**

I have reviewed and evaluated the information presented in this Environmental Assessment/Initial Study (EA/IS) prepared for the American River Watershed Common Features, Lower American River Features, Jacob Lane Levee Improvement Project, Reach C Element. The project would strengthen the flood control levee along the right (north) bank of the lower American River in the Carmichael area of Sacramento adjacent to the Sheriff's Training Facility. The downstream end of the project reach terminates at River Walk Way (approximately River Mile [RM] 12.2.) and extends 1,385 linear feet upstream to RM 12.4. The repair work would involve realigning the levee 10 to 15 feet landward, which would also reflect corrections to the levee width and levee crown.

During this review, the possible consequences of the work described in the EA/IS have been studied with consideration given to environmental, socioeconomic, cultural, and engineering feasibility. I have also considered the views of other interested agencies, organizations, and individuals. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service (USFWS), the California State Historic Preservation Officer, the California Department of Fish and Game, the California Department of Water Resources, the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency.

Compensation to reduce effects on the Federally-listed valley elderberry longhorn beetle would include planting 0.16 acre of elderberry shrubs and associated native plants at a USFWS-approved site. This compensation measure would be used to reduce impacts to this sensitive species to less than significant. Mitigation for removal of the six trees would require plantings of native species at an established site within the American River Parkway.

Impacts to recreation and traffic would be minimized through detour routes, public coordination, and best management practices. The levee maintenance road would be closed to pedestrians and access would be rerouted onto the bike path. All areas disturbed by construction would be revegetated for erosion control. These compensation measures and best management practices are sufficient to reduce any potential effects to air quality, vegetation, and valley elderberry longhorn beetle habitat to less than significant.

No significant impacts on resources would result from the project. Best management practices, avoidance protocols, and minimization and mitigation measures would be used during construction to reduce effects related to sensitive biological resources, air quality, water quality, cultural resources, noise, and utility systems.

Based on my review of the EA/IS and my knowledge of the project area, I have determined that the proposed levee repair work, including access routes and staging areas, would have no significant, long-term effects on environmental or cultural resources. Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. Therefore, an EA and Finding of No Significant Impact provide adequate environmental documentation for the proposed action.

Date

William J. Leady, P.E.
Colonel, U.S. Army
District Engineer

**PROPOSED MITIGATED NEGATIVE DECLARATION
AMERICAN RIVER WATERSHED COMMON FEATURES PROJECT
CALIFORNIA
LOWER AMERICAN RIVER FEATURES AS MODIFIED BY WATER
RESOURCES DEVELOPMENT ACT OF 1999
JACOB LANE LEVEE IMPROVEMENTS
REACH C ELEMENT**

Project Background

The American River Watershed Common Features Project was initially described in the Supplemental Information Report and was first authorized in Water Resources Development Act (WRDA) of 1996 and modified in WRDA 1999. The State authorized the American River Watershed Common Features Project in 1997 under California Water Code Sections 12670.10, 12670.14 and 12670.16

The American River Watershed Common Features as Modified by Water Development Act of 1999, Jacob Lane Improvements Reach C Element (Project) is a cooperative effort among the U.S. Army Corps of Engineers, the Central Valley Flood Protection Board and the Sacramento Area Flood Control Agency. The project is one of five modifications approved by WRDA 1999.

Project Location

The Project is located on the right (north) bank of the lower American River in the Carmichael area of Sacramento. The Project encompasses the area adjacent to the Sheriff's Training Facility. The Project is approximately 1,385 feet long with the downstream terminus at River Walk Way and the upstream terminus at the upstream property line of the Sheriff's Training Facility.

Project Description

Project will deconstruct existing levee, remove abandoned pipeline then, reconstruct and realign levee to a consistent 20 foot crest for the full length of the reach which will meet current levee standards that require levees on the American River to safely pass 160,000 cfs with three feet of freeboard.

Potential Impacts

Recreation

The road on the top of the levee between Arden Way and Harrington Way would be closed to pedestrian access during the 2 month construction period, access roads in and out of the Parkway would be used as haul routes for trucks

transporting borrow material resulting in increased traffic along the entry routes used by recreationists and, a three-day period when the access at River Walk Way would be closed during the initial stages of the project.

To mitigate impacts:

- Inform local bike groups of the effects to the access points, and to ensure the least possible impacts to trail use;
- Utilize flaggers, warning signs and signs restricting access before and during construction for safety;
- Clearly mark detour routes, and erect fences in order to prevent access to the project area; and
- Inform public of changes to recreational access in and around the Parkway by mailings, posting signs, coordination with interested groups, and meetings, if necessary.

Any effects to recreation would be temporary and considered less than significant after mitigation.

Vegetation and Wildlife

Construction activities within the project corridor could require the removal of 3 valley oak trees and 6 non-native trees, Mitigation plantings will be placed in a common mitigation area within the parkway.

Impacts to trees and other habitats would be addressed under the Fish and Wildlife Coordination Act. A draft and final Coordination Act Report (CAR) will be provided by the USFWS. Specific details regarding required mitigation will be provided by the USFWS at that time.

Special Status Species

Valley Elderberry Longhorn Beetle

Project construction could result in direct and indirect effects to several elderberry shrubs. Five shrubs are expected to be removed and one shrub is expected to be trimmed. Indirect effects would include physical vibration and increase in dust during operation of equipment and trucks during construction activities.

The Corps has proposed compensation for the loss of five elderberry shrubs and the trimming of another. This would require the planting of 19 elderberry seedlings and 19 associated native plantings. To avoid potential take of the valley elderberry longhorn beetle, the following measures taken from the Service's "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999 would be incorporated into the project:

- A minimum setback of 20 feet from the dripline of all elderberry shrubs will be established, if possible. If the 20-foot minimum buffer zone is not possible, the next maximum distance allowable will be established. This area would be fenced, flagged and maintained during construction;
- Environmental awareness training would be conducted for all workers before they begin work. The training would include status, the need to avoid adversely affecting the elderberry shrub, avoidance areas and measures taken by the workers during construction, and contact information; and
- Signs would be placed every 50 feet along the edge of the elderberry buffer zones. The signs would include: “This area is the habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs should be readable from a distance of 20 feet and would be maintained during construction.

The proposed mitigation measures would reduce the effects on the Valley elderberry longhorn beetle to less than significant.

Sensitive raptors

Swainson’s hawk may be present in the area and may nest near the construction site. Construction would be timed to occur outside of the breeding season (March to August) to avoid destruction of active bird nests or young of birds that breed in the area. If this is not feasible, a qualified biologist would survey the project area and all areas within one-half mile of the project prior to initiation of construction. If the survey determines that a nesting pair is present, the Corps would coordinate CDFG, and the proper avoidance and minimization measures would be implemented. To avoid potential effects to nesting Swainson’s hawks, CDFG typically requires the avoidance of nesting sites during construction activities. These measures include avoiding construction during the breeding season and monitoring of the nest site by a qualified biologist.

The proposed mitigation measures would reduce the effects on the Swainson’s hawk to less than significant.

Air Quality

Emissions would result from the use of construction equipment, truck haul trips to and from the borrow sites, and worker vehicle trips to and from the construction sites. Prior to construction, the contractor would submit a construction equipment list to be used in the project for approval by USACE and SMAQMD. SMAQMD would confirm the fleet emissions and endorse the list only if the total fleet

emissions would meet a 20% reduction in NO_x and a 45% reduction in PM₁₀ in comparison to the state fleet emissions average. The contractor will be required to follow the requirements of SMAQMD's standard mitigation program (Appendix B). Any remaining emissions over the NO_x threshold should be reduced via a mitigation fee payment. The projected (2012) cost of reducing one ton of NO_x is \$16,640 (\$8.32/lb). The contractor will be responsible for payment of any required mitigation and administrative fees.

Implementation of the best management practices listed below would reduce air emissions and ensure that the project emissions would remain at less-than-significant levels. Since there would be no significant effects on air quality, no mitigation would be required.

- Maintain properly functioning emission control devices on all vehicles and equipment;
- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts;
- Implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner;
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains;
- Suspend all grading, earth moving, or excavation activities when winds exceed 20 miles per hour;
- Water or cover all material transported offsite to prevent generation of dust;
- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust;
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies; and
- Re-vegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

Climate Change

There would be no increase of long-term emissions (permanent sources) of greenhouse gases from this project. Long-term emissions would be the same with or without the project; maintenance emissions would be the same, and the slurry wall itself has no net long-term emissions. This project does not conflict with any statewide or local goals with regard to reduction of GHG.

Best Management Practices and implementation of the standard construction mitigation measures as recommended by SMAQMD (Appendix B of EA/IS) would reduce Greenhouse Gas emissions through the same processes that reduce total NO_x and PM₁₀ emissions.

Water Resources and Quality

Approximately 1,385 total linear feet of bare soil would be exposed until construction is completed and the levee slopes are reseeded. Dust control measures would be implemented on the levee crown, side slopes, maintenance roads and stockpiles to avoid dust and soil from entering the river or other drainages as a result of construction activities. Precautions would be followed to avoid erosion and movement of soils into the drainage system.

In addition, inadvertent spills of oil or fuels from construction equipment could be a source of contamination at work or staging areas. Precautions would be followed to avoid contamination. The contractor would be required to properly store and dispose of any hazardous waste generated at the site. Riparian vegetation and best management practices would prevent sediment and erosion runoff from entering the river.

The project would disturb more than 1 acre of land, the contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), identifying best management practices to be used to avoid or minimize any adverse effects during construction to surface waters.

The following best management practices would be incorporated into the project:

- The contractor would prepare a spill control plan and a SWPPP prior to initiation of construction. The SWPPP would be developed in accordance with guidance from the RWQCB, Central Valley Region. These plans

would be reviewed and approved by the USACE before construction began;

- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles;
- Dispose of oil or other liquids properly;
- Fuel and maintain vehicle in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Inspect and maintain vehicles and equipment to prevent dripping of oil or other liquids;
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities could begin in the summer of 2013. If rains are forecasted during construction, erosion control measures would be implemented as described in the RWQCB Erosion and Sediment Control Field Manual;
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event;
- Train construction workers in stormwater pollution prevention practices; and
- Re-vegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse affects to groundwater or surface water resources are anticipated, no mitigation is required.

Traffic and Circulation

The project would temporarily affect local residential roads and major urban connector roads that would be used as a haul route during construction. Haul trucks would cause an increase in traffic volume and reduce traffic speeds on local residential roads.

The contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by Sacramento County, CALTRANS, and the Corps prior to construction. This plan would include the following measures:

- Do not permit construction vehicles to block any roadways or private driveways;
- Provide access for emergency vehicles at all times;
- Select haul routes to avoid schools, parks, and high pedestrian use areas, when possible. Crossing guards provided by the contractor would be used when truck trips coincide with schools hours and when haul routes cross student travel path;
- Obey all speed limits, traffic laws, and transportation regulations during construction;
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment;
- Flagmen would be used at each roadway that crosses the levee to safely circulate traffic through the construction site;
- Use separate entrances and exits to the construction site;
- Construction employee parking will be restricted to the recreation parking areas accessed from Harrington Way; and
- Prior to construction, notify local residents, business, schools, and the County of Sacramento if road closures would occur during construction.

The proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

Public Utilities and Services

Prior to initiating ground disturbing activities, the contractor will coordinate with Underground Service Alert (USA) to insure that all underground utilities are identified and marked. Since no significant adverse affects to public utilities and services are anticipated, no additional mitigation is required.

Noise

Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used.

Construction activities in Reach C would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Construction of the project would occur between the hours of 6:00 a.m. to 8:00 p.m., Monday through Friday, and 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays. Construction is scheduled for summer 2013. The noise associated with the construction activities would typically fall within the County of Sacramento's construction exemption for noise.

The following measures would be implemented to reduce the adverse effects on noise as much as possible:

- Construction activities shall be limited to between 6:00 a.m. and 8:00 p.m. Monday through Friday and 7:00 a.m. and 8:00 p.m. on Saturdays and Sundays. This will be in accordance with the Sacramento County Noise Ordinance exemptions for construction (Sacramento County Municipal Code, 6.68.090 Exemptions);
- Minimize construction equipment noise during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools;
- Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 30 minutes; and
- Notify residences about the type and schedule of construction.

Compliance with the local noise ordinance would minimize the exposure of residents to excessive noise. Construction is scheduled to be completed within 2 to 3 months. Therefore, the impact after mitigation is less than significant.

Esthetics/Visual Resources

There would be no significant long-term effects on esthetics or visual resources in the project area, no mitigation would be required. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions. Compensatory plantings for any removed trees would take place in another area of the parkway.

Findings

Based on the information in the Environmental Assessment and Initial Study for the American River Watershed Common Features Project Lower American River Features as Modified by the Water resources Development Act of 1999, Jacob Lane Levee Improvements Reach C Element and in the entire record, the Central Valley Flood Protection Board finds that although the Project could have a significant impact on the environment, mitigation measures have been incorporated into the Project that reduce these impacts to less than significant.

By: _____ Date: _____
William Edgar
President

By: _____ Date: _____
Jane Dolan
Secretary

**DRAFT
ENVIRONMENTAL ASSESSMENT/
INITIAL STUDY**

**AMERICAN RIVER WATERSHED
COMMON FEATURES PROJECT, CALIFORNIA
LOWER AMERICAN RIVER FEATURES
AS MODIFIED BY WRDA 1999
JACOB LANE LEVEE IMPROVEMENTS
REACH C ELEMENT**

JUNE 2012

**U.S. ARMY CORPS OF ENGINEERS
SACRAMENTO DISTRICT**

**THE CENTRAL VALLEY FLOOD PROTECTION BOARD
STATE OF CALIFORNIA**

**SACRAMENTO AREA FLOOD CONTROL AGENCY
SACRAMENTO, CALIFORNIA**

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Appendixes

- A. Correspondence Regarding Special Status Species
- B. Construction Emissions Estimates using the Road Construction Emissions Model, Version 6.3.2 and SMAQMD Standard Mitigation Program Requirements
- C. Coordination Act Report

Acronyms and Abbreviations

AAQS	ambient air quality standards
APE	area of potential effects
ARFCD	American River Flood Control District
CAR	Fish and Wildlife Coordination Act Report
CARB	California Air Resources Board
CB	cement and bentonite
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
Corps	United States Army Corps of Engineers
County Parks	Sacramento County Department of Regional Parks
CRWQCB	California Regional Water Quality Control Board
CSU	California State University
cy	cubic yards
CVFPB	Central Valley Flood Protection Board
dB	decibels
dbh	diameter at breast height
DFG	Department of Fish and Game
DOT	Department of Transportation
DWR	Department of Water Resources
EA/IS	Environmental Assessment/Initial Study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EM	Engineering Manual
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FONSI	Finding of No Significant Impact
HTRW	hazardous, toxic, and radioactive waste
Ldn	day-night sound level
lf	linear feet
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOx	nitrogen oxide
NPDES	National Pollution Discharge Elimination System

OSHA	Occupational Safety and Health Administration
PA	programmatic agreement
PG&E	Pacific Gas and Electric Company
PL	public law
PM ₁₀	particulate matter 10 microns or less
RM	river mile
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SEIS/EIR	Supplemental Environmental Impact Statement/Environmental Impact Report
SFNA	Sacramento Federal Ozone Nonattainment Area
SHPO	State Historic Preservation Officer
SIR	Supplemental Information Report
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Metropolitan Utility District
SO _x	sulfur oxides
SPCP	Spill Prevention and Countermeasure Plan
SRA	shaded riverine aquatic habitat
SRBPP	Sacramento River Bank Protection Project
SRCSD	Sacramento Regional County Sanitation District
SSWD	Sacramento Suburban Water District
SWPPP	Storm Water Pollution Prevention Plan
UPRR	Union Pacific Railroad
USA	Underground Service Alert
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	valley elderberry longhorn beetle
WRDA	Water Resources Development Act

1.0 Purpose and Need for Action

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps), the Central Valley Flood Protection Board (Board), formerly the Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA) propose to remove, and relocate a flood control levee along one reach of the lower American River in the American River Parkway. This construction would reduce flood risk by improving the levee to meet current Corps criteria in Corps EM 1110-2-1913 for withstanding emergency releases from Folsom Dam of 160,000 cubic feet per second (cfs) with 3 feet of freeboard (equivalent to 192,000 cfs).

1.2 Location of the Project Area

The proposed work is located on the right (north) bank of the lower American River in the Carmichael area of Sacramento (Plate 1). Two reaches (Reach A and Reach B) located between the Watt Avenue Bridge and Arden Way, have already been constructed. Reach A, the downstream reach, extends from River Mile (RM) 10.4 to RM 11.3 and had a total length of approximately 5,000 linear feet (LF). That work required raising the levee an average of 1 foot in height and was conducted in 2009. Reach B extends from RM 11.5 to RM 13.2 for a total length of approximately 6,400 LF. Reach B began 400 feet downstream of Jacob Lane and terminated at Arden Way, and included the area bordered by the local Sheriff's Training Facility. The work in Reach B required widening the levee by an average of 4 to 6 feet, and was completed upstream and downstream of the Sheriff's Training Facility in 2010.

The proposed work at Jacob Lane Reach C encompasses the area adjacent to the Sheriff's Training Facility and is a subset of Reach B. Reach C is approximately 1,385 feet long with the downstream terminus at River Walk Way and the upstream terminus at the upstream property line of the Sheriff's Training Facility (Plate 2).

1.3 Background and Need for Action

The American River Common Features Project (Common Features Project) is a cooperative effort among local, State of California, and Federal agencies to increase the level of flood protection for the city of Sacramento and surrounding areas. The Common Features Projects encompass several actions under two authorizations (the Water Resources Development Acts [WRDA] of 1996 and 1999) located along both banks within the lower American River Parkway as well as sections along the Sacramento River. They have been constructed by the U.S. Army Corps of Engineers (Corps) and the former Reclamation Board (now the Central Valley Flood Protection Board) of the State of California, and maintained by the American River Flood Control District (ARFCD).

In March 1996, the Corps and the Board completed the Supplemental Information Report (SIR) and Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) for the American River Project. The SIR was undertaken to develop

supplemental information to the American River Watershed Investigation, April 1991. The SIR evaluated an array of alternatives to provide increased flood control to the Sacramento area. The Chief of Engineers, in his June 27, 1996 report, deferred a decision on a comprehensive flood control plan. However, the Chief did recommend that the features common to all three proposed plans be authorized as the first component of a comprehensive flood control plan for the Sacramento area. Congress authorized these “common features” in WRDA 1996.

Major storms in northern California caused record floodflows in 1986, 1995, 1997, 1998, and 2005 in the American River Basin. Outflows from Folsom Reservoir, together with high flows in the Sacramento River, caused water levels to rise above the safety margin for the levees protecting the Sacramento area. These major storms raised concerns over the adequacy of the existing flood control system, which led to a series of investigations of the need to provide additional protection for Sacramento. Subsequently, further modifications of the American River Common Features Project were authorized in WRDA 1999. Under Section 366 of WRDA 1999 numerous specific modifications to the Common Features Project along the lower American River and in the Natomas Basin were authorized. Those modifications along the lower American River included:

- Raising the left bank of the non-Federal levee upstream of the Mayhew Drain for a distance of 4,500 feet by an average of 2.5 feet.
- Raising the right bank of the American River levee from 1,500 feet upstream to 4,000 feet downstream of the Howe Avenue Bridge by an average of 1 foot.
- Installing gates to the existing Mayhew Drain culvert to prevent backup of flood water on the Folsom Boulevard side of the gates.
- Installing a slurry wall in the north levee of the American River from the east levee of the Natomas East Main Drainage Canal (NEMDC) upstream for a distance of approximately 1 mile.
- Installing a slurry wall in the north levee of the American River from 300 feet west of Jacob Lane north for a distance of about 1 mile to the end of the existing levee.

The project levees in this area of the American River were originally constructed by the Corps in 1955-1956 which coincided with the construction of Folsom Dam. The levees were designed to contain a controlled flow of 115,000 cfs from Folsom Dam. In the early 1950s when these criteria were developed, this dam was expected to provide the Sacramento area with a 250 year level flood protection. Due to additional hydrologic data, it has been determined that the dam will not provide that level of protection. Flood control capacity could be increased if releases of greater than 115,000 cfs were allowed, but the levees on the American River are not capable of handling the greater flow for any extended time period. As a result from continued efforts in levee improvements through the American River Common Features Projects the integrity of the levee system is being increased to handle an increased flow from Folsom Dam.

In 2001 the Corps performed a geotechnical reevaluation on the project area and released its findings in a report titled “American River WRDA 99 Common Features Right Bank Levee Strengthening Near Jacob Lane”. In this report it was determined that the levee in Reach A could not pass an emergency release of 160,000 cfs with 3 feet of freeboard (equivalent to 192,000 cfs) without putting excessive pressure on the levee. This report also noted that the levee in Reach B did not have a sufficient width to provide the necessary structural stability. Similarly, the levee crown was not sufficiently wide enough for levee maintenance and safe flood fighting. The improvements constructed in these reaches helped resolve these problems and bring the levees in the project area up to current standards.

The proposed construction in Reaches A and B was evaluated in the Final Environmental Assessment/Initial Study (EA/IS) for the American River Watershed Common Features Project, California, Lower American River Features as Modified by WRDA 1999, Jacob Lane Levee Improvements, Reaches A and B Elements, July 2008. That document is incorporated here, by reference.

During the period between the approval of the EA/IS for Reaches A and B, and the beginning of construction of Reach B, it was determined that levee safety requirements associated with Corps engineering guidance, that the segment of Reach B adjacent to the Sheriff’s Training Facility, as designed, would not meet these requirements. After Hurricane Katrina, the Corps has undertaken an in-depth scrutiny of policies related to levee design and potential levee safety incursions. In particular, Engineering Technical Letter (ETL) 1110-2-571 Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures, was developed to clarify and better communicate vegetation-management standards. In the case of the Sheriff’s Training Facility, the property line of the facility was located immediately adjacent to the waterside toe of the levee and was defined by a chain link fence and numerous mature trees along the fenceline. As a result, the sections of Reach B, both upstream and downstream of the training facility were constructed as proposed. However, the section adjacent to the training facility was designated as Reach C, and was set aside for further evaluation and availability of funding for construction. The results of that evaluation, and its potential impacts, are the subject of this document.

Both projects at Mayhew (Levee Raise and Drain Closure Structure) and the majority of the work at Jacob Lane have been completed at the time of this writing. The Howe Avenue Project will be constructed in July 2012. The NEMDC Project and the remaining work at Jacob Lane (Reach C Element) are planned for construction in 2013.

1.4 Authority

The proposed levee work is part of the ongoing American River Watershed Common Features project. Authorization for the Common Features project is provided by Section 101 of WRDA 1996 (Public Law 104-303) and Section 366 of WRDA 1999 (Public Law 106-53).

1.5 Purpose of the EA/IS

This EA/IS: (1) describes the existing environmental resources in the project area; (2) evaluates the environmental effects of the alternatives on these resources; and (3) identifies measures to avoid or reduce any effects to less than significant. This EA/IS has been prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1.6 Decisions Needed

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed levee work qualifies for a Finding of No Significant Impact (FONSI) under NEPA or whether an Environmental Impact Statement (EIS) must be prepared. Under NEPA, preparation of an EIS is triggered if a Federal action has the potential to “significantly affect the quality of the human environment” which is based on the context and intensity of each potential impact. Also, the Board must decide if the proposed action qualifies for a Mitigated Negative Declaration under CEQA or whether an EIR must be prepared.

2.0 Alternatives

2.1 Alternatives Eliminated from Further Consideration

The topographic and metropolitan features of the project area limit alternative project options. The project area is situated in a narrow corridor between the American River Parkway and Sacramento area neighborhoods, schools, and other residential features. The purpose of the project is to protect these residential areas from flood damages by improving the levee to meet current Corps standards.

Rather than the slight realignment of the levee, other alternatives that could be considered include setting back the levee in order to widen the flood plain. This alternative is not a feasible option because of the current proximity of the levee to the local residential area. There is currently no land available within the project area for constructing a levee set-back.

Another option includes protecting the residential properties themselves to prevent flood damages. Considering the high population within the flood plain, and the number of houses that would need to be flood-proofed, this alternative is considered extremely costly and was eliminated from further consideration.

2.2 No Action Alternative

Under this alternative, the Corps would not participate in improving the levee in the Reach C. Levee conditions would remain the same and the levees would not meet the current standards in EM 1110-2-1913 for Corps project levees. The north bank levee in Reach C would not be in compliance with current Corps requirements for levee height

and stability to safely pass an emergency release of 160,000 cfs with 3 feet of freeboard (192,000 cfs). In Reach C, there would be limited space on the levee crest in instances of flood fighting and maintenance activities.

2.3 Construct Levee Improvements

This section describes the proposed action at Reach C. This includes a discussion of features, construction details, staging and stockpile areas, borrow and disposal sites, construction workers and schedule, and operation and maintenance of the reach.

Features

The work at Reach C would involve removing approximately 1,385 feet of levee and reconstructing it between 10 feet and 15 feet further landward (Plate 3). The new levee would reflect corrections to the width of the levee (based on 3H:1V slope) and the levee crown that were incorporated into the Reach B construction. These corrections are required in order to meet minimum cross section standards specified in Corps EM 1110-2-1913. A minimum crown width of 20 feet is also needed for levee inspection and flood fighting activities.

Construction Details

Access and Staging. The entrance at Arden Way would provide access at the upstream end of Reach C. Harrington Way would be the primary downstream access, although River Walk Way would also occasionally be used for access at the downstream end of the reach. The staging area for Reach C would be located in an open area just downstream of River Walk Way between the waterside toe of the levee and the Jedediah Smith Recreational Trail (Plate 4). It consists of primarily open grassland with small areas that have been disturbed by human activity. Construction materials, equipment, spoils, and excess material would be stored in the staging area during the construction period. Parking for construction workers would be located 400 feet downstream of the staging area at the Harrington Way River Access Boat Ramp parking lots (Plate 4).

The project haul route would utilize Fair Oaks Boulevard, Arden Way to the levee access point, the top of the levee to Harrington Way, American River Drive, and Jacob Lane back to Fair Oaks Boulevard. The project construction would likely proceed from upstream to downstream, so the haul route would follow a clockwise direction (Plate 5).

Site Preparation. Before the start of construction, all construction areas would be fenced off to limit access, including the staging area. Chain link fencing would be installed on the land side of the project site adjacent to the residential property lines for site safety and security. In the staging area where the bike trail is in the vicinity of the project footprint, concrete barriers or water-filled barriers would be installed along the edge of the trail in order to separate recreationists from the construction area. A 15-foot corridor for construction equipment would be established along both the waterside and landside toes of the levee for most of this reach. This construction corridor would

become the required vegetation-free zones on both sides of the levee. A total of six trees would be removed as a result of the levee realignment: two valley oaks and four non-native trees (two cherry, one pecan and one oak hybrid). The levee realignment would require that four elderberry shrubs along the landside fence would be removed and transplanted and a large elderberry shrub located on the landside of the levee across from the Sheriff's training facility would need to be trimmed. The remaining elderberry shrubs located near the construction corridor would be protected in place with fencing or concrete barriers.

Construction of the realigned levee would require that 3 to 6 inches of the levee crown and both landside and waterside slopes be stripped (cleared and grubbed) of all vegetation and surface material. This would total up to approximately 745 cubic yards (cy) of removed material (340 cy aggregate base/405 cy organic material) and would be disposed by the contractor at a licensed and permitted site, approved by the Corps.

A set of three pipelines formerly used to transport jet fuel from a petroleum facility on the south side of the river to the former McClellan Air Force Base, and beyond, must also be removed prior to levee construction. The pipelines, currently owned by Kinder-Morgan, have been abandoned in place since 1991 and filled with inert gas (nitrogen). The pipelines are located in a small portion of the northwest corner of the Sheriff's Training Facility, cross the levee in a northeasterly direction, and follow the open space on the landside of the levee to Arden Way, and beyond (Plate 6). Approximately 100 lf of the pipelines would be removed in preparation for the realignment of the levee. The removal of the pipelines would require excavating approximately 60 cy of soil, which would be sidecast along the excavation, then replaced after removal of the pipelines. A Phase I Environmental Site Assessment conducted in 2008 indicated that there have been no records of any releases of contaminants in the project area. Once the pipeline has been removed, the Corps would test every 10 feet along the footprint of the pipelines for the presence of contamination. In the event that test results indicate that a leak in the pipelines has resulted in contaminated soil, the Corps would document the locations and provide the information to the County of Sacramento and Kinder-Morgan. Future remediation of any contaminated soil would be the responsibility of Kinder-Morgan. The excavation would be backfilled and compacted to Corps levee standards. Conservatively, up to 60 cy of borrow material may be required to replace the removed pipelines.

Realignment of the Levee. Once the pipelines have been removed, the entire length of the existing levee from River Walk Way to the upstream end of the Sheriff's Training Facility would be removed, down to grade, and placed in the staging area. Approximately 5,400 cy would be moved to the staging area (an average distance of 1,000 feet). Evaluation of the levee indicates that virtually all of this soil is suitable material and would be used for reconstruction of the levee in the new alignment. Once some site preparation steps have been completed, the levee would then be reconstructed to a consistent 20 foot crest for the full length of the reach, using a combination of the excavated soil, and up to 1,000 cy of borrow material: 530 cy to meet levee standards, 405 cy to replace material lost from stripping organic material from side slopes and

approximately 60 cy to replace removed pipelines. The new material would be delivered by dump truck on the top of the levee and then redistributed. The combination of the borrow soil and the excavated material would then be compacted to reform the levee to Corps standards. Once levee construction is completed, approximately 340 cy of aggregate base material would be reinstalled on the levee crown to provide for the maintenance road.

Construction on Reach C is projected for the summer of 2013. The duration of the construction period would be approximately three months. The proposed directional flow of the construction activities is from upstream to downstream.

Restoration and Cleanup. Once the levee work is completed, all equipment and excess materials would be transported offsite via neighborhood streets and regional highways. The barren earthen and levee slopes would be reseeded with native grasses to promote revegetation and minimize soil erosion. Mitigation plantings for any trees that would be removed would be placed in a common mitigation area within the parkway. Compensation plantings associated with the transplanting or trimming of the elderberry shrubs would be placed in a USFWS approved mitigation area within the parkway or at a mitigation bank. The access ramps and staging areas would also be restored to pre-project conditions and reseeded. Any damage to the residential streets and bike trails from construction activities would be repaired. Finally, the work sites and staging areas would be cleaned of all rubbish, and all parts of the work area would be left in a safe and restored condition suitable to the setting of the area.

Borrow and Disposal Sites

The project in this reach would require disposal of up to 745 cy of material from clearing and grubbing. It would also require up to 1,000 cy of borrow material, as described, above. It is reasonable to assume that the material would be acquired from sites along the Highway 50 corridor within 10 to 15 miles of the project site. Similarly, it is assumed that disposal sites for excess materials or spoils would be located within 10 to 15 miles of the project site. The contractor is responsible for determining the location of borrow and disposal sites; however, they must be approved by the Corps.

Construction Workers and Schedule

An estimated 5 to 10 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles at the Harrington Way River Access parking lot. Construction hours would be limited daily to the hours from 6:00 a.m. to 8:00 p.m. Monday through Friday and from 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays. Construction on Reach C is currently scheduled for late summer of 2013. The duration of the construction period should last approximately three months.

Operation and Maintenance

After construction is completed, responsibility for the project would be turned over to the Board, the non-Federal sponsor for the project. This would include operation, maintenance, repair, rehabilitation, and replacement of all project features. The Board would transfer these responsibilities to SAFCA, who would contract with the American River Flood Control District (ARFCD) to operate and maintain the levee. Regular maintenance activities include mowing and spraying the levee slopes, controlling rodents, clearing the maintenance road, and inspecting the levee. All operations and maintenance activities would be conducted consistent with Corps guidance and operations and maintenance manuals.

3.0 Affected Environment and Environmental Consequences

This section describes the environmental resources in the project area, as well as any effects of the alternatives on those resources. The section is arranged by environmental resources. Each resource section presents existing resource conditions, environmental effects, and, when necessary, mitigation measures are proposed to avoid, reduce, minimize, or compensate for any potential significant effects. In determining effects, the consequences of the proposed action are compared to the consequence of taking no action. Impacts are identified as direct, indirect, or cumulative. Cumulative impacts are addressed in Section 5. Effects are assessed for significance based on significance criteria. The significance criteria used in this document are based on the checklist presented in Appendix G of the State CEQA Guidelines; factual or scientific information and data; and regulatory standards of Federal, State, and local agencies.

3.1 Environmental Resources Not Considered in Detail

Initial evaluation of the effects of the project indicated that there would likely be little to no effect on several resources. These resources are discussed below to add to the overall understanding of the project area.

3.1.1 Climate

The climate of the area is characterized by cool, wet winters and hot, dry summers. The average yearly temperature for Sacramento is 61 degrees Fahrenheit (°F) with an average high of 74°F and an average low of 48°F. The hottest months are June through September and the coldest months are November through January (Weatherbase, 2008).

Most of the seasonal rainfall occurs in two or three of the winter months. Precipitation ranges from 16 to 20 inches on the valley floor. Annual precipitation occurs almost entirely during the winter storm season (November to April). The prevailing wind direction in the Lower American River basin is from the south and southeast from April to September and from the north from October to March.

The project would have no effect on the climate in the project area.

3.1.2 Topography, Geology, and Soils

The lower American River area consists of low rolling foothills and flood plain areas near the confluence with the Sacramento River. The floor of the Sacramento Valley is generally flat and open with little natural relief. Flood control levees provide the only significant topographic relief in or near the project area.

Geologic formations underlying the Sacramento Valley include igneous, metamorphic, and sedimentary rock types, which range in age from precretaceous to recent. The valley is situated on vast alluvial deposits that have slowly accumulated over the last 100 million years. The materials have been derived from the surrounding uplands; transported by major streams; and deposited in successive clay, silt, sand, and gravel layers on the valley floor.

The lower American River area is part of the Great Valley Geomorphic province of California. The broad valley was filled with erosion debris that originated in the surrounding mountains. Most soils in the area are recent alluvial flood plain soils consisting of unconsolidated deposits of clay, silt, and sand that occur as flood plain deposits. Fresh alluvium is deposited with each floodflow.

Sedimentation rates in the American River basin and adjacent river basins are relatively low due to limited development, the general shallowness of soils, a low rate of upstream erosion, and numerous containment basins. Sedimentation in the river is also controlled by Folsom and Nimbus Dams. Estimates of the annual sediment yield range from 0.1 to 0.3 acre-feet per square mile. As a result, the channel is in a state of degradation and sedimentation is not causing a reduction in channel conveyance or levee stability. Since the completion of Folsom Dam in 1955, only about 2 percent of the reserved sediment storage space in the reservoir has been filled.

The work proposed in Reach C primarily consists of earth work, as the surface of the levee would be cleared and grubbed of the immediate surface material. All suitable excavated soil material would be reused in the project, and any unsuitable material would be disposed offsite at a commercial landfill. Borrow material would be brought to the site to compensate for the widened levee crown. Areas temporarily disturbed by construction would be returned to pre-project conditions after construction. Barren areas would be seeded with native grasses to reduce the potential for erosion.

The realignment of the levee is not a significant change to the project area topography. The project would have a negligible effect on project area geography. The removal or import of soil material for the levee construction would not significantly affect the soil condition in the project area. The project would not alter flows within the channel, nor would it promote sedimentation downstream. The levee realignment would have no effect on normal river flows, as the project levee in this area is approximately 1,375 feet from the river. The post project levee foot print would add approximately 0.5

acre of area within the floodway and would have a negligible effect on flows even during an emergency release.

3.1.3 Land Use and Socioeconomics

A detailed discussion of socioeconomics (population, housing, and the economy) and land use are presented in the 1996 SEIS/EIR. The project area is located within the Sacramento metropolitan area. The predominant land use in the area is residential, with some commercial, industrial, and public land also included in the project area. The project would not result in any long-term changes in land use or socioeconomics in the area. The residential development adjacent to the levee in both reaches would remain the same, and the staging areas would be returned to pre-project uses after construction.

As directed in Executive Order 12898, all Federal agencies must identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority, or low-income, populations in the project area. All nearby residents would benefit equally from the project.

The construction of the levee improvements would have a minimal impact on land use within the parkway. The realignment of the levee and establishment of the land side and waterside maintenance roads would not require any conversion of parkway land.

3.1.4 Fisheries

Fisheries and fish habitat is associated with the American River and vegetation along its shoreline. The National Marine Fisheries Service has indicated that the Central Valley steelhead and its critical habitat may occur in this area of the American River. Additionally, NMFS has advised the Corps that the proposed project may affect Essential Fish Habitat for the fall/late-fall run Chinook salmon. Construction would take place on the levee crown and the approximate 20-foot area adjacent to the waterside toe of the levee. The closest the American River gets to the project area is approximately 550 feet along the downstream levee haul route. There would be no construction in or near the American River.

The contractor would be required to develop and submit a Storm Water Pollution Prevention Plan (SWPPP) to minimize the potential for soil or contaminants to enter the river. Erosion/sediment controls such as hay bales, straw wattles and silt fencing would be utilized to prevent soil from entering the river. Water trucks would be used to for dust suppression along all areas of disturbed soil and along the haul route on the top of the levee. The contractor would not be allowed to store fuels, lubricants or other potential hazardous substances on site. If equipment is to be refueled on site, the contractor would take measures to avoid and contain any spills. The contractor would be required to develop and submit a Spill Prevention and Countermeasure Plan (SPCP) prior to initiating construction activities. The SWPPP and SPCP must be approved by the Corps.

No riparian habitat would be affected by construction. This project would have no effect on fisheries, fish habitat, or shaded riverine aquatic (SRA) habitat.

3.1.5 Hazardous and Toxic Waste

In June 1997, a Phase I environmental site assessment was conducted for the lower American River. The assessment study area in the lower American River extended from the confluence of the Sacramento River to the G.M. Goethe Park area. Additional information gathered during the 2008 environmental site assessment included a database search and interviews, all of which revealed no apparent HTRW contamination within the project area. There have been no major changes of land use in the project area since these surveys were conducted, therefore, no impacts related to HTRW are anticipated through the construction of this project.

A series of three petroleum (jet fuel) pipelines cross underneath the levee and along the landside of the levee. The pipelines are owned by Kinder-Morgan and they are also the permit-holder. The Corps would remove the pipelines prior to the levee realignment actions as they are a potential future seepage pathway. Once the pipelines have been removed, the Corps would test every 10 feet along the footprint of the pipelines for the presence of contamination. In the event that test results indicate that a leak in the pipelines has resulted in contaminated soil, the Corps would document the locations and provide the information to the County of Sacramento and Kinder-Morgan. Removal of the contaminated soil would be the responsibility of Kinder-Morgan.

3.1.6 Cultural Resources

Cultural resources were evaluated in the EA/IS for the Jacob Lane Project, Elements A&B, July 2008 which included the area designated as Reach C. That evaluation concluded that there are no cultural resources that would be recommended as eligible for listing in the National Register of Historic Places, therefore no mitigation measures are warranted. The project would have no effect on any other known prehistoric or historic resources.

The possibility exists that potentially significant unidentified cultural remains could be encountered during project construction. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find would be halted, and a qualified archeologist would be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR 800.13(b), "Discoveries without prior planning," would be implemented. Data recovery or other mitigation measures might be necessary to mitigate adverse effects to significant properties. Implementation of Mitigation Measure CUL-MM-1, "Compliance with National Historic Preservation Act of 1966, Historic and Archeological Resources Protection Act, and Protection of Historic Properties", would reduce this effect to a less-than-significant level.

