GENERAL PLAN

RANCHO CORDOVA GENERAL PLAN

DRAFT ENVIRONMENTAL IMPACT REPORT
VOL. II TECHNICAL APPENDICES

DRAFT EIR
March 2006

City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670
Phone: (916) 851-8700

State Clearinghouse # 2005022137

DRAFT ENVIRONMENTAL IMPACT REPORT

FOR

RANCHO CORDOVA GENERAL PLAN

Volume II: Technical Appendices

Rancho Cordova
2729 Prospect Park Drive
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APPENDICES

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NOTICE OF PREPARATION

DATE: **February 25, 2005**

TO: **Responsible Agencies, Organizations and Interested Parties**

LEAD AGENCY: **City of Rancho Cordova**
Contact: Hilary Anderson
3121 Gold Canal Drive
Rancho Cordova, CA 95670

SUBJECT: **Environmental Impact Report for the Rancho Cordova General Plan.**

In discharging its duties under Section 15021 of the California Environmental Quality Act (CEQA) Guidelines, the City of Rancho Cordova (as Lead Agency) intends to prepare an Environmental Impact Report for the City of Rancho Cordova General Plan (RCGP). In accordance with Section 15082 of the CEQA Guidelines, the City of Rancho Cordova has prepared this Notice of Preparation to provide Responsible Agencies and other interested parties with sufficient information describing the proposal and its potential environmental effects.

The determination to prepare an Environmental Impact Report was made by the City of Rancho Cordova. An Initial Study has been prepared pursuant to CEQA Section 15063, which identifies the anticipated environmental effects of the project.

As specified by the CEQA Guidelines, the Notice of Preparation will be circulated for a 30-day review period. The City of Rancho Cordova welcomes agency and public input during this review. In the event that no response or request for additional time is received by any Responsible Agency by the end of the review period, the Lead Agency may presume that the Responsible Agency has no response.

The City is scheduled to hold a **Public Scoping Meeting** on **Wednesday, March 9, 2005**, at 6:30 p.m. in the City Hall Council Chambers, located at 3121 Gold Canal Drive, Rancho Cordova. Copies of the Notice of Preparation and Initial Study are available at City Hall.

Comments may be submitted in writing during the review period and addressed to:

Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

The comment period closes on March 28, 2005

A. PROJECT LOCATION

The Rancho Cordova General Plan Planning Area includes the City of Rancho Cordova, Gold River, Rosemont, Mather Field, and the Aerojet lands. The Planning Area is generally bounded by Watt Avenue to the west, the American River to the north, Prairie City Road to the east, and Jackson Highway to the south (See **Figure 1**, Planning Area Map). The Planning Area is predominately flat with undulating topography near the Consumnes River floodplain and American River. The Planning Area includes but is not limited to land uses such as residential, commercial, industrial, and agricultural.

B. PROJECT HISTORY

The City of Rancho Cordova incorporated in July of 2003. This triggered the requirement to adopt a complete General Plan in 30 months (Government Code Section 65360), which will be December of 2005. The City of Rancho Cordova General Plan process began in May 2004. Technical consultants began fieldwork and gathering data in areas such as traffic, noise, history/archaeology/paleontology, and biology. The Rancho Cordova Planning Department staff conducted an existing land use inventory by utilizing aerial photographs and field reconnaissance. Beginning in June 2004, three public visioning workshops were held in different locations throughout the Planning Area. These workshops allowed the public to present their visions for the future of Rancho Cordova. The community's visions were compiled into a Draft Vision Book on August 2, 2004. This "Vision Book" represents the first major product prepared for the Rancho Cordova General Plan, as well as the starting point for the preparation of the detailed General Plan.

These "Visions" were presented to the General Plan Advisory Committee (GPAC) in a series of meetings beginning in September 2004. A draft general plan map was derived from these workshops and was approved by the City Council on January 18, 2005 (see **Figure 2**, Draft Land Use Map Policy Map).

C. PROJECT DESCRIPTION

There are 15 individual Planning Areas as part of the Draft General Plan Land Use Map. These individual Planning Areas are described below, shown in **Table 1,** and shown on the Draft Land Use Policy Map (**Figure 2**). The dwelling units, and population and employment estimates are based on the adopted draft land use map and reflect the potential buildout of the planning area well after the timeframe of the proposed General Plan. A description of the Planning Areas is presented below.

FOLSOM BOULEVARD PLANNING AREA

The Folsom Boulevard Planning Area will serve as the high-intensity development center of the City. Target land uses for this area include a series of Transit-Oriented and Regional Town Centers strategically located at light real stations and freeway interchanges. These designations, along with other commercial nodes along Folsom Boulevard will serve as catalysts for redevelopment of this corridor.

SUNRISE BOULEVARD NORTH PLANNING AREA

The Sunrise Boulevard North Planning Area is the smallest of all the City's planning areas, encompassing the area directly west of Sunrise Boulevard and north of Highway 50. While currently an older retail area with many existing offices, this area should be redesigned with more intensive mixed-use activities, including a Village Center serving adjacent neighborhoods to the west.

SUNRISE BOULEVARD SOUTH PLANNING AREA

The Sunrise Boulevard South Planning Area includes the many commercial and industrial uses south of Highway 50 along Sunrise corridor, stretching as far south as Douglas Road. This area will serve as a gateway to the new residential communities in the southeast portion of the City. Target uses for this area include both commercial mixed use and office mixed use.

WESTBOROUGH PLANNING AREA

The Westborough Planning Area features primarily residential development focused around a Regional Town Center at the new Jaeger Road/Highway 50 interchange. The Regional Town Center will likely feature significant retail shopping with other restaurant, service, office, and residential uses at a density of 15 to 25 units per acre.

RIO DEL ORO PLANNING AREA

This undeveloped area is the subject of a pending development application with a land plan based on the City's "building blocks" concept. The Rio del Oro Planning Area would contain a mix of low, medium, and high-density residential units with an average density of approximately 6 to 8 units per acre.

GRANT LINE WEST PLANNING AREA

Based on the City's "Building Blocks" concept, target uses in the Grant Line West Planning Area will contain a mix of medium and high-density residential units with an average density of approximately 8 units per acre. Residential areas would be developed to accommodate pedestrian use.

SUNCREEK/PRESERVE PLANNING AREA

The Suncreek/Preserve Planning Area is within the approved Sunrise Douglas Community Plan area. Based on previous approvals and current development requests, land uses in the Suncreek/Preserve Planning Area could result in the development of approximately 1,200 acres of single-family and multi-family residential areas, accompanied by 450 acres of supporting commercial, office and mixed uses, 175 acres designated for community and neighborhood parks, and 150 acres for elementary, middle, and high school sites.

GRANT LINE NORTH PLANNING AREA

The Grant Line North Planning Area is a greenfield site that would be developed in accordance with the City's "Building Blocks" concept of neighborhoods, villages, and districts. Planned land uses would include a mix of low, medium, and high-density residential units with an average density of approximately 8 units per acre, as well as mixed use areas consisting of commercial/residential units.

MATHER PLANNING AREA

Because of the required safety zones and the various flight patterns into and around Mather Field, in conjunction with the environmentally sensitive habitat and regional park site, large portions of the Mather Panning area will need to remain undeveloped. Areas that have the highest potential for development are those near the intersection of Jackson Highway and Sunrise Boulevard and those north of Kiefer Boulevard along Bradshaw Road.

JACKSON PLANNING AREA

Because the Jackson Planning Area is located along the perimeter of the City's General Plan Planning Area Boundary, land uses in this area will serve to transition from urban to rural uses at the City's "edge". Because of the required safety zones and the various flight patters into and around Mather Field, in conjunction with the industrial development west of the site, large portions of the central and western Jackson Area will

remain undeveloped or in a office mixed use, public/quasi-public, light industrial, or heavy industrial designation with some supporting commercial.

GRANT LINE SOUTH PLANNING AREA

The Grant Line South Planning Area, which consists primarily of open space and abuts areas to the south that are planned to be retained for agricultural uses, is currently located outside the city limits of Rancho Cordova. Located along the perimeter of the City's General Plan Planning area Boundary, land uses in this Grant Line South Planning Area will serve to transition from urban to rural uses at the City's "edge".

EAST PLANNING AREA

Since the East Planning Area borders on the County's Urban Services Boundary and the adopted 100 year flood plain, and contains many vernal pools and critical habitat for various threatened and endangered species, the East Planning Area will have a very dynamic mix of residential densities.

AEROJET PLANNING AREA

The Aerojet Planning Area is the site of the Aerojet/GenCorp operations. The historic and ongoing uses of the site necessitate the requirement for soil remediation and other toxic cleanup activities that will not be completed during the lifetime of the General Plan. Portions of the area are ideal for continued industrial, research and development, and mining operations in the near term.

GLENBOROUGH PLANNING AREA

While currently under development review by the County, the Glenborough Planning Area will likely contain a mix of residential, commercial, office, and related uses in a Neighborhood-Village District setting. Included in the proposal is a Regional Town Center at the southern side of the Hazel-Folsom Boulevard-Highway 50 interchange. This Town Center will probably be about 100 acres in size. It will also be oriented to take advantage of the connection with Light Rail.