3.2 Recreation

Recreation is the first resource considered in detail.

3.2.1 Existing Conditions.

The project area is located along the right bank of the lower American River within the American River Parkway. The American River Parkway consists of a 5,000-acre regional park along the riparian corridor stretching from the confluence with the Sacramento River upstream to Folsom Lake. The Parkway is a valuable regional resource which attracts bicyclists, runners, walkers, horseback riders, and rafters. The Sacramento County Department of Regional Parks (County Parks) is the agency with primary responsibility over the American River Parkway.

The primary recreational feature within the Parkway which could be affected by the project is the Jedediah Smith Recreation Trail, which provides bicycle, pedestrian, and equestrian trails from Discovery Park to Folsom Lake. The trail also connects with the Sacramento River Trail and Old Sacramento State Historic Park, and many people use it to commute by bicycle into Downtown Sacramento. The levee crown is covered with a compacted aggregate base material that is also used for pedestrian recreational activities.

There is one paved access route into the Parkway for recreationists in Reach C: at River Walk Way, which is at the downstream end of the project reach. This access point is also the entrance to the Sheriff's Training Facility. This paved access is not a recreational vehicular access but offers access to pedestrians, bicyclists and emergency and maintenance vehicles, when necessary. This is also the only formal, direct access to Reach C. A secondary access point is located approximately 2,600 feet upstream at the Arden Way entrance to the Parkway and the William Pond Recreation Area. The American River Parkway Foundation Volunteer Center is also located just inside this entrance to the parkway. This one-story, 1,800-square foot building houses the Parkway Foundation's offices, and is used to facilitate volunteer coordination efforts. Some activities provided at this facility include volunteer training workshops, information for Parkway visitors, and meeting space for the nonprofit associations that support the Parkway (ARPF, 2008). Access points are shown on Plate 7.

3.2.2 Environmental Effects

Basis of Significance

Effects to recreational resources are considered significant if construction would result in any of the following:

- Eliminate or severely restrict access to recreational facilities and resources.
- Result in substantial long-term disruption of use of an existing recreation facility.

No Action Alternative

Under this alternative, the levee improvement project would not be constructed, therefore there would be no effects on recreation. The bike trail and levee roads would remain open, and there would be no changes to the project area.

Construct Levee Improvements

Construction of the levee improvements in Reach C would have short-term effects on recreational use in the American River Parkway. The road on the top of the levee between Arden Way and Harrington Way would be closed to pedestrian access during the 2-month construction period. The project would not close access to the American River Parkway, itself; however, construction vehicles would be present in staging areas near the Parkway access point at River Walk Way. Also, the access roads in and out of the Parkway at this location would be used as haul routes for trucks transporting borrow material resulting in increased traffic along the entry routes used by recreationists. At times, traffic control would be necessary for negotiating truck entry to the levee crown with recreationists accessing the Parkway.

The primary impact on recreation would be effects on access to the Jedediah Smith Recreation Trail. There are two locations where the footprint of the construction area would overlap with access to the bike trail: at River Walk Way and Arden Way. In order to allow bike trail access during construction activities, the contractor would use flaggers, combined with signage, to ensure safety during times when trucks are entering and exiting the project area. The section of the bike trail adjacent to the staging area near River Walk Way would have water-filled or concrete barriers near the shoulder of the bike trail in order to avoid equipment or materials from encroaching onto the bike trail.

There would also be a three-day period when the access at River Walk Way would be closed during the initial stages of the project when some site preparation activities are taking place at this end of the reach.

The project would neither adversely affect the resources for which the American River was designated under the Wild and Scenic Rivers Act nor adversely affect the river's free-flowing status. All construction activities would be at least 550 feet away from the river. Implementation of the project would be consistent with the Wild and Scenic Rivers Act.

3.2.3 Mitigation

In order to mitigate for effects to bike trail access, measures would be taken to keep the public informed of the situation. Coordination would be done with local bike groups in order to keep them informed of the effects to the access points, and to ensure the least possible impacts to trail use. To ensure public safety, flaggers, warning signs, and signs restricting access would be posted before and during construction, as necessary. Detour routes would be clearly marked, and fences erected in order to prevent access to the project area.

In areas where recreational traffic intersects with construction vehicles, traffic control would be utilized in order to maintain public safety. Public outreach would be conducted through mailings, posting signs, coordination with interested groups, and meetings, in order to provide information regarding changes to recreational access in and around the Parkway.

Any effects to recreation would be temporary and are considered less than significant with the above mitigation measures.

3.3 Vegetation and Wildlife

3.3.1 Existing Conditions

There are 5 different types of vegetation communities in the project area: ruderal herbaceous, ornamental landscaping, developed areas, riparian forest and scrub, and open water (American River). These communities and associated wildlife are described below. Sensitive native communities are considered native-diverse communities that are regionally uncommon or of special concern to Federal, State, and local resource agencies. The riparian forest and scrub, and open water habitats are considered sensitive native community. Due to their local significance native oak trees are separately addressed.

Ruderal Herbaceous. Ruderal herbaceous community is a native community that occurs in the project area. This community is located on the levee slopes and landside area between the levee and fences of the nearby residential homes. Areas of ruderal herbaceous community also occur in the waterside area between the levee and the American River.

This community is dominated by annual grasses such as ripgut brome (*Bromus diadrus*), wild oat (*Avena fatua*), and forbs including horsetail (*Equisetum hyemale*). Ruderal herbaceous community provides cover and foraging habitat for resident and migratory songbirds, small mammals, and reptiles.

The ruderal herbaceous community within the project area is predominantly limited to the grasses on the waterside slopes of the levee. The grasses occur as a result of restoration from previous levee projects and they are mowed as part of the maintenance program by ARFCD to reduce wildfire danger.

Ornamental Landscape. Ornamental landscape community is a nonnative community that occurs within the project area primarily near residential homes and the police training facility. Most of the vegetation in this community is nonnative vegetation used to landscape lawns, backyards, and recreation fields. Vegetation type, height, and volume are managed by landowners and maintenance personal at the training facility. Some of this vegetation is trimmed by ARFCD while performing maintenance along the landside easement. This community provides nesting, cover, and foraging habitat for residential and migratory songbirds, small mammals, and small reptiles.

Developed Areas. Nonnative communities occur in areas developed for urban use in the project area. Developed areas include sidewalks, roadways, buildings, driveways, parking lots, and recreation trails. This community provides little to no habitat for wildlife, and has little to no vegetation and ground cover.

Riparian Forest and Scrub. Riparian forest and scrub is a native community that occurs in the project area. This community consists of forested areas and underbrush habitat along the American River. This community includes native and nonnative trees, shrubs, vines, and brush in a narrow band along the river.

Open Water. The American River is located 750 to 1,375 feet south of Reach C and is well outside the construction footprint. There are no wetlands in the project area.

Native Oak Trees. The Sacramento County Ordinance, Chapter 19.12, Tree Preservation and Protection (Oak tree ordinance), regulates the removal or disturbance to all species of oak trees native to Sacramento County. These species include valley oak, interior live oak, blue oak, oracle oak, and black oak. The ordinance applies to any native oak tree, and there are two native oak trees immediately within, or adjacent to the project area. Typically, only trees 6 inches in diameter at breast height (dbh), or greater, are protected.

3.3.2 Environmental Effects

Basis of Significance

A project would significantly affect vegetation and wildlife if it would: (1) significantly reduce the amount of native vegetation and wildlife habitat in the project area to a point that native wildlife could not live or survive in the project area, or (2) permanently remove or disturb sensitive native communities.

No Action

Under the no action alternative, the levees in both reaches would continue to be maintained by local levee maintenance districts. Maintenance activities typically include mowing and spraying the levee slopes to regulate vegetation growth. Under this

alternative the proposed project would not be built. There would be no change to the native vegetation or wildlife in the project area.

Construct Levee Improvements

A site visit was conducted on March 2, 2012 to determine impacts to vegetation as a result of the establishment of the construction corridor along the current waterside and landside levee toes. At that time, it was determined that construction activities within the project corridor could require the removal of two valley oak trees and four non-native trees (two cherry, one pecan and one oak hybrid) with a total of 75 inches (dbh). Implementation of the project would also require removal of 5 elderberry shrubs and the trimming of another.

Tree trimming and removal would be conducted by a certified arborist. Impacts related to removal of two oak trees would be less than significant with the implementation of mitigation discussed below.

3.3.3 Mitigation

The potential removal of up to six trees would require plantings of oaks and sycamores as mitigation. Mitigation is expected to be inch for inch and one gallon size trees (1/4 inch) are typically planted. At this ratio, the removal of the six trees would require 300 oak and sycamore plantings. The potential impacts and their associated mitigation could be minimized by protection in place measures implemented by the contractor during construction. Mitigation plantings for any trees that would be removed would occur in a common mitigation area within the parkway, possibly an existing mitigation site (Goethe or Rossmoor). This approach would maximize survival rates of the plantings as it would consolidate maintenance and irrigation. Impacts to trees and other habitats would be addressed under the Fish and Wildlife Coordination Act. A draft Coordination Act Report (CAR) providing mitigation recommendations has been provided by the USFWS (Appendix D). Conservation measures to specifically address impacts to elderberry shrubs are described in section 3.4.

With mitigation, impacts related to removal of two oak trees would be less than significant.

3.4 Special Status Species

3.4.1 Existing Conditions

Regulatory Setting

Certain special status species and their habitats are protected by Federal, State, or local laws and agency regulations. The Federal Endangered Species Act (FESA) of 1973 (50 CFR 17) provides legal protection for plant and animal species in danger of extinction. This act is administered by the United States Fish and Wildlife Service

(USFWS) and the National Marine Fisheries Service (NMFS). The California Endangered Species Act (CESA) of 1977 parallels FESA and is administered by the California Department of Fish and Game (CDFG). Other special status species lack legal protection, but have been characterized as “sensitive” based on policies and expertise of agencies or private organizations, or policies adopted by local government. Special status species are those that meet any of the following criteria:

- Listed or candidate for listing under the Federal Endangered Species Act of 1973 (50 CFR 17).
- Listed or candidate for listing under the California Endangered Species Act of 1977.
- Listed birds (including their nests) under the Migratory Bird Treaty Act.
- Species listed in the Bald and Golden Eagle Protection Act.
- Fully protected or protected species under stated DFG code.
- Wildlife species of special concern listed by the DFG.
- Plant species listed as Rare under the California Native Plant Protection Act.
- Plant species listed by the California Native Plant Society.
- Species protected by local ordinances such as the Sacramento County Ordinance, Chapter 19.12, Tree Preservation and Protection.
- Species protected by goals and policies of local plans such as the American River Parkway Plan, which includes anadromous and resident fishes, as well as migratory and resident wildlife.
- Essential Fish Habitat listed under the Magnuson-Stevens Act. Essential Fish Habitat is defined in the Magnuson-Stevens Act as “. . . those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The act requires that Federal agencies consult with the National Marine Fisheries Service when any activity proposed to be permitted, funded, or undertaken by a Federal agency may have adverse effects on designated Essential Fish Habitat.

3.4.2 Special Status Species Evaluation

A list of Federally-listed and candidate species, and species of concern that may be affected by projects in USGS quads Carmichael and East Sacramento was obtained on March 20, 2012 via the USFWS website. In addition, a search of the California Natural Diversity Database (CNDDDB) conducted on the same date indicated that there were no reported occurrences of the Federal or State listed species in the project reach. The USFWS and CNDDDB lists are included in Appendix A. However, elderberry shrubs (*Sambucus sp.*) were identified within the reach. Although the site is not designated as critical habitat for the valley elderberry longhorn beetle (*Desmoceros californicus dimorphus*) (VELB), the shrubs are the sole host plant for the beetle. Staff from USFWS and the Corps conducted an elderberry survey on March 2, 2012.

Special status species that were not identified as occurring or having habitat in the project area are not discussed further in this document. The following Federal and State listed special status species were identified as having the potential to occur in the vicinity of the project area and be impacted by construction activities:

- Valley elderberry longhorn beetle (Federal Threatened);
- Swainson's Hawk (State Threatened);
- Central Valley steelhead (Federal Threatened) and Critical Habitat.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is endemic to the riparian habitats in the Sacramento and San Joaquin Valleys where it resides on elderberry (*Sambucus* spp.) plants. The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield (USFWS, 1984). The beetle is a pith-boring species that depends on elderberry plants during its entire life cycle. Throughout its range, the beetle is estimated to inhabit only about 10 percent of all suitable elderberry shrubs. Although a recent review of the beetle's status by the USFWS recommends the species for delisting, such action has not yet been finalized.

The Parkway, with an abundance of elderberry shrubs in a well-connected corridor, provides both designated critical habitat and essential high quality habitat for the VELB. During the implementation of the previous Jacob Lane projects approximately 36 elderberry shrubs were identified along Reaches A & B during biological surveys conducted on March 31 and April 4, 2008. A total of 5 shrubs were removed and transplanted for that phase of the project. During the March 2, 2012 survey, six elderberry shrubs were identified within the project reach. These shrubs were previously surveyed during the earlier project efforts, however, they were not impacted as this section of Reach B was avoided. Those survey results are also shown at Appendix A. It is assumed that many more elderberry shrubs exist in this section of the parkway, however only those shrubs located within 100 feet of the project area were surveyed. The project area is not located within critical habitat.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. Swainson's hawks breed in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Swainson's hawks breed in California and over winter in Mexico and South America. Swainson's hawks usually arrive in the Central Valley between March and April (beginning of nesting season) and typically leave their nests in August or September. They migrate south between September and October. Swainson's hawk nests usually occur in trees near the

edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Valley oaks, Fremont cottonwoods, walnuts, and large willows with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Suitable foraging areas for Swainson's hawks include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Swainson's hawks primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects.

The project area and vicinity lack preferred foraging habitat for Swainson's hawk and it is unlikely that they would nest in the project area. There are no recorded Swainson's hawk nests in the vicinity of the project area. However, a Swainson's hawk was sighted in flight, in the vicinity of the project area during recent surveys.

Central Valley Steelhead

Central Valley steelhead (*Oncorhynchus mykiss*) and its critical habitat occur along the American River. The project reach (approximately 1,385 feet) combined with connecting access/haul routes and staging area make up approximately 6,000 feet along the American River. The project is no closer than 550 feet from the river.

3.4.3 Environmental Effects

Basis of Significance

Adverse effects on special status species were considered significant if an alternative would result in any of the following:

- Direct or indirect reduction in the growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Acts.
- Direct mortality, long-term habitat loss, or lowered reproduction success of Federally- or State-listed threatened or endangered animal or plant species or candidates for Federal listing.
- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, species of special concern, or regionally important commercial or game species.
- Have an adverse effect on a species' designated critical habitat.

No Action Alternative

Under the no action alternative, there would be no effects on existing special status species or critical habitat. The types of special status species and their associated

habitat would remain the same. Current levee maintenance, recreation, and public activity would not change. The effects of these activities on special status species and their associated habitat would be the same.

Construct Levee Improvements

Construction of the realignment of the levee at Jacob Lane C would directly and indirectly affect the habitat (elderberry shrubs) of the Federally-listed VELB. The project could also result in direct and indirect affects to Swainson's hawk. These effects could be considered significant to these special status species. The project could have an indirect effect on the Central Valley steelhead and its critical habitat.

Effects to Valley Elderberry Longhorn Beetle. Construction activities at Jacob Lane Reach C would potentially result in direct and indirect affects to several elderberry shrubs. Direct effects would include removal or damage of the plants during site preparation and construction activities. Indirect effects would include physical vibration and increase in dust during operation of equipment and trucks during construction activities.

The construction activities at Reach C would require the removal of petroleum (jet fuel) pipelines, degrading the levee, and reconstruction of the levee in a new alignment 10 to 15 feet further landward. Prior to construction, vegetation that would be located within the realigned levee footprint (to include vegetation-free zones) or within the projected footprint of the pipeline removal effort would be evaluated for removal. The vegetation, primarily on the landside of the levee, would include up to six trees and four elderberry shrubs. Removal of the pipelines is necessary to eliminate potential future sources of seepage within the levee. In the event that leakage had occurred from the pipelines, a contingency plan has been developed to complete the cleanup of the contaminated soil. Once the pipeline removal has been completed, the excavated soil would be replaced and compacted to previous grade.

The levee realignment would require removing approximately 1,385 feet of the existing levee to grade, excavating the foundation for the levee in the new alignment, and rebuilding the new levee. Degraded material from the existing levee and the foundation excavation for the new levee would be placed in the staging area just downstream of River Walk Way.

Staff from USFWS and the Corps conducted an elderberry survey on March 2, 2012. Reach C has a total of six elderberry shrubs. It is anticipated that five of the shrubs would be removed as a result of activities related to the removal of the pipelines and the realignment of the levee; the sixth shrub would require trimming of one stems/branches. During a site visit on March 2, 2012, staff from USFWS and the Corps surveyed the elderberry shrubs identified for removal and trimming. The survey indicated that there a total of five stems greater than 1 inch and less than three inches in diameter, one stem greater than three inches and less than five inches in diameter, and four stems

greater than five inches in diameter. The shrubs are not considered in a riparian area and no exit holes were observed during the survey.

The sixth, and remaining, elderberry shrub in the levee realignment section is located on the landside of the levee and is growing adjacent to the fenceline of a residence. This specimen is extremely large, with some stems resembling the trunks of a mature tree. Due to the levee work being conducted on the landside in this section, this shrub would be directly impacted by the placement and movement of the equipment. This shrub would require trimming of one stem greater than 5 inches in diameter. It would also not be possible to observe the 20-foot minimum buffer zone in this situation. Although no exit holes have been identified on this shrub, a male VELB was observed on this shrub during a site visit on April 28, 2008. As a result, this shrub would not be trimmed until the VELB have entered their dormant season (November 15 through February 15). The trimming would be conducted by a certified arborist, with a qualified biologist on hand for consultation. The five shrubs identified for removal would be transplanted to a USFWS approved site during the dormant season.

Elderberry shrubs identified in the vicinity of the staging area were not surveyed, however, they would be protected in place with water-filled barriers. The barriers would protect the shrubs from damage by the equipment, as well as from soil that may slide down the slope of piles of staged soil. The barriers/fencing would be placed as far from the dripline of the shrubs as possible, however, it is likely that the 100-foot buffer zone would not be able to be met in all cases. The USFWS has determined that protection established at a distance of 20 feet would be sufficient to provide protection to the shrubs nearest to the staging area.

Effects to Swainson's Hawk. No Swainson's hawk nests are known to occur in the vicinity of the project area. However, construction of the Jacob Lane C levee realignment could potentially result in direct and/ or indirect affects to Swainson's hawk if this species begins nesting in or adjacent to the project area prior to construction. Construction activities in the vicinity of a nest have the potential to result in forced fledging or nest abandonment by adult hawks.

Effects to Central Valley Steelhead. This section of the American River is considered Critical Habitat for the Central Valley steelhead. Due to the distance of the project from the American River (no closer than 550 feet), the construction of the Jacob Lane levee improvements could only have indirect effects on the Central Valley steelhead or its Critical Habitat. No riparian habitat or SRA would be removed. No trees at, or near, the banks of the river would be removed. Only the potential of fugitive dust or construction runoff that could reach the river would result in indirect effects. This would be minimized through mitigation measures proposed under Air Quality (Section 3.5.3) and Water Quality (Section 3.6.3). The project construction is not likely to adversely affect the Central Valley steelhead.

3.4.4 Mitigation

Valley Elderberry Longhorn Beetle Mitigation

Consultation under Section 7 of the Endangered Species Act has been initiated with the USFWS to assess potential impacts and required compensation. The Corps has requested concurrence from USFWS with the determination that potential project impacts may affect, but are not likely to adversely affect, the VELB. The Corps has also proposed compensation for the loss of five elderberry shrubs and the trimming of another. This would require transplanting the affected elderberry shrubs during the dormant period before construction, and planting of 19 elderberry seedlings and 19 associated native plantings. Transplants and compensation plantings would be proposed at an existing mitigation site, such as Goethe or Rossmoor. However, if adequate space is not available at existing mitigation site, a USFWS-approved mitigation bank would be used. To avoid potential take of the VELB, the following measures taken from USFWS's "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999 would be incorporated into the project:

- A minimum setback of 20 feet from the dripline of all elderberry shrubs would be established, if possible. If the 20-foot minimum buffer zone is not possible, the next maximum distance allowable would be established. This area would be fenced, flagged and maintained during construction.
- Environmental awareness training would be conducted for all workers before they begin work. The training would include status, the need to avoid adversely affecting the elderberry shrub, avoidance areas and measures taken by the workers during construction, and contact information.
- Signs would be placed every 50 feet along the edge of the elderberry buffer zones. The signs would include: "This area is the habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be readable from a distance of 20 feet and would be maintained during construction.

The proposed mitigation measures would reduce the effects on the VELB to less than significant.

Swainson's Hawk Mitigation

Construction would be timed to occur outside of the breeding season (March to August) to avoid destruction of active bird nests or young of birds that breed in the area. If this is not feasible, a qualified biologist would survey the project area and all areas within one-half mile of the project prior to initiation of construction. If the survey determines that a nesting pair is present, the Corps would coordinate CDFG, and the proper avoidance and minimization measures would be implemented. To avoid potential

effects to nesting Swainson's hawks, CDFG typically requires the avoidance of nesting sites during construction activities. These measures include avoiding construction during the breeding season and monitoring of the nest site by a qualified biologist.

The proposed mitigation measures would reduce the effects on the Swainson's hawk to less than significant.

Central Valley Steelhead Mitigation

The mitigation measures to be implemented under Water Quality (Section 3.6.3) would also serve to mitigate the potential indirect effects to the Central Valley steelhead. With implementation of the proposed mitigation measures the project would have no effect on the Central Valley steelhead.

3.5 Air Quality

3.5.1 Existing Conditions

Regulatory Background

The Federal Clean Air Act establishes National Ambient Air Quality Standards (AAQS) and delegates enforcement to the states, with direct oversight by the U.S. Environmental Protection Agency (EPA). In California, the Air Resources Board (CARB) is the responsible agency for air quality regulation.

The California Clean Air Act established California AAQS. These standards are more stringent than Federal standards and include pollutants not listed in Federal standards. All Federal projects in California must comply with the stricter State air quality standards. The Federal standards and local thresholds for Sacramento County are shown in Table 1.

On November 3, 1993, the U.S. EPA issued the General Conformity Rule, stating that Federal actions must not cause or contribute to any violation of a National AAQS or delay timely attainment of air quality standards. A conformity determination is required for each pollutant where the total of direct and indirect emissions caused by a Federal action in a nonattainment area or maintenance area exceeds *de minimus* threshold levels listed in the rule (40 CFR 93.153).

Table 1. Air Emission Thresholds for Federal and Local Criteria Pollutants

Criteria Pollutant	Federal Standard (tons/year)	SMAQMD Threshold (lbs/day)
NO _x	25**	85
CO	100	*
SO	100	*
PM ₁₀	100	*
ROG	25**	*

NO_x = nitrogen oxides

PM₁₀ = particulate matter

CO = carbon monoxide

ROG = reactive organic gases

SO = sulfur oxides

* = default to State standard

** = rates for “severe” Federal nonattainment areas [Federal Register (40 CFR), 1993]

SMAQMD = Sacramento Metropolitan Air Quality Management District

Source: SMAQMD, 2010

Local Air Quality Management.

The Sacramento area is included in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is included in the Sacramento Federal Ozone Nonattainment Area (SFNA) and is also subject to regulations, attainment goals, and standards of the U.S. and California EPA’s. The U.S. EPA General Conformity Regulation requires that “serious” designated nonattainment areas further reduce nitrogen oxides (NO_x) and reactive organic gases (ROG) thresholds to 50 tons/year rather than 100 tons/year. On February 14, 2008, CARB, on behalf of the air districts in the Sacramento region, submitted a letter to EPA requesting a voluntary reclassification (bump-up) of the SFNA from a “serious” to a “severe” 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019, and additional mandatory requirements. On May 5, 2010 EPA approved the request effective June 4, 2010 (SMAQMD, 2011). The SFNA is thus designated a “severe” nonattainment area for the National 8-hour AAQS for ozone.

With respect to the State and Federal 24-hour particulate matter 10 microns or smaller in diameter (PM₁₀) AAQS, Sacramento County is designated as a nonattainment area. Additionally, on October 16, 2006, the EPA promulgated a new 24-Hour standard for PM_{2.5}. This change lowered the daily standard from 65µg/m³ to 35µg/m³ to protect the general public from short term exposure of the fine particulate matter. Sacramento does not meet the new standards (EPA, 2007). The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the State AAQS by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

Sources of Pollutants/Sensitive Receptors. The main sources of emissions contributing to elevated ozone and PM₁₀ concentrations in this area of the Sacramento Air Basin are vehicular emissions and airborne pollutants from road dust and plowing of fields. Light industry and emissions from recreational boaters and Sacramento Executive Airport also contribute to reduced air quality in the region. Sensitive receptors in the project area include residents and wildlife.

3.5.2 Environmental Effects

Basis of Significance

A project would significantly affect air quality if it would: (1) violate any ambient air quality standard; (2) contribute a long-term basis to existing or projected air quality violation; (3) expose sensitive receptors to substantial pollutant concentrations; or (4) not conform to applicable Federal and State standards, and local thresholds on a long-term basis.

No Action

Under the no action alternative, the project would not affect air quality in the project area. Air quality would continue to be influenced by climatic and geographic conditions, local and regional emissions from vehicles, and local commercial and industrial land uses. However, air quality is expected to improve in the future. The CARB and the SMAQMD will be implementing stricter ozone precursor and PM₁₀ standards.

Construction of Levee Improvements

Emissions associated with the project would be short-term during construction. Combustion emissions would result from the use of construction equipment, truck haul trips to and from commercial sources and disposal sites, and worker vehicle trips to and from the work areas. Exhaust from these sources would contain ROG, carbon monoxide (CO), NO_x, PM₁₀ and PM_{2.5}. Exhaust emissions would vary depending on the type of equipment, the duration of use, and the number of construction workers and haul trips to and from the construction site. Fugitive dust would also be generated during disturbance of the ground surfaces during construction.

The Road Construction Emissions Model, Version 6.3.2, was used to calculate project air emissions as it applies to linear construction activities such as levee construction and repair activities. The road construction model was used to estimate project emission rates for ROG, CO, NO_x, PM₁₀ and PM_{2.5}. The estimated equipment to be used, volume of material to be moved, and disturbance acreages were compiled to determine the data to input into the emissions model. The emission calculations are based on standard vehicle emission rates built into the model. Details and results of the calculations for Reach C are provided in Appendix B. The estimated emissions are shown in Table 2.

Table 2. Estimated Air Emissions for Jacob Lane Reach C (lbs/day)

	ROG	CO	NO_x	PM₁₀	PM_{2.5}	CO₂
Total emissions (lbs/day)	4.9	46.5	27.0	11.1	3.1	3,944.4
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
Total (tons/construction project)	0.1	1.1	0.7	0.3	0.1	85.5
Federal standards (tons/year)	25	100	25	100	N/A	N/A

Note: Estimates rounded.

Table 2 summarizes the combined estimated emissions (in pounds per day, total tons for the project and total tons per year) for the project and compares them to the Federal standards and local thresholds. The results show that no emissions would exceed the Federal standards or the SMAQMD threshold.

The table also shows that construction emissions of PM₁₀ and ROG would each be less than the *de minimis* thresholds established by the U.S. EPA for conformity analyses. In addition, the best management practices (BMPs) listed in Section 3.5.3 would be implemented to further reduce the NO_x emissions below the Federal standard. As a result, the proposed action does not require an in-depth conformity analysis to evaluate ambient air quality concentrations and instead is presumed to conform to the region's ozone State implementation plan. Thus, the Corps has determined that the proposed action is exempt from the conformity rule.

The project would not contribute on a long-term basis to existing or projected air quality violations, or expose sensitive receptors to substantial pollutant concentrations. Air quality impacts related to implementation of the project would be less than significant.

3.5.3 Mitigation

Implementation of the BMPs listed below would reduce air emissions and ensure that the project emissions would remain at less than significant levels. Since there would be no significant effects on air quality, no mitigation would be required.

- Maintain properly functioning emission control devices on all vehicles and equipment.
- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts.
- During construction, implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner.
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains.

- Suspend all grading, earth moving, or excavation activities when winds exceed 20 miles per hour.
- Water or cover all material transported offsite to prevent generation of dust.
- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust.
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies.
- Revegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

Prior to construction, the contractor must submit for a permit with SMAQMD. The permit requirements include submitting a list of equipment to be used on the project, and a plan indicating how the activities would, or would not, meet agency standards. When the project air emissions calculations indicate that the project would not meet SMAQMD thresholds, the contractor would be required to follow the requirements of SMAQMD's standard mitigation program (Appendix B) which is intended to reduce NOx emissions by 20 percent. Any remaining emissions over the NOx threshold should be reduced via a mitigation fee payment. The cost of reducing one ton of NOx as of September 1, 2011 is \$16,640 (\$8.32/lb) (SMAQMD, 2011). On March 30, 2012, CARB announced its revised rate, which is \$17,080 (\$8.54/lb). This revised rate would apply to all environmental documents released for public review on or after July 1, 2012. The contractor would be responsible for payment of any required mitigation and administrative fees.

3.6 Climate Change

3.6.1 Environmental Setting

Warming of the climate system is now considered to be unequivocal (IPCC, 2007). Global average surface temperature has increased approximately 1.33 °F over the last 100 years, with the most severe warming occurring in the most recent decades. In the 12 years between 1995 and 2006, 11 years ranked among the warmest years in the instrumental record of global average surface temperature (going back to 1850). Continued warming is projected to increase global average temperature between 2 and 11 °F over the next 100 years (IPCC, 2007).

The causes of this warming have been identified as both natural processes and as the result of human actions. Increases in greenhouse gas (GHG) concentrations in the Earth's atmosphere are thought to be the main cause of human induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space. The six principal GHGs of concern are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons, and perfluorocarbons.

3.6.2 Requirements

CEQA requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. CEQA requires that the cumulative impacts of GHG, even additions that are relatively small on a global basis, need to be considered.

NEPA requires that a “no action” alternative be established. Under the no action alternative, the project would not be constructed, and there would be no construction-related effects on climate change. Locally generated emissions, including levee operations and maintenance, would continue. However, the possible event of levee failure may result in large amounts of GHG emissions during flood-fighting activities, as well as large amounts of emissions resulting from clean-up activities and the repair and/or replacement of flood damaged housing, commercial and industrial properties, and public infrastructure.

3.6.3 Basis of Significance

It is unlikely that any single project by itself could have a significant impact on the environment. However, the cumulative effect of human activities has been linked to quantifiable changes in the composition of the atmosphere, which in turn have been shown to be the main cause of global climate change (IPCC, 2007). The Department of Water Resources has not established a quantitative significance threshold for GHG emissions; instead, each project is evaluated on a case by case basis using the most up to date calculation and analysis methods. The proposed project could result in a significant impact if it would generate GHG emissions:

- Either directly or indirectly, that may have a significant cumulative impact on the environment;
- That would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs, including the state goal of reducing GHG emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.

3.6.4 Greenhouse Gas Emissions

Construction Emissions

Vehicle Emissions. The proposed construction would use large, diesel-fueled construction vehicles during all phases of the project. The degrade and realignment of the levee would result in emissions from bulldozers and graders, as well as emissions from the haul trucks used to move the material to, and from, the staging area.

In addition to the construction vehicles, mixers, and haul trucks involved in the actual construction of the project, there would also be GHG emissions from the workforce vehicles. Workers would commute from their homes to the construction site and park in the staging area. Workers are assumed to commute no further than 20 miles from the construction site. During construction, there may be times during which large construction vehicles on the roads slow regular traffic patterns, increasing emissions from vehicles that use the roads on a regular basis. There would also be incidental emissions from the electricity used for lighting.

Operational Emissions. The long-term operations and maintenance of the project sites would remain the same with or without project conditions. Current operations and maintenance involves the periodic mowing and spraying of the levee slopes for fire danger control. While the project does not improve operation maintenance efficiency, the project would also not increase emissions due to operations and maintenance. Additionally, the construction of the project would reduce the possibility of large amounts of GHG emissions from flood-fighting activities in the event of levee failure.

Emissions Models

In response to the concerns regarding greenhouse gas emissions, the most recent version of the SMAQMD Road Construction Emissions Model (v. 6.3.2) now generates an output for CO₂. The SMAQMD Road Construction Emissions Model 6.3.2 was based on knowledgeable individuals from SMAQMD, the California Department of Transportation, CARB, and the U.S. EPA. The emissions model was prepared by Jones & Stokes and Rimpco and Associates, Inc., and used the 26th edition of Walker's Building Estimator's Reference Book (1999).

As shown in Table 2 (Section 3.5.2), estimated CO₂ emissions for Jacob Lane Reach C would total approximately 3,944.4 lbs/day or approximately 719.9 tons of CO₂ per year. It should be noted that although CO₂ emissions can now be calculated, there is no Federal standard, or any State or local threshold, to meet, which makes it difficult to fully analyze.

The CEQA Climate Change Committee has created a guidance document for GHG emissions calculations. This document requires data entry related to construction equipment, workforce transportation, materials transportation, and maintenance and operational emissions. According to this calculator, the total emissions of GHGs for Jacob Lane Reach C would be approximately 255.3 tons of CO₂ equivalents (CO₂e). Details and results of the calculations are provided in Appendix B. While the data entered on this form is based on assumptions and estimates, the amounts of CO₂e can be used to determine significance according to CEQA.

3.6.5 Significance Determination

The construction at Jacob Lane Reach C is a relatively small, short-term project and emissions from construction vehicles would occur during a short time period. Using

the emissions model and calculations previously discussed in Air Quality (Section 3.5.2), CO₂ emissions are estimated to be 85.5 English tons/77.7 metric tons for the project. Additionally, the CEQA Climate Change Committee GHG emissions calculator estimates total project emissions to be approximately 255.3 tons of CO₂e. The disparity between the two models appears to be how the GHG model addresses haul truck hours, work truck hours, and site maintenance emissions.

No state or Federal agency has yet established significance criteria (thresholds of significance) for GHG or other impacts to global climate change. However, some statewide standards have been established that provide information about the order of magnitude of emissions that might be considered significant. Pursuant to AB 32, CARB mandates that only “large” facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of CO₂e per year report their GHG emissions. In addition, CARB has released a preliminary draft staff proposal that recommends 7,000 metric tons of CO₂e per year be used as the baseline threshold for impacts. It is not the intention of USACE to adopt a 25,000 or 7,000 metric ton CO₂e threshold of significance; these figures are only listed to provide context to the scale of the emissions from the proposed project.

There would be no increase of long-term emissions (permanent sources) of GHGs from this project. Long-term emissions would be the same with or without the project; maintenance emissions would be the same, and the realignment of the levee has no net long-term emissions. Based on the review discussed above, this project does not conflict with any statewide or local goals with regard to reduction of GHG.

3.6.6 Mitigation Measures

BMPs and implementation of the standard construction mitigation measures as recommended by SMAQMD (Appendix B) would reduce GHG emissions through the same processes that reduce total NO_x and PM₁₀ emissions. These measures are described in Appendix B.

3.7 Water Resources and Quality

3.7.1 Existing Conditions

The Sacramento metropolitan area is situated at the confluence of the American and Sacramento River in a low-lying flood basin. Levees along these rivers provide flood protection and convey water from the Sierra Nevada to the Sacramento-San Joaquin Delta. Winter rains and spring snow melt can cause high flows in the valley’s rivers. High river flows stress levees and berms, weakening them, causing them to erode, and possibly fail. To maintain the flood control system, areas with existing or potential erosion and seepage damage are identified and repaired.

The American River is the major waterway in the project area. The river flow is influenced by upstream dams, local weather, spring snow melt, flood bypasses, and

upstream tributaries. Folsom and Nimbus Dams have the greatest effect on water flow in this section of the river. The mean water level for the American River at the confluence of the Sacramento River was 20.44 feet in 2007. The maximum water level of the American River was 33.54 feet and the minimal water level was 16.75 feet at the confluence in 2007 (DWR, 2012a).

American River water quality is affected by storm water runoff, water diversion, and surrounding land uses. The water quality tends to degrade as the river leaves the Sierra Mountains and flow through the Central Valley into the Sacramento-San Joaquin Delta. Water quality studies by U.S. Geological Survey determined that urban runoff from the metropolitan area of Sacramento is a potential source of contaminants that enter the lower Sacramento River. Contamination by volatile organic compounds, especially contamination of ground water, can occur in any large urban setting. (Domagalski, Joseph 2007).

The local rivers, lakes, and rainfall recharge the ground water table in the project area. The City of Sacramento utilizes the ground water to supply drinking water to businesses and residential homes. The ground water table is approximately 75 feet below the surface. Average ground water depth can be affected by seasonal changes in water volume in the valley rivers and lakes, local rainfall, and urban demand on the ground water (DWR, 2012b).

3.7.2 Environmental Effects

Basis of Significance

A project would significantly affect water resources if it would: (1) result in the loss of a surface or groundwater source; or (2) interfere with existing beneficial uses or water rights.

No Action

Under this alternative, there would be no construction activity to affect water resources or quality in the project area. The surface and groundwater conditions would not change.

Construct Levee Improvements

Levee realignment would overlap the current levee alignment. The closest the American River gets to the construction limit in Reach C is approximately 550 feet. The completed levee improvements would not significantly alter the alignment of the current levee nor would they provide for any additional flow capacity beyond the current design requirements. The improvements would stabilize the levees in this section of the levee system to safely convey an emergency release of 160,000 cfs with 3 feet of freeboard. The improvements would not alter the river hydraulics nor would they alter the downstream capacity of the levee system, primarily due to the exterior levee surrounding

the Sheriff's Training Facility. The sections of the levee system on the American River immediately upstream and downstream of the project reach are already capable of safely conveying an emergency release of 160,000 cfs with 3 feet of freeboard.

Approximately 1,385 total linear feet of bare soil would be exposed until construction is completed and the levee slopes are reseeded. Dust control measures would be implemented on the levee crown, side slopes, maintenance roads and stockpiles to prevent dust and soil from entering the river or other drainages as a result of construction activities. Precautions would be followed to avoid erosion and movement of soils into the drainage system.

In addition, inadvertent spills of oil or fuels from construction equipment could be a source of contamination at work or staging areas. Precautions would be followed to prevent contamination. The contractor would be required to properly store and dispose of any hazardous waste generated at the site. Riparian vegetation and BMPs would prevent sediment and erosion runoff from entering the river.

As the removal of the pipelines degrading of the levee and construction of the realigned levee would only have shallow disturbance (5 to 8 feet deep), there would be no impacts to groundwater. The project would have no impacts to water rights. Water quality impacts related to implementation of the project would be less than significant.

3.7.3 Mitigation

Since the project would disturb more than 1 acre of land, the contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), identifying BMPs to be used to avoid or minimize any adverse effects during construction to surface waters.

The following BMPs would be incorporated into the project:

- The contractor would prepare a spill control plan and a SWPPP prior to initiation of construction. The SWPPP would be developed in accordance with guidance from the RWQCB, Central Valley Region. These plans would be reviewed and approved by the Corps before construction began.
- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.

- Fuel and maintain vehicle in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Regularly inspect and maintain vehicles and equipment to prevent dripping of oil or other liquids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities could begin in the summer of 2013. If rains are forecasted during construction, erosion control measures would be implemented as described in the RWQCB Erosion and Sediment Control Field Manual.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in stormwater pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse affects to groundwater or surface water resources are anticipated, no additional mitigation is required.

3.8 Traffic and Circulation

3.8.1 Existing Conditions

Streets in the project area consist primarily of minor residential streets maintained by Sacramento County. City sidewalks are located on each side of the residential streets, which are used by local residents. The American River Parkway provides recreation trails used for pedestrian traffic (running and walking), horseback riding, and bicycling, located throughout the project area.

Roadways that are landside and parallel to Reach C include: McClaren Drive, Sandbar Circle, and Sherlock Way. Streets that cross or end at the levee include Arden Way, River Walk Way, Harrington Way, and Jacob Lane. These are two-lane streets in the project area. Harrington Way and Arden Way cross the levee and end at an American River Parkway parking lot on the waterside of the levee. River Walk Way crosses the levee and connects the nearby Sheriff's Training Facility with Sandbar Circle. The smaller residential roads connect neighborhoods to major urban connector roads. Traffic on the residential streets includes private automobiles and bicycles. Traffic on the residential roads tend to be light throughout the day with a peak during the morning and evening rush hour.

The nearest major road to the project area is American River Drive. This roadway is a major, four-lane urban roadway that connects local residential and commercial areas to state highways and other parts of the metropolitan area. American

River Drive is outside of the project area but would be used to access the project area during construction. Types of traffic on American River Drive include private automobiles, light commercial vehicles, emergency vehicles, public buses, and bicycles. Traffic volume on American River Drive peaks during the morning and evening rush hour and becomes a steady but lower volume during the day.

Pedestrian traffic is low during the day and peaks in the early evening. Pedestrian traffic is the highest near Rio Americano High School. Recreation traffic in the American River Parkway and levee bicycle trail is the highest in the early evening till dusk. The American River Parkway trail is a paved two-lane bike trail. The levee trail is a gravel road on top of the levee.

Sacramento County posts traffic counts on their web site for roadways in the project area. Traffic count at McClaren Drive and Arden Way is 2,233 cars per day, 6,156 cars per day at Jacob Lane and Fair Oaks Boulevard, and 6,610 cars per day at American River Drive and Saverien Drive (Sacramento County, 2007).

3.8.2 Environmental Effects

Basis of Significance

The project would have a significant affect on traffic if it would: (1) cause an increase in traffic volume that is substantial in relation to the existing load and capacity of a roadway; (2) cause an increase in safety hazards on an area roadway; or (3) cause substantial deterioration of the physical condition of the nearby roadways.

No Action Alternative

The no action alternative would have no effect on the traffic and circulation in the project area. The existing roadways, bike paths, types of traffic, traffic volume, and circulation patterns would not change.

Construct Levee Improvements

The project would temporarily affect local residential roads and major urban connector roads that would be used as a haul route during construction. Haul trucks would cause an increase in traffic volume and reduce traffic speeds on local residential roads. Haul trucks would have a minor affect on traffic volume and traffic speeds on the major urban connector roads.

The directional flow of construction for the project reach has been presumed to progress from upstream to downstream, and roads and access points have been identified. For the purposes of this discussion the following scenario will be used to describe the haul routes and traffic impacts: to access the construction site, haul trucks would use Watt Avenue, Fair Oaks Boulevard, and Arden Way, using the access point at Arden Way to enter the levee. After offloading the material, the haul trucks would use

Harrington Way, American River Drive, Jacob Lane, Fair Oaks Boulevard, Watt Avenue, and Highway 50. It is reasonable to assume that the material would be acquired from sites along the Highway 50 corridor within 10 to 15 miles of the project site. At the recreation access points flagmen would be positioned at Arden Way, River Walk Way, and Harrington Way to direct traffic through the construction site. Since much of the material to be used in constructing the realigned levee would come from the degrading of the existing levee, only a limited amount of borrow material would need to be delivered to the site. It is estimated that only 530 cy of borrow material would be required for the project. Conservatively, if this material were delivered within a one week timeframe, this would average approximately 10 trucks per day. Traffic would return to normal once construction is completed.

The haul routes are designed to minimize the occurrences of two-way travel on the same street or road. Assuming that all the required borrow material were delivered in one day, based on the vehicle counts provided by Sacramento County stated above, Arden Way at McClaren Drive would experience a 2% increase in traffic and Jacob Lane at Fair Oaks Boulevard would experience less than a 1% increase in vehicle traffic. These increases would not be considered significant.

Access to the Jedediah Smith Recreation Trail at Jacob Lane, and other formal and informal pedestrian access trails scattered along the project site would not be closed during construction. Flagmen would be used at the River Walk Way, Arden Way, and Harrington Drive to allow recreation access to the Jedediah Smith Recreation Trail. Water-filled or concrete barriers would be placed along the downstream shoulder of the trail between River Walk Way and Harrington Drive to protect recreationists. The barriers would not narrow the paved trail but may encroach on the shoulder. The barriers would be removed once construction is completed.

The type and volume of construction traffic should not cause a substantial deterioration of the physical condition of the nearby roadways, however pre-construction and post-construction conditions would be documented by the contractor. Any deteriorated roadways determined to be caused by the project would be repaired by the contractor. These effects could be considered significant to traffic and circulation unless mitigated.

3.8.3 Mitigation

The contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by Sacramento County, CALTRANS, and the Corps prior to construction. This plan would include the following measures:

- Do not permit construction vehicles to block any roadways or private driveways.
- Provide access for emergency vehicles at all times.

- Select haul routes to avoid schools, parks, and high pedestrian use areas, when possible. Crossing guards provided by the contractor would be used when truck trips coincide with schools hours and when haul routes cross student travel path.
- Obey all speed limits, traffic laws, and transportation regulations during construction.
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.
- Flagmen would be used at each roadway that crosses the levee to safely circulate traffic through the construction site.
- Use separate entrances and exits to the construction site.
- Construction employee parking would be restricted to the recreation parking areas accessed from Harrington Way.
- Prior to construction, notify local residents, business, schools, and the County of Sacramento if road closures would occur during construction.

The proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

3.9 Public Utilities and Services

3.9.1 Existing Conditions

Public services in or near the project area includes street cleaning, trash pickup, potable water supply, electricity, natural gas supply, storm water discharge, and sanitary sewage. These public services are implemented by local utilities and Sacramento County. Public utility facilities, pipelines, and conduits in the project area includes: a force sewer main, drainage pipeline and gate structure, and an abandoned commercial petroleum distribution pipeline. On the waterside of Reach C, between RM 11.7 and 11.9 is a former waste-water treatment facility that is owned by the county. As of 2000, the water-treatment facility was converted to a Sacramento County Sheriff's Training Facility (USFWS, 2000).

3.9.2 Environmental Effects

Basis of Significance

A project would significantly affect public utilities and services if it would: (1) disrupt or significantly diminish the quality of the public utilities and services for an extended period of time; or (2) damage public utility and service facilities, pipelines, conduits, or power lines.

No Action

Under the no action alternative there would be no effects on public utilities and services in the project area. There would be no change in type, quality, or availability of services in the project area.

Construct Levee Improvements

No utilities or public services would be interrupted during construction. Construction would not access or realign existing potable water supply, sanitary sewerage, or storm sewer system. All utilities located adjacent to, or passing through, the project levee would be protected in place. Natural gas supply or electrical transmission lines would not be augmented except to provide temporary electrical power to the contractor's construction trailer. Employee vehicles would park in the recreation parking areas accessed from Harrington Way to avoid interrupting public services. Project related impacts to public utilities and services would be less than significant.

3.9.3 Mitigation

Prior to initiating ground disturbing activities, the contractor would coordinate with Underground Service Alert (USA) to insure that all underground utilities are identified and marked. Since no significant adverse affects to public utilities and services are anticipated, no additional mitigation is required.

3.10 Noise

3.10.1 Existing Conditions

Noise is defined as unwanted sound that evokes a subjective reaction to the physical characteristics of a physical phenomenon. Ambient noise in the project area is generated by the traffic on the adjacent surface streets. Other noise may be generated primarily in the summer by motorized recreation on the American River. Based on experience with similar settings, it is assumed that existing noise levels in the project area are in the range of 60 to 70 decibels (dB) day-night sound level (Ldn). Noise-sensitive receptors in the project area include residents, recreational users, and wildlife.

The project area is located in a relatively quiet area of single family residential homes. Currently the main source of noise includes motor vehicles, human activity, and natural sounds. Construction noise related to commercial or residential activity varies with the type of equipment and length of activity.

The project area is located within Sacramento County. The County of Sacramento General Plan Noise Element (2011) has established noise standards for various land use categories. These standards are broken out into Acceptable, Conditionally Acceptable, and Unacceptable noise exposure ranges based on A-weighted decibel (dBA) Ldn measurements.

Although construction equipment may cause noticeable increase in ambient noise levels near individual levee construction and staging areas any noise increases would be short term and intermittent. Construction noise would fluctuate, depending on construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. Noise from construction activity generally attenuates at 6 to 7.5 dBA per doubling of distance. Assuming an attenuation rate of six dBA per doubling of distance, construction equipment noise in the range of 80 to 90 dBA at 50 feet would generate noise levels of 74 to 84 dBA at 100 feet from the source. The residences in this project area are located approximately 50 feet from the construction area. Using the same attenuation rate of 6 dBA per doubling of distance, the noise levels would not drop substantially based on the distance from the source. Most properties have trees or shrubbery planted at the rear of their property which adjoins the landside boundary of the project area. This vegetation should provide for some attenuation of the noise.

3.10.2 Environmental Effects

Basis of Significance

Adverse effects on noise are considered significant if an alternative would result in any of the following:

- Exposure of persons or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Substantial short-term or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project.
- Substantial long-term increase in ambient noise levels in the project vicinity above levels existing without the project.
- Vibration exceeding 0.2 inch per second within 75 feet of existing buildings.

The significance criteria for changes in noise from project operations are listed below. These criteria are based on the County of Sacramento Noise Ordinance which exempts construction activities provided that they do not occur between 8:00 p.m. and 6:00 a.m. Monday through Friday, and between 8:00 p.m. and 7:00 a.m. on Saturday and Sunday.

- A 3-dBA increase in noise if the existing noise level already exceeds the “normally acceptable range” for the land use (60 dBA or less for residential uses).
- A 5-dBA increase in noise if the existing noise level is in the “normally acceptable range” and the resulting level is within the “normally acceptable range” for the land use.

- A resulting offsite exterior noise level that exceeds 55 dBA for a cumulative duration of 30 minutes in an hour (L50) during the daytime (7:00 a.m. to 10:00 p.m.) or 50 dBA L50 during the nighttime (10:00 pm to 7:00 a.m.).

No-Action Alternative

Under the no action alternative, there would be no effects on noise. Sources of noise and noise levels would continue to be determined by local activities, development, and natural sounds.

Construct Levee Improvements

Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. In addition, certain types of construction equipment generate impulsive noises (such as pile driving), which can be particularly annoying. Pile driving, however, is not proposed for project development. Table 10 shows typical noise levels during different construction stages. Table 11 shows typical noise levels produced by various types of construction equipment.

Table 3. Typical Construction Noise Levels

Construction Phase	Noise Level (dBA, Leq) ^a
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

^a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase. Source: U.S. Environmental Protection Agency, 1971.

Table 4. Typical Noise Levels From Construction Equipment

Construction Equipment	Noise Level (dBA, Leq at 50 feet)
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89
Generator	76
Pile Driver	101
Backhoe	85

Source: Cunniff, Environmental Noise Pollution, 1977.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of the distance from the reference noise source. Based on the project site layout and terrain, an attenuation of 6 dBA will be assumed. Residences are located adjacent to the project area, the nearest having approximately 50 feet between their backyard and excavation areas. This residence would experience noise levels at about 86 dBA during excavation, the loudest of construction activities that would occur. Other residences located around the project area are further away and thus would receive lower levels of noise. During the height of construction, the haul route is expected to have between 40 and 45 round trips per day. A receptor at 50 feet from a dump truck would experience noise levels up to approximately 88 dBA during a pass by.

Construction noise at these levels would be substantially greater than existing noise levels at nearby sensitive receptor locations. Construction activities associated with the project would be temporary in nature and related noise impacts would be short-term. However, since construction activities could substantially increase ambient noise levels at noise-sensitive locations, especially if they were to occur during the nighttime hours, noise from construction would be potentially significant without mitigation.

Construction activities in Reach C would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife, and recreationists. Construction of the project would occur between the hours of 6:00 a.m. to 8:00 p.m., Monday through Friday, and 7:00 a.m. to 8:00 p.m. on Saturdays and Sundays. Construction is scheduled for summer 2013. The noise associated with the construction activities would typically fall within the County of Sacramento's construction exemption for noise, limited to the hours described above (Sacramento County Municipal Code, 6.68.090 Exemptions). Because construction would be short-term, and construction activities would be limited to these times, this effect would be less than significant.

Construction activities associated with the project may result in some minor amount of ground vibration. Vibration from construction activities is typically below the threshold perception when the activity is more than about 50 feet from the receptor. The closest residences to the construction activities would be just beyond this 50-foot limit, however, most residences would be 70 feet away, or greater. Due to the transitional nature of the construction activities, exposure at any one location would be intermittent. The most common source of vibration would result from truck traffic. Additionally, vibration from these activities would be short term and would end when construction is completed. Construction activity would not involve high-effect activities like pile driving, and is short-term in nature.

Due to the distance between the nearest residences and the project construction area, impacts related to noise and vibration could be considered significant if not mitigated.

3.10.3 Mitigation

The following measures would be implemented to reduce the adverse effects on noise as much as possible:

- Construction activities shall be limited to between 6:00 a.m. and 8:00 p.m. Monday through Friday and 7:00 a.m. and 8:00 p.m. on Saturdays and Sundays. This will be in accordance with the Sacramento County Noise Ordinance exemptions for construction (Sacramento County Municipal Code, 6.68.090 Exemptions).
- Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 30 minutes.
- Notify residences about the type and schedule of construction.

Compliance with the local noise ordinance would minimize the exposure of residents to excessive noise. Construction is scheduled to be completed within 2 to 3 months. With implementation of the above mitigation measures, construction impacts related to noise and vibration would be reduced to less than significant.

3.11 Esthetics/Visual Resources

3.11.1 Existing Conditions

The lower American River is a component of the National Wild and Scenic Rivers System. Section 7 of the Wild and Scenic Rivers Act prohibits Federal agencies from “assist[ing] by loan grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established.” The lower American River is designated under this act for its recreational values pertaining to fishing and parkway activities.

Esthetic resources must be considered along with other natural resources. Esthetic resources are those natural resources, landforms, vegetation, and manmade structures in the environment that generate one or more sensory reactions and evaluations by the observer, particularly in regard to pleasurable response. These sensory reactions are traditionally categorized as pertaining to sight, sound, and smell. Esthetic quality is the significance given to esthetic resources based on the intrinsic physical attributes of those specific features and recognized by public, technical, and institutional sources. The identification of scenic resources in the landscape requires a process that identifies the relevant visual features and that is derived from established Federal procedures. Visual quality is influenced by many landscape features including geologic, hydrologic, botanical, wildlife, recreational, and urban characteristics.

The area along this stretch of the American River has a moderate esthetic value. The American River is located approximately 550 feet from the project reach and provides valuable riparian habitat as well as recreational opportunities. Nearer to the project area the esthetic components include residential development, the project levee, American River Parkway access points and parking lots, the American River Parkway Foundation building, the Jedediah Smith Recreation Trail (bike trail) and the Sheriff's Training Facility (former sewer treatment plant). These components intermix with the parkway at its fringes which also tempers the esthetic value in these areas.

Several trees are located along one of these fringe areas just behind the property lines of the residences that back up to the parkway. In Reach C these trees provide a visual as well as sound barrier between residents, the parkway, access at River Walk Way and the activities at the Sheriff's Training Facility. There is also another line of trees along the fenceline at the Sheriff's Training Facility. They range in height, and include native oaks as well as non-native trees. Up to six trees could be removed, however, to the extent possible these trees would be protected during the construction activities in this reach.

3.11.2 Environmental Effects

Basis of Significance

An alternative would be considered to have a significant effect on esthetics if changes in landform, vegetation, or structural features create substantially increased levels of visual contrast as compared to surrounding conditions.

No Action Alternative

Under the no action alternative, there would be no effect on esthetics. The views and esthetic quality of both reaches would remain the same.

Construct Levee Improvements

Construction of the levee realignment in Reach C would temporarily affect the esthetics in the project area. Short-term effects would include the presence and activities of construction equipment and workers in the project area.

Short-term activities would include preparing the site, removing vegetation on the landside and waterside areas of the project reach, degrading the levee, clearing and grubbing the staging area, and constructing the realigned levee.

After completion of construction the site would be landscaped consistent with the preconstruction conditions. Although the levee would be realigned and slightly widened, it would not be raised and the viewshed would not be altered. The reconstructed levee would remain consistent with the preconstruction visual resources of the project area.

3.11.3 Mitigation

Because there would be no significant long-term effects on esthetics or visual resources in the project area, no mitigation would be required. All areas impacted by the project would be revegetated and restored to remain consistent with preconstruction conditions. Compensatory plantings for any removed trees would take place in another area of the parkway.

4.0 Growth-Inducing Effects

The proposed action alternative would not induce growth in or near the project area. Local population growth and development would be consistent with the draft Sacramento County General Plan (2011). As mentioned previously, the goal of the proposed action alternative is to construct a realigned levee in one reach along the American River that would meet Corps requirements for levee height and width. In addition, construction, operation, and maintenance of the improved levee would not result in a substantial increase in the number of permanent workers or employees.

5.0 Cumulative Effects

The NEPA regulations and CEQA guidelines require that an EIS/EIR discuss project effects that, when combined with the effects of other projects, result in significant cumulative effects. The NEPA regulations define a cumulative effect as: “The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor or collectively significant actions taken over a period of time” (40 CFR 1508.7).

The CEQA Guidelines require that an EIR discuss cumulative effects “when they are significant” (Section 15130). The CEQA Guidelines define cumulative effects as “two or more individual effects which, when considered together, compound or increase other environmental impacts” (Section 15355). Additionally, the CEQA Guidelines state: “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to the other closely related past, present, and reasonable foreseeable probable future projects” (Section 15355).

5.1 Local Projects

This section briefly describes other major Federal projects in the Sacramento area. All of these projects are required to evaluate the effects of the proposed project features on environmental resources in the area. In addition, mitigation or compensation measures must be developed to avoid or reduce any adverse effects to less than significant based on Federal and local agency criteria. Those effects that cannot be avoided or reduced to less than significant are more likely to contribute to cumulative effects in the area.

5.1.1 Folsom Dam Flood Management Operations Study

The Flood Management Operations Study is being completed in conjunction with the JFP by the Corps, the U.S. Bureau of Reclamation (USBR), Board, and SAFCA. The Flood Management Operations Study for Folsom Dam will develop, evaluate, and recommend changes to the flood control operations at Folsom Dam that will further reduce flood risks to the Sacramento area. Operational changes may be necessary to fully realize the flood risk reduction benefits of the following:

- The additional operational capabilities created by the auxiliary spillway (JFP);
- The increased downstream conveyance capabilities anticipated to be provided by the American River Common Features Project (Common Features);
- The increased flood storage capacity anticipated to be provided by completion of the Folsom Dam Raise Project (Dam Raise); and
- The use of improved forecasts from the National Weather Service.

Further, the Flood Management Operations Study will evaluate options for the inclusion of creditable flood control transfer space in Folsom Reservoir in conjunction with Union Valley, Hell Hole, and French Meadows Reservoirs (also referred to as Variable Space Storage). The study will result in a Corps decision document and will be followed by a water control manual implementing the recommendations of the Study. It should be recognized that the initial water control manual will implement the recommendations of the study, but will not include the capabilities to be provided by the Dam Raise and additional Common Features project improvements until such time as these projects have been completed.

5.1.2 Folsom Dam Raise

The Folsom Dam Raise project will follow the JFP. This project includes raising the Folsom Dam, and the dikes around Folsom Reservoir by 3.5 feet; replacing the three emergency spillway gates; and three ecosystem restoration projects (automation of the temperature control shutters at Folsom Dam and restoration of the Bushy and Woodlake sites downstream). The ecosystem restoration projects have been prioritized at different levels and separated, with automation of the temperature control shutters to be the next completed feature in 2017 and the two downstream restoration sites to be completed in approximately 2016-2017. For the dam raise portion of the project, the design should begin in 2015 and be completed in FY16, with construction following in phases through 2017 and 2018.

5.1.3 Folsom Dam Safety and Flood Damage Reduction Project Ongoing Construction Activities

The Folsom Dam Safety and Flood Damage Reduction Project address the dam safety hydrologic risk at the Folsom Facility and improve flood protection. Several activities associated the project include: Phase II, Phase III, and Phase IV of the Folsom Dam Auxiliary Spillway Joint Federal Project, referred to as the Joint Federal Project

(JFP), static upgrades to Dike 4, Mormon Island Auxiliary Dam (MIAD) modifications, and seismic upgrades (piers and tendons) to the Main Concrete Dam.

Auxiliary Spillway Excavation

Spring 2009 to Fall 2010. Major work under Phase II of the JFP includes partial excavation of the western portion of the auxiliary spillway, construction of the downstream cofferdams, relocation of the Natoma Pipeline, and the creation of an access road to the stilling basin. This portion of the JFP was covered under the 2007 Folsom Dam Safety and Flood Damage Reduction Project EIS/EIR (2007 EIS/EIR). Construction was conducted by USBR and was completed prior to the start of the Control Structure construction effort.

Dike 4 and 6 Repairs

Summer 2009 to June 2010. To address seepage concerns due to static and hydrologic loading for Dikes 4 and 6, USBR installed full height filters, toe drains, and overlays on the downstream face of each earthen structure. This portion of the JFP was covered under the 2007 EIS/EIR.

Mormon Island Auxiliary Dam Modification Project

Summer 2010 to Summer 2014. USBR released the Draft EIS/EIR for the MIAD Modification Project in December 2009. The preferred MIAD action alternative of jet grouting selected in the EIS/EIR was determined to be neither technically nor economically feasible. Four action alternatives were analyzed in the MIAD Draft Supplemental EIS/EIR. All alternatives address methods to excavate and replace the MIAD foundation, place an overlay on the downstream side, and install drains and filters; the alternatives differ only in their method of excavation. In addition, all four action alternatives in the Draft Supplemental EIS/EIR include habitat mitigation proposed for up to 80 acres at Mississippi Bar on the shore of Lake Natoma to address impacts from the JFP.

Pier Tendon Installation, Spillway Pier Wraps, and Braces at Main Concrete Dam

April 2011 through Spring 2012. These three projects address seismic concerns at the main concrete dam. These improvements will help to stabilize the main concrete dam against movement during a major earthquake. This portion of the JFP was covered under the 2007 EIS/EIR, and will be completed prior to implementation of the Jacob Lane Reach C project.

Control Structure, Chute and Stilling Basin

Spring 2011 to Fall 2017. Phase III of the JFP consists of construction of the auxiliary spillway control structure. This effort is currently under construction by the

Corps and will be completed in approximately fall 2014. Concrete lining of the spillway chute and stilling basin will be conducted by the Corps as the final phase of the JFP. These actions will be constructed from approximately summer 2013 to fall 2017. Construction of the control structure, and the concrete lining of the chute and stilling basin were all covered under the Corps' 2010 EA/EIR.

Additional Downstream Features

Fall 2012 to Spring 2013. The design refinements to Phase III construction are being evaluated in a supplemental EA/EIR include the construction of a temporary traffic light, modification to the existing dirt access haul road, installation of the stilling basin drain, and use of the existing nearby staging area with the installation of a new batch plant to be used and operated for other downstream features work. A draft EA/EIR is scheduled for public review in summer 2012.

Approach Channel

Spring 2013 to Fall 2017. The approach channel project is the final construction activity of Phase IV of the JFP. The primary and permanent structures consist of the 1,100 foot long excavated approach channel and spur dike. A transload facility and concrete batch plant will be constructed as necessary temporary structures to facilitate the construction. Additional existing sites and facilities that would be utilized for the length of the project include the Folsom Prison staging area, the existing USBR Overlook, the MIAD area, and Dike 7. These sites and facilities are connected by an internal project haul road. Criteria pollutant emissions from the approach channel project and the downstream project would be less than significant for ROG, CO, SO₂, and PM_{2.5}, less than significant with mitigation for PM₁₀. NO_x exceeds the GCR de minimis threshold, but would be addressed by inclusion in the State Implementation Plan, which would provide compliance with the general conformity rule of the Federal Clean Air Act. The draft supplemental EIS/EIR is scheduled to be available for public review in summer 2012.

5.1.4 Lower American River Common Features Project

Based on congressional authorizations (Water Resource Development Act, or WRDA) in 1996 and 1999, the Corps, the Board, and SAFCA have undertaken various improvements to the levees along the north and south banks of the American River and the east bank of the Sacramento River. Under WRDA 96, the most recent improvements include seepage protection at RM 62 on the east bank of the Sacramento River (2009), RM 7.0 left and right bank (2010), RM 8.5 left bank (2010), and RM 5.5 right bank (2011), all on the American River. A site at RM 6.5 right bank (Site R6) is scheduled for construction in 2012 and a site at RM 9.5 (Site R10) is scheduled for construction in 2013. Two smaller sites under WRDA 96 (L9/L9A, and L5A, totaling 371 linear feet) are currently scheduled for construction in 2013, however they are expected to be approved under NEPA Categorical Exclusions and will not have air quality emissions data to consider under cumulative effects. Several other sites are being considered for

construction in 2014 and beyond, but evaluations of environmental impacts have not yet begun.

Of the five sites authorized under WRDA 99, Mayhew Levee Raise (2008) and Mayhew Drain Closure Structure (2008) have been completed; Jacob Lane (Reaches A & B, 2009 and 2010) will be completed with the construction of Reach C scheduled for 2013; Howe Avenue is scheduled for construction in 2012 and the Natomas East Main Drain Canal is scheduled for construction in 2013 and 2014.

Several other phases of repairs have been completed in the Natomas Basin under the Lower American River Common Features Project. The project will continue to study potential erosion control repairs along the lower American River and the east bank of the Sacramento River.

5.1.5 Sacramento River Bank Protection Project

The Sacramento River Bank Protection Project (SRBPP) was authorized to protect the existing levees and flood control facilities of the Sacramento River Flood Control Project. The SRBPP is a long-range program of bank protection authorized by the Flood Control Act of 1960. The SRBPP directs the Corps to provide bank protection along the Sacramento River and its tributaries, including that portion of the lower American River bordered by Federal flood control project levees. Beginning in 1996, erosion control projects at five sites covering almost 2 miles of the south and north banks of the lower American River have been implemented. Additional sites at RM 149 and 56.7 on the Sacramento River totaling one-half mile have been constructed since 2001. During 2005 through 2007 construction of 29 critical sites occurred under the Declaration of Flood Emergency by Governor Schwarzenegger totaling approximately 16,000 linear feet. This is an ongoing project, and additional sites requiring maintenance will continue to be identified indefinitely until the remaining authority of approximately 24,000 linear feet is exhausted over the next 3 years. The Water Resources Development Act of 2007 authorized an additional 80,000 linear feet of bank.

These projects would help to improve flood protection to residents in the Sacramento area by ensuring the integrity of the levees along the American and Sacramento Rivers. The Lower American River Common Features Project and the SRBPP would also help meet FEMA's 100-year flood criteria for the Sacramento area levee system. These would be considered beneficial cumulative effects.

5.1.6 Natomas Levee Improvement Project

The Natomas Levee Improvement Project was authorized in 2007 as an early-implementation project initiated by SAFCA in order to provide flood protection to the Natomas Basin as quickly as possible. These projects consist of improvements to the perimeter levee system of the Natomas Basin in Sutter and Sacramento Counties, California, as well as associated landscape and irrigation/drainage infrastructure modifications. SAFCA, DWR, CVFPB, and USACE have initiated this effort with the

aim of incorporating the Landside Improvements Project and the Natomas Levee Improvement Project into the Federally-authorized American River Common Features Project. The project is still under construction at this writing. Future project features would be completed under the proposed American River Common Features General Reevaluation Report, upon authorization.

5.2 Cumulative Effects

Land Use

The River Corridor Management Plan and American River Parkway Plan recognize the American River Parkway as the key feature of the American River flood control system in Sacramento, and consider flood management the primary land use on the Parkway. The use of Parkway land to provide flood protection to the Sacramento area is consistent with these plans. As a result, the project is consistent with adopted plans and policies on land use in the project area and would not contribute significantly to cumulative effects on land use.

Recreation

The project would not result in the conversion or removal of natural habitat in the Parkway. The project would have a minor, short-term and intermittent restriction on recreation access during construction. This project and other similar past, present, and reasonably foreseeable future projects are not expected to result in changes to recreation access or opportunities on the Parkway and therefore are not expected to result in adverse cumulative effects.

Esthetics and Visual Resources

The project would result in short-term changes to the esthetics in the project area. All areas that would be disturbed during construction would be restored and revegetated upon completion of construction activities. Thus the Jacob Lane Levee Improvement Project would not significantly contribute to cumulative effects in the project vicinity.

Traffic and Circulation

The project would result in changes in the types, volumes, and movement of traffic in the residential area during construction. Large trucks transporting equipment and materials to the work area would not be consistent with the types of residential traffic using the neighborhood streets. These trucks, as well as worker vehicles, would use the neighborhood streets to access the work areas from Arden Way. The daily number of trips during construction would actually vary, depending on the work being conducted and the duration of the work. However, the increases in traffic would not be significant as compared with existing levels of neighborhood traffic on all but one street proposed as part of a haul route. During construction, trucks and worker vehicles would be entering and exiting the residential area via Arden Way, Fair Oaks Boulevard, American River

Drive and neighborhood roadways. This could disrupt the traffic flow at these intersections and possibly pose a safety hazard to other motorists, pedestrians, and bicyclists on and along these roadways and access points to the Parkway. Implementation of measures in the Traffic Management Plan would minimize traffic congestion and delays, and ensure public safety. Thus, due to the minimal increase in local traffic, the project would not contribute to adverse cumulative effects on local traffic.

Noise

The project would result in increased levels of ambient noise in the residential area and Parkway during construction. Movement and operation of equipment, haul trucks, and worker vehicles would generate noise in the work area, as well as on neighborhood roadways that provide access through the residential area. Noise levels could reach the high 80s dBA, depending on the type of equipment or truck. Since ambient noise levels normally range in the low to mid-50's dBA, such an increase would be significant. However, the Sacramento City and County Noise Control Code contains a section specifically exempting construction activities from the standards between the hours of 6:00 a.m. and 8:00 p.m. Monday through Friday, as well as between the hours of 7:00 a.m. and 8:00 p.m. on Saturdays and Sundays. As a result, the project would not contribute significantly to cumulative effects on local noise.

Air Quality

According to SMAQMD, a project is considered to have a significant cumulative effect if:

- The project requires a change in the existing land use designation (general plan amendment or rezone), and
- Projected emissions (ROG or NOx) or emission concentrations (criteria pollutants) of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.
- The project individually would result in a significant effect on air quality.

Construction of the Jacob Lane Reach C project is not expected to have any long-term effects on air quality since the operational activities (including inspection and maintenance) are expected to be similar to existing conditions. However, construction would result in direct, short-term effects on air quality mainly related to combustion emissions and dust emissions. Implementation of mitigation measures during construction would reduce emissions to the extent possible. Since the project would not require a change in the existing land use designation, long-term projected emissions of criteria pollutants would be the same with or without the construction of the levee improvements.

If the Jacob Lane project is scheduled to be constructed in the summer of 2013 it may overlap with the construction of the Natomas East Main Drain Canal (NEMDC)

project and the WRDA 96 Site R10 project, as well as the construction of the auxiliary spillway for the Folsom Dam Joint Federal Project (JFP). Neither the NEMDC project nor the Site R10 project would add significantly to this determination nor would it change the determination. Table 5 shows the combined emissions for the Jacob Lane Reach C, NEMDC and Site R10 projects if they were constructed concurrently. No Federal standards would be exceeded and only the SMAQMD threshold for NO_x (combined total lbs/day) would be exceeded, however this was already an impact for the JFP. The JFP identified impacts to air quality that would be significant and unavoidable. The NEMDC, Site R10, and Jacob Lane Reach C projects would not add significantly to this determination and also would not change the determination therefore, this project would not contribute significantly to cumulative effects on air quality.

Table 5. Combined Estimated Air Emissions for Concurrent Construction of the Jacob Lane Reach C, NEMDC and Site R10 Projects

	ROG	CO	NO_x	PM₁₀	PM_{2.5}	CO₂
Total emissions (lbs/day)	22.8	169.3	162.2	58.6	16.8	22,414.4
SMAQMD thresholds (lbs/day)	N/A	N/A	85	N/A	N/A	N/A
Total (tons/construction project)	0.6	4.9	4.7	1.4	0.4	647.2
Federal standards (tons/year)	25	100	25	100	N/A	N/A

Note: Estimates rounded.

Water Resources and Quality

The Jacob Lane Reach C Project could result in accidental spills or leaks that could affect surface and ground water resources. Measures included during each of the project construction projects would be implemented to avoid or reduce these effects to less than significant. As a result, the project would not contribute significantly to cumulative effects on water resources and quality.

In addition, the Jacob Lane project may have an overall positive effect on water quality. By diminishing the possibility for a catastrophic flood event, this would avoid significant long term impacts to water quality by avoiding contamination from flooded vehicles, household and industrial chemicals, raw sewage, and other wastes that may be present in the area.

Vegetation and Wildlife

The grassland habitat that would be occupied by the staging area would be disturbed during project construction. The slopes of the current levee would also be disturbed in order to implement the levee realignment. These areas would be restored and revegetated with native grasses upon completion of project construction. The project would not remove any riparian habitat; however, there would be temporary disturbances to elderberry shrubs and potential disturbances to any beetles potentially occupying the

shrubs. The project would result in short-term disturbances of wildlife habitat, but the project would not substantially reduce the connectivity or extent of natural vegetation and wildlife habitat along the American River. Mitigation, through the establishment of native vegetation on the Parkway for this and other projects including NEMDC, cannot eliminate significant short-term effects on vegetation and wildlife associated with construction activities. Improved habitat would be provided by planting native species, such as valley oak and sycamore, for mitigation. However, such mitigation is expected to result in a net, long-term improvement in native vegetation and wildlife habitat values in the Parkway.

Special Status Species

The Jacob Lane Reach C Project would result in direct and indirect effects on elderberry plants, which is the host plant for the Federally-listed threatened valley elderberry longhorn beetle. However, with implementation of the conservation measures stated previously, effects to the valley elderberry longhorn beetle would be minimized.

Other local projects including the NEMDC Project will result in the removal of elderberry shrubs. The limited spatial extent of elderberry shrub removal, prevalence of existing elderberry shrubs in the project vicinity, and the transplanting of up to 140 shrubs from the Mayhew Levee Raise Project area to the vicinity, the overall extent and connectivity of beetle habitat is not expected to be diminished by this project. Establishment of new, additional beetle mitigation areas on the Parkway consistent with USFWS Guidelines would result on the long-term net improvement of beetle habitat by increasing habitat extent and connectivity along the American River. While this and other projects have resulted in short-term, localized effects to beetle habitat, the incorporation of habitat mitigation on the Parkway is expected to result in the long-term, cumulative improvement to beetle habitat on the Parkway and ultimately assist in the recovery of the species. As a result, the project would not contribute significantly to cumulative adverse effects on special status species.

Fisheries

Construction of the Jacob Lane Reach C Project could indirectly affect Central Valley steelhead and Central Valley fall/late fall run Chinook salmon or their critical habitat. However, the project would not affect steelhead and salmon provided that erosion and sediment control measures implemented as part of the SWPPP are incorporated into the proposed project.

The Jacob Lane Reach C Project did not identify any potential impacts to fisheries. Construction activities and staging would be confined to the levees and high flood plain terraces several hundred feet from the streambank and channel. The project includes no work in or near the stream or associated riparian vegetation, and no work in ponds, tributaries, or drainage ditches that flow into the river from the project area. Whereas other local projects may result in potential impacts to fisheries, the construction

of the Jacob Lane levee realignment would not contribute significantly to cumulative adverse effects to fisheries.

Cultural Resources

Based on existing information from literature searches and field examination, no cultural resources were identified in the Jacob Lane Reach C Project area. If necessary, mitigation measures would be implemented to provide for any buried resources that might be uncovered during construction. Since the anticipated effects on known and potential archaeological sites would be less than significant, the project would not contribute significantly to cumulative effects on cultural resources.

6.0 Compliance with Environmental Laws and Regulations

6.1 Federal

Archaeological Resources Protection Act of 1979, 16 U.S.C. 470, et seq. *Full Compliance.* This act prohibits the removal, sale, receipt, and interstate transportation of archaeological resources obtained illegally (without permits) from public lands. The proposed project would not involve any such archaeological resources.

Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq. *Full compliance.* The proposed action is not expected to violate any Federal air quality standards, exceed the U.S. EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of best management practices would reduce NOx emissions to below local thresholds. Thus, the Corps has determined that the proposed project would have no significant effects on the future air quality of area.

Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq. *Full compliance.* The proposed action is not expected to adversely affect surface or ground water quality or deplete ground water supplies. There would be no placement of fill or dredged material into waters of U.S. or wetlands. Best management practices would be implemented to avoid movement of soils or accidental spills into the river. The Corps has determined that the proposed project would have no significant effects on the future water quality of the area.

The contractor would be required to obtain a NPDES permit from the CRWQCB, Central Valley Region, since the project would disturb 1 or more acres of land and involve possible storm water discharges to surface waters. As part of the permit, the contractor would be required to prepare a SWPPP identifying best management practices to be used to avoid or minimize any adverse effects of construction on surface waters.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. *Partial compliance.* In accordance with Section 7(c), the Corps obtained a list of Federally-listed

and proposed species likely to occur in the project area. The only listed species affected by the project would be the valley elderberry longhorn beetle. The Corps as the action agency has made the determination that the project may affect but is not likely to adversely affect the valley elderberry longhorn beetle. The Corps reinitiated consultation with USFWS on May 24, 2012.

The Corps as the action agency has made the determination that there would be no effect on any listed species under the jurisdiction of the National Marine Fisheries Service (NMFS). As a result, no formal consultation was required with NMFS under Section 7 of the Endangered Species Act.

The project will be in full compliance when the Corps receives correspondence from USFWS indicating that Section 7 consultation has been completed.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Full compliance.* This order directs all Federal agencies to identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority or low-income populations in the project area. All nearby residents would benefit from the proposed project.

Farmland Protection Policy Act (7 U.S.C. 4201, et seq). *Full compliance.* There are no prime and unique farmlands in the project area.

Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq. *Partial compliance.* The Corps has coordinated with USFWS to determine the effects on vegetation and wildlife in the project area. The USFWS has prepared a Coordination Act Report (CAR) to address these effects. The draft CAR is included in Appendix C.

The project will be in full compliance when the final CAR is issued by USFWS.

Migratory Bird Treaty Act (15 U.S.C 701-18h). *Full compliance.* Construction would be timed to avoid destruction of active bird nests or young of birds that breed in the area. If this is not feasible, a qualified biologist would survey the area prior to initiation of construction. If active nests are located, a protective buffer would be delineated and the entire area avoided, preventing disturbance of nests until they are no longer active.