COUNTRYSIDE/LINCOLN VILLAGE PLANNING AREA

Unlike other Planning Areas in the City, this Planning Area is almost entirely developed and includes primarily residential development. Existing residential development contains a high concentration of low and moderate-income households with limited east-west connectivity. This Planning Area establishes the priority for reinvestment, enhancement, and improved connectivity.

TABLE 1
DRAFT PLANNING AREAS

Planning Area	Size (Acres)	Dwelling Units	Residential Population Estimate	Employment Population Estimate
Folsom Boulevard	1,539	7,460	20,370	44,100
Sunrise Boulevard North	88	280	760	2,640
Sunrise Boulevard South	916	1,360	3,710	40,440
Westborough	1518	5,600	15,288	6,780
Rio del Oro	3,765	11,660	31,830	14,230
Grant Line West	1,306	4,100	11,190	1,100
Suncreek/Preserve	1,762	9,830	26,840	3,170
Grant Line North	1,847	6,080	16,600	4,250
Mather	6,353	2,050	5,600	10,720
Jackson	8,730	6,530	17,830	29,420
Grant Line South	2,549	2,780	7,590	15,380
East	7,404	9,410	25,690	8,600
Aerojet	5,453	3,920	10,700	3,500
Glenborough	1,366	4,000	10,920	14,600
Countryside/Lincoln	700	4,740	12,940	8,000
Total	**45,296**	**79,800**	**217,858**	**206,930**

C. POTENTIAL ENVIRONMENTAL EFFECTS

See attached Initial Study.

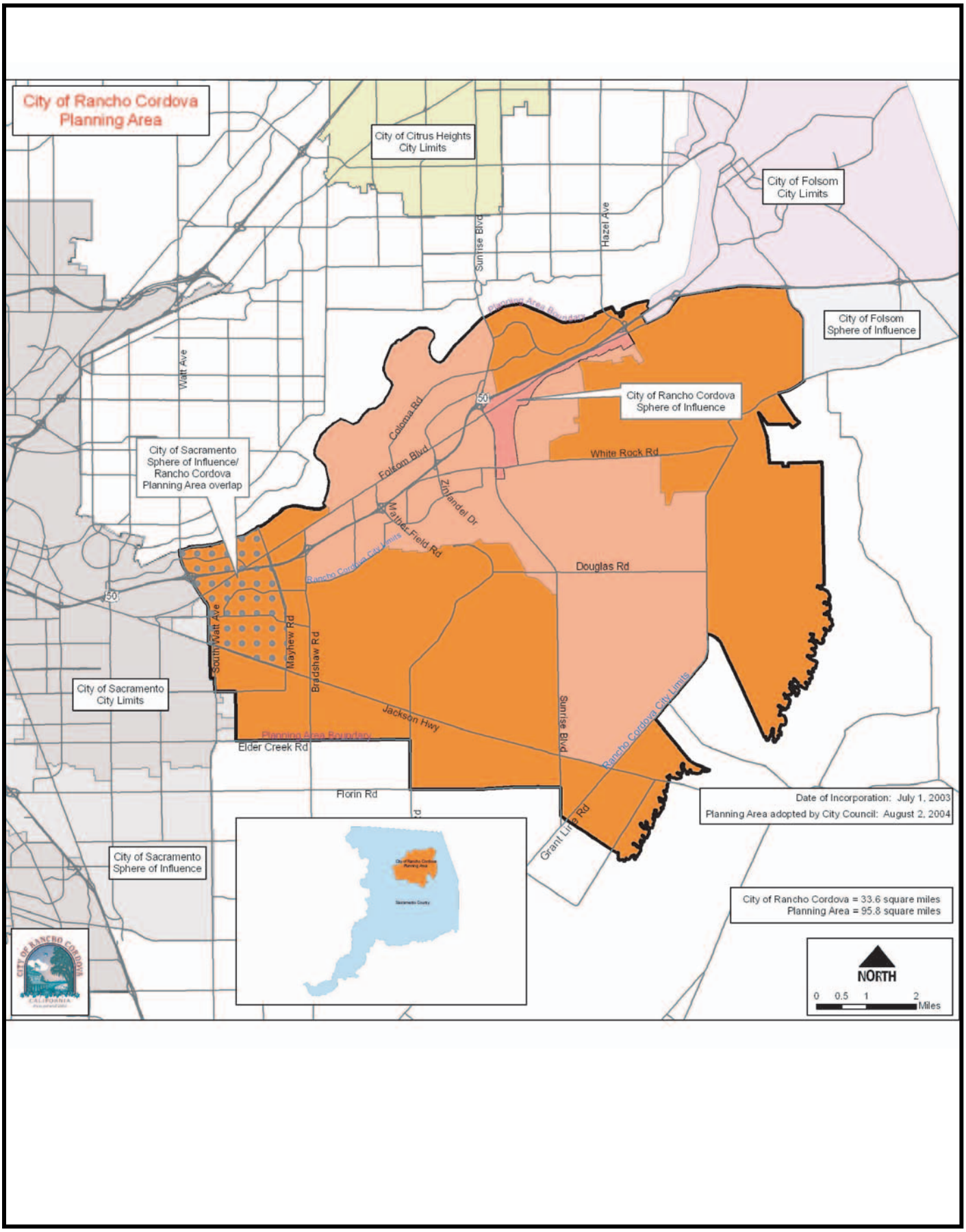

FIGURE 1
Planning Area Map

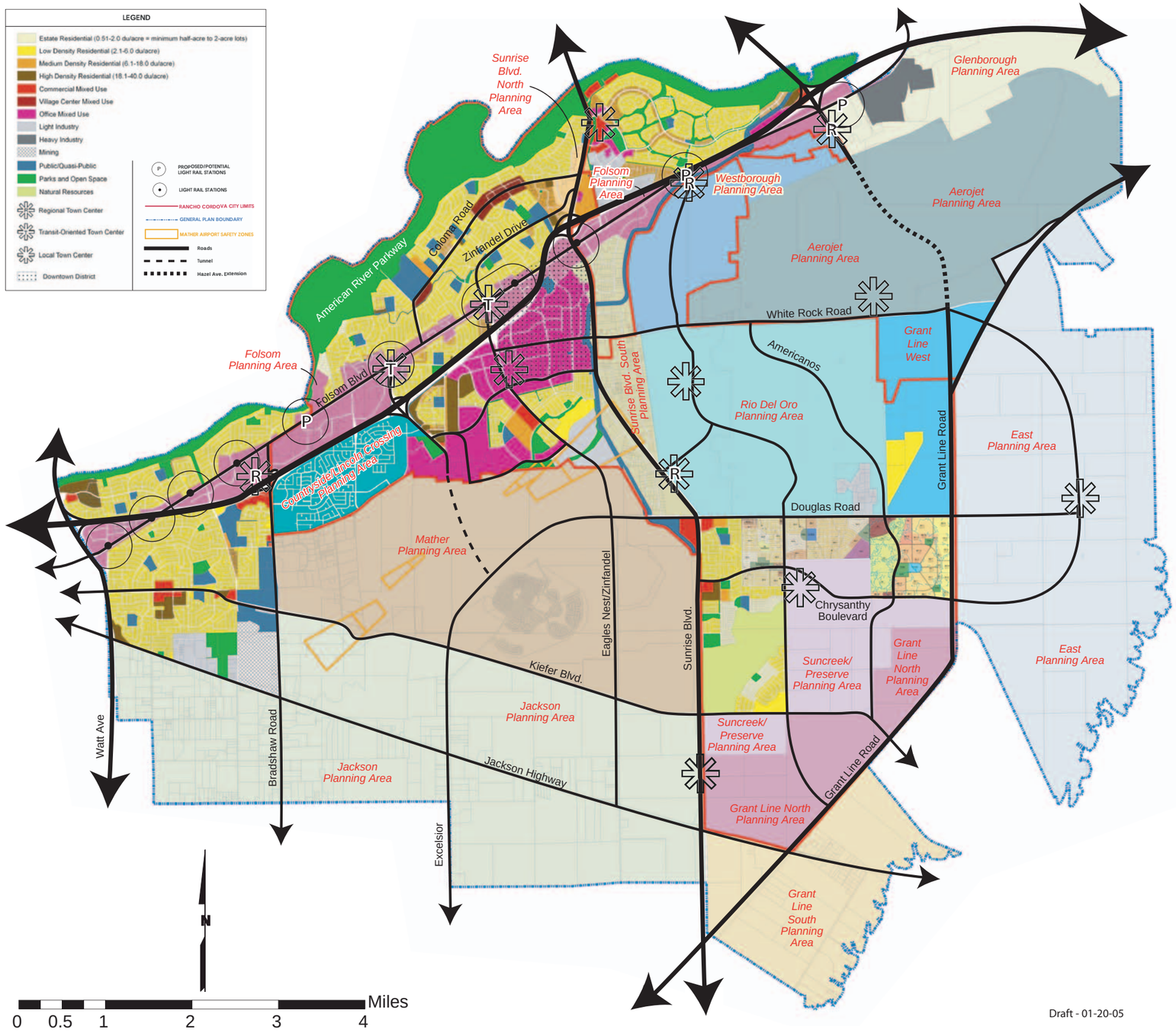

FIGURE 2
Draft Land Use Policy Map

Initial Environmental Study

1.	**Project Title:**	CITY OF RANCHO CORDOVA GENERAL PLAN
2.	**Lead Agency Name and Address:**	City of Rancho Cordova 3121 Gold Canal Drive Rancho Cordova, CA 95670
3.	**Contact Person and Phone Number:**	Pam Johns (General Plan) (916) 361-8384 Hilary Anderson (General Plan EIR) (916) 361-8384
4.	**Project Location:**	City of Rancho Cordova Planning Area Sacramento County (See **Figures 1 and 2** in the Notice of Preparation)
5.	**Project Sponsor's Name and Address:**	City of Rancho Cordova 3121 Gold Canal Drive Rancho Cordova, CA 95670
6.	**Description of the Project:**	See Notice of Preparation.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Land Use and Planning	☒ Transportation/Traffic	☒ Public Services
☒ Population and Housing	☒ Biological Resources	☒ Utilities & Service Systems
☒ Geology & Soil	☒ Mineral Resources	☒ Aesthetics
☒ Hydrology/Water Quality	☒ Hazards & Hazardous Materials	☒ Cultural Resources
☒ Air Quality	☒ Noise	☒ Recreation
☒ Agricultural Resources	☒ Mandatory Findings of Significance	

DETERMINATION

(To be completed by the Lead Agency)

On the basis on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but must analyze only the effect that remains to be addressed.

☐ I find that, although the proposed project could have a significant effect on the environment, there will NOT be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project.

H Anderson

Signature

February 25, 2005

Date

Hilary Anderson

Printed Name

City of Rancho Cordova

For

PURPOSE OF THIS INITIAL STUDY

This Initial Study has been prepared consistent with CEQA Guidelines Section 15063, to determine if the City of Rancho Cordova General Plan, as proposed, may have a significant effect upon the environment. Based upon the findings contained within this report, the Initial Study will be used in support of the preparation of an Environmental Impact Report.

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources cited. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards.

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect, and construction as well as operational impacts.

3. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact". The initial study must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). Earlier analyses are discussed in Section XVII at the end of the checklist.

6. Preparers are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. A source list should be attached and other sources used or individual contacts should be cited in the discussion.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

Discussion of Impacts

a) *Less Than Significant Impact.* The Planning Area consists of no designated scenic vistas. Therefore, this impact would be less than significant and would not be addressed further in the EIR.

b) *Potentially Significant Impact.* There are no scenic highways in the Rancho Cordova Planning Area. However, there are many oak trees and other features in the area that may be lost from development that constitute the existing landscape characteristics. This impact will be further addressed in the EIR.

c) *Potentially Significant Impact.* Undeveloped land and areas developed with residential, office, industrial and commercial uses dominate the existing visual character. The proposed project would expand urban development result in new roadways and other public and private facilities, and therefore change the existing visual character of the existing agricultural areas, which could be considered a significant impact. The change in visual character will be further addressed in the EIR.

d) *Potentially Significant Impact.* Future residential, office, industrial and commercial development would create new sources of light. The impact to light and glare will be further addressed in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☒	☐	☐	☐

Discussion of Impacts

a,c) *Potentially Significant Impact.* There are areas within the Planning Area that are currently undeveloped and have been used historically for agricultural purposes. Portions of the Planning Area have been classified by the California Department of Conservation as "Prime Farmland" and "Farmland of Statewide Importance." Implementation of the City of Rancho Cordova General Plan would result in the conversion of important farmland to a mix of residential, commercial, and other uses. Therefore, the loss of this land for agricultural production is considered a potentially significant impact and will be further discussed in the EIR.

b) *Potentially Significant Impact.* Some of the current zoning in the Planning Area conflicts with proposed zoning designations of the proposed project. Additionally, Williamson Act lands exist within the proposed project boundaries. This issue will be further discussed in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☒	☐	☐	☐

Discussion of Impacts

a,b,d) *Potentially Significant Impact*. The Rancho Cordova Planning Area is located within the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The SMAQMD has established guidelines for determining the significance of a project on air quality. This is broken down into construction phase and operation phase.

Construction

Construction traffic on unpaved roads, as well as activities such as land clearing and grading, could generate significant PM_{10} emissions. Stationary and mobile construction equipment and employee/delivery vehicles can result in increases in ozone precursors, CO, and particulate emissions. Additional vehicle emissions can occur if construction activities increase traffic congestion. Due to the size and extent of the proposed project, construction of the project would be potentially significant and will be further discussed in the EIR.

Operation

The proposed project would generate additional long-term particulate matter (PM_{10}) emissions over that which currently exists due to the significant increase in vehicular trips per day. New industrial uses may also generate PM_{10}. The proposed project may also result in motor vehicle traffic emissions of ozone precursors, which consist of reactive organic gasses (ROG) and nitrogen oxides (NO_x). Also, due to traffic congestion, high levels of CO may occur, which may create CO "hotspots."

Due to the size and nature of the proposed project, impacts on air quality may be considered potentially significant and will be discussed further in the EIR.

c) *Potentially Significant Impact*. The proposed project requires changes in many of the existing land use designations and the projected change may increase the emissions of ROG, NO_x, and PM_{10} above the current land use designations and may inhibit air quality attainment efforts. Currently, the Planning Area is a mixture of different land uses. The proposed project intends to change some of the uses from agricultural and undeveloped to urban uses. The traffic resulting from the increased development may increase the emissions of ROG, NO_x, and PM_{10}. This will be discussed further in the EIR.

e) *Potentially Significant Impact.* The proposed project would consist of mixed-use development consisting of residential, commercial, retail, industrial, and other uses. As the proposed project could include new industrial uses and possibly large-scale recreational uses (e.g., amusement park), potential odors or toxic air contaminants could be generated. Since odors or toxic air contaminants could be created from industrial or intensive agricultural uses, this issue could be potentially significant. This issue will be addressed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	☐	☐	☐	☒

Discussion of Impacts

a-c) *Potentially Significant Impact*. The proposed project could substantially affect special-statues species, riparian or other sensitive habitats, and federally protected wetlands. A Biological Resources Report prepared for the Planning Area by Ecosystem Sciences determined that many species of special concern occur in the Planning Area. Species of special concern occurring in the Planning Area include but are not limited to Western spadefoot toad, Cooper's hawk, Tricolored blackbird, Great egret, Great blue heron, Short-eared Owl, Burrowing owl, Swainson's hawk, Vernal pool fairy shrimp, Midvalley fairy shrimp, Valley elderberry longhorn beetle, Vernal pool tadpole shrimp, California linderiella shrimp, northwestern pond turtle, and Giant garter snake. These issues will be discussed further in the EIR.

d) *Potentially Significant Impact*. The proposed project may interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. These issues will be discussed further in the EIR.

e) *Potentially Significant Impact*. The proposed project may conflict with existing federal, State, and local policies and standards on tree protection, wetlands/vernal pools, or special-status species. Therefore, the alteration of land where these exist may be a potentially significant impact and will be discussed further in the EIR.

f) *No Impact*. No provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan are within the Planning Area. The EIR, however, will discuss regional conservation measures that the County of Sacramento is currently undertaking associated with the South Sacramento Habitat Conservation Plan.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☒	☐	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☒	☐	☐	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☒	☐	☐	☐
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Discussion of Impacts

a,b) *Potentially Significant Impact.* The proposed project could result in significant impacts to historical and/or archaeological resources. Twenty-one sites, buildings, structures, or transportation features (e.g., historic roads or railroads) within the General Plan Planning Area have been evaluated for inclusion in the NRHP. Fifteen of these sites, buildings, structures, and features are not eligible for inclusion in the NRHP, but 6 are eligible for the NRHP and the CRHR, including: 3 prehistoric sites; 1 historic site, the Sacramento Valley Railroad alignment (the beginning of the railroad in Sacramento is State Historic Landmark #526 and the end point of the railroad in Folsom is State Historic Landmark #558); and 2 buildings/structures, Pfingst Realty and the American River Grange Hall. In addition, the former location of 15 Mile House (the house no longer exists) is State Historic Landmark #698 and Folsom Boulevard is identified as "Significant to Local Government" (i.e., it is recognized as important in local history). These issues will be discussed further in the EIR.

c,d) *Potentially Significant Impact.* The proposed project could result in the destruction of unique paleontological resources or the disruption of human remains. These issues will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☒	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☒	☐	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☒	☐	☐	☐

Discussion of Impacts

a) *Less Than Significant Impact.* Based on geologic maps, historic records, and aerial photographs of the Planning Area, no active or potentially active faults underlie the area. Additionally, the Planning Area is not located within an Alquist-Priolo Fault Study Zone. Thus, the potential for a fault is unlikely. As stated in the Sacramento County General Plan EIR, the closest fault is 19 miles northwest of the City of Sacramento. Design of the buildings in accordance with Title 24, Chapter 23 of the California Code of Regulations (1991 Edition of the California Building Code, with January 1, 1993 supplements) for Seismic Zone 3 is considered sufficient to prevent significant damage to buildings as a result of seismic ground shaking. Thus, the potential adverse effects from seismic ground shaking, ground failure, or landslides are less than significant. However, the EIR will include information regarding the limited seismic hazards in the area.