National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq. *Partial Compliance.* This draft EA/IS is being circulated for public comment. Comments received during the public review period will be incorporated into the final EA, as appropriate, and a comments and responses appendix will be prepared and included. A draft FONSI accompanies the draft EA. The final EA/IS will be accompanied by a final FONSI if determined appropriate by the District Engineer after

consideration of public comments. These actions will provide full compliance with this act.

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. *Full Compliance.* The project is in full compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). Corps Archeological staff conducted a survey of the APE for the present remaining sites project. A Records and Literature search was also conducted at the California State University, Sacramento. The Corps survey was negative for cultural resources, and the record search was negative as well. In spite of the fact that portions of the American River Levee were recorded, there is no evidence that it is eligible for listing in the National Register of Historic Places.

During the evaluation of the Jacob Lane A and B projects, a letter was sent to the SHPO asking for their concurrence with a finding of no adverse effect in accordance with 36 CFR 800.4(c)(2). The SHPO submitted a letter of concurrence with the finding of no adverse affect, dated May 30, 2008.

Native American Graves Protection and Repatriation Act of 1990, 23 U.S.C. 3002. *Full Compliance.* This act requires Federal agencies to: (1) establish procedures for identifying Native American groups associated with cultural items on Federal lands; (2) inventory human remains and associated funerary objects in Federal possession; and (3) return such items upon request to the affiliated groups. The law also requires that any discoveries of cultural items covered by the act be reported to the head of the Federal entity, who would notify the appropriate Native Americans group. The proposed action would not involve any such cultural items.

Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.). *Full compliance.* The lower American River has been designated as a “recreational” component of the Federal Wild and Scenic Rivers system. The project would neither adversely affect the resources for which the American River was designated nor adversely affect the river's free-flowing status. All construction activities would be at least 150 to 500 feet away from the river.

6.2 State

California Clean Air Act of 1988. *Full compliance.* The SMAQMD determines whether project emission sources and emission levels significantly affect air quality based on Federal standards established by the U.S. EPA and State standards set by CARB. The project is in compliance with all provisions of the Federal and State Clean Air Acts.

California Endangered Species Act of 1984. *Full compliance.* CDFG administers this State law providing protection of fish and wildlife resources. This act requires the non-Federal lead agencies to prepare biological assessments if a project may adversely affect one or more State-listed endangered species. No State-listed species would be adversely affected by the project. As a Federal agency, the Corps is not

required to obtain a California Fish and Game Code Section 1602 Stream Alternations Agreement issued by the California Department of Fish and Game.

California Environmental Quality Act, California Public Resources Code, Section 21000 et seq. *Partial compliance.* This EA/IS is in full compliance with this act. All comments received during the public review period have been considered and incorporated into the EA/IS, as appropriate. The final EA/IS is accompanied by a final Negative Declaration. The Central Valley Flood Protection Board as the non-Federal sponsor has ensured full compliance with the requirements of this act.

7.0 Coordination and Review of the Draft EA

The draft EA/IS and FONSI/Negative Declaration will be circulated for 30 days to agencies, organizations, and individuals known to have a special interest in the project. Copies of the draft EA/IS will be posted on the SAFCA website made available for viewing at local public libraries, or provided by mail upon request. This project is being coordinated with all the appropriate Federal, State, and local government agencies.

8.0 Findings

This EA/IS evaluated the environmental effects of the proposed project of constructing levee improvements along one reach of the American River in the Carmichael area. Potential adverse effects to the following resources were evaluated in detail: recreation, special status species, vegetation and wildlife, air quality, water resources and quality, traffic and circulation, esthetics, noise, and cultural resources.

Results of the EA/IS, field visits, and coordination with other agencies indicate that the proposed project would have no significant long-term effects on environmental resources. Short-term effects during construction would either be less than significant or mitigated to less than significance using best management practices.

Based on this evaluation, the proposed project meets the definition of a FONSI as described in 40 CFR 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Therefore, a draft FONSI has been prepared and accompanies this EA.

9.0 List of Preparers

John Suazo
Environmental Manager, Corps of Engineers
20 years environmental management and environmental studies
Report preparation and coordination

Anne Baker
Technical Writer
Report review and editing

10.0 References

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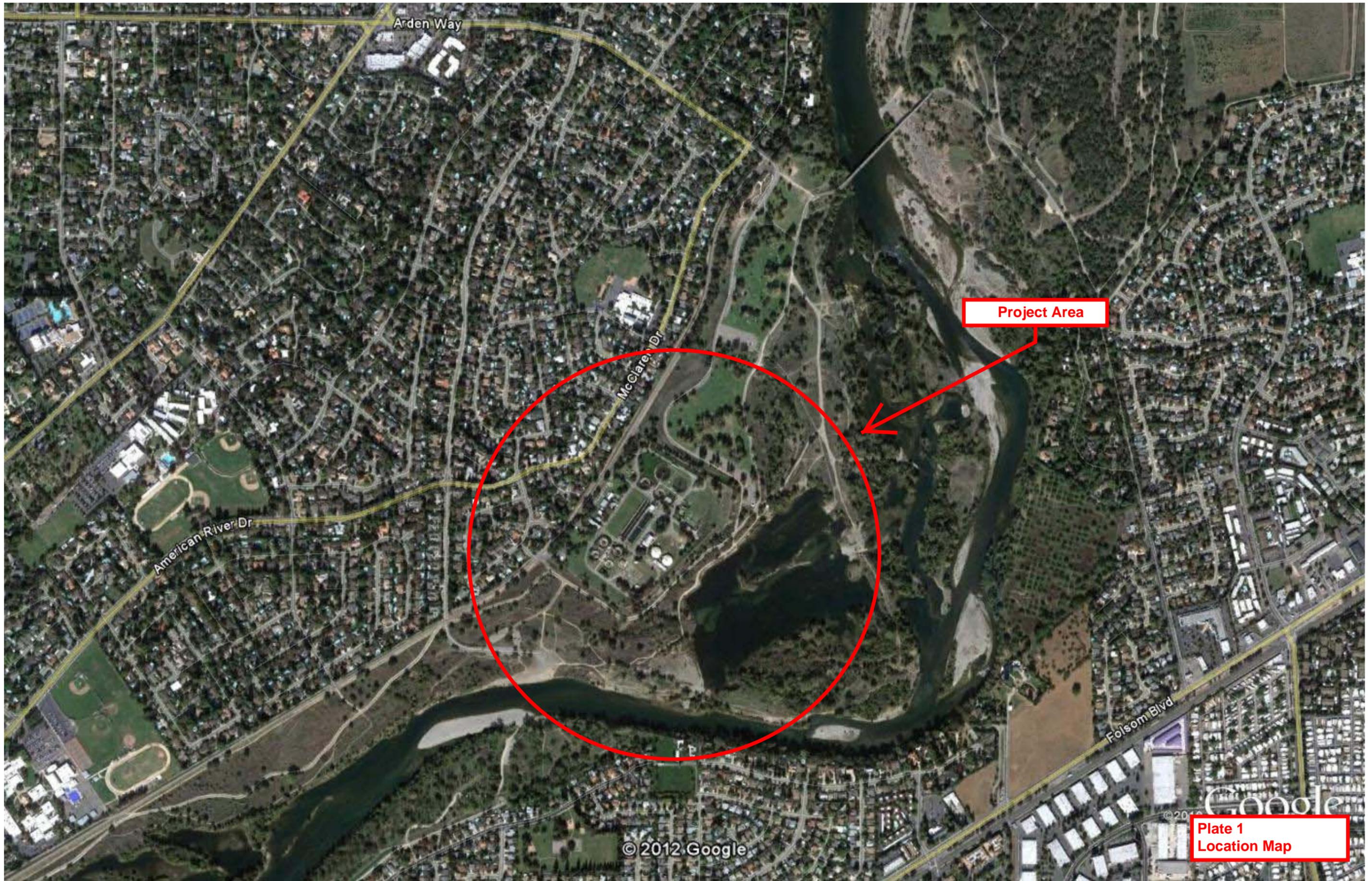
10.2 List of Agencies and Persons Contacted

California State Department of Water Resources: Ms. Erin Brehmer

Sacramento Area Flood Control Agency: Mr. Grant Kreinberg

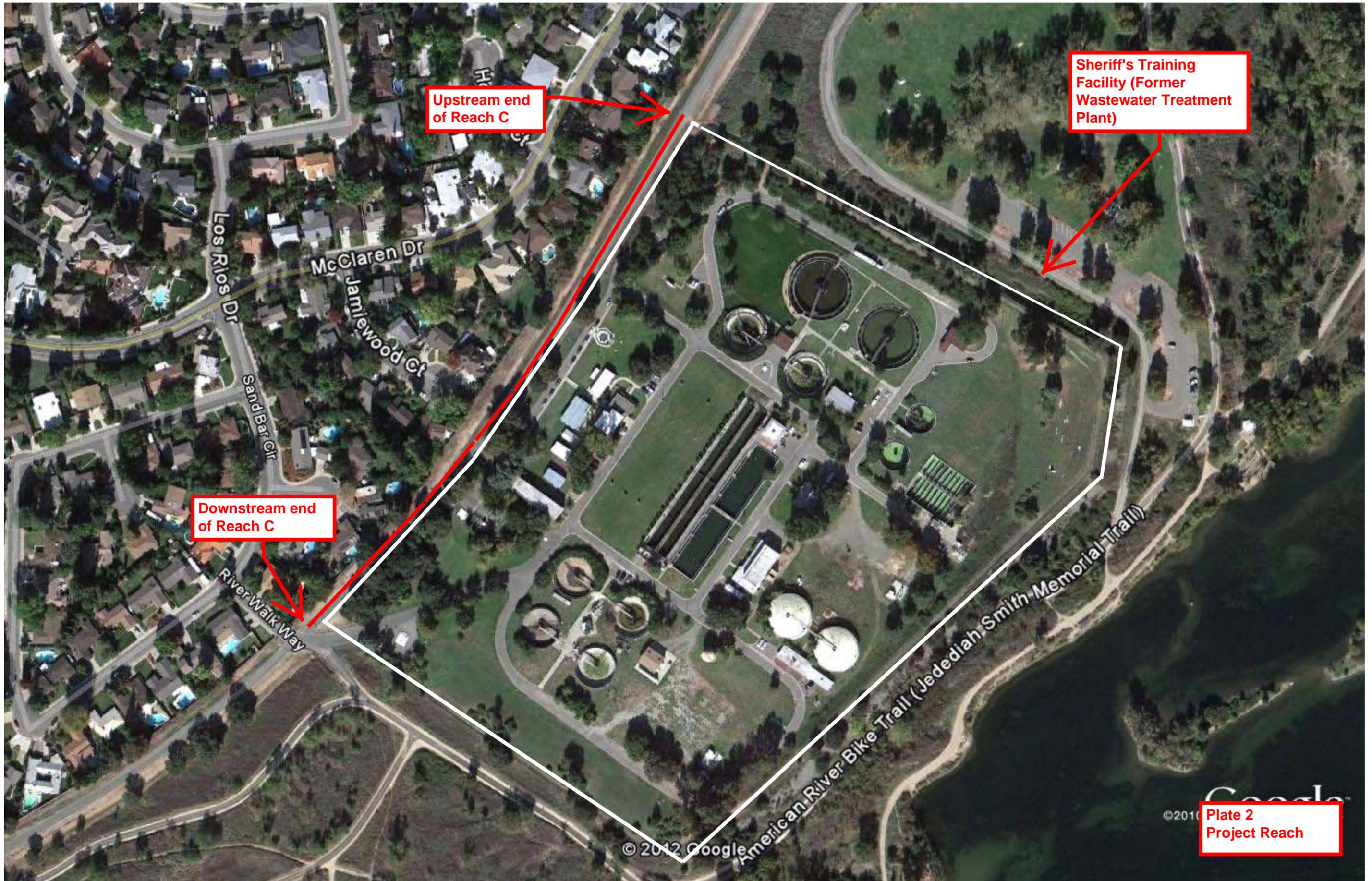
Sacramento County Regional Parks: Ms. Mary Maret

Plates



Project Area

Plate 1
Location Map



Upstream end of Reach C

Sheriff's Training Facility (Former Wastewater Treatment Plant)

Downstream end of Reach C

©2010 Plate 2 Project Reach

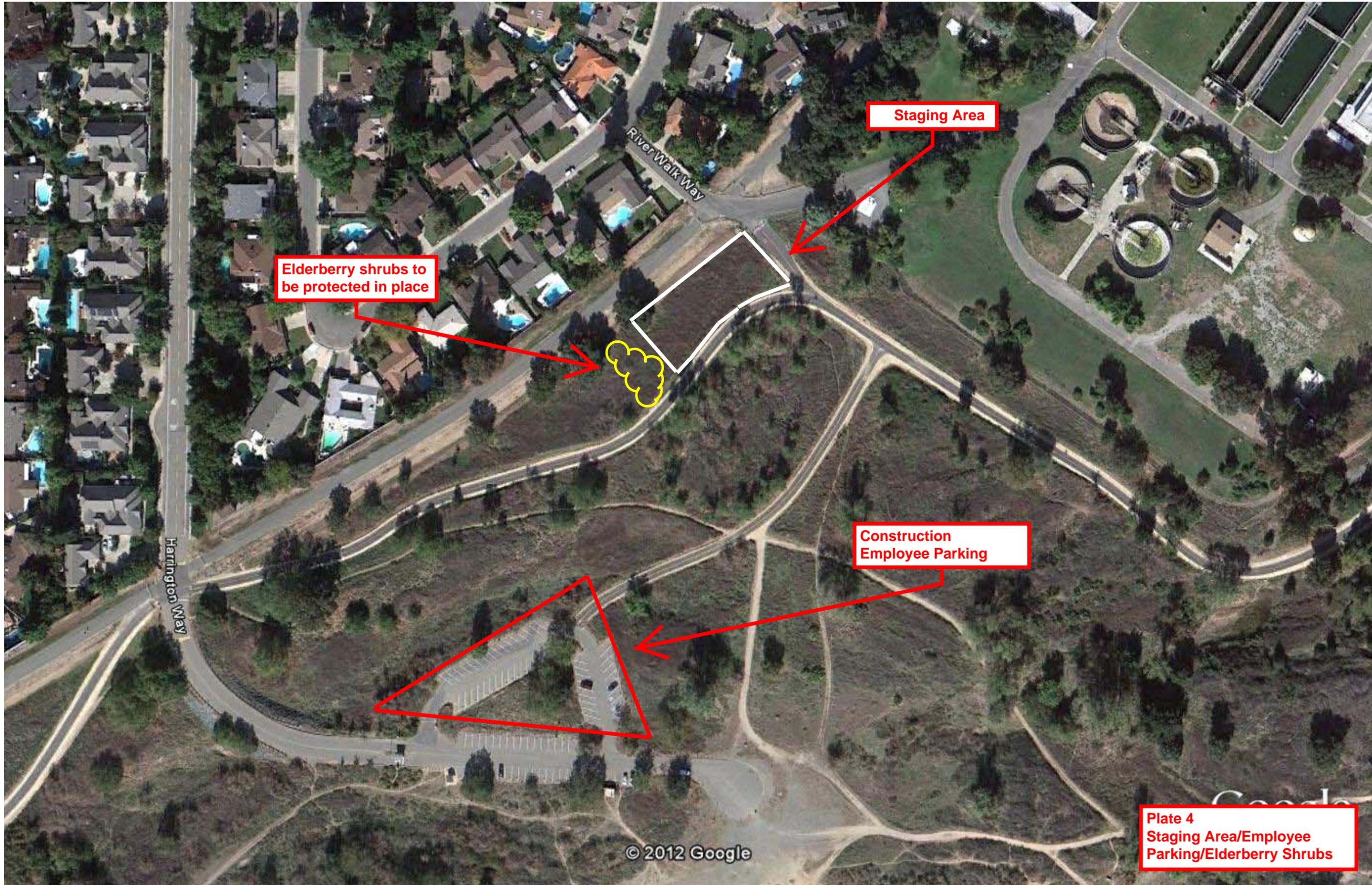
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NEW LEVEE CENTERLINE

EXISTING LEVEE CENTERLINE

Plate 3
Current and Proposed Levee
Alignments (Centerline)



Elderberry shrubs to be protected in place

Staging Area

Construction Employee Parking

Plate 4
Staging Area/Employee
Parking/Elderberry Shrubs

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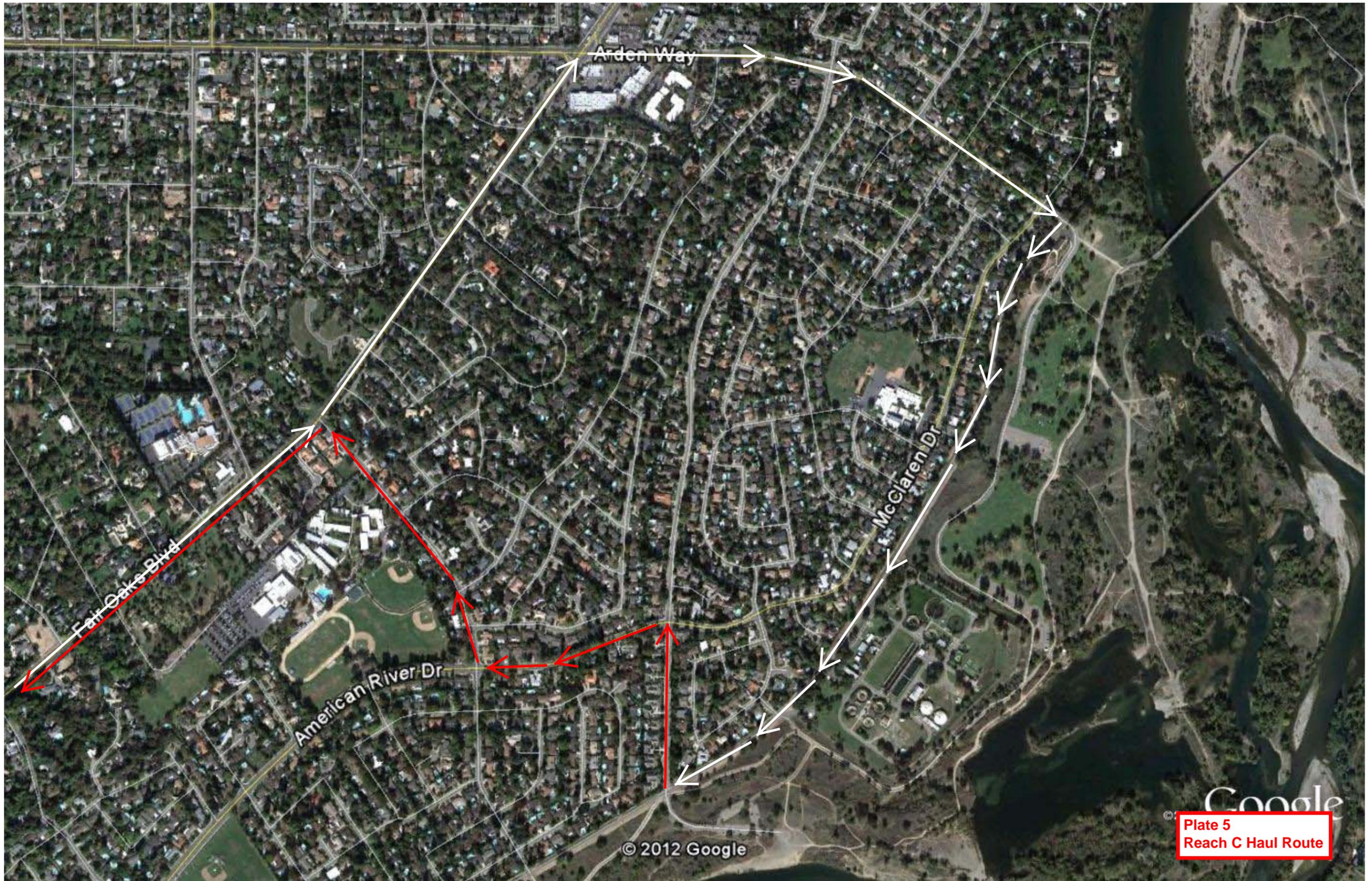
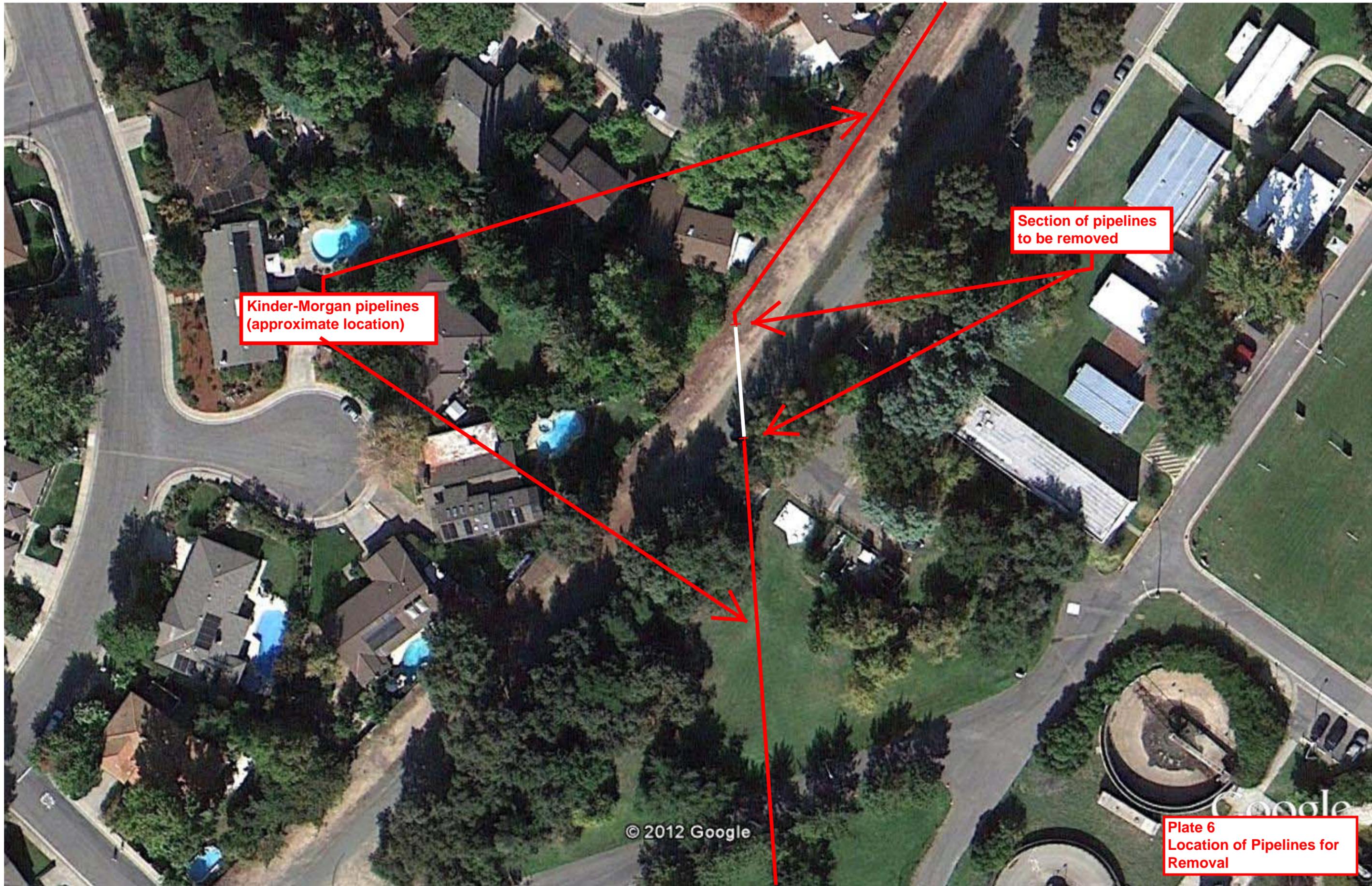


Plate 5
Reach C Haul Route

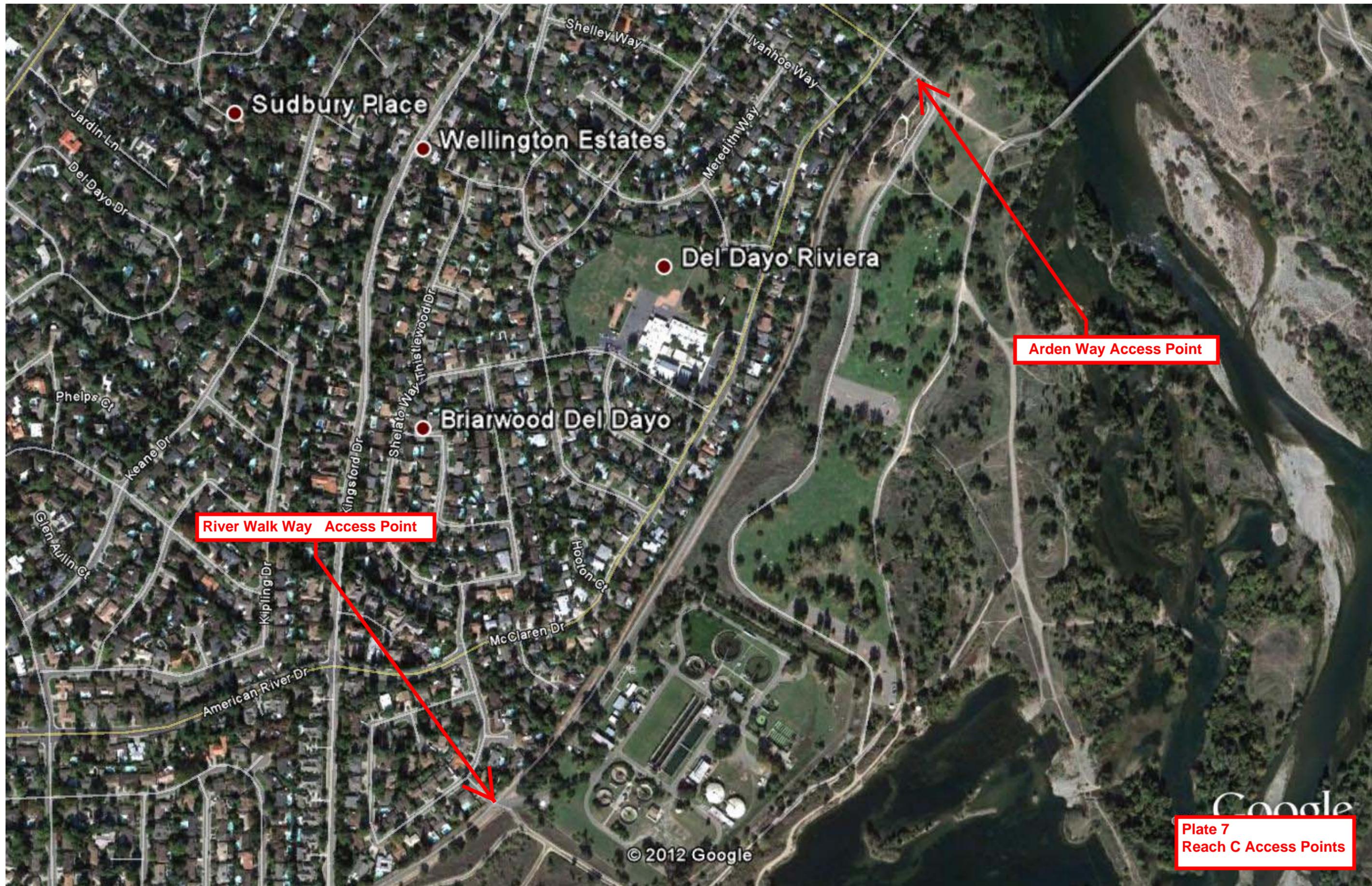


Kinder-Morgan pipelines
(approximate location)

Section of pipelines
to be removed

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Plate 6
Location of Pipelines for
Removal



River Walk Way Access Point

Arden Way Access Point

Plate 7
Reach C Access Points

Appendix A

Correspondence Regarding Special Status Species



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

Ms. Susan Moore, Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846

MAY 24 2012

Dear Ms. Moore:

This letter is to reinitiate consultation for the Federally-listed valley elderberry longhorn beetle (*Desmocerus californicus*) under Section 7(a) of the Endangered Species Act, as amended, for the Jacob Lane Reach C Levee Improvement Project, as part of the 1999 Water Resources Development Act's American River Watershed (Common Features) Project, Sacramento County, California. We are requesting amending the existing Biological Opinion 1-1-00-F-0193, subject as above, dated July 16, 2003. This reinitiation is due to changes in the project description which was originally analyzed in the earlier consultation. The entire project is located in Sacramento County along the north bank of the American River between approximately river mile (RM) 12.2R and 12.4R in the Carmichael area of Sacramento. Specifically, the Jacob Lane Reach C project will realign and widen a 1,385 foot section of levee along the American River located adjacent to the Sheriff's Training Facility (Plates 1 and 2). The completed project would stabilize the levees in this section to safely convey emergency releases of 160,000 cfs from Folsom Dam to the American River.

We previously consulted with your office on the Jacob Lane Project in 2008. Two reaches (Reach A and Reach B) located between the Watt Ave. Bridge and Arden Way, have already been constructed. Reach A, the downstream reach, extends from River Mile (RM) 10.4R to RM 11.3R and had a total length of approximately 5,000 linear feet (LF). This work required raising the levee an average of 1 foot in height and was conducted in 2009. Reach B extends from RM 11.5R to RM 13.2R for a total length of approximately 6,400 LF. Reach B began 400 feet downstream of Jacob Lane and terminated at Arden Way, and included the area bordered by the local Sheriff's Training Facility. The work in Reach B required widening the levee by an average of 4 to 6 feet, and was completed in 2010, with the exception of the area adjacent to the Sheriff's Training Facility. This section was removed from the Reach B construction due to encroachment considerations, and designated as Reach C.

The proposed work at Jacob Lane Reach C encompasses the area adjacent to the Sheriff's Training Facility and is a subset of Reach B. Reach C is approximately 1,385 LF long with the downstream terminus at River Walk Way and the upstream terminus at the upstream property line of the Sheriff's Training Facility. The entire Reach C project area is situated in a narrow corridor between the Sheriff's Training Facility on the waterside of the levee, and residences on the landside. The work at Reach C would involve removing the levee and reconstructing it between 10 feet and 15 feet further landward. The new levee would reflect corrections to the width of the levee and the levee crown that were incorporated into the Reach B construction.

These corrections are required in order to meet minimum cross section standards specified in Corp EM 1110-2-1913. A minimum crown width of 20 feet is also needed for levee inspection and flood fighting activities.

Construction on Reach C is projected for the summer of 2013 and should last approximately three months. The proposed directional flow of the construction activities is from upstream to downstream. Construction of the realigned levee would require that 3 to 6 inches of the levee crown and both landside and waterside slopes be cleared and grubbed of all vegetation and surface material. A set of three pipelines formerly used to transport jet fuel from a petroleum facility on the south side of the river to the former McClellan Air Force Base, and beyond, must also be removed prior to levee construction. The pipelines are located in a small portion of the northwest corner of the Sheriff's Training Facility, cross the levee in a northeasterly direction, and follow the open space on the landside of the levee to Arden Way, and beyond (Plate 3). Approximately 100 LF of the pipelines that are located within the levee footprint would be removed in preparation for the realignment of the levee.

Once the pipelines have been removed, the entire length of the existing levee from River Walk Way to the upstream end of the Sheriff's Training Facility would be removed, down to grade, and placed in the staging area. Approximately 5,400 cubic yards (cy) of soil would be moved to the staging area (an average distance of 1,000 feet). Evaluation of the levee indicates that virtually all of this soil is suitable material and would be used for reconstruction of the levee in the new alignment. The levee would then be reconstructed to a consistent 20 foot crest for the full length of the reach, using a combination of the excavated soil, and up to approximately 1,000 cy of borrow material: 530 cy to meet levee standards, 405 cy to replace material lost from stripping organic material from side slopes and approximately 60 cy to replace the removed pipelines. The combination of the borrow soil and the excavated material would then be compacted to reform the levee to Corps standards. Once levee construction is completed, aggregate base material would be reinstalled on the levee surface to provide for the maintenance road.

Degrading the current levee and construction of the realigned levee to meet Corps standards would require the removal of six trees and five elderberry shrubs (*Sambucus sp.*), as well as minor trimming of a sixth elderberry shrub. The trees and shrubs identified for removal are located on both the waterside and landside of the levee (Plate 4). During a site visit on March 2, 2012, staff from USFWS and the Corps surveyed the elderberry shrubs identified for removal and trimming. The survey indicated that there a total of five stems greater than 1 inch and less than three inches in diameter, one stem greater than three inches and less than five inches in diameter, and four stems greater than five inches in diameter. The shrubs are not considered in a riparian area and no exit holes were observed during the survey. The shrubs would be removed and transplanted during the dormant season (November 1, 2012 to February 15, 2013). Direct impacts to the six shrubs would result in compensation requirements

of 19 elderberry seedlings and 19 associated natives in 0.16 acres. Transplants and compensation plantings would be proposed at an existing mitigation site, such as Goethe or Rossmoor. However, if adequate space is not available at an existing mitigation site, a USFWS-approved mitigation bank would be used.

The staging area for Reach C would be located in an open area just downstream of River Walk Way between the waterside toe of the levee and the Jedediah Smith Recreational Trail (Plate 5). It consists of primarily open grassland with small areas that have been disturbed by human activity. Construction materials, equipment, spoils and excess material would be stored in the staging area during the construction period. Parking for construction workers would be located 400 feet downstream of the staging area at the Harrington Way River Access Boat Ramp parking lots. During the March 2 survey, several elderberry shrubs were identified in the vicinity of the staging area but were not surveyed. The Corps has taken their location into consideration and has proposed that the shrubs be protected in place using water-filled barriers. The barriers would protect the shrubs from damage by the equipment, as well as from soil that may slide down the slope of piles of staged soil. The barriers would be placed as far from the dripline of the shrubs as possible, however, it is likely that the 100-foot buffer zone will not be able to be met in all cases.

To minimize potential take of the VELB, the following measures taken from the USFWS "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999 would be incorporated into the project:

- A minimum setback of 100 feet from the dripline of all elderberry shrubs will be established, if possible. If the 100 foot minimum buffer zone is not possible, the next maximum distance allowable will be established. Due to the limited options for locating the staging area, as well as the limited space within the staging area, it would be difficult to observe the required 100-foot radius buffer zone for protection of the elderberry shrubs. The Corps is proposing a minimum 20-foot radius buffer zone, using concrete or water-filled barriers for protection, and limiting construction until after the no-disturbance period (after June 15). These areas would be fenced, flagged, and maintained during construction.
- Environmental awareness training would be conducted for all workers before they begin work. The training would include status, the need to avoid adversely affecting the elderberry shrub, avoidance areas and measures taken by the workers during construction, and contact information.

- Signs would be placed every 50 feet along the edge of the elderberry buffer zones. The signs would include: "This area is the habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be readable from a distance of 20 feet and would be maintained during construction.

Dust suppression measures will be used and a biological monitor will provide instruction on establishing the buffer zones for the shrubs. All areas disturbed by construction activities will be restored to preproject conditions. All levee slopes and parkway areas will be reseeded with native grasses.

We request your concurrence with our determination that the Jacob Lane Reach C Levee Improvement Project may effect, but is not likely to adversely affect, the valley elderberry longhorn beetle, or its habitat. If you need additional information, please contact Mr. John Suazo at (916) 557-6719 or email: john.suazo@usace.army.mil. Thank you for your coordination on this project.

Sincerely,



 Alicia E. Kirchner
Chief, Planning Division

Enclosure

Copy Furnished (w/o enclosures):

Mr. Doug Weinrich, U.S. Fish and Wildlife Service, 2800 Cottage Way, Sacramento, CA 95825

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
CARMICHAEL (512D)
U.S.G.S. 7 1/2 Minute Quad**

Database last updated: September 18, 2011

Report Date: March 20, 2012

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Lepidurus packardi

Critical habitat, vernal pool tadpole shrimp (X)

vernal pool tadpole shrimp (E)

Fish

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

Thamnophis gigas

giant garter snake (T)

Plants

Orcuttia tenuis

Critical habitat, slender Orcutt grass (X)

slender Orcutt grass (T)

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)

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

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
SACRAMENTO EAST (512C)
U.S.G.S. 7 1/2 Minute Quad**

Database last updated: September 18, 2011

Report Date: March 20, 2012

Listed Species

Invertebrates

Branchinecta lynchi

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Lepidurus packardi

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)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (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

Thamnophis gigas

giant garter snake (T)

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



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 64907	EO Index: 64986
Key Quad: Carmichael (3812153)	Element Code: ABNKC19070
Occurrence Number: 1641	Occurrence Last Updated: 2007-05-25

Scientific Name: <i>Buteo swainsoni</i>	Common Name: Swainson's hawk
Listing Status: Federal: None State: Threatened	Rare Plant Rank:
CNDDB Element Ranks: Global: G5 State: S2	Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern

General Habitat: BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.	Micro Habitat: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.
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Last Date Observed: 2007-05-16	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2007-05-16	Occurrence Rank: Good
Owner/Manager: PVT-GENCORP AEROJET	Trend: Unknown
Presence: Presumed Extant	

Location:
NORTH OF WHITE ROCK ROAD, 0.5 MILE EAST OF SUNRISE BOULEVARD, RANCHO CORDOVA.

Detailed Location:
NESTS WERE ALL LOCATED IN COTTONWOODS, WITH THE 2006-07 NEST TREE LOCATED ~1000' NORTH OF THE 2005 NEST TREE. SITE IS SURROUNDED BY COMMERCIAL DEVELOPMENT TO THE WEST, AND DREDGER TAILINGS TO THE NORTH, EAST, AND SOUTH.

Ecological:
NEST TREE WAS A COTTONWOOD, SURROUNDED BY SCATTERED COTTONWOODS AND OAKS, AND AN UNDERSTORY COMPOSED PRIMARILY OF DREDGER TAILINGS. ANNUAL GRASSES, THISTLES AND OTHER HERBACEOUS VEGETATE THE DREDGER TAILINGS.

Threats:
General:
 IN 2005, A SWHA PAIR NESTED JUST NORTH OF WHITE ROCK ROAD. ON 8 JUN 2006, A FEMALE WAS OBSERVED ON A NEST IN A TREE 1000' NORTH OF THE 2005 NEST TREE. PAIR OBSERVED NESTING ON 16 MAY 2007 IN THE 2006 NEST TREE.

PLSS: T09N, R07E, Sec. 31 (M)	Accuracy: specific area	Area (acres): 17
UTM: Zone-10 N4273046 E651960	Latitude/Longitude: 38.59290 / -121.25511	Elevation (feet): 130

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:
 BAL06F0001 BALLARD, A. (ECORP CONSULTING, INC.) - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2006-06-08
 BAL07F0001 BALLARD, A. (ECORP CONSULTING, INC.) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2007-05-16



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33222	EO Index: 2603
Key Quad: Carmichael (3812153)	Element Code: ABPAU08010
Occurrence Number: 199	Occurrence Last Updated: 1995-11-02

Scientific Name: <i>Riparia riparia</i>	Common Name: bank swallow
Listing Status:	Rare Plant Rank:
Federal: None	
State: Threatened	Other Lists: BLM_S-Sensitive IUCN_LC-Least Concern
CNDDB Element Ranks:	
Global: G5	
State: S2S3	

General Habitat: COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.	Micro Habitat: REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.
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Last Date Observed: 1995-06-12	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-06-12	Occurrence Rank: Good
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
AMERICAN RIVER, AT THE DOWNSTREAM END OF SUICIDE BEND, AMERICAN RIVER PARKWAY.