b) *Potentially Significant Impact.* Development of the Planning Area may result in increased soil erosion, wind and water erosion, and siltation of local drainage during and after construction from excavation and grading activities. This issue will be further discussed in the EIR.

c) *Potentially Significant Impact*. The topography of the site is flat, and it is unlikely any hazards associated with landslides or mudflows would occur. Withdrawal of fluids (e.g., groundwater, natural gas, and oil) can, in some cases, result in subsidence. As currently proposed, the Planning Area would utilize the groundwater resources. Therefore, the chance for subsidence could be significant. In addition, other geologic stability issues may be present in portions of the Planning Area. This issue will be discussed further in the EIR.

d) *Potentially Significant Impact*. The Planning Area is primarily composed of silty clays and loams. These soils have a medium potential for expansion. Expansive soils can cause structural damage to foundations, slabs, pavement, and exterior flatwork unless properly identified and managed. Expansive soils swell when they absorb moisture and shrink as they dry. Within the proposed Planning Area, some soils may expand, exposing buildings to potential structural damage. This issue will be discussed further in the EIR.

e) *Potentially Significant Impact*. Some of the residences in the Planning Area would be connected to existing sewer systems, while others would use septic systems. Therefore, future development could result in an impact regarding soils incapable of adequately supporting the use of septic tanks. This issue will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	☒	☐	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☒	☐	☐	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☒	☐	☐	☐
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion of Impacts

a,b) *Potentially Significant Impact.* Heavy industrial uses could be permitted within industrial land use designations, and potentially hazardous materials may be used as part of commercial businesses and light industrial firms. Due to some current land uses and known contaminated sites within the Planning Area, there may be some hazardous material within the Planning Area, such as pesticides, chemical fertilizers, or waste materials. The impacts related to exposure of persons to hazardous materials would be potentially significant and will be discussed in the EIR.

c) *Less Than Significant Impact.* Section 17213 of the California State Education Code mandates that a school site must not be located within one-quarter of a mile of a

hazardous materials site. Because of this mandate, the impact of hazardous waste sites on schools is less than significant, but will be further addressed in the EIR.

d) *Potentially Significant Impact*. There are many hazardous materials sites in the Planning Area such as McDonnell Douglas, Aerojet General Corporation, and Purity Oil Sales-Delta Gunite. As a result, the sites could create a significant hazard to the public or the environment. This issue will be discussed further in the EIR.

e) *Potentially Significant Impact*. Mather Airport is located within the Planning Area. Mather Airport provides military aviation, executive and cargo flight facilities and operations. This could result in significant impacts to nearby residents or workers. This issue will be discussed further in the EIR.

f) *Potentially Significant Impact*. There are no private airports located within Planning Area. This issue will not be discussed further in the EIR.

g) *Potentially Significant Impact*. As a result of future development within the Planning Area, the existing emergency response plan may or may not be suitable to future needs. This issue will be discussed further in the EIR.

h) *Less Than Significant Impact*. The Planning Area is not located near or intermixed with any wildlands, so the risk of wildland fires is very low. Therefore, this is considered to be a less than significant impact. However, the EIR will evaluate fire protection service issues associated with the project. Fire protection is addressed in XIII (a) of this Initial Study.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
VIII. HYDROLOGY AND WATER QUALITY. Would the project:					
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, and or environmental harm on- or off-site?	☐	☒	☐	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff during construction and after construction in a manner that would result in flooding on- or off-site?	☐	☒	☐	☐	☐
e) Potential for discharge of storm water from material storage areas, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas or loading docks, or other outdoor work areas?	☐	☒	☐	☐	☐
f) Potential for discharge of storm water to impair the beneficial uses of the receiving waters or areas that provide water quality benefit?	☐	☒	☐	☐	☐
g) Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and water bodies?	☐	☒	☒	☐	☐
h) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐	☐
i) Otherwise substantially degrade water quality?	☐	☒	☐	☐	☐
j) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒	☐	☐	☐
k) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☒	☐	☐	☐
l) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	☐	☒	☐	☐	☐

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
m) Inundation by seiche, tsunami or mudflow?	☐	☐	☐	☒	☐

Discussion of Impacts

a,f) *Potentially Significant Impact.* Development of the Planning Area would include construction-related activities that could expose soil to erosion during storm events, causing degradation of water quality. Also, after construction, the run-off from urban uses may contribute to the degradation of water quality in the area. These impacts may be potentially significant and will be discussed further in the EIR.

b) *Potentially Significant Impact*. Most of the Planning Area is currently being served by groundwater. Currently, overdraft conditions exist. As development occurs, groundwater usage could increase and groundwater resources may not be sufficient enough to meet the demand. This is considered to be a potentially significant impact. This issue will be discussed further in the EIR.

c-e) *Potentially Significant Impact*. Implementation of the proposed General Plan would increase impervious surfaces and, as a result, alter drainage patterns. This would result in a potentially significant impact and will be discussed further in the EIR.

g-k) *Potentially Significant Impact*. The Planning Area's northern boundary coincides with the 100-year floodplain, which runs along the south bank of the American River and includes the American River Parkway. There are existing developments adjacent to the Parkway, including schools, residences, and parks, which are not located within the 100-year flood plain. Portions of the Planning Area, along Elder Creek and Morrison Creek, are located within the 100-year flood plain. Flood hazards will be discussed further in the EIR.

l) *Potentially Significant Impact.* Portions of the Planning Area border the American River and the Cosumnes River. Levee failures along these rivers could cause safety hazards to residents. These issues will be discussed further in the EIR.

m) *No Impact*. The Planning Area is not located in an area that would be affected by a seiche, tsunami, or mudflow. Therefore, development of the project would result in no impact regarding inundation and will not be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
b) Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

Discussion of Impacts

a) *Less Than Significant Impact.* The implementation of the General Plan would not physically divide an established community. This impact would be less than significant and will not be discussed further in the EIR.

b) *Potentially Significant Impact.* Implementation of the General Plan may conflict with the existing zoning code and general plan provisions of adjoining jurisdictions (City of Sacramento, Sacramento County, and City of Folsom). This issue would be discussed further in the EIR.

c) Less Than Significant Impact. Since there is no Habitat Conservation Plan (HCP) or natural community conservation plan in existence, the proposed project would not be in conflict with any habitat plan. However, potential conflicts with current Sacramento County activities associated with the proposed South Sacramento Habitat Conservation Plan will be evaluated in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
X. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☒	☐	☐	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion of Impacts

a) *Potentially Significant Impact.* The Sacramento County General Plan EIR has identified portions of the Planning Area to contain significant mineral deposits, aggregate deposits, and gas deposits. Future development could potentially result in the loss of access to these resources. This issue will be discussed further in the EIR.

b) *No Impact.* There are no resource recovery sites delineated on any local general plan, specific plans, or land use plan. Therefore, there will be no impact. This issue will not be addressed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☒	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐

Discussion of Impacts

a-d) *Potentially Significant Impact*. The proposed project would create a substantial increase in stationary and transportation noise from the existing levels. Any new development could cause a significant impact in noise. This issue will be discussed further in the EIR.

e) *Potentially Significant Impact*. Mather Airport is located within the Planning Area. This could potentially expose residents and other sensitive receptors to excessive noise levels associated with aircraft overflight. This issue will be discussed further in the EIR. Additionally, the Mather Airport Land Use Compatibility Plan (ALUP), formerly called the Comprehensive Land Use Plan (CLUP), and the associated noise contours are being updated by the Airport Land Use Commission. The updated Mather ALUP will also be discussed in the EIR.

f) *Potentially Significant Impact.* There are no private airports located in the Planning Area. This issue will not be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☒	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Discussion of Impacts

a) *Potentially Significant Impact*. Implementation of the General Plan would increase the population of Rancho Cordova. The City has not adopted any type of management program to control residential growth. Thus, this impact is potentially significant and will be discussed further in the EIR.

b,c) *Less Than Significant Impact*. Implementation of the General Plan may result in displacing houses and/or people. This may occur as a result of future infrastructure improvements or revitalization efforts. However, it is not anticipated that the number of houses and/or persons displaced would be considered significant. Additionally, the project would create additional residential developments and increase the overall housing stock in Rancho Cordova. Even though a less than significant impact is expected, this issue will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☒	☐	☐	☐
b) Police protection?	☒	☐	☐	☐
c) Schools?	☒	☐	☐	☐
d) Parks?	☒	☐	☐	☐
e) Other public facilities?	☒	☐	☐	☐

Discussion of Impacts

a) *Potentially Significant Impact*. The Sacramento Metro Fire District would provide fire protection services to the Planning Area. Development of the Planning Area would increase the population, thereby resulting in the probable need for additional fire stations. The potential lack of adequate fire protection is a potentially significant impact that will be addressed in the EIR.

b) *Potentially Significant Impact*. The Rancho Cordova Police Department (RCPD) would provide police protection to the portion of the Planning Area within the city limits. The Sacramento County Sheriff's Department would serve the unincorporated portion of the Planning Area. The implementation of the General Plan would increase the population for the area and, thus, increase the demand on the personnel and time of the RCPD as well as the County Sheriff's Department. The potential increase of demand on the RCPD and Sheriff's Department may lead to an overall reduction of police protection services for the area. The potential reduction of services to the area may be a potentially significant impact that will be addressed further in the EIR.