Detailed Location:

Ecological:
HABITAT CONSISTED OF A VERTICAL, SW-FACING SANDY BANK SURROUNDED BY RIPARIAN WOODLAND.

Threats:
POSSIBLE THREATS INCLUDE HEAVY RECREATIONAL USE OF RIVER AND SURROUNDING AREA BY RAFTERS.

General:
10 ADULTS OBSERVED NESTING AND FORAGING ON 12 JUNE 1995.

PLSS: T09N, R06E, Sec. 23 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4276424 E648890	Latitude/Longitude: 38.62385 / -121.28962	Elevation (feet): 70

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:
PER95F0001 PERRINE, P., B. BABA & T. CHAPPELLE - FIELD SURVEY FORM FOR RIPARIA RIPARIA (COLONY SITE) 1995-06-12



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33179	EO Index: 2804	
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030	
Occurrence Number: 13	Occurrence Last Updated: 1996-07-08	

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 1995-04-03	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-04-03	Occurrence Rank: Good
Owner/Manager: PVT-RMC LONESTAR	Trend: Unknown
Presence: Presumed Extant	

Location:
0.6 MILE NNW OF THE INTERSECTION OF EAGLES NEST ROAD AND DOUGLAS ROAD, NE OF (FORMER) MATHER AIR FORCE BASE.

Detailed Location:
Ecological:
HABITAT CONSISTS OF A VERNAL POOL ON RED BLUFF LOAM SOIL; DOMINANT PLANTS INCLUDE RANUNCULUS BONARIENSIS VAR TRISEPALUS, ERYNGIUM VASEYI, LIMNANTHES ALBA, AND ELEOCHARIS MACROSTACHYA.

Threats:
POSSIBLE THREAT OF GRAVEL MINING - SITE IS OWNED BY A GRAVEL MINING COMPANY, CURRENTLY MINING NORTH AND WEST OF SITE.

General:
1 EXUVIUM COLLECTED ON 3 APRIL 1995 AND DEPOSITED AT CAS.

PLSS: T08N, R06E, Sec. 12 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4270325 E651241	Latitude/Longitude: 38.56852 / -121.26395	Elevation (feet): 125

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

FIE95F0002	FIELDS, W. (HYDROZOOLOGY) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1995-04-03
FIE95U0001	FIELDS, W.C. (HYDROZOOLOGY) - FORMAL LETTER TO DFG FOR VERNAL POOL CRUSTACEAN SURVEY ON RMC LONESTAR LAND - ATTACHED TO FIE95F0001 & FIE95F0002. 1995-05-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32441	EO Index: 2104
Key Quad: Buffalo Creek (3812152)	Element Code: ICBRA03030
Occurrence Number: 33	Occurrence Last Updated: 1995-09-22

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1995-02-01	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-02-01	Occurrence Rank: Unknown
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
ADJACENT TO MATHER AIR FORCE BASE; APPROX. 0.6 KM SOUTHWEST OF THE INTERSECTION BETWEEN SUNRISE BLVD AND JACKSON ROAD.

Detailed Location:
GRECH PROPERTY (SURVEYED FOR SACRAMENTO AGGREGATES).

Ecological:
HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.

Threats:
RURAL AGRICULTURAL USES.

General:
POOLS #41 & 42: <50 ADULTS OBSERVED; POOLS #47 & 48: 50+ ADULTS OBSERVED; 11 ADULTS COLLECTED AND DEPOSITED IN CAS.

PLSS: T08N, R07E, Sec. 31 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4263033 E652766	Latitude/Longitude: 38.50257 / -121.24805	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Sloughouse (3812142), Buffalo Creek (3812152), Carmichael (3812153)
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Sources:

SUG95R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX
SUG95R0002	SUGNET & ASSOCIATES - CORRECTIONS TO ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933, 1994-95. 1995-10-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32443	EO Index: 637
Key Quad: Sacramento East (3812154)	Element Code: ICBRA03030
Occurrence Number: 35	Occurrence Last Updated: 1996-03-11

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1995-01-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-01-05	Occurrence Rank: Unknown
Owner/Manager: PVT-PIPE TRADES TRUST FUND	Trend: Unknown
Presence: Presumed Extant	

Location:
1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.

Detailed Location:
ELDER CREEK PROPERTY. BRANCHINECTA LYNCHI WERE FOUND IN TWO OF 90 SAMPLED WETLANDS.

Ecological:
HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.

Threats:
RURAL AGRICULTURE; URBAN DEVELOPMENT OCCURING IN VICINITY.

General:
POOL #46: 12/21/1994: >50 ADULTS OBSERVED, 1/5/1995: <50 ADULTS OBSERVED, 3 SPECIMENS COLLECTED AND DEPOSITED IN CAS; POOL #51: 12/21/94: >50 ADULTS OBSERVED, 1/5/95: >50 ADULTS OBSERVED.

PLSS: T08N, R05E, Sec. 36 (M)	Accuracy: nonspecific area	Area (acres): 16
UTM: Zone-10 N4263165 E641409	Latitude/Longitude: 38.50564 / -121.37821	Elevation (feet): 40

County Summary: Sacramento	Quad Summary: Carmichael (3812153), Sacramento East (3812154)
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Sources:
SUG95R0001 SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32447	EO Index: 1012
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 39	Occurrence Last Updated: 1997-03-27

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1995-02-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-02-05	Occurrence Rank: Unknown
Owner/Manager: PVT-GRANITE CONSTRUCTION CO	Trend: Unknown
Presence: Presumed Extant	

Location:
1.3 KM W OF KIEFER BLVD & MATHER PARK WAY; S OF FORMER MATHER AFB.

Detailed Location:
GRANITE-TEICHERT PILOT PROJECT SITE (PART).

Ecological:
BOTH CONSTRUCTED & HISTORIC HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND; WETLAND COMPENSATION/MITIGATION PRESERVE.

Threats:
General:
POOLS #1,2,4,5,6,&7: 50+ OBSERVED IN EACH POOL; 11 COLLECTED & DEPOSITED IN CAS.

PLSS: T08N, R06E, Sec. 22 (M)	Accuracy: specific area	Area (acres): 5
UTM: Zone-10 N4266606 E647513	Latitude/Longitude: 38.53565 / -121.30751	Elevation (feet): 70

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

SUG95R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX
SUG95R0002	SUGNET & ASSOCIATES - CORRECTIONS TO ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933, 1994-95. 1995-10-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32448	EO Index: 1013
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 40	Occurrence Last Updated: 1996-01-12

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 1995-02-01	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-02-01	Occurrence Rank: Unknown
Owner/Manager: PVT-SACRAMENTO AGGREGATES	Trend: Unknown
Presence: Presumed Extant	

Location:
0.9 KM ESE OF EAGLES NEST ROAD X JACKSON ROAD; S OF FORMER MATHER AFB.

Detailed Location:
GRECH PROPERTY.

Ecological:
HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.

Threats:
AGRICULTURE.

General:
POOLS #6, 55, 63 & 64: 50+ ADULTS OBSERVED; POOL #21-1000+ ADULTS OBSERVED; 8 ADULTS COLLECTED AND DEPOSITED IN CAS.

PLSS: T08N, R07E, Sec. 31 (M)	Accuracy: nonspecific area	Area (acres): 9
UTM: Zone-10 N4263319 E652340	Latitude/Longitude: 38.50522 / -121.25287	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

SUG95R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX
SUG95R0002	SUGNET & ASSOCIATES - CORRECTIONS TO ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933, 1994-95. 1995-10-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32459	EO Index: 1745	
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030	
Occurrence Number: 47	Occurrence Last Updated: 1999-12-21	

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1999-02-23	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1999-02-23	Occurrence Rank: Excellent
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
SW OF MATHER AFB; BETWEEN KIEFER BLVD, BRADSHAW ROAD, JACKSON ROAD AND EXCELSIOR ROAD.

Detailed Location:
GRANITE CONSTRUCTION CO. AND TEICHERT MINING CO. GANITE I PRESERVE IS IN THE NORTHERN MIDDLE PORTION OF MAPPED AREA ALONG KIEFER BLVD, SURVEYED 1997-99.

Ecological:
VERNAL POOLS; GRAZED ANNUAL GRASSLAND.

Threats:
GRAZING; GRAVEL PITS IN NORTHERN PORTION OF SITE; PROPOSED AGGREGATE MINING.

General:
MANY INDIVIDUALS OBSERVED; SURVEY CONDUCTED FROM 2/22/91 TO 3/30/91; OVERALL SITE QUALITY IS QUESTIONABLE. UNKNOWN NUMBER OBSERVED IN 1 VERNAL POOL ON 3/5/93. SUGNET RECORD #73. PRESERVE SITE HAD 100'S TO 1000'S OBSERVED IN 1997-99

PLSS: T08N, R06E, Sec. 21 (M)	Accuracy: nonspecific area	Area (acres): 1,493
UTM: Zone-10 N4266114 E646979	Latitude/Longitude: 38.53130 / -121.31374	Elevation (feet): 70

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

HUB91F0001	HUBER, A. (BIOSYSTEMS ANALYSIS, INC.) - FIELD SURVEY FORMS FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1991-03-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
WHI97F0001	WHITNEY, K. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1997-01-24
WHI98F0001	WHITNEY, K. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1998-01-XX
WHI99F0001	WHITNEY, K. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1999-02-23



Occurrence Report
California Department of Fish and Game
California Natural Diversity Database



Map Index Number: 36806	EO Index: 31803
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 185	Occurrence Last Updated: 1997-09-22

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDB Element Ranks:	
Global: G3	
State: S2S3	

General Habitat:	Micro Habitat:
ENDEMIC TO THE GRASSLANDS OF THE CENTRAL VALLEY, CENTRAL COAST MTNS, AND SOUTH COAST MTNS, IN ASTATIC RAIN-FILLED POOLS.	INHABIT SMALL, CLEAR-WATER SANDSTONE-DEPRESSION POOLS AND GRASSED SWALE, EARTH SLUMP, OR BASALT-FLOW DEPRESSION POOLS.

Last Date Observed: 1991-04-06	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1991-04-06	Occurrence Rank: Unknown
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
0.25 MILE EAST OF THE INTERSECTION OF EXCELSIOR ROAD AND JACKSON HWY, SOUTH OF (OLD) MATHER AIR FORCE BASE.

Detailed Location:
LOCATED ON THE NORTH SIDE OF JACKSON HWY.

Ecological:
HABITAT CONSISTS OF VERNAL POOLS.

Threats:
General:
UNKNOWN NUMBER COLLECTED BY CHRIS NAGANO AND JAMIE KING; SENT TO DENTON BELK (DB #990) FOR IDENTIFICATION.

PLSS: T08N, R06E, Sec. 26 (M)	Accuracy: 1/10 mile	Area (acres): 0
UTM: Zone-10 N4264728 E648763	Latitude/Longitude: 38.51852 / -121.29357	Elevation (feet): 115

County Summary:	Quad Summary:
Sacramento	Carmichael (3812153)

Sources:
BEL94U0001 BELK, D. - DENTON BELK'S COLLECTION CARDS FOR BRANCHINECTA LYNCHI, COLLECTED 1991-94 1994-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 36874	EO Index: 31871
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 190	Occurrence Last Updated: 2000-08-10

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 2000-03-15	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2000-03-15	Occurrence Rank: Good
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
VICINITY OF THE INTERSECTION OF EAGLES NEST ROAD AND HWY 16 (JACKSON ROAD), SOUTH OF MATHER AIR FORCE BASE.

Detailed Location:

Ecological:
HABITAT CONSISTS OF NORTHERN HARDPAN VERNAL POOLS, AS WELL AS SCRAPES, SWALES, DEPRESSIONS, AND STOCK PONDS; SURROUNDED BY NON-NATIVE GRASSLAND.

Threats:
THREATENED BY GRAVEL MINING.

General:
NUMEROUS FAIRY SHRIMP FOUND AT THIS SITE DURING SPRING 1996 AND 1997 SURVEYS. OBSERVED 10+ ADULTS MARCH 2000, IN WESTERN PORTION OF POLYGON.

PLSS: T08N, R07E, Sec. 31 (M)	Accuracy: nonspecific area	Area (acres): 588
UTM: Zone-10 N4263168 E652250	Latitude/Longitude: 38.50388 / -121.25393	Elevation (feet): 125

County Summary: Sacramento	Quad Summary: Sloughhouse (3812142), Elk Grove (3812143), Buffalo Creek (3812152), Carmichael (3812153)
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Sources:

MUT00F0008	MUTH, D. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 2000-03-15
MUT96F0007	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1996-XX-XX
MUT96F0008	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1996-XX-XX
MUT96F0009	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1996-XX-XX
MUT96F0010	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1996-XX-XX
MUT96F0011	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1996-XX-XX
MUT96F0012	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1996-XX-XX
MUT97F0001	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1997-XX-XX
MUT97F0002	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1997-XX-XX
MUT97F0003	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 1997-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33693	EO Index: 42057	
Key Quad: Elk Grove (3812143)	Element Code: ICBRA03030	
Occurrence Number: 228	Occurrence Last Updated: 1999-12-27	

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 1998-01-28	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1998-01-28	Occurrence Rank: Excellent
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
ARROYO SECO SITE, 0.8 MILE ENE JCT OF EXCELSIOR RD & FLORIN RD, 1.5 MILES WSW OF JCT EAGLES NEST RD & JACKSON RD.

Detailed Location:
ARROYO SECO MITIGATION BANK SITE (PREVIOUSLY DESCRIBED AS: VERNAL POOLS SOMEWHERE IN SECTION 35).

Ecological:
NATURAL VERNAL POOLS IN A VERNAL POOL COMMUNITY.

Threats:
General:
100'S OBSERVED IN MITIGATION BANK, SURVEYED 28 JAN 1998.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: specific area	Area (acres): 162
UTM: Zone-10 N4262624 E649584	Latitude/Longitude: 38.49943 / -121.28461	Elevation (feet): 115

County Summary: Sacramento	Quad Summary: Elk Grove (3812143), Carmichael (3812153)
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Sources:
WHI98F0003 WHITNEY, K. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1998-01-28



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 48381	EO Index: 48381
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 321	Occurrence Last Updated: 2002-07-29

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 2002-01-12	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-01-31	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY-PARKS & REC	Trend: Unknown
Presence: Presumed Extant	

Location:
MATHER LAKE REGIONAL PARK, NE SIDE OF MATHER LAKE, SOUTH OF DOUGLAS ROAD & WEST OF SUNRISE BLVD.

Detailed Location:
OBSERVED IN ALL OF THE SAMPLED WETLANDS (A, B, C, D, E, F AND G).

Ecological:
HABITAT CONSISTS OF ANNUAL GRASSLAND DOMINATED BY NON-NATIVE PLANTS WITH NATURALLY OCCURRING & POSSIBLY ARTIFICIAL SEASONAL WETLANDS, INCLUDING VERNAL POOLS. PLANTS WITHIN WETLANDS: CARTER'S BUTTERCUP, WINGED WATER-STARWORT, POPCORN FLOWER.

Threats:
General:
INDIVIDUALS OBSERVED ON 12 JAN 2002. VOUCHER SPECIMENS TO BE COLLECTED ON 31 JAN 2002, HOWEVER NO INDIVIDULAS WERE OBSERVED.

PLSS: T08N, R07E, Sec. 07 (M)	Accuracy: specific area	Area (acres): 16
UTM: Zone-10 N4269103 E652367	Latitude/Longitude: 38.55732 / -121.25130	Elevation (feet): 135

County Summary: Sacramento	Quad Summary: Buffalo Creek (3812152), Carmichael (3812153)
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Sources:
ECO02R0002 ECORP CONSULTING, INC. - ANNUAL REPORT OF FINDINGS REGARDING FEDERALLY-LISTED BRANCHIOPODS FOR MATHER LAKE REGIONAL PARK, SACRAMENTO COUNTY, CALIFORNIA. 2002-04-17



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 53920	EO Index: 53922
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 355	Occurrence Last Updated: 2004-01-13

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 2002-03-15	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-03-15	Occurrence Rank: Excellent
Owner/Manager: PVT-GRANITE CONSTRUCTION CO	Trend: Unknown
Presence: Presumed Extant	

Location:
SW END OF THE RUNWAY OF OLD MATHER AIR FORCE BASE, 1 MILE NE OF THE INTERSECTION OF BRADSHAW ROAD AND JACKSON ROAD

Detailed Location:
VERNAL POOL PRESERVE CONSISTS OF 38 VERNAL POOLS ON 10.04 ACRES.

Ecological:
HABITAT CONSISTS OF A A VERNAL POOL PRESERVE, DOMINATED BY PLAGIOBOTHRYUS STIPITATUS, LASTHENIA FREMONTII, DOWNINGIA BICORNUTA, ERYNGIUM VASEYI, NAVARRETIA LEUCOCEPHALA, AND DESCHAMPSIA DANTHONIODES.

Threats:

General:
POOLS HAVE BEEN MONITORED EACH YEAR IN EARLY SPRING SINCE 1998; EVERY YEAR, 1998-2002, BRANCHINECTA LYNCHI HAS BEEN FOUND, VARYING FROM 10'S TO 1000'S IN MANY POOLS AT THIS SITE.

PLSS: T08N, R06E, Sec. 16 (M)	Accuracy: specific area	Area (acres): 44
UTM: Zone-10 N4267058 E646210	Latitude/Longitude: 38.53993 / -121.32235	Elevation (feet): 65

County Summary:	Quad Summary:
Sacramento	Carmichael (3812153)

Sources:
FAR02F0002 FARMER, M. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI 2002-03-15



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 64355	EO Index: 64434
Key Quad: Carmichael (3812153)	Element Code: ICBRA03030
Occurrence Number: 413	Occurrence Last Updated: 2006-03-27

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 2005-02-20	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2005-02-20	Occurrence Rank: Excellent
Owner/Manager: PVT-SACRAMENTO VLY CONSERVANCY	Trend: Unknown
Presence: Presumed Extant	

Location:
SACRAMENTO PRAIRIE VERNAL POOL PRESERVE.

Detailed Location:
ABOUT 1.3 MILES SOUTHEAST OF INTERSECTION OF JACKSON RD. AND EXCELSIOR RD.

Ecological:
VERNAL POOLS.

Threats:
THE GRASS GLYCERIA DECLINATA IS BECOMING PROBLEMATIC IN THE GENERAL AREA.

General:
"LOTS" FOUND IN ONE POOL.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: specific area	Area (acres): 1
UTM: Zone-10 N4263264 E649989	Latitude/Longitude: 38.50513 / -121.27983	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

WIT05F0001	WITHAM, C. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI. ATTACHED TO REPORT, WIT05R01. 2005-02-20
WIT05R0001	WITHAM, C. - SACRAMENTO PRAIRIE VERNAL POOL PRESERVE, SPECIAL STATUS CRUSTACEAN LOCATIONS. 2005-05-17



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33179	EO Index: 2805	
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010	
Occurrence Number: 5	Occurrence Last Updated: 1996-07-08	

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1995-02-28	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-02-28	Occurrence Rank: Good
Owner/Manager: PVT-RMC LONESTAR	Trend: Unknown
Presence: Presumed Extant	

Location:
0.6 MILE NNW OF THE INTERSECTION OF EAGLES NEST ROAD AND DOUGLAS ROAD, NE OF (FORMER) MATHER AIR FORCE BASE.

Detailed Location:
Ecological:
HABITAT CONSISTS OF A VERNAL POOL ON RED BLUFF LOAM SOIL; DOMINANT PLANTS INCLUDE RANUNCULUS BONARIENSIS VAR TRISEPALUS, ERYNGIUM VASEYI, LIMNANTHES ALBA, AND ELEOCHARIS MACROSTACHYA.

Threats:
POSSIBLE THREAT OF GRAVEL MINING - SITE IS OWNED BY A GRAVEL MINING COMPANY, CURRENTLY MINING NORTH AND WEST OF SITE.

General:
1 EXUVIUM COLLECTED ON 28 FEBRUARY 1995 AND DEPOSITED AT CAS.

PLSS: T08N, R06E, Sec. 12 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4270325 E651241	Latitude/Longitude: 38.56852 / -121.26395	Elevation (feet): 125

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

FIE95F0001	FIELDS, W. (HYDROZOOLOGY) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1995-02-28
FIE95U0001	FIELDS, W.C. (HYDROZOOLOGY) - FORMAL LETTER TO DFG FOR VERNAL POOL CRUSTACEAN SURVEY ON RMC LONESTAR LAND - ATTACHED TO FIE95F0001 & FIE95F0002. 1995-05-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82551	EO Index: 2105
Key Quad: Buffalo Creek (3812152)	Element Code: ICBRA10010
Occurrence Number: 12	Occurrence Last Updated: 2011-06-24

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1996-XX-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1996-XX-XX	Occurrence Rank: Unknown
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
NORTHWEST THE JCT OF FLORIN RD & SUNRISE BLVD, INTERSECTED BY JACKSON HWY TO THE NORTH.

Detailed Location:
GRECH PROPERTY. SURVEYED FOR SACRAMENTO AGGREGATES. NAIP 2010 AERIAL IMAGE SHOWS HABITAT MODIFICATION FROM MINING.

Ecological:
HARDPAN VERNAL POOLS, SEASONAL WETLANDS, CUT OFF DRAINAGE CHANNEL, AND STOCKPOND IN A NON-NATIVE GRASSLAND. CURRENT/SURROUNDING LAND USE IS GRAZING.

Threats:
RURAL AGRICULTURAL USES AND MINING.

General:
1 FEB 1995: OBS <50 ADULTS IN POOLS #42, 70B, 72. & 200; ~50 ADULTS OBS IN POOLS 41, 44, 83C (6 COLL & DEPOSITED INTO CAS). 22 FEB 1995: <50 OBS IN POOL #44. 50+ ADULTS OBS IN POOL #41. SPRING 1996: >10 - ~100 IN POOLS N&S OF JACKSON HWY.

PLSS: T08N, R07E, Sec. 31 (M)	Accuracy: nonspecific area	Area (acres): 196
UTM: Zone-10 N4263033 E652768	Latitude/Longitude: 38.50257 / -121.24802	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Sloughhouse (3812142), Buffalo Creek (3812152), Carmichael (3812153)
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Sources:

MUT96F0004	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1996-XX-XX
MUT96F0005	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1996-XX-XX
MUT96F0006	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1996-XX-XX
SUG95R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX
SUG95R0002	SUGNET & ASSOCIATES - CORRECTIONS TO ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933, 1994-95. 1995-10-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32443	EO Index: 638
Key Quad: Sacramento East (3812154)	Element Code: ICBRA10010
Occurrence Number: 14	Occurrence Last Updated: 1996-03-06

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1995-03-31	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-03-31	Occurrence Rank: Unknown
Owner/Manager: PVT-PIPE TRADES TRUST FUND	Trend: Unknown
Presence: Presumed Extant	

Location:
1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.

Detailed Location:
ELDER CREEK PROPERTY. LEPIDURUS PACKARDI WERE FOUND IN 10 OF 90 SAMPLED WETLANDS.

Ecological:
HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND.

Threats:
RURAL AGRICULTURE; URBAN DEVELOPMENT OCCURING IN VICINITY.

General:
POOL #86: 2/21/1995: <50 ADULTS OBSERVED, 3/31/1995: <50 ADULTS OBSERVED; POOLS #21,43,46: <50 ADULTS OBSERVED; POOLS #38,41,44,45,50,53: >50 ADULTS OBSERVED; 4 ADULTS DEPOSITED IN CAS.

PLSS: T08N, R05E, Sec. 36 (M)	Accuracy: nonspecific area	Area (acres): 16
UTM: Zone-10 N4263165 E641409	Latitude/Longitude: 38.50564 / -121.37821	Elevation (feet): 40

County Summary: Sacramento	Quad Summary: Carmichael (3812153), Sacramento East (3812154)
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Sources:
SUG95R0001 SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32447	EO Index: 1011	
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010	
Occurrence Number: 21	Occurrence Last Updated: 1997-03-27	

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1996-03-21	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1996-03-21	Occurrence Rank: Unknown
Owner/Manager: PVT-GRANITE CONSTRUCTION CO	Trend: Unknown
Presence: Presumed Extant	

Location:
0.8 MI W OF EXCELSIOR RD AT KIEFER BLVD, SW OF FORMER MATHER AFB, 0.8 MI NNE OF CAMELIA MEMORIAL CEMETERY, SAC CO.

Detailed Location:
SMALL PARCEL LOCATED WITHIN GRANITE-TEICHERT PILOT PROJECT SITE, SOUTH OF GRAVEL PITS ALONG KIEFER ROAD. 1995 & 1996 SURVEYS: 10 TOTAL WATERBODIES SURVEYED.

Ecological:
WETLAND COMPENSATION/MITIGATION PRESERVE COMPRISED OF BOTH CONSTRUCTED AND HISTORIC HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND. MID-VALLEY FAIRY SHRIMP (BRANCHINECTA SP) & LINDERIELLA OCCIDENTALIS ALSO PRESENT.

Threats:
General:
5 FEB 1995: 50+ ADULTS OBSERVED IN POOLS 7 & 8 (2 ADULTS COLLECTED & DEPOSITED IN CAS). 21 MAR 1996: <50 ADULTS OBSERVED IN POOL #7.

PLSS: T08N, R06E, Sec. 22 (M)	Accuracy: specific area	Area (acres): 5
UTM: Zone-10 N4266606 E647513	Latitude/Longitude: 38.53565 / -121.30751	Elevation (feet): 70

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

SUG95R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX
SUG95R0002	SUGNET & ASSOCIATES - CORRECTIONS TO ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933, 1994-95. 1995-10-30
SUG96R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED BRANCHIOPODS CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT NO. PRT-795933. 1996-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32455	EO Index: 8883
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 22	Occurrence Last Updated: 2007-12-10

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1996-03-21	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1996-03-21	Occurrence Rank: Unknown
Owner/Manager: PVT-GRANITE CONSTRUCTION CO	Trend: Unknown
Presence: Presumed Extant	

Location:
ALONG N EDGE OF KIEFER BLVD; 0.7 KM WNW OF KIEFER BLVD X MATHER PARK WAY.

Detailed Location:
GRANITE-TEICHERT PILOT PROJECT SITE (PART). 1995: 10 TOTAL WATERBODIES SURVEYED, DISCREPANCY BETWEEN MAP AND FIELD SURVEY FORM; MAPPED ACCORDING TO MAP NOT SURVEY FORM. 1996: 10 TOTAL WATERBODIES SURVEYED.

Ecological:
BOTH CONSTRUCTED & HISTORIC HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND; WETLAND COMPENSATION/MITIGATION PRESERVE.

Threats:
General:
2/5/1995: POOL #10: 50+ OBSERVED. 2/21: POOLS #9 & 10: 50+ OBSERVED IN EACH POOL; 2 ADULTS COLLECTED AND DEPOSITED IN CAS.
3/21/1996: POOLS #7, 9 & 10: <50 ADULTS OBSERVED; LINDERIELLA OCCIDENTALIS ALSO PRESENT.

PLSS: T08N, R06E, Sec. 22 (M)	Accuracy: specific area	Area (acres): 2
UTM: Zone-10 N4266913 E648056	Latitude/Longitude: 38.53832 / -121.30122	Elevation (feet): 70

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

SUG95R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX
SUG95R0002	SUGNET & ASSOCIATES - CORRECTIONS TO ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933, 1994-95. 1995-10-30
SUG96R0001	SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED BRANCHIOPODS CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT NO. PRT-795933. 1996-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82507	EO Index: 1888
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 25	Occurrence Last Updated: 2011-06-24

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1993-03-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1993-03-05	Occurrence Rank: Fair
Owner/Manager: PVT-GRANITE CONSTRUCTION CO	Trend: Unknown
Presence: Presumed Extant	

Location:
SW OF MATHER AFB; BOUNDED BY KIEFER BLVD TO N, BRADSHAW RD TO W, JACKSON RD TO S, AND EXCELSIOR RD TO E, SACRAMENTO CO.

Detailed Location:
GRANITE-TEICHERT PILOT PROJECT SITE. REPORTS GIVE LOCATION AS T8N, R6E, SECTIONS 21 & 22. HABITAT APPEARED INTACT OVER MOST OF SITE IN 1993; HOWEVER, 2009 AERIAL IMAGERY SHOWS GRADING/MINING ACTIVITIES AND CHANGE IN HYDROLOGY AT SITE.

Ecological:
VERNAL POOLS, GRAZED ANNUAL GRASSLAND. LAND USED FOR AGGREGATE MINING.

Threats:
GRAZING; GRAVEL PITS IN NORTHERN PORTION OF SITES; PROPOSED AGGREGATE MINING.

General:
MANY INDIVIDUALS OBSERVED ON 7 AND 24 APR 1991; OVERALL SITE QUALITY MAY BE QUESTIONABLE. UNKNOWN NUMBER OBSERVED IN 1 NATURAL VERNAL POOL ON 5 MAR 1993, SUGNET RECORD #149.

PLSS: T08N, R06E, Sec. 22 (M)	Accuracy: nonspecific area	Area (acres): 1,421
UTM: Zone-10 N4266264 E646754	Latitude/Longitude: 38.53268 / -121.31628	Elevation (feet): 70

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

HUB91F0003	HUBER, A. (BIOSYSTEMS ANALYSIS, INC.) - FIELD SURVEY FORMS FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 1991-04-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 Game

California Natural Diversity Database



Map Index Number: 32730	EO Index: 1142	
Key Quad: Buffalo Creek (3812152)	Element Code: ICBRA10010	
Occurrence Number: 54	Occurrence Last Updated: 1996-01-05	

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1993-02-02	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1993-02-02	Occurrence Rank: Fair
Owner/Manager: BLM	Trend: Unknown
Presence: Presumed Extant	

Location:
FORMER MATHER AIR FORCE BASE; WESTERN PORTION OF TRIANGLE FORMED BY DOUGLAS RD, SUNRISE BOULEVARD & FOLSOM SOUTH CANAL.

Detailed Location:
LAND TO THE NORTH AND EAST IS PRIVATELY-OWNED FOR INDUSTRIAL/BUSINESS; THE FORMER MATHER AFB IS TO THE SOUTH AND WEST; EAST PARCEL IS UNDEVELOPED.

Ecological:
GRASSLANDS.

Threats:
IDENTIFIED FOR EXCHANGE.

General:
MANY INDIVIDUALS OF BOTH SPECIES, LEPIDURUS PACKARDI AND LINDERIELLA OCCIDENTALIS, OBSERVED; COLLECTION MADE.

PLSS: T08N, R07E, Sec. 07 (M)	Accuracy: specific area	Area (acres): 20
UTM: Zone-10 N4269191 E652586	Latitude/Longitude: 38.55807 / -121.24877	Elevation (feet): 140

County Summary: Sacramento	Quad Summary: Buffalo Creek (3812152), Carmichael (3812153)
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Sources:
CRA93F0002 CRANSTON, P. (U.S. BUREAU OF LAND MANAGEMENT) - FIELD SURVEY FORM FOR LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI 1993-02-02



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 34802	EO Index: 11938
Key Quad: Elk Grove (3812143)	Element Code: ICBRA10010
Occurrence Number: 71	Occurrence Last Updated: 2011-06-29

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1992-04-02	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-02	Occurrence Rank: Unknown
Owner/Manager: PVT-SACRAMENTO VLY CONSERVANCY	Trend: Unknown
Presence: Presumed Extant	

Location:
PART OF ARROYO SECO (FLORIN MITIGATION BANK), NE CORNER OF EXCELSIOR ROAD & FLORIN ROAD, 4.1 MI E OF FLORIN PO, SAC CO.

Detailed Location:
LOCATION STATED AS "VERNAL POOL NEAR NORTHEAST CORNER OF EXCELSIOR AND FLORIN." MAPPED ACCORDING TO STATED LOCATION. 1993 SUGNET REPORT: VERNAL POOL SOMEWHERE IN SECTION 35.

Ecological:
VERNAL POOL.

Threats:
General:
KOFORD OBSERVED TADPOLE SHRIMP HERE DURING SURVEY ON 2 APRIL 1992. UNKNOWN NUMBER OF LEPIDURUS PACKARDI OBS 2 APR 1992 IN VERNAL POOL SOMEWHERE IN SECTION 35, (SUGNET #150) - POSSIBLY SAME SIGHTING AS KOFORD.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4262458 E648688	Latitude/Longitude: 38.49808 / -121.29492	Elevation (feet): 110

County Summary: Sacramento	Quad Summary: Elk Grove (3812143), Carmichael (3812153)
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Sources:

KOF92U0001	KOFORD, E.J. (EBASCO) - LETTER TO USFWS REGARDING ADDITIONAL LOCALITIES OF FAIRY SHRIMP IN SACRAMENTO: BRANCHINECTA LYNCHI, LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI. 1992-04-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 Game

California Natural Diversity Database



Map Index Number: 82532	EO Index: 30611
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 94	Occurrence Last Updated: 2011-05-10

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1998-01-28	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1998-01-28	Occurrence Rank: Excellent
Owner/Manager: PVT-CONSERVATION RESOURCES	Trend: Unknown
Presence: Presumed Extant	

Location:
ARROYO SECO SITE, AREA 0.8 MILES ENE OF FLORIN ROAD AT EXCELSIOR ROAD, SACRAMENTO COUNTY.

Detailed Location:
ARROYO SECO MITIGATION BANK SITE. NORTH OF FLORIN ROAD AND SOUTH OF ROLLING MEADOWS DR. MAPPED TO MAP PROVIDED (WHI98F0006). SUGNET REPORT: VERNAL POOL SOMEWHERE IN SECTION 35.

Ecological:
NATURAL VERNAL POOL COMMUNITY.

Threats:
General:
LEPIDURUS PACKARDI OBSERVED ON 2 APR 1992 IN A NATURAL VERNAL POOL (SUGNET #150). 100'S OBS IN 7 LOCATIONS DURING 28 JAN 1998 SURVEY.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: nonspecific area	Area (acres): 27
UTM: Zone-10 N4262694 E649653	Latitude/Longitude: 38.50005 / -121.28380	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Elk Grove (3812143), Carmichael (3812153)
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Sources:

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
WHI98F0006	WHITNEY, K. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 1998-01-28



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82549	EO Index: 31890	
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010	
Occurrence Number: 113	Occurrence Last Updated: 2011-06-06	

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2000-03-15	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2000-03-15	Occurrence Rank: Good
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTHWEST CORNER OF EAGLES NEST RD & JACKSON RD (HWY 16), INTERSECTED BY FRYE CREEK, SOUTH OF MATHER AFB.

Detailed Location:
1996: EAST 1/2 OF NE 1/4 SECTION 36. 2000: WEST 1/2 OF NE 1/4 SECTION 36.

Ecological:
HABITAT CONSISTS OF NORTHERN HARDPAN VERNAL POOLS SURROUNDED BY NON-NATIVE GRASSLAND. LINDERIELLA OCCIDENTALIS & BRANCHINECTA LYNCHI WERE ALSO OBSERVED IN POOLS HERE.

Threats:
THREATENED BY GRAVEL MINING.

General:
10-50+ ADULTS OBSERVED IN 5 POOLS DURING SURVEYS IN SPRING 1996. 20+ ADULTS OBSERVED IN POOLS DURING 24 FEB & 15 MAR 2000 SURVEYS CONDUCTED IN WESTERN HALF OF POLYGON.

PLSS: T08N, R06E, Sec. 36 (M)	Accuracy: nonspecific area	Area (acres): 158
UTM: Zone-10 N4263557 E651209	Latitude/Longitude: 38.50756 / -121.26578	Elevation (feet): 125

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

MUT00F0007	MUTH, D. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2000-03-15
MUT00F0019	MUTH, D. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2000-03-15
MUT96F0001	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1996-XX-XX
MUT96F0002	MUTH, D. (LSA ASSOCIATES, INC.) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 1996-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 41009	EO Index: 41009
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 131	Occurrence Last Updated: 2011-07-06

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2006-05-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-05-05	Occurrence Rank: Good
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
MATHER FIELD VERNAL POOL PRESERVE, S OF OLD MATHER AIRPORT RUNWAY AND E OF THE WATER TREATMENT PONDS, N OF KIEFER BLVD.

Detailed Location:
1993: EXACT LOCATIONS NOT PROVIDED - FOUND IN 9 POOLS AT THE MATHER REDEVELOPMENT PLAN AREA. 1996-96: FOUND IN 49 POOLS TOTAL FOR THE MATHER FIELD SPECIFIC PLAN SURVEY.

Ecological:
FOUND IN VERNAL POOLS, VERNAL SWALES, SEASONAL WETLANDS, AND FRESHWATER MARSH. LINDERIELLA OCCIDENTALIS ALSO OBSERVED.

Threats:
DEVELOPMENT.

General:
OBSERVED DURING SURVEYS CONDUCTED APR AND JUL 1993, FEB - MAR 1996, AND JAN 1997. OBSERVED IN 4 OF 19 SAMPLED POOLS BETWEEN 14 FEB AND 5 MAY 2006.

PLSS: T08N, R06E, Sec. 14 (M)	Accuracy: specific area	Area (acres): 84
UTM: Zone-10 N4267843 E648624	Latitude/Longitude: 38.54660 / -121.29451	Elevation (feet): 80

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

JSA93R0002	JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS PLANT AND WILDLIFE SURVEY RESULTS FOR THE MATHER REDEVELOPMENT PLAN AREA, SACRAMENTO COUNTY. PREPARED FOR: SAC HOUSING & REDEVELOPMENT AGENCY. 1993-08-03
JSA97R0002	JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS SPECIES SURVEY CONDUCTED FOR THE MATHER FIELD SPECIFIC PLAN AND MATHER SINGLE-FAMILY HOUSING PROJECT. INCLUDES REPORT + MAPS. PREPARED FOR: COUNTY OF SACRAMENTO. 1997-06-XX
WIT06F0003	WITHAM, C.W. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2006-04-11



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 41018	EO Index: 41018
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 132	Occurrence Last Updated: 1999-05-04

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1997-01-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1997-01-XX	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
0.75 MILES SOUTH FROM JCT OLD PLACERVILLE AND ROUTIER ROADS, NORTH OF WEST END OF SACRAMENTO MATHER AIRPORT RUNWAYS.

Detailed Location:
IN POOLS NUMBERED 1291 AND 1291.1

Ecological:
FOUND IN TWO VERNAL POOLS, AT THE OLD MATHER AIR FORCE BASE.

Threats:
DEVELOPMENT.

General:
OBSERVED IN 1993 AND 1996-97. ALSO LINDERIELLA OCCIDENTALIS OBSERVED.

PLSS: T08N, R06E, Sec. 16 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4268173 E646586	Latitude/Longitude: 38.54991 / -121.31781	Elevation (feet): 75

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

JSA93R0002	JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS PLANT AND WILDLIFE SURVEY RESULTS FOR THE MATHER REDEVELOPMENT PLAN AREA, SACRAMENTO COUNTY. PREPARED FOR: SAC HOUSING & REDEVELOPMENT AGENCY. 1993-08-03
JSA97R0002	JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS SPECIES SURVEY CONDUCTED FOR THE MATHER FIELD SPECIFIC PLAN AND MATHER SINGLE-FAMILY HOUSING PROJECT. INCLUDES REPORT + MAPS. PREPARED FOR: COUNTY OF SACRAMENTO. 1997-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 41024	EO Index: 41024
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 133	Occurrence Last Updated: 1999-05-11

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1997-01-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1997-01-XX	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
0.1 MILE EAST OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK (6 FEATURES, ALONG KIEFER BLVD).