c) *Potentially Significant Impact*. A portion of the Planning Area is within the Folsom Cordova Unified School District (FCUSD), Elk Grove Unified School District (EGUSD), Sacramento City Unified School District (SCUSD), and the Los Rio Community College District. The increase of students to these districts may have an adverse impact on school services. This is a significant impact that will be discussed further in the EIR.

d) *Potentially Significant Impact*. Development of the Planning Area would generate the need for new park and recreation facilities. The Cordova Recreational and Park District provides parks and recreational facilities and services in the Planning Area. Depending on the rate of development and funds available, the impact from the proposed project on park services could be potentially significant and will be discussed further in the EIR.

e) *Potentially Significant Impact*. Local service providers would serve the proposed project. Because the proposed project may add to the current population, the need for these

services would increase from the existing level. The need would create a potentially significant impact that will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☐	☐
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☒	☐	☐	☐

Discussion of Impacts

a,b) *Potentially Significant Impact.* Development of the proposed project would generate additional population that would require construction of new parks and recreational facilities (see discussion under Item XIId). Currently, there are a limited number of recreational facilities within the Planning Area. Therefore, development of the Planning Area may result in a significant impact regarding parks and recreation and will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC. Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☒	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
e) Result in inadequate emergency access?	☒	☐	☐	☐
f) Result in inadequate parking capacity?	☒	☐	☐	☐
g) Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☒	☐	☐	☐

Discussion of Impacts

a,b) *Potentially Significant Impact*. The proposed project could substantially increase the number of vehicle trips, the volume-to-capacity ratio on roads, and the congestion at intersections. It could also exceed LOS standards previously established by Sacramento County and result in traffic impacts within adjoining jurisdictions. These issues will be discussed further in the EIR.

c) *No Impact*. The proposed project does not include any activities that would interfere with the air traffic in the region. Thus, it is anticipated that the proposed project would not interfere, change, or increase the air traffic levels in the regions. The proposed project would have no impact on air traffic patterns. These issues will not be discussed in the EIR.

d-g) *Potentially Significant Impact*. The proposed project could potentially create hazards due to design features, inadequate emergency access and parking capacity. These issues will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☒	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☐	☐
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☒	☐	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion of Impacts

a,b) *Potentially Significant Impact*. Any new development in the Planning Area would require additional water and wastewater facilities or the expansion of existing facilities and could result in a significant impact. This issue will be discussed further in the EIR.

c) *Potentially Significant Impact*. Any future development in the Planning Area would create new impervious surfaces that would increase the runoff to downstream areas and the need for additional drainage facilities. This issue will be discussed further in the EIR.

d) *Potentially Significant Impact*. Most of the Planning Area is currently being served by groundwater. Currently, overdraft conditions exist. The Sacramento County Water Agency (SCWA) Zone 40 provides wholesale and retail water to the General Plan Planning Area. In addition, the California-American Water Company (Cal-American), the Southern California Water Company, and Omochumne-Hartnell Water District purchase wholesale water supplies from Zone 40 and provide retail water service to the portions of the General Plan Planning Area not served by SCWA. As development occurs, groundwater usage could increase and may not be sufficient enough to meet the demand. New water sources would be necessary to serve the Planning Area. This is considered to be a potentially significant impact. This issue will be discussed further in the EIR.

e) *Potentially Significant Impact*. Increased population as a result of the proposed project could impact wastewater services. Wastewater service issues will be discussed further in the EIR.

f-g) *Less Than Significant Impact*. BFI Waste Systems has contracted with the City to provide solid waste, recyclable materials, and greenwaste services. The largest commercial, multi-family and industrial haulers in unincorporated Sacramento County are BFI and Waste Management Inc. BFI takes waste to their own transfer facilities and transports the remaining un-recyclable wastes to landfills outside of the County. BFI completed its transfer facility in May 2000 and stopped hauling refuse to the Kiefer Road Landfill at that time. Waste Management Inc. provides solid waste, recycling and greenwaste services to the portions of the Planning Area not within the incorporated city. Waste Management Inc. transports waste to the Kiefer Road Landfill. A less than significant impact is expected; however, solid waste service will be discussed further in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.	☒	☐	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Discussion of Impacts

a) *Potentially Significant Impact*. The proposed project does have the potential to eliminate animal and plant habitats, to reduce or restrict the range of endangered species, and to eliminate important prehistorical resources. This will be discussed further in the EIR.

b) *Potentially Significant Impact*. The proposed project does have impacts that would be cumulatively considerable. These issues will be discussed further in the EIR.

c) *Potentially Significant Impact*. The proposed project does contain environmental effects that would either directly or indirectly affect human beings. This issue will be discussed further in the EIR.

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY – Cheryl Creson, Administrator
Department of Waste Management & Recycling

David A. Pelser, Director

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Sacramento, CA 95827-3561
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Fax: (916) 875-6767
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Richard D. Owings, Operations
Pat Quinn, Planning & External Relations

COPY

May 25, 2004

District Engineer
Corps of Engineers, Sacramento District
Regulatory Functions Branch (Justin Cutler)
1325 J Street
Sacramento, CA 95814

Subject: Public Notice 200000336, dated February 6, 2004

Dear Justin,
We have obtained a copy of a biological opinion addressed to your office, written by the US Fish and Wildlife Service, dated April 26, 2004, on the subject Project. We observe that the biological opinion includes a map as Appendix 1 entitled "A Conceptual-Level Strategy for Avoiding, Minimizing, & Preserving Aquatic Resource Habitat in the Sunrise-Douglas Community Plan Area". The map appears to designate certain lands as "conservation areas". One area of land thereon is identified as "Zone 9" by icon and arrow. This same area of land is listed in the table thereon as Zone 10, with a "Total Conservation Area" of 431.84832 acres. The inconsistent designation, Zone 9 versus Zone 10, appears to be a typographical error.

The 431.84832-acre "Zone" referred to above is County owned land.

Please be aware that the County has had no communication with the Project applicants, nor has the County made any commitments to anyone regarding the disposition of this land. As is generally the case with public assets, our office will consider proposals for transactions which benefit the citizens of Sacramento County.

Sincerely,

Chris Richgels
Engineering Manager

Copies:
Anna Whalen, County Planning
Wayne White, USFWS
Ted Gaebler, City of Rancho Cordova
John Whisenhunt, County Counsel

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – Sacramento Area Office
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March 23, 2005

05SAC0035
03-SAC-5, 16, 99
City of Rancho Cordova General Plan Environmental Impact Report (EIR)
Notice of Preparation (NOP)
SCH#2005022137

Ms. Hilary Anderson
Planning and Community Development
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

Dear Ms. Anderson:

Thank you for the opportunity to review and comment on the City of Rancho Cordova's General Plan NOP. Our comments are as follows:

- Figure 2, "Draft Landuse Policy Map" is difficult to assess as several planning areas do not follow the legend as to the land use anticipated for that development.

- State Route (SR) 16 is referred to as the Jackson Highway on your maps. This is a State facility.

- The Circulation element and environmental impact assessment should address the full impacts of the General Plan to the ramps and mainline of US 50 and SR 16. The General Plan should compare the existing City development and current traffic condition with "build out" traffic conditions envisioned with a 20-year time horizon.

- Caltrans Transportation Concept Reports (TCR) should be adopted as part of the General Plan. The TCRs for US 50 and SR 16 should serve as guiding documents to the Circulation element and as a gauge of improvements necessary to carry the increased traffic to be generated by the land use and housing elements. Specifically, the concept level of service (LOS) specified in each TCR should serve as the benchmark from which to consider significant impacts. A significant impact would occur if the Plan or development causes the LOS on the highway, highway facility, or segment of the facility, to deteriorate below the concept LOS. Furthermore, the ultimate facility needs specified in the TCR should serve as the mechanism through which to plan and preserve right-of-way for necessary highway expansion. A copy of the latest SR 16 TCR is enclosed for your information. The US 50 TCR is under

revision and is slated for release in December 2005. Draft information can be made available prior to the release date.

- The traffic study is vital for assessing the cumulative impact of all proposed development. Caltrans would like to review the scope of the traffic study to ensure that Caltrans' concerns are addressed.

- The traffic study should provide enough detail that specific developments will be able to assess their impacts and mitigate appropriately, thus reducing the need for additional traffic studies in the future.

- The establishment of fair share mitigation fee programs are recommended to support the funding of needed State Highway improvements with a nexus to the identified traffic impacts.

- The Traffic Impact Study (TIS) should incorporate the following scenarios:

  1.- Existing conditions
  2.- Cumulative with General Plan "Project" conditions (yr. 2020)

- The Year 2000 Highway Capacity Manual should be used for the TIS analysis. Data from the current version of the SAC-MET transportation forecasting model should be used in projecting future traffic levels.

- The Circulation element should include road systems parallel to State facilities to accommodate local traffic so as to allow the State system to efficiently and effectively serve regional, interregional, and interstate traffic.

- The General Plan's Land Use, Circulation, and Housing elements should be internally consistent and compatible with each other and externally compatible and consistent with Caltrans transportation facilities, operations, safety, and any regional or system plans such as the TCRs.

- Caltrans supports policies and strategies for affordable housing, high density zoning around transit stations/facilities and Transit Oriented Development (TOD).

- Caltrans supports mixed-use development for liveable communities with context sensitive solutions that allow expanded transportation options/choices and walkable neighborhoods. Such communities also make maximum use of intermodal transportation opportunities in a seamless and pedestrian/bicycle friendly environment.

- Caltrans supports housing development that limits sprawl, facilitates infill development, and encourages a jobs/housing and service/housing balance.

We look forward to working with you on the scope of the traffic study as well as the Circulation element. We welcome a meeting as soon as possible to discuss these comments. If you have any questions or are ready to set up a meeting, please contact Gabriel Corley at (916) 274-0611.

Sincerely,

KATHERINE EASTHAM, Chief
Office of Transportation Planning - Southwest

c: Katie Shulte Joung, State Clearinghouse

Municipal Services Agency

Department of Waste Management & Recycling
David A. Pelser, Director

County of Sacramento

Terry Schutten, County Executive
Cheryl Creson, Agency Administrator

March 24, 2005

Ms. Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

Subject: Comments on Notice of Preparation – Initial Study Checklist

Dear Ms. Anderson;

After reviewing the Notice of Preparation – Initial Study Checklist for the EIR for the City of Rancho Cordova General Plan, I would like to make a couple of comments. The first comment is in direct reference to Section XVI, Utilities and Services Systems, Items f)& g) on Page 27.

> f-g) *Less Than Significant Impact*. BFI Waste Systems has contracted with the City to provide solid waste, recyclable materials, and greenwaste services. The largest commercial, multifamily and industrial haulers in unincorporated Sacramento County are BFI and Waste Management Inc. BFI takes waste to their own transfer facilities and transports the remaining un-recyclable wastes to landfills outside of the County. BFI completed its transfer facility in May 2000 and stopped hauling refuse to the Kiefer Road Landfill at that time. Waste Management Inc. provides solid waste, recycling and greenwaste services to the portions of the Planning Area not within the incorporated city. Waste Management Inc. transports waste to the Kiefer Road Landfill. A less than significant impact is expected; however, solid waste service will be discussed further in the EIR.

Some of the statements/assumptions in this paragraph need clarification. Please see my suggested corrections in ***bold red italics*** or ~~strikethrough~~ below:

> f-g) *Less Than Significant Impact*. BFI Waste Systems has contracted with the City to provide ***residential*** solid waste, recyclable materials, and greenwaste ***collection*** services. The largest commercial, multifamily
> and industrial haulers in unincorporated Sacramento County are BFI and Waste Management Inc. BFI takes ***all of the residential materials they collect within the incorporated city, and most of the commercial*** waste ***they collect within and outside of the incorporated city*** to their own transfer ~~facilities~~ ***facility*** and transports the
> ~~remaining~~ un-recyclable wastes to landfills outside of the County (Note: BFI's Elder Creek Recycling & Transfer Station only disposes of waste transferred from that facility to Forward Inc. Landfill in Manteca, CA). BFI completed its transfer
> facility in May 2000 and stopped hauling ***the majority of*** refuse ***it collects*** to the Kiefer ~~Road~~ Landfill at that time. ***Some of the commercial waste collected by BFI is direct hauled and disposed of at Kiefer Landfill.*** Waste Management Inc. provides ***commercial*** solid waste~~,~~ ***and*** recycling ~~and greenwaste~~ services to the

portions of the Planning Area ***both*** ~~not~~ within***, and outside of*** the incorporated city. Waste Management Inc. transports waste to ~~the Kiefer Road Landfill~~ ***to several permitted solid waste facilities located outside the incorporated city***. A less than significant impact is expected;
however, solid waste service will be discussed further in the EIR.

My second comment comes from more of a policy standpoint regarding the possibility of encroachment of incompatible land uses around Kiefer Landfill (Kiefer), such as residential development. I believe the applicable section of the Initial Study Checklist would be Section IX on Page 18. Your map showing the various planning areas reflects the East Planning Area and the Grant Line South Planning Area stopping at the Urban Services Boundary (USB) to the northeast and southwest of Kiefer. However, the Grant Line North Planning Area encroaches beyond the USB all the way to the city limits, or Grant Line Road. Please note the following regarding the area around Kiefer Landfill:

- As part of the most recent landfill expansion, a 2,000-foot buffer was established around the permitted footprint of the landfill.
- In the East Planning Area, there are three parcels that are adjacent to the Kiefer property boundaries and/or are wholly or in-part within the 2,000-foot buffer and are wholly or in-part outside the USB. These three parcels are APN 073-0070-011, 073-0070-002, 073-0040-013 and are not owned by the County. However, the County does have an easement on the entire parcel APN 073-0070-011.
- In the Grant Line North Planning Area, there are eight parcels that are adjacent to the Kiefer property boundaries, and/or in-part or wholly within the 2,000 foot buffer and in-part or wholly outside the USB.
    - Three of these eight parcels are owned by the County. They are APN 067-0100-003, 009, & 010.
    - Two are located in the northeastern part of this planning area and are very small and located adjacent to Grant Line Road. Both parcels (APN 067-0100-019 & 022) are owned by private entities.
    - The remaining three parcels (APN 067-0100-005, 008, & 010) are privately owned. The County does not have any easements on any of these three parcels.
- Finally, in the Grant Line South Planning Area, all parcels that are adjacent to the Kiefer property boundaries and are in-part or wholly outside the USB are owned by the County. However, three privately owned parcels are in-part contained within the 2,000-foot buffer, but are situated outside of the Rancho Cordova sphere of influence.

The County may at some point choose to develop the County-owned parcels in the North and South Grant Line Planning Areas for uses that are compatible with operations at Kiefer. Therefore, the County asks that the City of Rancho Cordova consider appropriate planning designations within the 2,000-foot buffer around Kiefer.

I have attached a copy of a letter to the Army Corps of Engineers, for your reference, that spoke to the issue regarding incompatible land uses within the 2,000-foot buffer around Kiefer. I wish to reinforce our concern over this issue and ask that this issue be discussed thoroughly in the EIR. .

Thank you for the opportunity to review and comment on the Notice of Preparation – Initial Study Checklist for the EIR for the City of Rancho Cordova General Plan. If you have any questions, please contact me at (916) 875-7087.

Respectfully;

Patrick M. Quinn
Program Manager

Cc: D. Pelser, D. Kobold, S. Singh

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RANCHO CORDOVA POLICE DEPARTMENT

Thomas McMahon
Chief of Police

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www.RanchoCordovaPD.com

March 25, 2005

Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

RE: CITY OF RANCHO CORDOVA GENERAL PLAN NOP

Dear Hilary:

You have requested that the Rancho Cordova Police Department provide comments regarding the Environmental Impact of the Rancho Cordova General Plan. The following comments are provided for inclusion in the General Plan:

1) NEIGHBORHOOD DESIGN

The Rancho Cordova Police Department provides planning comments based on the concepts of Crime Prevention Through Environmental Design (CPTED). The basic concepts of CPTED are: natural surveillance, territorial reinforcement, and access control. Physical separation between buildings and exposures must be designed to increase visibility within developments. Improvements to the physical structure can prevent crime. Recognizing there may be inherent conflicts between law enforcement, design and other planning objectives the intent of these measures is to seek cooperative solutions.

a) The following items are administrative in nature, and will provide a roadmap to designing safer communities. Working with the City Planning Department, the Police Department will:

b) Prepare a "security ordinance" which will provide minimum safety and security specifications for new residential and commercial developments.

c) Adapt transit-oriented development guidelines to the needs of crime prevention to the extent possible.

2) PEDESTRIAN EASEMENTS

Pedestrian easements have historically been a problem area for law enforcement. Depending on the design, they can be choke points for criminal activity, i.e. assault, rape, drug dealing, gang activity, or they can be a conduit for aiding crimes. The classic example of this would be someone committing a burglary on one side of the passage way and escaping to the other side on a bike or on foot to a parked car. The pursuing patrol vehicles have to drive blocks around the easement and try to locate the fleeing suspects.

Although the best solution for law enforcement is to avoid the use of pedestrian easements, we realize the perceived and actual usefulness of such walkways. Prior to considering a pedestrian easement, a direct street connection between retail/commercial and residential areas should be evaluated. Secondary feeder streets and the like create attractive and safe access points between typically conflicting uses. The following listings of conditions are the standard items requested by the Police Department on easements:

a) Fencing for the side yards of the two homes adjacent to the walkway shall be constructed of vertical wrought iron or tubular steel to allow for visibility into the easement while discouraging trespassing.

b) The walkway shall be a minimum width of 12 feet, to allow public safety vehicles direct access to the walkway. The opening of the easement shall be accessible to public safety vehicles using a “Knox box”, knockdown bollard, or similar devices. The walkway material shall be to the satisfaction of the fire district.

c) All homes along the walkway shall either face or directly back up to the walkway. No side yards shall be allowed along these easements. This is to allow for direct visibility into the walkway. Side yards are not typically well used by residents.

d) There shall be no gate or closing device used to block the entrance to the walkway.

e) Crime prevention landscape materials shall be used along the fencelines to discourage loitering and minimize opportunities for suspects to “lie in wait” for potential victims.

f) The walkway shall be straight, with no areas for suspects to hide or sit without being seen.

g) Proper curb and signs at both entrances prohibiting parking in front of the passage way. A standard eight inch vertical curb, painted red and signs will discourage most unwanted traffic.

h) Night illumination of 1.5 footcandles minimum maintained along the foot walk. Fixtures will be vandal resistant and have shields to prevent unwanted light directed into adjacent homes.

i) A funding mechanism and/or CC&R's in place to provide costs for lighting and maintenance, road and fence repair, clean up, and enforcement of the parking laws.

j) There is an understanding that the Sheriff's Department can have design inputs to satisfy our public safety concerns. We are to work with the project applicants [engineers and

contractors] to come up with a design that would be approved by the Planning Commission before being passed on to the Board of Supervisors for final approval.