Detailed Location:
PART OF THE MORRISON CREEK DRAINAGE, IN THE OLD MATHER AIR FORCE BASE.

Ecological:
6 FEATURES THAT ARE EITHER, VERNAL POOLS, VERNAL SWALES, OR A BRANCH OF MORRISON CREEK.

Threats:
IMPACTED BY HUMANS.

General:
OBSERVED IN 1993 AND 1996-97 IN 5 OF THE 6 FEATURES MAPPED. LINDERIELLA OCCIDENTALIS ALSO OBSERVED.

PLSS: T08N, R07E, Sec. 19 (M)	Accuracy: specific area	Area (acres): 11
UTM: Zone-10 N4265728 E652010	Latitude/Longitude: 38.52698 / -121.25613	Elevation (feet): 125

County Summary: Sacramento	Quad Summary: Buffalo Creek (3812152), Carmichael (3812153)
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Sources:

JSA93R0002	JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS PLANT AND WILDLIFE SURVEY RESULTS FOR THE MATHER REDEVELOPMENT PLAN AREA, SACRAMENTO COUNTY. PREPARED FOR: SAC HOUSING & REDEVELOPMENT AGENCY. 1993-08-03
JSA97R0002	JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS SPECIES SURVEY CONDUCTED FOR THE MATHER FIELD SPECIFIC PLAN AND MATHER SINGLE-FAMILY HOUSING PROJECT. INCLUDES REPORT + MAPS. PREPARED FOR: COUNTY OF SACRAMENTO. 1997-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 41025	EO Index: 41025
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 134	Occurrence Last Updated: 1999-05-10

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1997-01-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1997-01-XX	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
0.4 MILE NNW OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK.

Detailed Location:
8 VERNAL POOLS IN THIS PORTION OF THE COMPLEX CONTAIN VERNAL POOL TADPOLE SHRIMP (VPTS). PART OF THE OLD MATHER AIR FORCE BASE.

Ecological:
VERNAL POOLS, AND DISTURBED VERNAL POOLS.

Threats:
IMPACTED BY HUMANS.

General:
OBSERVED IN 1993 AND 1996-97. LINDERIELLA OCCIDENTALIS ALSO OBSERVED.

PLSS: T08N, R06E, Sec. 24 (M)	Accuracy: specific area	Area (acres): 10
UTM: Zone-10 N4266445 E651135	Latitude/Longitude: 38.53359 / -121.26601	Elevation (feet): 140

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

JSA93R0002 JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS PLANT AND WILDLIFE SURVEY RESULTS FOR THE MATHER REDEVELOPMENT PLAN AREA, SACRAMENTO COUNTY. PREPARED FOR: SAC HOUSING & REDEVELOPMENT AGENCY. 1993-08-03

JSA97R0002 JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS SPECIES SURVEY CONDUCTED FOR THE MATHER FIELD SPECIFIC PLAN AND MATHER SINGLE-FAMILY HOUSING PROJECT. INCLUDES REPORT + MAPS. PREPARED FOR: COUNTY OF SACRAMENTO. 1997-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 41041	EO Index: 41041
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 137	Occurrence Last Updated: 1999-05-11

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1997-01-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1997-01-XX	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
0.6 MILE EAST OF JUNCTION OF KIEFER BLVD AND EXCELSIO ROAD (MATHER PARK WAY), MATHER REGIONAL PARK.

Detailed Location:
1 VERNAL POOL IN THIS PORTION OF THE COMPLEX, WITH VERNAL POOL TADPOLE SHRIMP (VPTS). PART OF THE OLD MATHER AIR FORCE BASE.

Ecological:
VERNAL POOL.

Threats:

General:
OBSERVED IN 1996-97.

PLSS: T08N, R06E, Sec. 23 (M)	Accuracy: specific area	Area (acres): 1
UTM: Zone-10 N4266540 E649650	Latitude/Longitude: 38.53469 / -121.28301	Elevation (feet): 110

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:
JSA97R0002 JONES & STOKES ASSOCIATES, INC. - SPECIAL STATUS SPECIES SURVEY CONDUCTED FOR THE MATHER FIELD SPECIFIC PLAN AND MATHER SINGLE-FAMILY HOUSING PROJECT. INCLUDES REPORT + MAPS. PREPARED FOR: COUNTY OF SACRAMENTO. 1997-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 41142	EO Index: 41142
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 138	Occurrence Last Updated: 1999-06-02

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 1999-02-27	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1999-02-27	Occurrence Rank: Good
Owner/Manager: SAC COUNTY-PARKS & REC	Trend: Unknown
Presence: Presumed Extant	

Location:
0.6 MILE SW OF MATHER LAKE, (FORMER) MATHER AIR FORCE BASE, RANCHO CORDOVA.

Detailed Location:
Ecological:
HABITAT CONSISTS OF A LARGE VERNAL POOL WITH A GRASSY SUBSTRATE.

Threats:
THREATENED BY DEVELOPMENT & INVASION BY NON-NATIVE SPECIES.

General:
15 TADPOLE SHRIMP OBSERVED ON 27 FEB 1999; ESTIMATED ONE TADPOLE SHRIMP CAPTURED WITH EACH DIP OF THE NET.

PLSS: T08N, R06E, Sec. 13 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4268233 E650956	Latitude/Longitude: 38.54972 / -121.26767	Elevation (feet): 125

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:
HUB99F0001 HUBER, A. (JONES AND STOKES ASSOCIATES) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 1999-02-27



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 53920

EO Index: 53923

Key Quad: Carmichael (3812153)

Element Code: ICBRA10010

Occurrence Number: 178

Occurrence Last Updated: 2011-06-24

Scientific Name: *Lepidurus packardii*

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: 2002-03-15

Occurrence Type: Natural/Native occurrence

Last Survey Date: 2002-03-15

Occurrence Rank: Excellent

Owner/Manager: PVT-GRANITE CONSTRUCTION CO

Trend: Unknown

Presence: Presumed Extant

Location:

GRANITE I PRESERVE, JUST S OF KIEFER BLVD AT HAPPY LN, SW END OF OLD MATHER AFB.

Detailed Location:

VERNAL POOL PRESERVE WITHIN THE GRANITE-TEICHERT PROJECT SITE. CONSISTS OF 38 VERNAL POOLS ON 10.04 ACRES. MAPPED TO PROVIDED MAP.

Ecological:

HABITAT CONSISTS OF VERNAL POOL PRESERVE, DOMINATED BY PLAGIOBOTHRYUS STIPITATUS, LASTHENIA FREMONTII, NAVARRETIA LEUCOCEPHALA, DOWNINGIA BICORNUTA, DESCHAMPسيا DANTHONIODES. SURROUNDED BY NON-NATIVE GRASSLANDS, AGGREGATE MINING ACTIVITIES.

Threats:

General:

1000'S OBSERVED ON 24 JAN 1997, WITH UNKNOWN NUMBER OF SPECIMENS COLLECTED & DEPOSITED INTO CAS. 100'S OBS IN JAN 1998. 1000'S OBS ON 23 FEB 1999. 1000'S OBSERVED 15 MAR 2002.

PLSS: T08N, R06E, Sec. 16 (M)

Accuracy: specific area

Area (acres): 44

UTM: Zone-10 N4267058 E646210

Latitude/Longitude: 38.53993 / -121.32235

Elevation (feet): 65

County Summary:

Sacramento

Quad Summary:

Carmichael (3812153)

Sources:

- FAR02F0003 FARMER, M. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2002-03-15
- WHI97F0004 WHITNEY, K. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 1997-01-24
- WHI98F0007 WHITNEY, K. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 1998-01-XX
- WHI99F0004 WHITNEY, K. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 1999-02-23



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82470	EO Index: 64432
Key Quad: Elk Grove (3812143)	Element Code: ICBRA10010
Occurrence Number: 238	Occurrence Last Updated: 2011-05-04

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 2008-02-18	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-02-18	Occurrence Rank: Excellent
Owner/Manager: PVT-SACRAMENTO VLY CONSERVANCY	Trend: Unknown
Presence: Presumed Extant	

Location:
SYLVA PARCEL, JUST N OF FLORIN RD, W OF EAGLES NEST RD AND S OF JACKSON HWY (SR 16), ABOUT 4 MILES SOUTH OF MATHER AFB.

Detailed Location:
WEST OF FRYE CREEK; PART OF SACRAMENTO PRAIRIE VERNAL POOL PRESERVE. LOCATED IN THE SW 1/4 OF SECTION 36. MAPPED TO PROVIDED MAPS.

Ecological:
VERNAL POOLS WITHIN A CALIFORNIA ANNUAL GRASSLAND MATRIX. MOST POOLS DID NOT FULLY POND AND WERE AT ABOUT 1/2 OF NORMAL CAPACITY IN 2008. LINDERIELLA OCCIDENTALIS, BRANCHINECTA LYNCHI, AND B. MESOVALLENSIS ALSO OBSERVED HERE.

Threats:
THE GRASS GLYCERIA DECLINATA IS BECOMING PROBLEMATIC IN THE GENERAL AREA (2005).

General:
"LOTS" OF INDIVIDUALS FOUND IN 8 POOLS ON 20 FEB 2005, W/AN UNKNOWN NUMBER COLLECTED FOR SACRAMENTO FISH & WILDLIFE OFFICE. LOW ABUNDANCE OF ADULTS (<1 PER STANDARD DIP NET SWEEP) OBSERVED IN 21 POOLS DURING 18 FEB 2008 SURVEYS.

PLSS: T08N, R06E, Sec. 36 (M)	Accuracy: nonspecific area	Area (acres): 43
UTM: Zone-10 N4262627 E650622	Latitude/Longitude: 38.49927 / -121.27271	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Elk Grove (3812143), Carmichael (3812153)
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Sources:

WIT05F0002	WITHAM, C. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2005-02-20
WIT05R0001	WITHAM, C. - SACRAMENTO PRAIRIE VERNAL POOL PRESERVE, SPECIAL STATUS CRUSTACEAN LOCATIONS. 2005-05-17
WIT08F0006	WITHAM, C. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI & BRANCHINECTA MESOVALLENSIS & LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI 2008-02-18



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 64351	EO Index: 64433
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 239	Occurrence Last Updated: 2011-05-12

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 2008-02-18	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-02-18	Occurrence Rank: Excellent
Owner/Manager: PVT-SACRAMENTO VLY CONSERVANCY	Trend: Unknown
Presence: Presumed Extant	

Location:
EAST END OF KASSIS PARCEL, AT THE END OF ROLLING MEADOW DR, 1.2 MI NW OF FLORIN RD AT EAGLES NEST RD, SACRAMENTO COUNTY.

Detailed Location:
SACRAMENTO PRAIRIE VERNAL POOL PRESERVE. MAPPED TO MAPS PROVIDED.

Ecological:
VERNAL POOLS WITHIN A CALIFORNIA ANNUAL GRASSLAND MATRIX. MOST POOLS DID NOT FULLY POND AND WERE AT ABOUT 1/2 OF NORMAL CAPACITY IN 2008. BRANCHINECTA LYNCHI, LINDERIALLA OCCIDENTALIS ALSO OBS IN AREA. SURROUNDING LAND USE: CATTLE GRAZING

Threats:
THE GRASS GLYCERIA DECLINATA IS BECOMING PROBLEMATIC IN THE GENERAL AREA (2005).

General:
"LOTS" OF INDIVIDUALS OBSERVED ON 20 FEB 2005, W/AN UNKNOWN NUMBER COLLECTED FOR SACRAMENTO FISH & WILDLIFE OFFICE. LOW ABUNDANCE OF ADULTS (<1 PER STANDARD DIP NET SWEEP) OBSERVED IN TWO POOLS ON 18 FEB 2008.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: specific area	Area (acres): 9
UTM: Zone-10 N4263279 E649975	Latitude/Longitude: 38.50526 / -121.27999	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

WIT05F0002	WITHAM, C. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2005-02-20
WIT05R0001	WITHAM, C. - SACRAMENTO PRAIRIE VERNAL POOL PRESERVE, SPECIAL STATUS CRUSTACEAN LOCATIONS. 2005-05-17
WIT08F0006	WITHAM, C. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI & BRANCHINECTA MESOVALLENSIS & LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI 2008-02-18



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 64902	EO Index: 64438
Key Quad: Buffalo Creek (3812152)	Element Code: ICBRA10010
Occurrence Number: 240	Occurrence Last Updated: 2011-06-27

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2006-05-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-05-05	Occurrence Rank: Good
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
1 MI NE OF JCT OF EAGLES NEST RD & KEIFER BLVD ND 0.4 MI W OF SUNRISE BLVD, S OF MATHER GOLF COURSE.

Detailed Location:
POOL AT THE NE END OF UNNAMED LOOP ROAD, JUST EAST OF MATHER VERNAL POOL PRESERVE. MAPPED TO PROVIDED MAP.

Ecological:
VERNAL POOLS IN CALIFORNIA GRASSLAND MATRIX, SURROUNDED BY UNGRAZED PASTURES. LIGHT RECREATION IN AREA.

Threats:
General:
FOUND IN LOW NUMBERS (NO-TO-FEW INDIVIDUALS PER DIP NET SWEEP) DURING SURVEYS BETWEEN 24 FEB AND 14 APR 2005. OBSERVED IN LOW ABUNDANCE IN POOL DURING SURVEYS CONDUCTED BETWEEN 28 FEB AND 5 MAY 2006.

PLSS: T08N, R07E, Sec. 18 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4267216 E652451	Latitude/Longitude: 38.54030 / -121.25074	Elevation (feet): 158

County Summary: Sacramento	Quad Summary: Buffalo Creek (3812152), Carmichael (3812153)
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Sources:

WIT05F0005	WITHAM, C. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2005-XX-XX
WIT05R0002	WITHAM, C.W. - MATHER FIELD VERNAL POOLS, SPECIAL STATUS CRUSTACEAN LOCATIONS. 2005-05-17
WIT06F0003	WITHAM, C.W. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2006-04-11



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82856	EO Index: 83856
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 277	Occurrence Last Updated: 2011-06-09

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2005-04-14	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2005-04-14	Occurrence Rank: Good
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
MATHER FIELD VERNAL POOL PRESERVE, 0.6 MI NNW OF KIEFER BLVD AT EAGLES NEST ROAD, SSW OF MATHER GOLF COURSE, MATHER.

Detailed Location:
IN GRASSLAND ABOUT 0.85 MI SE OF MATHER HEIGHTS ELEMENTARY SCHOOL. MAPPED TO PROVIDED MAP.

Ecological:
VERNAL POOLS IN CALIFORNIA GRASSLAND MATRIX, SURROUNDED BY UNGRAZED PASTURES. LIGHT RECREATION IN AREA.

Threats:

General:
OBSERVED IN LOW ABUNDANCE IN POOL DURING SURVEYS CONDUCTED BETWEEN 24 FEB AND 14 APR 2006.

PLSS: T08N, R06E, Sec. 24 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4266783 E651202	Latitude/Longitude: 38.53662 / -121.26516	Elevation (feet): 140

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

WIT05F0005	WITHAM, C. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2005-XX-XX
WIT05R0002	WITHAM, C.W. - MATHER FIELD VERNAL POOLS, SPECIAL STATUS CRUSTACEAN LOCATIONS. 2005-05-17



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82476	EO Index: 83495
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 280	Occurrence Last Updated: 2011-06-08

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2008-07-01	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-07-01	Occurrence Rank: Fair
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
HEDGE SUBSTATION, 0.5 MILE FROM ELDER CREEK RD AT HEDGE AVE, 2 MILES SE THE SACRAMENTO ARMY DEPOT, SACRAMENTO CO.

Detailed Location:
PARCEL B OF SMUD HEDGE SUBSTATION PROJECT SITE. 2008: L. PACKARDI OBS IN SW1, SW2, SW3, SW4, SW8, SW9 & OW1 BASINS.

Ecological:
SEASONAL WETLANDS AND SWALES. BRANCHINECTA SP. AND LINDERIELLA OCCIDENTALIS OBSERVED IN AREA. NO LEPIDURUS FOUND IN "PARCEL A" LOCATED JUST TO THE NW DURING 2008 SURVEYS.

Threats:
General:
OBSERVED IN 5 POOLS DURING WET-SEASON SAMPLING CONDUCTED BETWEEN 20 DEC 2007 AND 9 APR 2008. LEPIDURUS CYSTS OBSERVED IN 7 POOLS DURING DRY SEASON SAMPLING CONDUCTED ON 1 JUL 2008.

PLSS: T08N, R06E, Sec. 31 (M)	Accuracy: nonspecific area	Area (acres): 6
UTM: Zone-10 N4263181 E643333	Latitude/Longitude: 38.50547 / -121.35615	Elevation (feet): 55

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

HEL08F0018	HELM, B. (HELM BIOLOGICAL CONSULTING) - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI 2008-01-17
HEL09R0001	HELM, B. & T. WOOD (HELM BIOLOGICAL CONSULTING) - DRY-SEASON SAMPLING FOR FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE SMUD HEDGE TRAINING FACILITY 2009-03-25
ROZ08R0001	ROZUMOWICZ, B. & B. HELM (HELM BIOLOGICAL CONSULTING) - WET SEASON SAMPLING FOR FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE SMUD HEDGE SUBSTATION TRAINING FACILITY 2008-07-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82536	EO Index: 83547
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 281	Occurrence Last Updated: 2011-05-10

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2008-02-18	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-02-18	Occurrence Rank: Excellent
Owner/Manager: PVT-SACRAMENTO VLY CONSERVANCY	Trend: Unknown
Presence: Presumed Extant	

Location:
KASSIS PARCEL, N & S OF ROLLING MEADOWS DR, 0.9 MI NNE OF FLORIN RD AT EXCELSIOR RD, 3 MI S OF OLD MATHER AFB, SAC CO.

Detailed Location:
KASSIS PARCEL IS PART OF THE SACRAMENTO VERNAL POOL PRESERVE AREA. ABOUT 0.9 MI WSW OF TWELVEMILE HOUSE (HISTORICAL) ALONG JACKSON RD (SR 16). MAPPED ACCORDING TO PROVIDED MAP. 1993 SUGNET REPORT: VERNAL POOL SOMEWHERE IN SEC 35.

Ecological:
VERNAL POOLS IN A MATRIX OF CALIFORNIA ANNUAL GRASSLAND. MOST POOLS DID NOT FULLY POND AND WERE AT ABOUT 1/2 OF NORMAL CAPACITY IN 2008. SURROUNDING LAND USE: CATTLE GRAZING. BRANCHINECTA LYNCHI & LINDERIELLA OCCIDENTALIS ALSO ON PARCEL.

Threats:
General:
OBSERVED 2 APR 1992 IN VERNAL POOL, SUGNET RECORD #150. INDIVIDUALS FOUND IN LOW ABUNDANCE IN 6 POOLS ON SURVEYS CONDUCTED 5 & 18 FEB 2008.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: specific area	Area (acres): 30
UTM: Zone-10 N4263451 E649046	Latitude/Longitude: 38.50697 / -121.29060	Elevation (feet): 120

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:

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
WIT08F0006	WITHAM, C. - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI & BRANCHINECTA MESOVALLENSIS & LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI 2008-02-18



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 82859	EO Index: 83860
Key Quad: Carmichael (3812153)	Element Code: ICBRA10010
Occurrence Number: 282	Occurrence Last Updated: 2011-06-27

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
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.
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Last Date Observed: 2006-05-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-05-05	Occurrence Rank: Good
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
MATHER FIELD VERNAL POOL PRESERVE, 0.5 MI NE OF KIEFER BLVD AT EXCELSIOR ROAD, S END OF DECOMMISSIONED MATHER AFB.

Detailed Location:
MAPPED TO PROVIDED MAP.

Ecological:
VERNAL POOLS IN CALIFORNIA ANNUAL GRASSLAND MATRIX, SURROUNDED BY UNGRAZED PASTURES.

Threats:
General:
BREEDING ADULTS OBSERVED IN POOL DURING SURVEYS CONDUCTED BETWEEN 14 FEB & 5 MAY 2006.

PLSS: T08N, R06E, Sec. 14 (M)	Accuracy: specific area	Area (acres): 10
UTM: Zone-10 N4267118 E649467	Latitude/Longitude: 38.53993 / -121.28499	Elevation (feet): 95

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:
WIT06F0003 WITHAM, C.W. - FIELD SURVEY FORM FOR LEPIDURUS PACKARDI (VERNAL POOL TADPOLE SHRIMP) 2006-04-11



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11640	EO Index: 14459
Key Quad: Carmichael (3812153)	Element Code: IICOL48011
Occurrence Number: 1	Occurrence Last Updated: 2009-01-16

Scientific Name: <i>Desmocerus californicus dimorphus</i>	Common Name: valley elderberry longhorn beetle
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists:
CNDDDB 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.
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Last Date Observed: 2008-04-18	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2008-04-18	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY, DPR	Trend: Unknown
Presence: Presumed Extant	

Location:
ALONG THE AMERICAN RIVER, FROM NIMBUS FLAT AREA OF LAKE NATOMA SOUTH TO DOWNSTREAM END OF RIVER BEND PARK (GOETHE PARK).

Detailed Location:
FOUND ALONG AMERICAN R PKWY TO LOWER SE SHORE OF LAKE NATOMA; INCLUDES CRITICAL & ESSENTIAL HABITAT AREAS. 2008: OBS AT MITIGATION SITE DEVELOPED NEAR RIVER BEND PARK. SHRUBS TRANSPLANTED FROM NEAR FOLSOM DAM, FOR FOLSOM BRIDGE CONSTRUCTION

Ecological:
LARVAE ARE STEM AND ROOT BORERS OF ELDERBERRY; EXIT HOLES ARE ROUND. BUPRESTID LARVAE ALSO BORE INTO ELDERBERRY; EXIT HOLES ARE OVAL. ADULTS FEED ON FOLIAGE AND FLOWERS.

Threats:
POPULATIONS OF VELB ARE REDUCED AS ELDERBERRY GROVES ARE REDUCED IN NUMBER.

General:
3 MAY 1982: 1-10 OBS AT ROSSMOOR BAR. 23 APR 1987: SURVEY OF NIMBUS FLATS FOUND BOTH OLD & NEW EXIT HOLES. 18 APR 2008: 2 FEMALES OBS ON SHRUB & FLYING TO THE GROUND AT RIVER BEND PARK.

PLSS: T09N, R06E, Sec. 23 (M)	Accuracy: nonspecific area	Area (acres): 1,517
UTM: Zone-10 N4276403 E649674	Latitude/Longitude: 38.62353 / -121.28062	Elevation (feet): 60

County Summary: Sacramento	Quad Summary: Carmichael (3812153), Folsom (3812162), Citrus Heights (3812163)
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Occurrence Report
California Department of Fish and Game
California Natural Diversity Database



Sources:

ARN82F0001	ARNOLD, R.A. - FIELD SURVEY FORM FOR DESMOCERUS CALIFORNICUS DIMORPHUS 1982-XX-XX
ARN85U0001	ARNOLD, R.A. (ENTOMOLOGICAL CONSULTING SERVICES) - LETTER TO JACK PARNELL, DIRECTOR, DFG PROVIDING COLLECTION DATA FOR VELB. 1985-09-18
EYA76R0001	EYA, B.K. - REPORT ON THE DISTRIBUTION & STATUS OF A LONGHORN BEETLE, DESMOCERUS CALIFORNICUS DIMORPHUS (COLEOPTERA: CERAMBYCIDAE). OBTAINED THROUGH DR. LARRY ENG. 1976-XX-XX
FED78R0001	FEDERAL REGISTER - VOL. 43 NO. 155 PAGE 35643. 1978-08-10
FWS84R0002	U.S. FISH & WILDLIFE SERVICE - RECOVERY PLAN FOR THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-XX-XX
RIC08F0052	RICKABAUGH, S. (U.S. FISH AND WILDLIFE SERVICE) - FIELD SURVEY FORM FOR DESMOCERUS CALIFORNICUS DIMORPHUS 2008-04-18
SEE85R0001	LARRY SEEMAN & ASSOCIATES, INC. - AMERICAN RIVER CORRIDOR BEETLE STUDY 1985-08-XX
SHA80U0001	SHAPIRO, A. (UNIVERSITY OF CALIFORNIA, DAVIS) - PHONE CONVERSATION WITH BLAIR CSUTI (CNDDDB). 1980-05-19
SHO87U0003	SHOWERS, M.A. (CALIFORNIA DEPARTMENT OF PARKS AND RECREATION) - MEMO: SURVEY FOR VALLEY ELDERBERRY AT NIMBUS FLATS, FOLSOM LAKE STATE RECREATION AREA. 1987-04-23
SIN87F0001	SINGLETON, J. (U.S. FISH AND WILDLIFE SERVICE-SACRAMENTO) - FIELD SURVEY FORM FOR DESMOCERUS CALIFORNICUS DIMORPHUS 1987-04-23



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 43542	EO Index: 43542
Key Quad: Carmichael (3812153)	Element Code: PDSCR0R060
Occurrence Number: 84	Occurrence Last Updated: 2010-05-11

Scientific Name: <i>Gratiola heterosepala</i>	Common Name: Boggs Lake hedge-hyssop
Listing Status:	Rare Plant Rank: 1B.2
Federal: None	Other Lists: BLM_S-Sensitive
State: Endangered	
CNDDB Element Ranks:	
Global: G2	
State: S2	

General Habitat: MARSHES AND SWAMPS (FRESHWATER), VERNAL POOLS.	Micro Habitat: CLAY SOILS; USUALLY IN VERNAL POOLS, SOMETIMES ON LAKE MARGINS. 5-2400M.
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Last Date Observed: 2000-05-17	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2000-05-17	Occurrence Rank: Excellent
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
MATHER FIELD, WEST OF EAGLES NEST ROAD ABOUT 1.8 MILES SOUTH OF JCT WITH DOUGLAS BLVD, SOUTH OF RANCHO CORDOVA.

Detailed Location:
PLANTS FOUND IN VERNAL POOLS ABOUT 0.2 MILES WEST OF EAGLES NEST ROAD, ACROSS FROM THE MODEL AIRPLANE FLYERS CLUB. MAPPED WITHIN THE SE 1/4 OF THE NE 1/4 OF SECTION 24.

Ecological:
GROWING IN DEEP VERNAL POOLS, IN THE WATER AND AT THE WATER'S EDGE WITH ISOETES ORCUTTII. POOLS DOMINATED BY ELEOCHARIS MACROSTACHYA, PLAGIOBOTHRYUS STIPITATUS VAR. MICRANTHUS, AND LASTHENIA GLABERRIMA.

Threats:
SITE HAS BEEN PROPOSED FOR AN AGGREGATE MINE.

General:
THOUSANDS OF PLANTS OBSERVED IN 2000. THE RARE JUNCUS LEIOSPERMUS VAR. AHARTII OCCURS IN NEARBY POOLS AND SWALES.

PLSS: T08N, R06E, Sec. 24 (M)	Accuracy: specific area	Area (acres): 2
UTM: Zone-10 N4266458 E651215	Latitude/Longitude: 38.53369 / -121.26508	Elevation (feet): 135

County Summary: Sacramento	Quad Summary: Carmichael (3812153)
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Sources:
WIT00F0004 WITHAM, C. - FIELD SURVEY FORM FOR GRATIOLA HETEROSEPALA 2000-05-17



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 34802	EO Index: 63059
Key Quad: Elk Grove (3812143)	Element Code: PMPOA4G070
Occurrence Number: 20	Occurrence Last Updated: 2005-10-28

Scientific Name: <i>Orcuttia viscida</i>	Common Name: Sacramento Orcutt grass
Listing Status:	Rare Plant Rank: 1B.1
Federal: Endangered	Other Lists:
State: Endangered	
CNDDDB Element Ranks:	
Global: G1	
State: S1	

General Habitat: VERNAL POOLS.	Micro Habitat: 30-100M.
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Last Date Observed: 1998-07-30	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1998-07-30	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
ON THE NORTH SIDE OF FLORIN RD, CIRCA 1/4 MILE EAST OF EXCELSIOR AVE.

Detailed Location:

Ecological:
IN MUDFLOW VERNAL POOLS WITH ROCKY BOTTOMS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1998 COLLECTION BY HRUSA. NEEDS FIELDWORK.

PLSS: T08N, R06E, Sec. 35 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4262458 E648688	Latitude/Longitude: 38.49808 / -121.29492	Elevation (feet): 50

County Summary: Sacramento	Quad Summary: Elk Grove (3812143), Carmichael (3812153)
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Sources:
HRU98S0001 HRUSA, G.F. - HRUSA #14764 UCR #115049 CDA #107716 RSA #670135 1998-07-30



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 45347	EO Index: 45347	
Key Quad: Sacramento East (3812154)	Element Code: ABNKC19070	
Occurrence Number: 931	Occurrence Last Updated: 2001-05-15	

Scientific Name: <i>Buteo swainsoni</i>	Common Name: Swainson's hawk
Listing Status:	Rare Plant Rank:
Federal: None	
State: Threatened	Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern
CNDDDB Element Ranks:	BLM_S-Sensitive
Global: G5	IUCN_LC-Least Concern
State: S2	USFS_S-Sensitive
	USFWS_BCC-Birds of Conservation Concern

General Habitat: BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.	Micro Habitat: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.
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Last Date Observed: 2001-04-20	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2001-04-20	Occurrence Rank: Fair
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
ALONG NATOMAS EAST MAIN DRAIN, JUST NORTH OF THE GARDEN HIGHWAY, 0.5 MILE EAST OF TRUXEL, SACRAMENTO

Detailed Location:

Ecological:
NEST TREE IS A COTTONWOOD, LOCATED WITHIN RIPARIAN ALONG THE NATOMAS EAST MAIN DRAIN; SURROUNDED BY AN URBAN AREA ADJACENT TO THE GARDEN HIGHWAY TO THE NORTH AND A RECREATIONAL AREA ALONG THE JEDIDIAH SMITH BIKE TRAIL TO THE SOUTH.

Threats:
POSSIBLE THREAT FROM HUMAN USE OF THE NEARBY RECREATIONAL AREA.

General:
ON 20 APR 2001, THE MALE WAS OBSERVED PERCHED IN A COTTONWOOD, 100 FEET EAST OF THE NEST TREE; FEMALE WAS OBSERVED SITTING ON THE NEST.

PLSS: T09N, R04E, Sec. 25 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4274590 E631466	Latitude/Longitude: 38.61009 / -121.49006	Elevation (feet): 20

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
ZET01F0001 ZETTLE, B. (JONES AND STOKES ASSOCIATES) - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2001-04-20



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 65482	EO Index: 65561	
Key Quad: Sacramento East (3812154)	Element Code: ABNKC19070	
Occurrence Number: 1645	Occurrence Last Updated: 2006-07-31	

Scientific Name: <i>Buteo swainsoni</i>	Common Name: Swainson's hawk
Listing Status:	Rare Plant Rank:
Federal: None	
State: Threatened	Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern
CNDDB Element Ranks:	BLM_S-Sensitive
Global: G5	IUCN_LC-Least Concern
State: S2	USFS_S-Sensitive
	USFWS_BCC-Birds of Conservation Concern

General Habitat: BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.	Micro Habitat: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.
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Last Date Observed: 2005-05-15	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2005-05-15	Occurrence Rank: Good
Owner/Manager: SAC COUNTY-PARKS & REC	Trend: Unknown
Presence: Presumed Extant	

Location:
BETWEEN NATOMAS EAST MAIN DRAIN AND THE LOWER AMERICAN RIVER, 0.7 MILE EAST OF I-5, DISCOVERY PARK, SACRAMENTO

Detailed Location:
NEST SITE IS LOCATED WITHIN A 23-MILE EXPANSE OF RIPARIAN PROTECTED BY THE AMERICAN RIVER PARKWAY. ~15 ACRES OF GRASSLAND FORAGING HABITAT IN THE VICINITY TO BE RESTORED TO RIPARIAN FOREST TO MITIGATE FOR VALLEY ELDERBERRY LONGHORN BEETLE.

Ecological:
NEST TREE WAS A FREMONT COTTONWOOD WITHIN A LARGE STAND OF COTTONWOODS NEAR THE LOWER AMERICAN RIVER (RT BANK).

Threats:
THREATENED BY LONG-TERM LOSS OF LARGE NEST TREES (FIRE, SENESCENCE, & BANK EROSION) & LACK OF NATURAL TREE REGENERATION.

General:
NEST WITH 2 ADULTS OBSERVED ON 15 MAY 2005.

PLSS: T09N, R04E, Sec. 25 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4274052 E631106	Latitude/Longitude: 38.60529 / -121.49429	Elevation (feet):

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
BUR05F0002 BURWELL, T.A. (SACRAMENTO COUNTY PARKS) - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2005-05-15



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 65488	EO Index: 65567
Key Quad: Sacramento East (3812154)	Element Code: ABNKC19070
Occurrence Number: 1646	Occurrence Last Updated: 2006-07-31

Scientific Name: <i>Buteo swainsoni</i>	Common Name: Swainson's hawk
Listing Status:	Rare Plant Rank:
Federal: None	
State: Threatened	Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern
CNDDB Element Ranks:	BLM_S-Sensitive
Global: G5	IUCN_LC-Least Concern
State: S2	USFS_S-Sensitive
	USFWS_BCC-Birds of Conservation Concern

General Habitat: BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.	Micro Habitat: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.
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Last Date Observed: 2006-06-06	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2006-06-06	Occurrence Rank: Good
Owner/Manager: SAC COUNTY-PARKS & REC	Trend: Unknown
Presence: Presumed Extant	

Location:
AMERICAN RIVER, 0.6 MILE UPSTREAM OF THE HOWE AVENUE BRIDGE, SACRAMENTO

Detailed Location:
NEST SITE IS LOCATED WITHIN A 23-MILE EXPANSE OF RIPARIAN PROTECTED BY THE AMERICAN RIVER PARKWAY. NEST TREE IS SITUATED AWAY FROM ACTIVE RECREATION USES, AND THERE IS NO ACCESS TO THIS SITE EXCEPT BY BOAT.

Ecological:
NEST TREE WAS A FREMONT COTTONWOOD WITHIN A SMALL STAND OF COTTONWOODS ON A MID-CHANNEL ISLAND IN THE AMERICAN RIVER (LEFT BANK). SURROUNDING VEGETATION CONSISTS OF ARROYO WILLOW, YELLOW WILLOW, NARROW-LEAFED WILLOW, OREGON ASH, & SYCAMORE.

Threats:
THREATENED BY LONG-TERM LOSS OF LARGE NEST TREES (FIRE, SENESCENCE, & BANK EROSION) & LACK OF NATURAL TREE REGENERATION.

General:
2 ADULTS OBSERVED NESTING ON 6 JUN 2006.

PLSS: T08N, R05E, Sec. 11 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4269368 E639522	Latitude/Longitude: 38.56181 / -121.39861	Elevation (feet): 25

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
BUR06F0001 BURWELL, T.A. (SACRAMENTO COUNTY PARKS) - FIELD SURVEY FORM FOR BUTEO SWAINSONI (NEST SITE) 2006-06-06



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 84532	EO Index: 85552	
Key Quad: Sacramento East (3812154)	Element Code: ABNKC19070	
Occurrence Number: 1769	Occurrence Last Updated: 2011-12-16	

Scientific Name: <i>Buteo swainsoni</i>	Common Name: Swainson's hawk
Listing Status:	Rare Plant Rank:
Federal: None	
State: Threatened	Other Lists: ABC_WLBCC-Watch List of Birds of Conservation Concern
CNDDDB Element Ranks:	BLM_S-Sensitive
Global: G5	IUCN_LC-Least Concern
State: S2	USFS_S-Sensitive
	USFWS_BCC-Birds of Conservation Concern

General Habitat: BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.	Micro Habitat: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.
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Last Date Observed: 2011-04-27	Occurrence Type: Natural/Native occurrence
Last Survey Date: 2011-04-27	Occurrence Rank: Good
Owner/Manager: SAC COUNTY-PARKS & REC	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTH SIDE OF GARDEN HWY ABOUT 0.5 ROAD MILES WEST OF NORTHGATE BLVD, AMERICAN RIVER PARKWAY.

Detailed Location:
ALONG RIPARIAN STRIP (STEELHEAD CREEK/NATOMAS EAST MAIN DRAINAGE CANAL) BETWEEN GARDEN HWY AND AMERICAN RIVER PARKWAY BIKE PATH (JEDEDIAH SMITH MEMORIAL TRAIL). MAPPED TO PROVIDED COORDINATES.

Ecological:
NEST IN COTTONWOOD OVER WATER. HABITAT DESCRIBED AS COTTONWOOD RIPARIAN, RIVERINE, GRASSLAND, HIGHWAY, RESIDENTIAL. OTHER BIRDS DETECTED NEARBY INCLUDED NORTHERN HARRIER, WHITE-TAILED KITE, AMERICAN KESTREL, GREAT EGRET, & GREAT BLUE HERON.

Threats:
POTENTIALLY THREATENED BY HUMAN DISTURBANCE ASSOCIATED WITH BIKE PATH, PARK, AND RECREATION.

General:
2 ADULTS DETECTED NESTING ON 27 APR 2011 AND THE FOLLOWING BEHAVIORS WERE DOCUMENTED: PERCHING ON NEST, FOOD SHARING, NEST BUILDING, CALLING, PERCHING NEAR NEST, SOARING, CHASING. UNKNOWN IF OBSERVATIONS MADE ON MULTIPLE DATES.

PLSS: T09N, R04E, Sec. 25 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4274349 E631812	Latitude/Longitude: 38.60786 / -121.48612	Elevation (feet): 20

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
CAH11F0001 CAHILL, K. (CALIFORNIA DEPARTMENT OF FISH AND GAME-WILDLIFE MANAGEMENT BRANCH) - FIELD SURVEY FORM FOR BUTEO SWAINSONI 2011-04-27



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11372	EO Index: 12978
Key Quad: Sacramento East (3812154)	Element Code: ABPAU08010
Occurrence Number: 94	Occurrence Last Updated: 1998-10-28

Scientific Name: <i>Riparia riparia</i>	Common Name: bank swallow
Listing Status:	Rare Plant Rank:
Federal: None	
State: Threatened	Other Lists: BLM_S-Sensitive IUCN_LC-Least Concern
CNDDB Element Ranks:	
Global: G5	
State: S2S3	

General Habitat: COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.	Micro Habitat: REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.
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Last Date Observed: 1986-XX-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1986-XX-XX	Occurrence Rank: Unknown
Owner/Manager: SAC COUNTY	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTH SIDE OF AMERICAN RIVER UPSTREAM FROM CAL EXPO, NEAR BUSINESS 80 BRIDGE.

Detailed Location:

Ecological:

Threats:

General:

42 BURROWS WITH 30 BIRDS ESTIMATED BY RON SCHLORFF; VISIBLE FROM THE BUSINESS 80 BRIDGE.

PLSS: T09N, R05E, Sec. 33 (M)	Accuracy: nonspecific area	Area (acres): 30
UTM: Zone-10 N4271808 E635575	Latitude/Longitude: 38.58441 / -121.44342	Elevation (feet): 30

County Summary:

Sacramento

Quad Summary:

Sacramento East (3812154)

Sources:

HUM86U0001 HUMPHREY, J. - COMPILATION OF BANK SWALLOW LOCALITIES FOR 1971-1986. 1986-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 31558	EO Index: 6893
Key Quad: Sacramento East (3812154)	Element Code: ICBRA03030
Occurrence Number: 32	Occurrence Last Updated: 1995-08-25

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
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.
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Last Date Observed: 1995-02-08	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-04-21	Occurrence Rank: Fair
Owner/Manager: DOD-BT COLLINS RESERVE TR CNTR	Trend: Unknown
Presence: Presumed Extant	

Location:
FORMER SACRAMENTO ARMY DEPOT. B.T. COLLINS ARMY RESERVE TRAINING CENTER.