3) SUBDIVISION/BUILDING CONDITIONS

a) Applicants shall be encouraged to develop neighborhoods that provide for "eyes on the street". Living areas such as kitchens, eating areas, living rooms, and office/den spaces should be provided on the front of residential units. This will allow for the "natural visibility" of roadways by residents during the normal course of their days. Would-be burglars don't like the possibility of being visible to residents. Front porches/patios shall be provided to allow for the natural viewing of the roadways by residents.

b) All homes placed along a public roadway or right-of-way shall be oriented to face the public roadway. This will discourage illegal "car dumps", excessive parking on-street, and other traffic and parking related activities.

c) All public roadways shall be developed to the specifications of the Fire Marshall to allow for sufficient space for parking on both sides of the street.

4) LAW ENFORCEMENT FACILITIES

a) With a rapidly growing population on the south end of the City of Rancho Cordova, additional Police Department facilities will be necessary to accommodate community policing strategies and to ensure a police presence in the community. The amount of space necessary will depend on the adopted police service plan and the location of the permanent police headquarters facility.

b) With the anticipated tripling of the City of Rancho Cordova, primarily in currently unserved/underpopulated areas, the need to relocate current police facilities and provide easy access to law enforcement services will increase.

It is anticipated that a more centrally located administration facility will be needed, as well as several smaller "service center" style facilities in other parts of the city. The exact size, location, and services to be provided will be determined at a later time.

c) Should a "stationhouse" style facility be desired, the minimum amount of interior space shall be 20,000 square feet. There shall be room for, at minimum, 125 parking spaces designated for police vehicles and employee parking.

i) Typically, a stationhouse is a full service police facility, staffed with patrol officers, investigators, volunteers, and support staff.

ii) Stationhouse location should be along a major roadway, with good traffic flow and easy access to the surrounding community.

iii) Because stationhouses are the dispatch locations for patrol officers, they should be located away from pedestrian-oriented facilities, including schools. Effective co-location of stationhouses is possible near parks and similar facilities, based on the characteristics of the location to be considered.

d) Should "service center" style facilities be considered, minimum floorspace shall be 5,000 square feet.
   i) Typically, a service center is staffed by support staff, a minimum (1 or 2) Police Officers/Deputy Sheriffs, and volunteer report writers.
   ii) These facilities are usually located within a strip mall or similar facility.
   iii) Co-locating service centers with fire facilities, within parks or alongside other municipal buildings is another effective strategy for providing service to the community and consideration to this alternative should be given.

5) LAW ENFORCEMENT STAFFFING

The Rancho Cordova Police Department strives to maintain a minimum staffing ratio of 1 officer per 1,000 population, to ensure continuation of quality law enforcement and community programs. As residential development is approved, there should be a corresponding increase in patrol staffing to the Police Department. Per City of Rancho Cordova estimates of 2.73 residents per dwelling unit, the Rancho Cordova Police Department will require a total of 217.85 officers once the projects outlined in the General Plan have been built out.

If you should have any questions, please contact me any time at 876-7599.

Very Truly Yours,

CSS III Jeff Rodrigues
Crime Prevention Specialist
Sacramento County Sheriff's Department/Rancho Cordova Police Department
jrodrigues@sacsheriff.com

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov

RECEIVED BY
APR 2005

March 30, 2005

Ms. Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

Subject: Rancho Cordova General Plan Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) - SCH# 2005022137, Sacramento County

Dear Ms. Anderson:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the NOP for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the project's impacts on agricultural land and resources.

Project Description

The project is the adoption of a General Plan for the new city of Rancho Cordova, Sacramento County, which includes the areas of Gold River, Rosemont, Mather Field and the Aerojet lands and is generally bounded by Watt Avenue on the west, the American River on the north, Prairie City Road on the east and Jackson Highway on the south. There are areas within Rancho Cordova that have been used historically for agriculture and have been classified as Prime Farmland and Farmland of Statewide Importance. These areas are planned for conversion to residential, commercial and other uses.

Agricultural Setting of the Project

The DEIR should describe the project setting in terms of the actual and potential agricultural productivity of the land. The Division's Important Farmland Map (IFM) for Sacramento County should be utilized to identify agricultural land within the project area and in the surrounding area that may be impacted. Acreages for each land use designation should be identified for both areas. Likewise, the County's Williamson Act

Map should be utilized to identify potentially impacted contract, Farmland Security Zone (FSZ) and agricultural preserve land by acreage and whether it is prime or nonprime agricultural land according to definition in Government Code §51201(c). Maps of the Important Farmland and Williamson Act land should be included in the DEIR.

In addition, we recommend including the following items of information to characterize the agricultural land resource setting of the project.

- Current and past agricultural use of the project area. Include data on the types of crops grown, crop yields and farm gate sales values.
- To help describe the full agricultural resource value of the soils of the site, we recommend the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and state economies. State and Federal agencies such as the UC Cooperative Extension Service and USDA are sources of economic multipliers.

Project Impacts on Agricultural Land

The Department recommends that the following be included in the DEIR in the analysis of project impacts.

- Type, amount, and location of farmland that will be lost to project implementation. The conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance is considered a potentially significant adverse impact.
- A discussion of conflicts with Williamson Act contracts, including termination in order to accommodate the project. The DEIR should also discuss the impacts that conflicts or termination would have on nearby properties under contract; i.e., growth-inducing impacts from the perspective that the removal of contract protection removes a barrier to development and results in an incentive to shift to a more intensive land use such as urban development. The termination of a Williamson Act contract is considered a potentially significant adverse impact.
- Indirect impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, population, traffic, water availability, etc.
- Growth-inducing impacts, including whether leapfrog development is involved.
- Incremental project impacts leading to cumulatively considerable impacts on agricultural land. These impacts would include impacts from the proposed project as well as impacts from past, current and probable future projects. The Division's farmland conversion tables may provide useful historical data.
- Impacts on agricultural resources may also be quantified and qualified by use of established thresholds of significance (CEQA Guidelines §15064.7). The Division has developed a California version of the USDA Land Evaluation and Site Assessment (LESA) Model, a semi-quantitative rating system for establishing the

environmental significance of project-specific impacts on farmland. The model may also be used to rate the relative value of alternative project sites. The LESA Model is recommended by CEQA and is available from the Division at the contact listed below.

Williamson Act Lands

The Department recommends that the following information be included in the DEIR regarding Williamson Act land impacted by the project.

As a general rule, land can be withdrawn from Williamson Act contract only through the nine-year nonrenewal process. Immediate termination via cancellation is reserved for "extraordinary", unforeseen situations (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855). Furthermore, it has been held that "cancellation is inconsistent with the purposes of the (Williamson) act if the objectives to be served by cancellation should have been predicted and served by nonrenewal at an earlier time, or if such objectives can be served by nonrenewal now" (Sierra Club v. City of Hayward).

- If cancellation is proposed, notification must be submitted to the Department when the County or City accepts the application as complete (Government Code §51284.1). The board or council must consider the Department's comments prior to approving a tentative cancellation. Required findings must be made by the board or council in order to approve tentative cancellation. Cancellation involving FSZ contracts include additional requirements. We recommend that the DEIR include discussion of how cancellations involved in this project would meet required findings. However, notification must be submitted separately from the CEQA process and CEQA documentation. (The notice should be mailed to Debbie Sareeram, Interim Director, Department of Conservation, c/o Division of Land Resource Protection, 801 K Street MS 18-01, Sacramento, CA 95814-3528.)
- Pursuant to Government Code §51243, if a city annexes land under Williamson Act contract, the city must succeed to all rights, duties and powers of the county under the contract unless conditions in §51243.5 apply to give the city the option to not succeed to the contract. A Local Agency Formation Commission (LAFCO) must notify the Department within 10 days of a city's proposal to annex land under contract (Government Code §56753.5). A LAFCO must not approve a change to a sphere of influence or annexation of contracted land to a city unless specified conditions apply (Government Code §§51296.3, 56426, 56426.5, 56749 and 56856.5).
- Termination of a Williamson Act/FSZ contract by acquisition can only be accomplished by a public agency, having the power of eminent domain, for a public improvement. The Department must be notified in advance of any proposed public acquisition (Government Code §51290 - 51292), and specific findings must be made. The property must be acquired in accordance with eminent domain law by

eminent domain or in lieu of eminent domain in order to void the contract (§51295). The public agency must consider the Department's comments prior to taking action on the acquisition. School districts are precluded from acquiring land under FSZ contract. We recommend discussion in the DEIR of whether such action is envisioned by this project and how the acquisition will meet the required findings. However, notification must be submitted separately from the CEQA process and CEQA documentation to the address noted above.