Detailed Location:
FOUND ONLY IN SEASONAL WETLAND IN THE IMMEDIATE VICINITY OF THE RUNNING TRACK.

Ecological:
53 PONDED WATER AREAS SAMPLED EVERY 2 WEEKS BETWEEN 12/19/95 & 4/21/95. AREAS SURVEYED INCLUDED SEASONAL WETLANDS, SHALLOW SWALES, TIRE TRACKS, PONDED AREAS IN RUNNING TRACK & BASEBALL DIAMOND, FIELD & ROADSIDE DRAINAGE DITCHES.

Threats:
General:
BRACHINECTA LYNCHI FOUND IN ONLY 3 OF 53 SITES. FOUND ONLY BETWEEN 1/31/95 & 2/8/95. 2 POOLS HAD POP. EST. <50, 1 POOL >50. ALSO FOUND LINDERIELLA OCCIDENTALIS; 11 ADULTS COLLECTED AND DEPOSITED IN CAS; MORE POOL INFO IN REPORT.

PLSS: T08N, R05E, Sec. 26 (M)	Accuracy: nonspecific area	Area (acres): 5
UTM: Zone-10 N4263773 E639762	Latitude/Longitude: 38.51137 / -121.39697	Elevation (feet): 40

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:

CRO95F0002	CROWE, D. - FIELD SURVEY FORM FOR BRACHINECTA LYNCHI (VERNAL POOL FAIRY SHRIMP) 1995-01-31
FOS95R0001	FOSTER WHEELER ENVIRONMENTAL CORP. - B.T. COLLINS ARMY RESERVE TRAINING CENTER 1994-95 VERNAL POOL CRUSTACEAN PRESENCE/ABSENCE SURVEY 60-DAY REPORT 1995-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 32443	EO Index: 637
Key Quad: Sacramento East (3812154)	Element Code: ICBRA03030
Occurrence Number: 35	Occurrence Last Updated: 1996-03-11

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1995-01-05	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-01-05	Occurrence Rank: Unknown
Owner/Manager: PVT-PIPE TRADES TRUST FUND	Trend: Unknown
Presence: Presumed Extant	

Location:
1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.

Detailed Location:
ELDER CREEK PROPERTY. BRANCHINECTA LYNCHI WERE FOUND IN TWO OF 90 SAMPLED WETLANDS.

Ecological:
HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.

Threats:
RURAL AGRICULTURE; URBAN DEVELOPMENT OCCURING IN VICINITY.

General:
POOL #46: 12/21/1994: >50 ADULTS OBSERVED, 1/5/1995: <50 ADULTS OBSERVED, 3 SPECIMENS COLLECTED AND DEPOSITED IN CAS; POOL #51: 12/21/94: >50 ADULTS OBSERVED, 1/5/95: >50 ADULTS OBSERVED.

PLSS: T08N, R05E, Sec. 36 (M)	Accuracy: nonspecific area	Area (acres): 16
UTM: Zone-10 N4263165 E641409	Latitude/Longitude: 38.50564 / -121.37821	Elevation (feet): 40

County Summary: Sacramento	Quad Summary: Carmichael (3812153), Sacramento East (3812154)
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Sources:
SUG95R0001 SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33380	EO Index: 28755	
Key Quad: Sacramento East (3812154)	Element Code: ICBRA03030	
Occurrence Number: 122	Occurrence Last Updated: 1996-08-05	

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1996-03-10	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1996-03-10	Occurrence Rank: Poor
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
ALONG THE CENTRAL CALIFORNIA TRACTION COMPANY (RAILROAD) RIGHT-OF-WAY, AT THE NORTH END OF 83RD STREET, SACRAMENTO.

Detailed Location:
LOCATED IN A SERIES OF PONDED DEPRESSIONS ALONG THE RAILROAD RIGHT-OF-WAY. B. LYNCHI FOUND IN 5 OF 27 SAMPLED DEPRESSIONS.

Ecological:
HABITAT CONSISTS OF PONDED DEPRESSIONS; OTHER RARE SPECIES FOUND INCLUDE BRANCHINECTA MESOVALLENSIS (UNDESCRIBED) AND LINDERIELLA OCCIDENTALIS.

Threats:
CONSTANT DISTURBANCE BY RAILROAD TRUCKS AND OTHERS DRIVING THROUGH POOLED AREAS. ALSO TIRES AND DEBRIS IN POOLED AREAS.

General:
>50 INDIVIDUALS OBSERVED IN FIVE OF THE DEPRESSIONS DURING SURVEYS CONDUCTED FROM 6 FEBRUARY TO 10 MARCH 1996.

PLSS: T08N, R05E, Sec. 23 (M)	Accuracy: specific area	Area (acres): 6
UTM: Zone-10 N4266068 E639528	Latitude/Longitude: 38.53209 / -121.39920	Elevation (feet): 40

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
MAR96F0001 MARTIN, D. (BIOTA) - FIELD SURVEY FORM FOR BRANCHINECTA LYNCHI & LINDERIELLA OCCIDENTALIS 1996-03-10



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 34791	EO Index: 12989
Key Quad: Sacramento East (3812154)	Element Code: ICBRA03030
Occurrence Number: 131	Occurrence Last Updated: 1996-08-05

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1992-04-03	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-03	Occurrence Rank: Unknown
Owner/Manager: PVT-SPRR	Trend: Unknown
Presence: Presumed Extant	

Location:
RAILROAD DITCH AT 47TH AVENUE (ELDER CREEK RD) AND SPTRR, NEAR POWER INN ROAD; NEAR SW CORNER OF SACRAMENTO ARMY DEPOT.

Detailed Location:
SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH ST & HWY 50.

Ecological:
RAILROAD DITCH.

Threats:

General:
KOFORD OBSERVED B. LYNCHI IN DITCH DURING SURVEY IN SPRING OF 1992; LINDERIELLA OCCIDENTALIS AND LEPIDURUS PACKARDI ALSO OBSERVED.

PLSS: T08N, R05E, Sec. 26 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4263677 E639309	Latitude/Longitude: 38.51058 / -121.40219	Elevation (feet): 40

County Summary:	Quad Summary:
Sacramento	Sacramento East (3812154)

Sources:
KOF92U0001 KOFORD, E.J. (EBASCO) - LETTER TO USFWS REGARDING ADDITIONAL LOCALITIES OF FAIRY SHRIMP IN SACRAMENTO: BRANCHINECTA LYNCHI, LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI. 1992-04-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33692	EO Index: 30609
Key Quad: Sacramento East (3812154)	Element Code: ICBRA03030
Occurrence Number: 166	Occurrence Last Updated: 1998-08-10

Scientific Name: <i>Branchinecta lynchi</i>	Common Name: vernal pool fairy shrimp
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists: IUCN_VU-Vulnerable
CNDDDB 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.
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Last Date Observed: 1992-04-03	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-03	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTH OF FRUITRIDGE RD, NORTH OF FLORIN RD, EAST OF POWER INN RD, & WEST OF FLORIN PERKINS RD.

Detailed Location:
ROADSIDE DITCHES LOCATED SOMEWHERE IN SECTIONS 26 AND 35.

Ecological:
MOST OF SECTION 26 IS URBANIZED.

Threats:
General:
A MANMADE ROADSIDE DITCH IN SECTION 35 CONTAINED B. LYNCHI AND LEPIDURUS PACKARDI.

PLSS: T08N, R05E, Sec. 35 (M)	Accuracy: specific area	Area (acres): 1,513
UTM: Zone-10 N4263669 E639514	Latitude/Longitude: 38.51048 / -121.39984	Elevation (feet): 35

County Summary: Sacramento	Quad Summary: Florin (3812144), Sacramento East (3812154)
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Sources:
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 Game
California Natural Diversity Database



Map Index Number: 32443	EO Index: 638
Key Quad: Sacramento East (3812154)	Element Code: ICBRA10010
Occurrence Number: 14	Occurrence Last Updated: 1996-03-06

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB Element Ranks:	
Global: G3	
State: S2S3	

General Habitat:	Micro Habitat:
INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.	POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Last Date Observed: 1995-03-31	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1995-03-31	Occurrence Rank: Unknown
Owner/Manager: PVT-PIPE TRADES TRUST FUND	Trend: Unknown
Presence: Presumed Extant	

Location:
1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.

Detailed Location:
ELDER CREEK PROPERTY. LEPIDURUS PACKARDI WERE FOUND IN 10 OF 90 SAMPLED WETLANDS.

Ecological:
HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND.

Threats:
RURAL AGRICULTURE; URBAN DEVELOPMENT OCCURING IN VICINITY.

General:
POOL #86: 2/21/1995: <50 ADULTS OBSERVED, 3/31/1995: <50 ADULTS OBSERVED; POOLS #21,43,46: <50 ADULTS OBSERVED; POOLS #38,41,44,45,50,53: >50 ADULTS OBSERVED; 4 ADULTS DEPOSITED IN CAS.

PLSS: T08N, R05E, Sec. 36 (M)	Accuracy: nonspecific area	Area (acres): 16
UTM: Zone-10 N4263165 E641409	Latitude/Longitude: 38.50564 / -121.37821	Elevation (feet): 40

County Summary:	Quad Summary:
Sacramento	Carmichael (3812153), Sacramento East (3812154)

Sources:
SUG95R0001 SUGNET & ASSOCIATES - ANNUAL REPORT TO THE USFWS REGARDING SURVEYS FOR LISTED CRUSTACEA CONDUCTED UNDER FEDERAL FISH AND WILDLIFE PERMIT #PRT-795933. (2 BINDERS) 1995-06-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 34791	EO Index: 13036
Key Quad: Sacramento East (3812154)	Element Code: ICBRA10010
Occurrence Number: 66	Occurrence Last Updated: 1996-08-05

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1992-04-03	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-03	Occurrence Rank: Unknown
Owner/Manager: PVT-SPRR	Trend: Unknown
Presence: Presumed Extant	

Location:
RAILROAD DITCH AT 47TH AVENUE (ELDER CREEK RD) & SPTRR, NEAR POWER INN ROAD; NEAR SW CORNER OF SACRAMENTO ARMY DEPOT.

Detailed Location:
SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH ST AND HWY 50.

Ecological:
RAILROAD DITCH.

Threats:
General:
KOFORD OBSERVED TADPOLE SHRIMP DURING SURVEY IN SPRING OF 1992; BRANCHINECTA LYNCHI AND LINDERIELLA OCCIDENTALIS ALSO OBSERVED.

PLSS: T08N, R05E, Sec. 26 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4263677 E639309	Latitude/Longitude: 38.51058 / -121.40219	Elevation (feet): 40

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
KOF92U0001 KOFORD, E.J. (EBASCO) - LETTER TO USFWS REGARDING ADDITIONAL LOCALITIES OF FAIRY SHRIMP IN SACRAMENTO: BRANCHINECTA LYNCHI, LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI. 1992-04-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 34792	EO Index: 13094	
Key Quad: Sacramento East (3812154)	Element Code: ICBRA10010	
Occurrence Number: 67	Occurrence Last Updated: 1996-08-05	

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1992-04-02	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-02	Occurrence Rank: Unknown
Owner/Manager: PVT-SPRR	Trend: Unknown
Presence: Presumed Extant	

Location:
FRUITRIDGE ROAD X SPTRR, NEAR POWER INN ROAD; NEAR NORTHWEST CORNER OF SACRAMENTO ARMY DEPOT.

Detailed Location:
SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH ST & HWY 50.

Ecological:
TURBID POOL.

Threats:

General:
TADPOLE SHRIMP OBSERVED BY E.J. KOFORD DURING SURVEY IN SPRING OF 1992; LINDERIELLA OCCIDENTALIS ALSO PRESENT.

PLSS: T08N, R05E, Sec. 26 (M)	Accuracy: 80 meters	Area (acres): 0
UTM: Zone-10 N4265267 E638840	Latitude/Longitude: 38.52498 / -121.40725	Elevation (feet): 35

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:
KOF92U0001 KOFORD, E.J. (EBASCO) - LETTER TO USFWS REGARDING ADDITIONAL LOCALITIES OF FAIRY SHRIMP IN SACRAMENTO: BRANCHINECTA LYNCHI, LINDERIELLA OCCIDENTALIS & LEPIDURUS PACKARDI. 1992-04-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 33691	EO Index: 30608
Key Quad: Sacramento East (3812154)	Element Code: ICBRA10010
Occurrence Number: 92	Occurrence Last Updated: 1997-03-07

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1992-04-02	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-02	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTH OF 47TH AVE, NORTH OF FLORIN RD, EAST OF WOODBINE AVE. ON SOUTHERN END OF SACRAMENTO.

Detailed Location:
ROADSIDE DITCHES SOMEWHERE IN SECTION 31.

Ecological:
MOST OF THIS SECTION IS URBANIZED.

Threats:

General:
LEPIDURUS PACKARDI WAS OBSERVED IN A ROADSIDE DITCH ON 4/2/92. SUGNET RECORD #144.

PLSS: T08N, R05E, Sec. 31 (M)	Accuracy: 3/5 mile	Area (acres): 0
UTM: Zone-10 N4262718 E633076	Latitude/Longitude: 38.50290 / -121.47384	Elevation (feet): 15

County Summary: Sacramento	Quad Summary: Florin (3812144), Sacramento East (3812154)
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Sources:
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 Game

California Natural Diversity Database



Map Index Number: 33692	EO Index: 30610
Key Quad: Sacramento East (3812154)	Element Code: ICBRA10010
Occurrence Number: 93	Occurrence Last Updated: 1998-08-10

Scientific Name: <i>Lepidurus packardii</i>	Common Name: vernal pool tadpole shrimp
Listing Status:	Rare Plant Rank:
Federal: Endangered	
State: None	Other Lists: IUCN_EN-Endangered
CNDDDB 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.
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Last Date Observed: 1992-04-03	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1992-04-03	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTH OF FRUITRIDGE RD, NORTH OF FLORIN RD, EAST OF POWER INN RD, AND WEST OF FLORIN PERKINS RD.

Detailed Location:
MANMADE ROADSIDE DITCHES LOCATED SOMEWHERE IN SECTIONS 26 AND 35.

Ecological:
MOST OF SECTION 26 IS URBANIZED.

Threats:
General:
LEPIDURUS PACKARDI OBSERVED IN A ROADSIDE DITCH IN SECTION 26 AND A ROADSIDE DITCH IN SECTION 35. SUGNET RECORD #S 143 & 145.

PLSS: T08N, R05E, Sec. 35 (M)	Accuracy: specific area	Area (acres): 1,513
UTM: Zone-10 N4263669 E639514	Latitude/Longitude: 38.51048 / -121.39984	Elevation (feet): 35

County Summary: Sacramento	Quad Summary: Florin (3812144), Sacramento East (3812154)
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Sources:
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 Game

California Natural Diversity Database



Map Index Number: 11337	EO Index: 22744
Key Quad: Sacramento East (3812154)	Element Code: IICOL48011
Occurrence Number: 6	Occurrence Last Updated: 1998-09-08

Scientific Name: <i>Desmocerus californicus dimorphus</i>	Common Name: valley elderberry longhorn beetle
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists:
CNDDDB 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.
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Last Date Observed: 1984-06-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-06-XX	Occurrence Rank: Unknown
Owner/Manager: PVT	Trend: Decreasing
Presence: Presumed Extant	

Location:
JUST SOUTH OF HIGHWAY 160 AT DEL PASO BLVD, JOHNSON INDUSTRIAL PARK.

Detailed Location:
SACRAMENTO ZONE - JOHNSON INDUSTRIAL PARK CRITICAL HABITAT.

Ecological:
LARVAE ARE BORERS; ADULTS FEED ON FOLIAGE.

Threats:
General:

ADULTS OBSERVED BY ARNOLD IN 1984.

PLSS: T09N, R05E, Sec. 30 (M)	Accuracy: specific area	Area (acres): 27
UTM: Zone-10 N4273301 E633403	Latitude/Longitude: 38.59819 / -121.46807	Elevation (feet): 25

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ARN84U0002	ARNOLD, R.A. - REPORT FOR ENDANGERED INSECT CONTRACT WITH R. A. ARNOLD, 1984 - ECOLOGICAL STUDIES OF THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-04-XX
EYA76R0001	EYA, B.K. - REPORT ON THE DISTRIBUTION & STATUS OF A LONGHORN BEETLE, DESMOCERUS CALIFORNICUS DIMORPHUS (COLEOPTERA: CERAMBYCIDAE). OBTAINED THROUGH DR. LARRY ENG. 1976-XX-XX
FWS84R0002	U.S. FISH & WILDLIFE SERVICE - RECOVERY PLAN FOR THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11410	EO Index: 22742
Key Quad: Sacramento East (3812154)	Element Code: IICOL48011
Occurrence Number: 7	Occurrence Last Updated: 1998-07-15

Scientific Name: <i>Desmocerus californicus dimorphus</i>	Common Name: valley elderberry longhorn beetle
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists:
CNDDDB 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.
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Last Date Observed: 1984-06-XX	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-06-XX	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
SOUTH BANK AMERICAN RIVER WEST OF GLEN HALL PARK (ACROSS FROM CAL EXPO), RIVER MILE 5.

Detailed Location:
Ecological:
HABITAT IS A NARROW RIPARIAN BAND.

Threats:
General:

OBSERVED ON A STEM OF A LARGE (1.0-1.5 CM DIAMETER) ELDERBERRY SHRUB. FEMALE SPECIMEN HELD FOR TWO DAYS; IT ATE ELDERBERRY LEAVES, LAID 10 EGGS, THEN WAS RELEASED AT CAPTURE SITE. ADULTS WERE ALSO OBSERVED BY ARNOLD IN 1984.

PLSS: T08N, R05E, Sec. 04 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4271543 E636777	Latitude/Longitude: 38.58184 / -121.42968	Elevation (feet): 25

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ARN84R0003	ARNOLD, R.A. - REPORTS: THE FINDINGS OF MY RECENT FIELD STUDIES OF THE ENDANGERED VALLEY ELDERBERRY LONGHORN BEETLE; LETTERS FROM: DOWNEY, BRAND, SEYMORE & ROHWER; USFWS; UC BERKELEY. 1984-06-21
ARN84U0002	ARNOLD, R.A. - REPORT FOR ENDANGERED INSECT CONTRACT WITH R. A. ARNOLD, 1984 - ECOLOGICAL STUDIES OF THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-04-XX
ENG83F0001	ENG, L.L. - FIELD SURVEY FORM FOR DESMOCERUS CALIFORNICUS DIMORPHUS 1983-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11398

EO Index: 22739

Key Quad: Sacramento East (3812154)

Element Code: IICOL48011

Occurrence Number: 8

Occurrence Last Updated: 1998-07-15

Scientific Name: *Desmocerus californicus dimorphus*

Common Name: valley elderberry longhorn beetle

Listing Status: **Federal:** Threatened

Rare Plant Rank:

State: None

Other Lists:

CNDDDB 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: XXXX-XX-XX

Occurrence Type: Natural/Native occurrence

Last Survey Date: 1984-06-XX

Occurrence Rank: Unknown

Owner/Manager: PVT

Trend: Unknown

Presence: Presumed Extant

Location:

BUSHY LAKE, NEAR CAL EXPO.

Detailed Location:

Ecological:

LARVAE ARE ELDERBERRY STEM BORERS AND ADULTS FEED ON ELDERBERRY FOLIAGE.

Threats:

General:

COLLECTIONS KNOWN FROM THIS AREA. NO ADULTS OR FRESH EXIT HOLES OBSERVED IN 1984.

PLSS: T09N, R05E, Sec. 33 (M)

Accuracy: 1/5 mile

Area (acres): 0

UTM: Zone-10 N4272184 E636307

Latitude/Longitude: 38.58768 / -121.43495

Elevation (feet): 20

County Summary:

Quad Summary:

Sacramento

Sacramento East (3812154)

Sources:

ARN84R0001 ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27

FWS84R0002 U.S. FISH & WILDLIFE SERVICE - RECOVERY PLAN FOR THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-XX-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11343	EO Index: 22740
Key Quad: Sacramento East (3812154)	Element Code: IICOL48011
Occurrence Number: 9	Occurrence Last Updated: 1998-07-14

Scientific Name: <i>Desmocerus californicus dimorphus</i>	Common Name: valley elderberry longhorn beetle
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists:
CNDDDB 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.
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Last Date Observed: 1984-06-00	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-06-00	Occurrence Rank: Unknown
Owner/Manager: PVT	Trend: Unknown
Presence: Presumed Extant	

Location:
AMERICAN RIVER FLOODPLAIN 22 ACRE PARCEL BETWEEN RAILROAD TRACK OVERPASSES (BTWN I-80 & HWY 160).

Detailed Location:
ADULTS OBSERVED ON "STRESSED" ELDERBERRIES IN RIPARIAN VEGETATION ALONG THE AMERICAN RIVER.

Ecological:
Threats:

General:
NORTH SACRAMENTO LAND COMPANY PROPERTY.

PLSS: T09N, R05E, Sec. 32 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4272354 E633690	Latitude/Longitude: 38.58961 / -121.46495	Elevation (feet): 10

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ARN84R0003	ARNOLD, R.A. - REPORTS: THE FINDINGS OF MY RECENT FIELD STUDIES OF THE ENDANGERED VALLEY ELDERBERRY LONGHORN BEETLE; LETTERS FROM: DOWNEY, BRAND, SEYMORE & ROHWER; USFWS; UC BERKELEY. 1984-06-21
ARN84U0002	ARNOLD, R.A. - REPORT FOR ENDANGERED INSECT CONTRACT WITH R. A. ARNOLD, 1984 - ECOLOGICAL STUDIES OF THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-04-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11431	EO Index: 22741
Key Quad: Sacramento East (3812154)	Element Code: IICOL48011
Occurrence Number: 10	Occurrence Last Updated: 1998-07-14

Scientific Name: <i>Desmocerus californicus dimorphus</i>	Common Name: valley elderberry longhorn beetle
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists:
CNDDDB 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.
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Last Date Observed: 1984-06-00	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-06-00	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
BETWEEN MILEAGE MARKERS 6 & 7 ON AMERICAN RIVER PARKWAY BIKE TRAIL.

Detailed Location:
ADULTS OBSERVED BY ARNOLD ON "STRESSED" ELDERBERRIES IN RIPARIAN VEGETATION ALONG THE AMERICAN RIVER.

Ecological:
Threats:

General:

PLSS: T09N, R05E, Sec. 03 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4271467 E637721	Latitude/Longitude: 38.58101 / -121.41885	Elevation (feet): 10

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ARN84R0003	ARNOLD, R.A. - REPORTS: THE FINDINGS OF MY RECENT FIELD STUDIES OF THE ENDANGERED VALLEY ELDERBERRY LONGHORN BEETLE; LETTERS FROM: DOWNEY, BRAND, SEYMORE & ROHWER; USFWS; UC BERKELEY. 1984-06-21
ARN84U0002	ARNOLD, R.A. - REPORT FOR ENDANGERED INSECT CONTRACT WITH R. A. ARNOLD, 1984 - ECOLOGICAL STUDIES OF THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-04-XX



Occurrence Report

California Department of Fish and Game

California Natural Diversity Database



Map Index Number: 11316	EO Index: 12887
Key Quad: Sacramento East (3812154)	Element Code: IICOL48011
Occurrence Number: 11	Occurrence Last Updated: 1998-07-14

Scientific Name: <i>Desmocerus californicus dimorphus</i>	Common Name: valley elderberry longhorn beetle
Listing Status:	Rare Plant Rank:
Federal: Threatened	
State: None	Other Lists:
CNDDDB 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.
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Last Date Observed: 1984-06-00	Occurrence Type: Natural/Native occurrence
Last Survey Date: 1984-06-00	Occurrence Rank: Unknown
Owner/Manager: UNKNOWN	Trend: Unknown
Presence: Presumed Extant	

Location:
JUNCTION OF GARDEN HIGHWAY AND NORTHGATE BLVD.

Detailed Location:
10 ACRE PARCEL, REFERRED TO AS THE NORTHGATE TRIANGLE.

Ecological:
MOST BEETLES FOUND ON "STRESSED" ELDERBERRIES.

Threats:

General:
ADULTS OBSERVED BY ARNOLD.

PLSS: T09N, R05E, Sec. 30 (M)	Accuracy: 1/5 mile	Area (acres): 0
UTM: Zone-10 N4274002 E632670	Latitude/Longitude: 38.60461 / -121.47634	Elevation (feet): 10

County Summary: Sacramento	Quad Summary: Sacramento East (3812154)
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Sources:

ARN84R0001	ARNOLD, R. - DISTRIBUTIONAL AND ECOLOGICAL STUDIES OF FIVE ENDANGERED INSECTS 1984-07-27
ARN84R0003	ARNOLD, R.A. - REPORTS: THE FINDINGS OF MY RECENT FIELD STUDIES OF THE ENDANGERED VALLEY ELDERBERRY LONGHORN BEETLE; LETTERS FROM: DOWNEY, BRAND, SEYMORE & ROHWER; USFWS; UC BERKELEY. 1984-06-21
ARN84U0002	ARNOLD, R.A. - REPORT FOR ENDANGERED INSECT CONTRACT WITH R. A. ARNOLD, 1984 - ECOLOGICAL STUDIES OF THE VALLEY ELDERBERRY LONGHORN BEETLE. 1984-04-XX

Appendix B

Construction Emissions Estimates using the Road Construction Emissions Model Version 6.3.2 and SMAQMD Standard Mitigation Program Requirements

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Jacob Lane Reach C											
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)	
Grubbing/Land Clearing	0.4	2.5	2.2	10.1	0.1	10.0	2.2	0.1	2.1	421.0	
Grading/Excavation	4.9	46.5	23.5	11.1	1.1	10.0	3.1	1.0	2.1	2,609.1	
Drainage/Utilities/Sub-Grade	2.5	11.9	27.0	11.0	1.0	10.0	3.0	0.9	2.1	3,944.4	
Paving	0.8	4.1	4.4	0.4	0.4	-	0.3	0.3	-	602.6	
Maximum (pounds/day)	4.9	46.5	27.0	11.1	1.1	10.0	3.1	1.0	2.1	3,944.4	
Total (tons/construction project)	0.1	1.1	0.7	0.3	0.0	0.3	0.1	0.0	0.1	85.5	

Notes: Project Start Year -> 2013
 Project Length (months) -> 3
 Total Project Area (acres) -> 2
 Maximum Area Disturbed/Day (acres) -> 1
 Total Soil Imported/Exported (yd³/day)-> 429

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Jacob Lane Reach C											
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)	
Grubbing/Land Clearing	0.2	1.1	1.0	4.6	0.1	4.5	1.0	0.0	0.9	191.3	
Grading/Excavation	2.2	21.1	10.7	5.1	0.5	4.5	1.4	0.5	0.9	1,185.9	
Drainage/Utilities/Sub-Grade	1.1	5.4	12.3	5.0	0.4	4.5	1.3	0.4	0.9	1,792.9	
Paving	0.4	1.8	2.0	0.2	0.2	-	0.2	0.2	-	273.9	
Maximum (kilograms/day)	2.2	21.1	12.3	5.1	0.5	4.5	1.4	0.5	0.9	1,792.9	
Total (megagrams/construction project)	0.1	1.0	0.6	0.3	0.0	0.2	0.1	0.0	0.0	77.5	

Notes: Project Start Year -> 2013
 Project Length (months) -> 3
 Total Project Area (hectares) -> 1
 Maximum Area Disturbed/Day (hectares) -> 0
 Total Soil Imported/Exported (meters³/day)-> 328

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Hauling emission default values can be overridden in cells C45 through C46.						
Soil Hauling Emissions						
User Override of		Default Values				
User Input		Soil Hauling Defaults				
Miles/round trip	2.50	30				2.5
Round trips/day		43				42.9
Vehicle miles traveled/day (calculated)			107.25			2.5
Hauling Emissions						
	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76
Emission rate (grams/trip)	10.32	7.57	172.85	0.01	0.01	199.87
Pounds per day	2.1	3.9	34.0	0.1	0.1	480.7
Tons per construction period	0.05	0.08	0.75	0.00	0.00	10.57
Worker commute default values can be overridden in cells C60 through C65.						
Worker Commute Emissions						
User Override of Worker		Default Values				
Commute Default Values						
Miles/ one-way trip		20				20
One-way trips/day		2				2
No. of employees: Grubbing/Land Clearing		3				3.125
No. of employees: Grading/Excavation		6				5.75
No. of employees: Drainage/Utilities/Sub-Grade		6				5.625
No. of employees: Paving		4				4.375
	ROG	NOx	CO	PM10	PM2.5	CO2
Emission rate - Grubbing/Land Clearing (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grading/Excavation (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Paving (grams/mile)	0.118	0.211	2.201	0.033	0.018	426.660
Emission rate - Grubbing/Land Clearing (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Grading/Excavation (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Draining/Utilities/Sub-Grade (gr/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Emission rate - Paving (grams/trip)	0.746	0.316	7.305	0.130	0.013	192.690
Pounds per day - Grubbing/Land Clearing	0.053	0.067	0.807	0.013	0.005	122.778
Tons per const. Period - Grub/Land Clear	0.000	0.000	0.001	0.000	0.000	0.203
Pounds per day - Grading/Excavation	0.053	0.067	0.807	0.013	0.005	122.778
Tons per const. Period - Grading/Excavation	0.001	0.001	0.018	0.000	0.000	2.701
Pounds per day - Drainage/Utilities/Sub-Grade	0.053	0.067	0.807	0.013	0.005	122.778
Tons per const. Period - Drain/Util/Sub-Grade	0.000	0.000	0.004	0.000	0.000	0.675
Pounds per day - Paving	0.066	0.067	0.807	0.013	0.005	169.767
Tons per const. Period - Paving	0.000	0.000	0.003	0.000	0.000	0.654
tons per construction period	0.002	0.002	0.027	0.000	0.000	4.233

Water truck default values can be overridden in cells C91 through C93 and E91 through E93.							
Water Truck Emissions							
	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day			
Grubbing/Land Clearing - Exhaust		1		40			
Grading/Excavation - Exhaust		1		40			
Drainage/Utilities/Subgrade		1		40			
	ROG	NOx	CO	PM10	PM2.5	CO2	
Emission rate - Grubbing/Land Clearing (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Emission rate - Grading/Excavation (grams/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Emission rate - Draining/Utilities/Sub-Grade (gr/mile)	0.84	10.25	5.45	0.40	0.33	1874.76	
Pounds per day - Grubbing/Land Clearing	0.07	0.90	0.48	0.04	0.03	165.18	
Tons per const. Period - Grub/Land Clear	0.00	0.02	0.01	0.00	0.00	3.63	
Pound per day - Grading/Excavation	0.07	0.90	0.48	0.04	0.03	165.18	
Tons per const. Period - Grading/Excavation	0.00	0.02	0.01	0.00	0.00	3.63	
Pound per day - Drainage/Utilities/Subgrade	0.07	0.90	0.48	0.04	0.03	165.18	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.00	0.00	0.00	0.00	0.91	
Fugitive dust default values can be overridden in cells C110 through C112.							
Fugitive Dust							
	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/period	PM2.5 pounds/day	PM2.5 tons/period	
Fugitive Dust - Grubbing/Land Clearing		1	10.0	0.0	2.1	0.0	3
Fugitive Dust - Grading/Excavation		1	10.0	0.1	2.1	0.0	3
Fugitive Dust - Drainage/Utilities/Subgrade		1	10.0	0.1	2.1	0.0	3
20.8 CEIDARS - Off Road Equipment Fugitive Dust PM2.5 % of PM10							
Off-Road Equipment Emissions							
Default							
Grubbing/Land Clearing	Number of Vehicles		ROG	CO	NOx	PM10	PM2.5
Override of Default Number of Vehicles	Program-estimate	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
		Aerial Lifts	0.00	0.00	0.00	0.00	0.00
		Air Compressors	0.00	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00
		Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00
		Cranes	0.00	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00
		Excavators	0.00	0.00	0.00	0.00	0.00
		Forklifts	0.00	0.00	0.00	0.00	0.00
		Generator Sets	0.00	0.00	0.00	0.00	0.00
		Graders	0.00	0.00	0.00	0.00	0.00
		Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00
		Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00
		Other Construction Equipment	0.00	0.00	0.00	0.00	0.00
		Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00
		Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00	0.00
		Plate Compactors	0.00	0.00	0.00	0.00	0.00
		Pressure Washers	0.00	0.00	0.00	0.00	0.00
		Pumps	0.00	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00	0.00
		Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00
0.00	1	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00
		Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00
0.00	1	Scrapers	0.00	0.00	0.00	0.00	0.00
0.00	1	Signal Boards	0.00	0.00	0.00	0.00	0.00
1.00		Skid Steer Loaders	0.27	1.18	1.19	0.08	0.08
		Surfacing Equipment	0.00	0.00	0.00	0.00	0.00
		Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00
		Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00	0.00
		Welders	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	0.3	1.2	1.2	0.1	0.1
	Grubbing/Land Clearing	tons per phase	0.0	0.0	0.0	0.0	0.2

Greenhouse Gas Emissions Inventory and Calculation							
Project Name - WRDA 99 Jacob Lane Reach C							
Construction Equipment Emissions							
Type of Equipment	Maximum Number Per Day	Total Operation Days	Total Operation Hours (8 hr work day)	Fuel Consumption Per Hour	Total Fuel Consumption (gal. diesel)	CO2e/gal Diesel	Total CO2 Equivalent Emissions (metric tons)
Backhoes	1	10	80	3	240	0.010391	2.4938
Bobcats	0	0	0	2	0	0.010391	0.0000
Bulldozers	1	15	90	13	1170	0.010391	12.1575
Compactors	1	3	18	18	324	0.010391	3.3667
Cranes	0	0	0		0	0.010391	0.0000
Drill Rig		20	0	10	0	0.010391	0.0000
Dump Trucks	2	36	432	30	12960	0.010391	134.6674
Earth Mover	0	0	0	57	0	0.010391	0.0000
Excavators	0	0	0	9	0	0.010391	0.0000
Forklifts	0	5	0	3	0	0.010391	0.0000
Generators	1	8	64	16	1024	0.010391	10.6404
Grader	0	5	0	9	0	0.010391	0.0000
Loaders	2	15	180	10	1800	0.010391	18.7038
Off-road Trucks			0	28	0	0.010391	0.0000
Pavers	0	3	0	7	0	0.010391	0.0000
Pile Drivers			0	4	0	0.010391	0.0000
Roller	1	25	200	11	2200	0.010391	22.8602
Scrapers	0	2	0	21	0	0.010391	0.0000
Side Boom Pipe Handler Tractor			0	5	0	0.010391	0.0000
Highway Truck	2	66	396	10	3960	0.010391	41.1484
			0				
			0				
			0				
TOTAL							246.0381
Construction Workforce Transportation Emissions							
Average Number of Workers Per Day	Total Number of Workdays	Average Distance Travelled	Total Miles Travelled	Average Passenger Fuel Efficiency	Total Fuel Consumption (gal. gasoline)	CO2e/gal Gasoline	Total CO2 Equivalent Emissions (metric tons)
5	66	20	6600	20.8	317.3076923	0.00901	2.8589
TOTAL							2.8589
Construction Materials Transportation Emissions							
Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Travelled	Average Semi-truck Fuel Efficiency	Total Fuel Consumption (gal. diesel)	CO2e/gal Diesel	Total CO2 Equivalent Emissions (metric tons)
Delivery	100	20	2000	8	250	0.010391	2.5978
Spoils	75	20	1500	8	187.5	0.010391	1.9483
TOTAL							4.5461

National Ambient Air Quality Standards (NAAQS)

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards.

Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. They are listed below. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$).

National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm (10 $\mu\text{g}/\text{m}^3$)	8-hour ⁽¹⁾	None	
	35 ppm (40 $\mu\text{g}/\text{m}^3$)	1-hour ⁽¹⁾		
Lead	0.15 $\mu\text{g}/\text{m}^3$ ⁽²⁾	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu\text{g}/\text{m}^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 $\mu\text{g}/\text{m}^3$)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM ₁₀)	150 $\mu\text{g}/\text{m}^3$	24-hour ⁽³⁾	Same as Primary	
Particulate Matter (PM _{2.5})	15.0 $\mu\text{g}/\text{m}^3$	Annual ⁽⁴⁾ (Arithmetic Mean)	Same as Primary	
	35 $\mu\text{g}/\text{m}^3$	24-hour ⁽⁵⁾	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour ⁽⁶⁾	Same as Primary	
	0.08 ppm (1997 std)	8-hour ⁽⁷⁾	Same as Primary	
	0.12 ppm	1-hour ⁽⁸⁾ (Applies only in limited areas)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 $\mu\text{g}/\text{m}^3$)	3-hour ⁽¹⁾
	0.14 ppm	24-hour ⁽¹⁾		

- ⁽¹⁾ Not to be exceeded more than once per year.
- ⁽²⁾ Final rule signed October 15, 2008.
- ⁽³⁾ Not to be exceeded more than once per year on average over 3 years.
- ⁽⁴⁾ To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
- ⁽⁵⁾ To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).
- ⁽⁶⁾ To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
- ⁽⁷⁾ (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
- ⁽⁸⁾ (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

California Ambient Air Quality Standards¹

Pollutant	Averaging Time	Concentration ²
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)
Respirable Particulate Matter (PM ₁₀)	Annual Geometric Mean	30 µg/m ³
	24 Hour	50 µg/m ³
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m ³)
	1 Hour	20 ppm (23 mg/m ³)
	1 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)
Nitrogen Dioxide (NO ₂)	1 Hour	0.25 ppm (470 µg/m ³)
Lead	30 Days Average	1.5 µg/m ³
Sulfur Dioxide (SO ₂)	24 Hour	0.04 ppm (105 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)
Visibility Reducing Particles	8 Hour (10am-6pm, PST)	10 Miles (30 Miles Lake Tahoe) or more ³
Sulfates	24 Hour	25 µg/m ³
Vinyl Chloride ⁴	24 Hour	0.01 ppm (26 µg/m ³)
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)

Footnotes:

- Standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM₁₀, and visibility reducing particles are values not to be exceeded. All others are not to be equaled or exceeded. (Table of Standards, Section 70200, Title 17, California Code of Regulations)
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25° C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar). ppm = parts per million; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter.
- In sufficient amount to produce an extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.
- The standard notes that vinyl chloride is a “known human and animal carcinogen” and that “low level effects are undefined, but are potentially serious. Level specified is lowest level at which violation can be reliably detected by the method specified. Ambient concentrations at or above the standard constitute an endangerment to the health of the public.

SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles

Apply only to projects with construction emissions above the CEQA Threshold of Significance.

Revised December 1, 2008

Category 1: Reducing NOx emissions from off-road diesel powered equipment

The project shall provide a plan, for approval by the lead agency and SMAQMD, demonstrating that the heavy-duty (> 50 horsepower) self-propelled off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction¹ compared to the most recent CARB fleet average at time of construction; and

The project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

and:

Category 2: Controlling visible emissions from off-road diesel powered equipment

The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or state rules or regulations.

and/or:

If at the time of construction, the SMAQMD has adopted a regulation applicable to construction emissions, compliance with the regulation may completely or partially replace this mitigation. Consultation with SMAQMD prior to construction will be necessary to make this determination.

¹Acceptable options for reducing emissions may include use of newer model year engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

SMAQMD Rules & Regulations Statement (revised 1/07)

*The following statement is recommended as standard condition of approval or construction document language for **all** development projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916.874.4800. Specific rules that may relate to construction activities or building design may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

Rule 417: Wood Burning Appliances. Effective October 26, 2007, this rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

Appendix C

Fish and Wildlife Coordination Act Report



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
81420-2008-FA-0389-1

MAY 23 2012

Alicia Kirchner
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95825-2922

Dear Ms. Kirchner:

The Corps of Engineers (Corps) has requested supplemental coordination under the Fish and Wildlife Coordination Act (FWCA) for the American River Watershed Investigation (Common Features) Jacob Lane Levee Improvement Project. The proposed levee improvements would occur on the north levee of the American River, Sacramento County, California. This letter constitutes the Fish and Wildlife Service's (Service) Supplemental FWCA report for the proposed repairs in Reach C of the project.

BACKGROUND

The American River Watershed Investigation Common Features Project (Common Features Project) is a cooperative effort among local, State of California, and Federal agencies to increase the level of flood protection for the city of Sacramento and surrounding areas. The Common Features Project encompasses several actions under two authorizations (WRDA 96 and WRDA 99) located along both banks of the lower American River within the American River Parkway, as well as sections along the Sacramento River. They have been constructed by the Corps and the Central Valley Flood Protection Board (Board) of the State of California, and are maintained by the American River Flood Control District.

The Service previously coordinated with the Corps on the Jacob Lane Levee Improvement Project (USFWS 2008) which included two reaches of the right bank of the American River. Reach A work involved raising about 7,000 linear feet of levee 1 foot. Reach B involved widening the levee crown on about 6,400 linear feet of levee. The work at both of these reaches is complete.

PROJECT DESCRIPTION

The proposed work at Jacob Lane Levee Improvement Project, Reach C encompasses the area adjacent to the Sheriff's Training Facility and is a subset of Reach B (Figure 1). Reach C begins

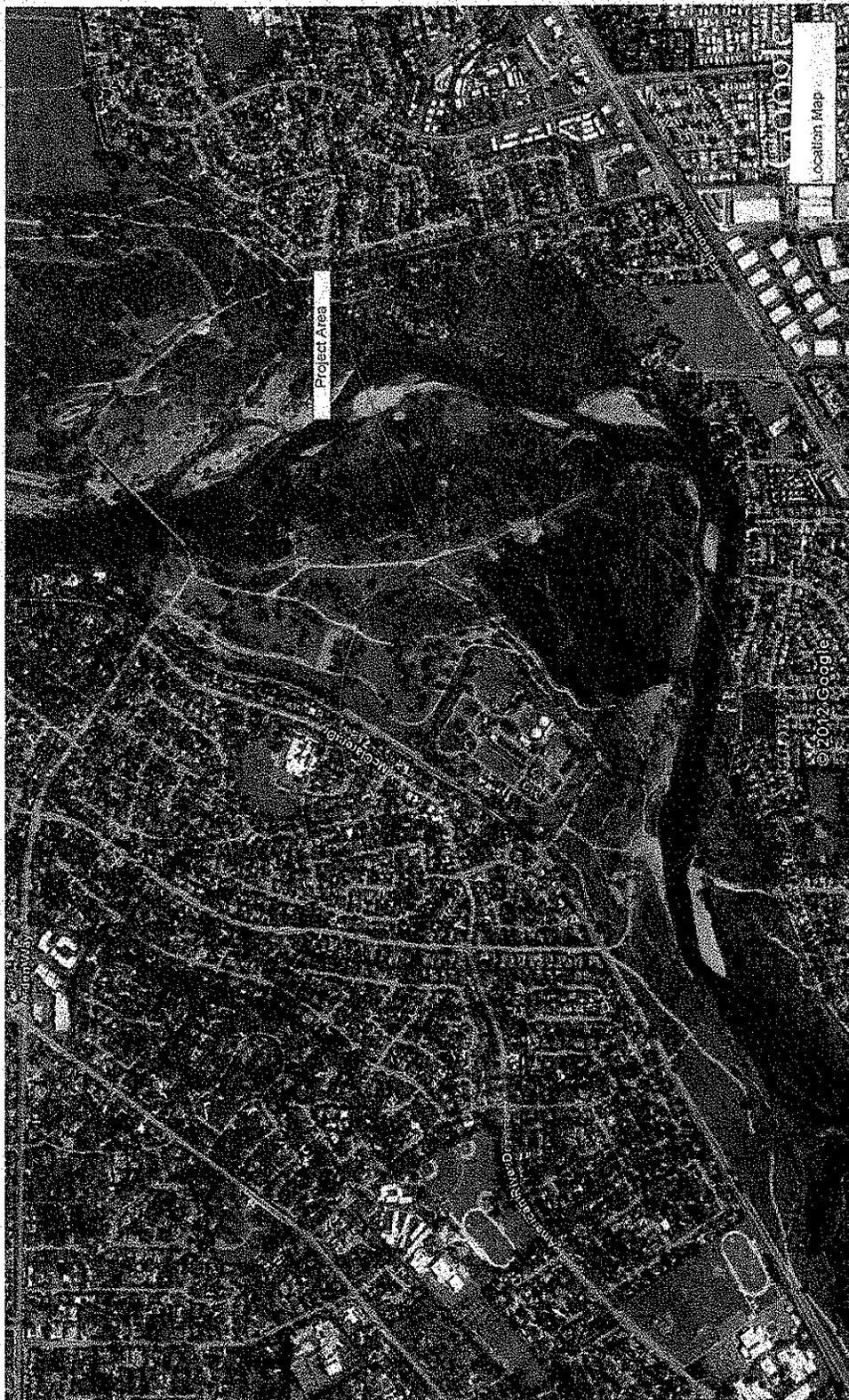


Figure 1. Jacob Lane Levee Improvement Project, Reach C Location.

Source: Corps of Engineers

at the Sheriff's Training Facility property line and is about 1,385 long with the downstream terminus at River Walk Way.

The work at Reach C would involve removing the levee and reconstructing it between 10 feet and 15 feet further landward. The new levee would reflect corrections to the width of the levee and the levee crown that were incorporated into the Reach B construction. These corrections are required in order to meet minimum Corps levee cross section standards. A minimum levee crown width of 20 feet is also needed for levee inspection and flood fighting activities.

Arden Way would provide access at the upstream end of Reach C. River Walk Way would be the downstream access to the reach. The staging area for Reach C would be located in an open area just downstream of River Walk Way between the waterside toe of the levee and the Jedediah Smith Recreational Trail (Figure 2). It consists of primarily open grassland with small areas that have been disturbed by human activity. Construction materials, equipment, spoils and excess material would be stored in the staging area during the construction period. Construction workers would park at existing facilities near the staging area (see Figure 2).

Before the start of construction, all construction areas would be fenced off to limit access, including the staging area. Chain link fencing would be installed on the land side of the project site adjacent to the residential property lines for site safety and security. In the staging area where the bike trail is in the vicinity of the project footprint, concrete barriers or water-filled barriers would be installed along the edge of the trail in order to separate recreationists from the construction area. A 15-foot corridor for construction equipment would be established along both the waterside and landside toes of the levee for most of this reach. This corridor would become the required vegetation-free zones on both sides of the levee. Construction of the realigned levee would require that 3 to 6 inches of the levee crown and both the landside and waterside slopes be cleared and grubbed of all vegetation and surface material. This would total about 765 cubic yards (cys) of removed material and would be disposed by the contractor at a licensed and permitted site, approved by the Corps.

A set of three pipelines formerly used to transport jet fuel from a petroleum facility on the south side of the river to the former McClellan Air Force Base, and beyond, must also be removed prior to levee construction. The pipelines, currently owned by Kinder Morgan, have been abandoned in place since 1991 and filled with inert gas (nitrogen). The pipelines are located in a small portion of the northwest corner of the Sheriff's Training Facility, cross the levee in a northeasterly direction, and follow the open space on the landside of the levee to Arden Way, and beyond. About 100 linear feet of the pipelines that are located within the levee footprint would be removed in preparation for the realignment of the levee (Figure 3). The removal of the pipelines would require excavating about 60 cys of soil, which would be sidecast, then replaced after removal of the pipelines. A Phase I Environmental Site Assessment conducted in 2008 indicated that there have been no records of any releases of contaminants in the project area. The section of pipeline located within the levee footprint is encased in concrete and the likelihood of leakage is considered low. Once the pipeline is removed the Corps would test every 10 feet along the footprint of the pipeline for the presence of contamination. However, for the purposes of evaluating the worst case scenario, the Corps is assuming that 1,000 cys of soil would be

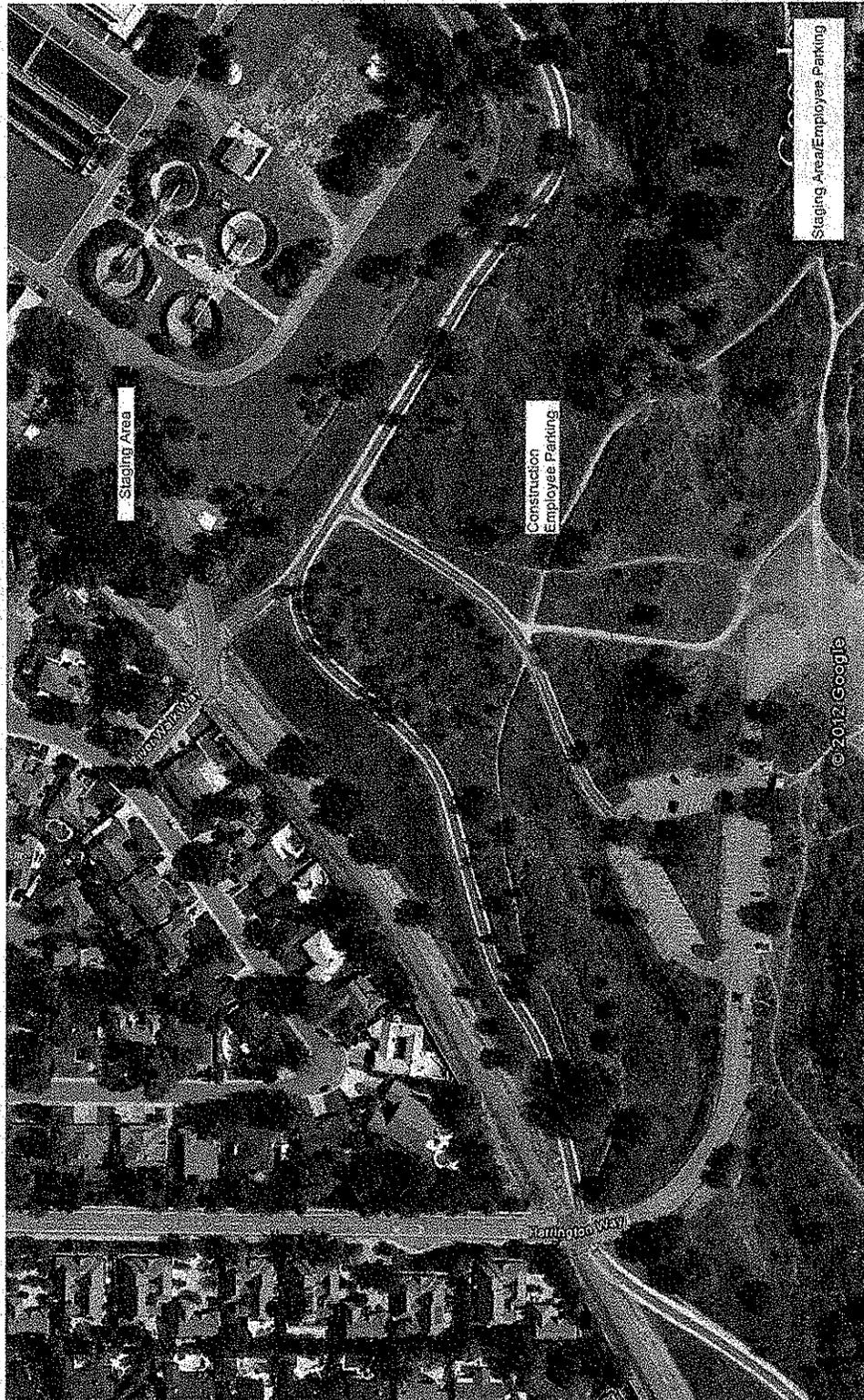


Figure 2. Jacob Lane Levee Improvement Project, Reach C Staging and Parking Area.

Source: Corps of Engineers

excavated to be transported to a licensed, permitted facility for disposal. Subsequently, 1,000 cys of clean fill would be brought in from a Corps approved borrow site to replace the contaminated soil. Construction on Reach C is projected for the summer of 2013. The duration of the construction period should be about 3 months. The directional flow of the construction activities is from upstream to downstream.

Once the pipelines have been removed, the entire length of the existing levee from River Walk Way to the upstream end of the Sheriff's Training Facility would be removed, down to grade, and the soil (about 5,400 cys) placed in the staging area. Evaluation of the levee indicates virtually all of this soil is suitable material and would be used for reconstruction of the levee in the new alignment. The levee would then be reconstructed to a consistent 20 foot crest for the full length of the reach, using a combination of the excavated soil, and about 1,000 cys of borrow material to meet levee standards. The new material would be delivered by dump truck on the top of the levee and then redistributed. The combination of the borrow soil and the excavated material would then be compacted to reform the levee to Corps standards. Once levee construction is completed, 340 cys of aggregate base material would to be reinstalled on the levee surface to provide for the maintenance road.

Once the levee work is completed, all equipment and excess materials would be transported offsite via neighborhood streets and regional highways. The barren earthen and levee slopes would be reseeded with native grasses to promote revegetation and minimize soil erosion. The access ramps and staging areas would also be restored to pre-project conditions and reseeded. Any damage to the residential streets and bike trails from construction activities would be repaired. Finally, the work sites and staging areas would be cleaned of all rubbish, and all parts of the work area would be left in a safe and neat condition suitable to the setting of the area.

Mitigation plantings for any trees that would be removed would be placed in a common mitigation area within the parkway. Any compensation plantings associated with the transplanting or trimming of elderberry shrubs would be placed in a Service approved mitigation area within the parkway or at a mitigation bank.

After construction is completed, responsibility for the project would be turned over to the Board, the non-Federal sponsor for the project. This would include operation, maintenance, repair, rehabilitation, and replacement of all project features. The Board would transfer these responsibilities to Sacramento Area Flood Control Agency, who would contract the American River Flood Control District to operate and maintain the levee. Regular maintenance activities include mowing and spraying the levee slopes, controlling rodents, clearing the maintenance road, and inspecting the levee.

BIOLOGICAL RESOURCES

The biological resources, Service Mitigation Policy and resource category determinations were previously described in the Service's 2008 FWCA report (USFWS 2008). These descriptions and determinations have not changed for the work proposed in Reach C.

Based on a search of the Carmichael and Sacramento East USGS quadrangle map there are several listed species which could occur within or near the project area. The species under the jurisdiction of the Service which may be affected by the project include the valley elderberry longhorn beetle. The other species (anadromous fish) are under the jurisdiction of National

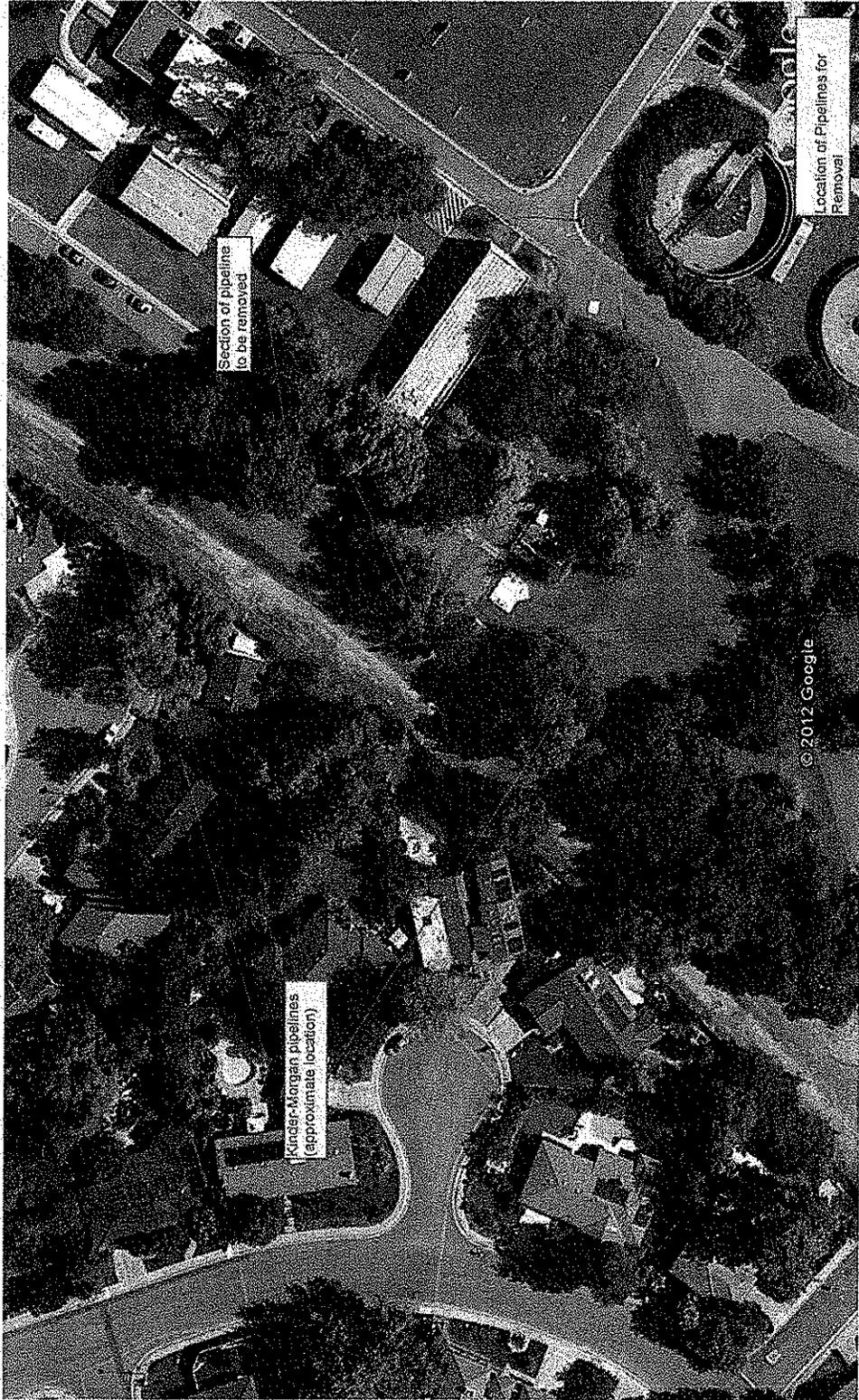


Figure 3. Jacob Lane Levee Improvement Project, Reach C Pipeline Removal Location.

Source: Corps of Engineers

Marine Fisheries Service (NOAA Fisheries). The complete list is included in Enclosure 1 as well as a summary of Federal agencies responsibilities under the Endangered Species Act of 1973, as amended.

Thirty-six elderberry shrubs were identified along reaches A and B during surveys on March 31 and April 4, 2008. These shrubs represented those which occurred closest to the proposed work areas. The Corps completed consultation with the Service on possible impacts to these shrubs which are the sole host plant for the threatened valley elderberry longhorn beetle on June 13, 2008 (Enclosure 2).

Based on our review of the proposed project most of the impacts would be temporal losses of habitat value for species utilizing annual grasslands during construction on the affected levees and proposed staging areas. There are six trees, including two large oaks, which have been identified for removal as well as six elderberry shrubs which would be impacted by the work. Much of this area is already highly disturbed by maintenance activities and recreation activities (hiking, running, dog walking, etc.). All disturbed areas would be reseeded with annual grasses at the completion of construction. Wildlife species utilizing these areas would be displaced during construction and there would be a temporal loss of habitat values while mitigation plantings develop. The project's impact on wildlife would be mitigated by developing a mitigation site likely within the American River Parkway.

The proposed project would take place in a reach of the river where mature riparian and oak woodland occurs within and adjacent to the project area. Measures should be included in the project description to avoid impacts to migratory birds which may be nesting in affected vegetation and nearby areas throughout the riparian corridor. Pre-construction surveys should be performed to determine if there are migratory birds nesting in the area. If nests are located, work should be deferred until any young have fledged the nest.

The project is located away from the American River and thus no direct impacts are anticipated for fish species.

RECOMMENDATIONS

The Service recommends:

1. Avoid impacts to native trees, shrubs, and aquatic vegetation. Any native trees or shrubs removed with a diameter at breast height of 2 inches or greater should be replaced on-site, in-kind with container plantings so that the combined diameter of the container plantings is equal to the combined diameter of the trees removed. These replacement plantings should be monitored for 5 years or until they are determined to be established and self-sustaining. The planting site(s) should be protected in perpetuity.
2. Avoid future impacts to the site by ensuring all fill material is free of contaminants.
3. Avoid impacts to migratory birds nesting in trees along the access routes and adjacent to the proposed repair sites by conducting pre-construction surveys for active nests along proposed haul roads, staging areas, and construction sites. This would especially apply if construction begins in the spring of 2013. Work activity around active nests should be avoided until the

young have fledged. The following protocol from the California Department of Fish and Game for Swainson's hawk would suffice for the pre-construction survey for raptors.

A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 miles of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 miles of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Game. If work is begun and completed between September 1 and February 28, a survey is not required.

4. Minimize project impacts by reseeding all disturbed areas at the completion of construction with forbs and grasses.
5. Minimize the impact of removal and trimming of all trees and shrubs by having these activities supervised and/or completed by a certified arborist.
6. Compensate for the loss of the six trees known to be lost by the project by planting 300 oak seedlings on 1.3 acres on a site(s) coordinated with the Service and California Department of Fish and Game. These plantings should be monitored for 5 years or until they are determined to be established and self-sustaining. The planting site(s) should be protected in perpetuity.

Note: The compensation identified in Recommendation #6 above was derived by totaling the dbh of the six impacted trees (75 inches) and multiplying it by 4 (assumes each seedling is 1/4-inch in diameter) to get 300 trees. The area for plantings was based on information provided by the Corps on planting densities used for oak woodlands (235/acre) on other projects.

7. Complete consultation with the Service on project effects on the valley elderberry longhorn beetle and its critical habitat.
8. Contact the California Department of Fish and Game regarding possible effects of the project on State listed species.

If you have any questions regarding this report please contact Doug Weinrich at (916) 414-6563.

Sincerely,



Daniel Welsh
Assistant Field Supervisor

cc:

John Suazo, COE, Sacramento, CA
Howard Brown, NOAA Fisheries, Sacramento, CA
Regional Manager, North Central Region, CDFG, Rancho Cordova, CA

REFERENCES

USFWS (U.S. Fish and Wildlife Service). 2008. Fish and Wildlife Coordination Act Report for the American River Watershed Investigation (Common Features) Jacob Lane Levee Improvement Project. Sacramento Fish and Wildlife Office, Sacramento, CA (Reference # 81420-2008-FA-0389).

ENCLOSURE 1

FEDERAL ENDANGERED SPECIES CONSULTATION
JACOB LANE LEVEE IMPROVEMENT PROJECT, REACH C



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: 120517100413

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
 - Conservancy fairy shrimp (E)

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

- Desmocerus californicus dimorphus
 - Critical habitat, valley elderberry longhorn beetle (X)
 - 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
 - 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)
 - Critical Habitat, Central Valley spring-run chinook (X) (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

- *Thamnophis gigas*
 - giant garter snake (T)

Plants

- *Orcuttia tenuis*
 - Critical habitat, slender Orcutt grass (X)
 - slender Orcutt grass (T)
- *Orcuttia viscida*
 - Critical habitat, Sacramento Orcutt grass (X)
 - Sacramento Orcutt grass (E)

Quads Containing Listed, Proposed or Candidate Species:

SACRAMENTO EAST (512C)

CARMICHAEL (512D)

County Lists

No county species lists requested.

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

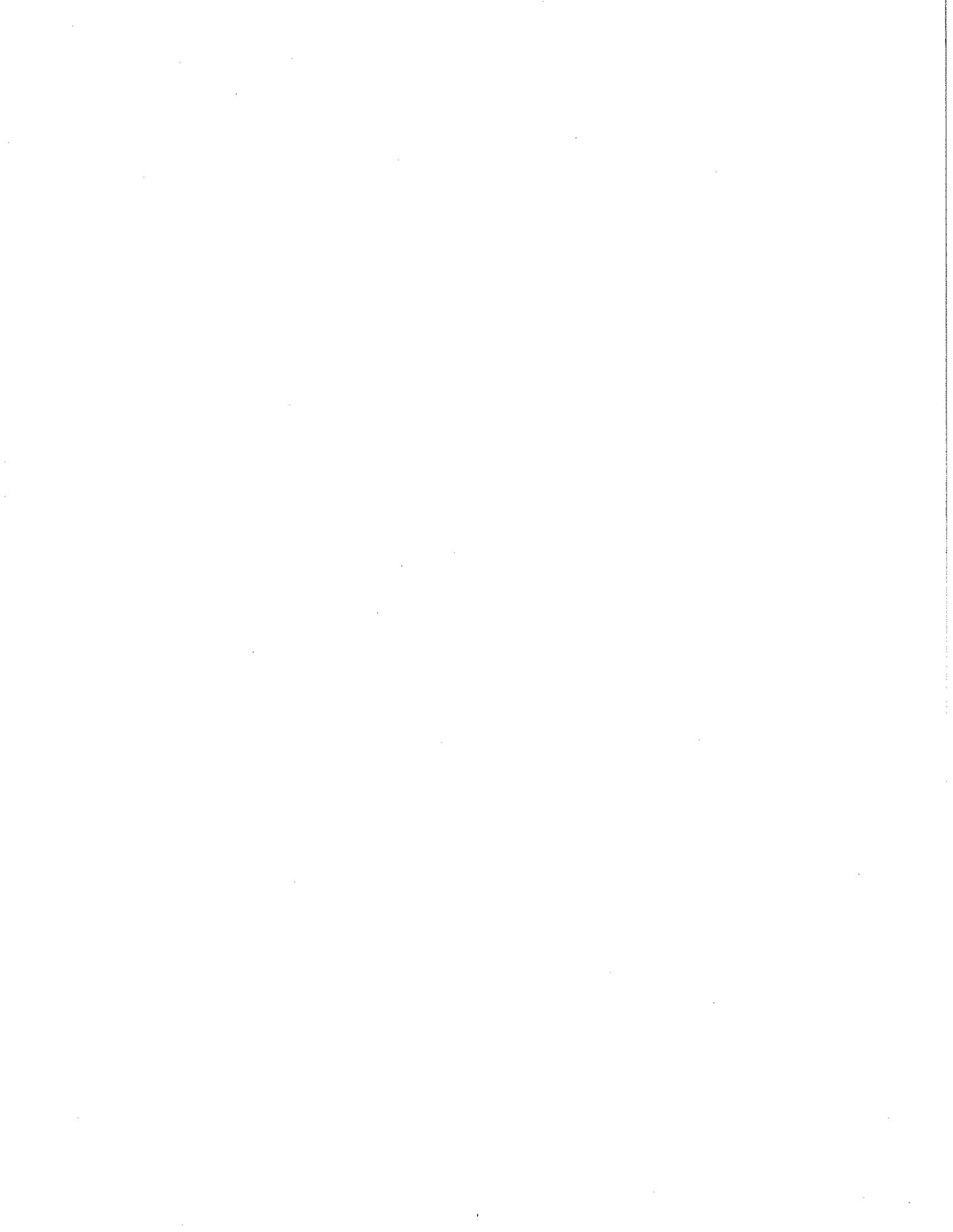
The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

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

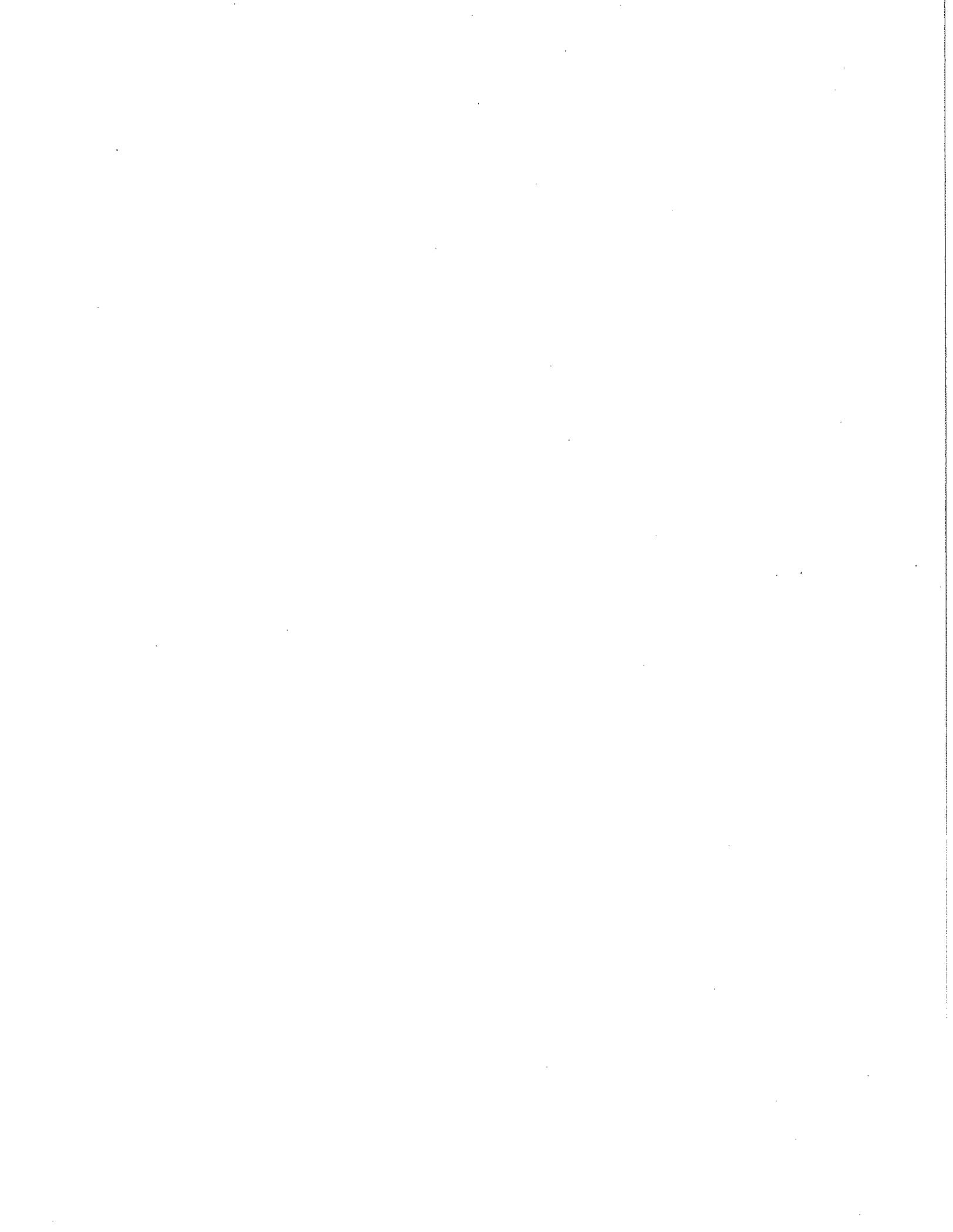
Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 15, 2012.



ENCLOSURE 2

FEDERAL ENDANGERED SPECIES CONSULTATION

JACOB LANE LEVEE IMPROVEMENT PROJECT
REACH A and B





United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way W-2605
Sacramento, California 95825

In reply refer to:
81420-2008-F-1525

JUN 13 2008

Mr. Francis C. Piccola
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Subject: Fourth Amendment to the Biological Opinion for the American River
Watershed Investigation, Common Features Project (Service File number
1-1-00-F-0193), Sacramento County, California

Dear Mr. Piccola:

This is in response to your May 20, 2008, letter requesting reinitiation of formal section 7 consultation for the American River Watershed Investigation, Common Features-Jacob Lane Levee Improvement Project, Sacramento County, California. Your request was received in our office on May 21, 2008. This is the Fish and Wildlife Service's (Service) fourth amendment to the July 16, 2003, biological opinion (1-1-00-F-0193) and addresses changes to the project description for the American River Watershed Investigation, Common Features-Jacob Lane portion of the project only. This document represents the Service's amended biological opinion on the effects to the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle) and is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

The American River Watershed Investigation, Common Features project was authorized by the 1999 Water Resources Development Act. The Corps of Engineers (Corps) is the Federal sponsor and the State of California (Central Valley Flood Protection Board) is the local sponsor for the project. The proposed actions under the Common Features project consist of levee raising, levee strengthening, and construction of slurry walls to reduce the risk of flood damages in the greater Sacramento area. Several actions have been completed or are currently under construction for this project. Due to funding constraints the project has been proceeding as funds become available.

The three previous amendments to the original biological opinion (Service Files 1-1-04-F-0087; 1-1-06-F-0038; and 81420-08-F-0529) were related to project work currently being constructed on the Mayhew Drain portion of the Common Features project.

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The findings and recommendations in this consultation are based on: (1) the May 20, 2008, letter from the Corps to the Service, (2) the original consultation referenced above, (3) site visits to the project area attended by Service and Corps staff on March 11 and April 28, 2008, (4) surveys conducted by the Service for elderberry shrubs within and near the project area on March 28 and April 1, 2008, and (5) other information available to the Service.

Project Description

The Jacob Lane Levee Improvement project is located in Sacramento County along the north bank of the American River near river mile (RM) 10.0R. The project will raise a 7,000-foot-long section of levee (Reach A) and widen a 6,400-foot-long section of levee (Reach B) along 3 miles of the American River between Watt Avenue and Arden Way. The completed project would stabilize the levee in this section to safely convey emergency releases of 160,000 cubic feet per second from Folsom Dam.

All of the construction activities in Reach A, and most of Reach B, will be conducted on the waterside of the levee. Prior to construction the affected levee slopes will be grubbed and scraped to prepare the levee for excavation. Excavation is necessary to key-in the new material required for the raising and widening activities. Grubbing and scrapping on the levee will not disturb any woody vegetation; however, during project preparation about 46 eucalyptus trees may be removed near the waterside levee toe at the upstream end of Reach B. The levee improvements in each reach will only require earthwork. Trucks delivering soil for the raising or widening will deposit the soil on top of the levee and it will be incorporated into the existing structure to meet the required engineering design. The newly constructed levee slope will meet at the existing levee toe for most areas of the project. Once the improvements have been completed, the levee crown will be covered with compacted aggregate base and the levee slopes will be restored to their preconstruction condition. Construction is scheduled to begin in the summer of 2008.

Based on surveys conducted by the Service for the Corps there are 36 elderberry shrubs which are located near the project construction sites. After further review with Service, the Corps determined that five of these shrubs will be impacted by the project. One shrub will need to be transplanted and the other four shrubs will need some minor trimming of branches. Since the work may begin prior to September 1, 2008, and outside the approved transplant window for elderberry shrubs, the Corps proposes to compensate for the effects of trimming and transplanting elderberry shrubs at 2.5 times the normal amount to minimize the adverse effects to the beetle. In addition, the Corps proposes to implement the following conservation measures to minimize the affect on the beetle.

- Dust suppression measures will be used.
- A biological monitor will provide instruction on establishing for establishing buffer zones using orange construction fencing around the four elderberry shrubs which will be trimmed, but left in place.
- Construction representatives and contractor personnel will be given awareness training relating to the beetle and its habitat.
- Signs will be posted every 50 feet along the avoidance area with the following information:

This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the endangered species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment."

- Plant 53 elderberry seedlings and 63 associated native plant species seedlings on 0.50 acre within the American River Parkway or purchase credits at an existing Service approved mitigation bank (Table 1 and 2). The location of any plantings within American River Parkway will be coordinated with the Service.
- All disturbed areas will be restored to the pre-project condition and reseeded with native grasses.
- Any disturbance to existing mitigation areas adjacent Reach A that are disturbed by the Jacob Lane Levee Improvement Project will be restored to pre-project conditions.

The Service has reviewed the Corps proposal and based on implementation of the above conservation measures agrees the revised project proposal will minimize the affects on the beetle. Therefore we are modifying the Service biological opinion (1-1-00-F-0193) as follows:

Project Description

The project description for the Jacob Lane Levee Improvement Project summarized above and presented in detail in the Corps' Environmental Assessment is incorporated into the biological opinion.

Proposed Conservation Measures

The conservation measures listed above are incorporated into the biological opinion (page 7).

Effects of the Proposed Action

Table 2 in the biological opinion (page 17) is replaced with the table below which reflects the current proposal for the Jacob Lane Levee Improvement portion of the project.

Terms and Conditions

Term and Condition 3 is modified to read:

3. To compensate for the direct effects to beetles inhabiting 9 elderberry stems requiring transplanting or trimming in conjunction with the Jacob lane Levee Improvement portion of the project, the Corps shall plant 53 elderberry seedlings and 63 associated native plant species on a 0.50-acre site approved by the Service within the American River Parkway or purchase sufficient credits at a Service-approved mitigation bank. The elderberry shrub which will be transplanted shall be placed at the same location as the plantings

One additional Term and Condition is added.

7. All placement of the fencing to protect elderberry shrubs adjacent the construction areas shall be completed prior to construction activity on the Jacob Lane Levee Improvement portion of the project.

Table 2: Elderberry shrub stem counts and compensation measures for the American River Watershed Investigation, Common Features-Jacob Lane Levee Improvement Project.

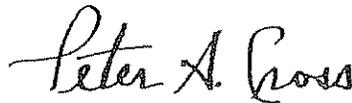
Stems (Maximum diameter at ground level) ¹	Exit Hole on Shrub	Number of stems observed	Elderberry seedling ratio (riparian habitat)	Associated native plant compensation ratio	Required elderberry plantings	Required assoc. native planting
stems \geq 1" & < 3"	No	3	2:1	1:1	3	3
	Yes	0	4:1	2:1	0	0
stems \geq 3" & < 5"	No	1	3:1	1:1	2	24
	Yes	1	6:1	2:1	4	8
stems \geq 5"	No	4	4:1	1:1	12	12
	Yes	0	8:1	2:1	0	0
Total replacement plantings					21	25
Total plantings with compensation for work outside of work window (2.5X compensation rate)					53	63
Total elderberry plants to be transplanted					1	
Total conservation area required (in acres)					0.50	

1. All shrubs are non-riparian.

This concludes formal consultation with the Corps on the American River Watershed Investigation, Common Features-Jacobs Lane Levee Improvement Project. As provided in 50 CFR §402.16, re-initiation of consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) take is expected; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this opinion, please contact Doug Weinrich at (916) 414-6563.

Sincerely,



Peter A. Cross
Deputy Assistant Field Supervisor

cc:

John Suazo, COE, Sacramento, CA

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: 080519020946

Database Last Updated: January 31, 2008

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

Critical habitat, valley elderberry longhorn beetle (X)

valley elderberry longhorn beetle (T)

Lepidurus packardii

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)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana aurora draytonii

California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Plants

Orcuttia tenuis

Critical habitat, slender Orcutt grass (X)

Orcuttia viscida

Critical habitat, Sacramento Orcutt grass (X)

Quads Containing Listed, Proposed or Candidate Species:

SACRAMENTO EAST (512C)

CARMICHAEL (512D)

County Lists

No county species lists requested.

Key:

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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 August 17, 2008.