- If any part of the site is to continue under contract, or remain within an agricultural preserve, after project completion, the DEIR should discuss the proposed uses for those lands. Uses of contracted and preserve land must meet compatibility standards identified in Government Code §51238 - 51238.3, 51296.7. Otherwise, contract termination (see above) must occur prior to the initiation of the land use, or the preserve must be disestablished.
- An agricultural preserve is a zone authorized by the Williamson Act, and established by the local government, to designate land qualified to be placed under contract. Preserves are also intended to create a setting for contract-protected lands that is conducive to continuing agricultural use. Therefore, the uses of agricultural preserve land must be restricted by zoning or other means so as not to be incompatible with the agricultural use of contracted land within the preserve (Government Code §51230). The DEIR should also discuss any proposed general plan designation or zoning within agricultural preserves affected by the project.

Mitigation Measures

The Department encourages the use of agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land. If a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved, we recommend that this ratio be increased. We highlight this measure because of its acceptance and use by lead agencies as mitigation under CEQA. It follows a rationale similar to that of wildlife habitat mitigation. The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. Agricultural conservation easements will protect a portion of those remaining resources and lessen project impacts in accordance with CEQA Guideline §15370.

Mitigation using agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance, and the search for replacement lands conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area.

Other forms of mitigation may be appropriate for this project, including the following:

- Protecting farmland in the project area or elsewhere in the County through the use of less than permanent long-term restrictions on use such as 20-year Farmland Security Zone contracts (Government Code §51296 et seq.) or 10-year Williamson Act contracts (Government Code §51200 et seq.).
- Directing a mitigation fee to invest in supporting the commercial viability of the remaining agricultural land in the project area, County or region through a mitigation bank that invests in agricultural infrastructure, water supplies, marketing, etc.
- The Department also has available listing of approximately 30 "conservation tools" that have been used to conserve or mitigate project impacts on agricultural land. This compilation report may be requested from the Division at the address or phone number below.

Although the direct conversion of agricultural land and other agricultural impacts are often deemed to be unavoidable by an agency's CEQA analysis, mitigation measures must nevertheless be considered. The adoption of a Statement of Overriding Consideration does not absolve the agency of the requirement to implement feasible mitigation that lessens a project's impacts. A principal purpose of an EIR is to present a discussion of mitigation measures in order to fully inform decision-makers and the public about ways to lessen a project's impacts. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and, therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation. Rather, the criterion is feasible mitigation that lessens a project's impacts. Pursuant to CEQA Guideline 15370, mitigation includes measures that "avoid, minimize, rectify, reduce or eliminate, or compensate" for the impact. For example, mitigation includes *"Minimizing impacts by limiting the degree or magnitude of the action and its implementation (§15370(b))"* or *"Compensating for the impact by replacing or providing substitute resources or environments (§15370(e))."*

All measures ostensibly feasible should be included in the DEIR. Each measure should be discussed, as well as the reasoning for selection or rejection. A measure brought to the attention of the Lead Agency should not be left out unless it is infeasible on its face.

Finally, when presenting mitigation measures in the DEIR, it is important to note that mitigation should be specific, measurable actions that allow monitoring to ensure their implementation and evaluation of success. A mitigation consisting only of a statement of intention or an unspecified future action may not be adequate pursuant to CEQA.

Information about agricultural conservation easements, the Williamson Act and provisions noted above is available on the Department's website or by contacting the

Division at the address and phone number listed below. The Department's website address is:

http://www.conservation.ca.gov/dlrp/index.htm

Thank you for the opportunity to comment on this NOP. The Department looks forward to receiving your response, including a copy of the DEIR. If you have questions on our comments or require technical assistance or information on agricultural land conservation, please contact Bob Blanford at 801 K Street, MS 18-01, Sacramento, California 95814; or, phone (916) 327-2145.

Sincerely,

Dennis J. O'Bryant
Acting Assistant Director

cc: Scott Morgan, Project Analyst
State Clearinghouse

Sloughhouse Resource Conservation District
9701 Dino Drive, #170
Elk Grove, CA 93612

State of California – The Resources Agency
ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
Sacramento Valley – Central Sierra Region
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RECEIVED BY
APR 7 2005

March 30, 2005

Ms. Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

Dear Ms. Anderson:

The Department of Fish and Game (DFG) has reviewed the Notice of Preparation of a draft Environmental Impact Report (DEIR) for the City of Rancho Cordova's General Plan. The proposed General Plan will guide growth and development in the 45,296-acre General Plan Planning Area (Planning Area) through the year 2030. The Planning Area is generally bounded by the American River on the north, Watt Avenue on the west, Prairie City Road on the east, and Jackson Highway on the south. The Planning Area includes the City of Rancho Cordova, Rosemont, Gold River, and Mather Field, and is located in Sacramento County.

Wildlife habitat resources consist of vernal pool grasslands and riparian corridors, in a mixture of residential, commercial, industrial, and agricultural land uses. Significant natural resources include habitat for sensitive species, streams, including the American River, Cosumnes River, Morrison Creek, and Laguna Creek, and some of the best remaining examples of vernal pool habitat in Sacramento County. We recommend that the DEIR discuss and provide mitigation for the following:

1. The project's impact upon fish and wildlife and their habitat.

2. The project's impact upon significant habitat such as wetlands, including vernal pools and riparian areas. The project should be designed so that impacts to wetlands are avoided to the greatest extent practicable. Mitigation should be provided for unavoidable impacts based upon the concept of no net loss of wetland habitat values or acreage. We are particularly concerned with the preservation of adequate vernal pool grasslands and riparian corridors within the Planning Area.

We recommend that the DEIR provide the location and size of vernal pool preserves, and riparian corridors. Preserves should be designed to provide suitable habitat and be sustainable over the long-term by providing adequate buffering from incompatible neighboring land uses.

3. The project's impact to special status species. The Planning area provides habitat for a number of state and federal-listed threatened or endangered species which have restricted ranges. For instance, all of the known occurrences for Sacramento Orcutt grass *(Orcuttia viscida)* are located in southern Sacramento County, with the majority located in or adjacent to the Planning Area. Conservation of these species will require the establishment of preserves within the Planning Area.

We recommend that the DEIR discuss how species that have important portions of their range within the Planning Area will be protected.

4. The project's growth-inducing and cumulative impacts upon fish, wildlife, water quality and vegetative resources.

5. The DEIR should provide an analysis of specific alternatives which reduce impacts to fish, wildlife, water quality, and vegetative resources.

6. The DEIR should contain an evaluation of the proposed project's consistency with applicable land use plans, such as Specific Plans, Watershed Master Plans, Habitat Conservation Plans, etc. We are particularly concerned with how the General Plan will affect the draft South Sacramento Habitat Conservation Plan (SSHCP) and US Fish and Wildlife Service draft Vernal Pool Recovery Plan. Changes in land use within the Planning Area caused by the proposed General Plan may limit the draft HCP and Vernal Pool Recovery Plan's ability to reach their goals. For instance, the draft SSHCP has a goal of preserving 7,000 acres of vernal pool habitat within the current Urban Services Boundary. A large portion of the vernal pool habitat needed to satisfy this goal is located within the Planning Area. Failure to reach the conservation goals proposed in the draft SSHCP and Vernal Pool Recovery Plan may jeopardize the continued existence of some of the sensitive species noted above.

We recommend that the DEIR fully analyze the General Plan's potential for negatively impacting the draft SSHCP and draft Vernal Pool Recovery Plan and how those impacts may affect listed species.

Also, the DEIR should consider and analyze whether implementation of the proposed project will result in reasonably foreseeable potentially significant impacts subject to regulation by the DFG under section 1600 et seq. of the Fish and Game Code. In general, such impacts result whenever a proposed project involves work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel, including ephemeral streams and water courses. Impacts triggering regulation by the DFG under these provisions of the Fish and Game Code typically result from activities that:

- Divert, obstruct, or change the natural flow or the bed, channel or bank of any river, stream, or lake;
- Use material from a streambed; or
- Result in the disposal or deposition of debris, waste, or other material where it may pass into any river stream, or lake.

In the event implementation of the proposed project involves such activities, and those activities will result in reasonably foreseeable substantial adverse effects on fish or wildlife, a Lake or Streambed Alteration Agreement (LSAA) will be required by the DFG. Because issuance of a LSAA is subject to review under the California Environmental Quality Act (CEQA), the DEIR should analyze whether the potentially feasible mitigation measures set forth below will avoid or substantially reduce impacts requiring a LSAA from the DFG:

- Protection and maintenance of the riparian, wetland, stream, or lake systems to ensure a "no-net-loss" of habitat value and acreage. Vegetation removal should not exceed the minimum necessary to complete operations.

- Provisions for the protection of fish and wildlife resources at risk that consider various life stages, maintain migration and dispersal corridors, and protect essential breeding (i.e., spawning, nesting) habitats.

- Delineation of buffers along streams and wetlands to provided adequate protection to the aquatic resource. No grading or construction activities should be allowed within these buffers.

- Placement of construction materials, spoils, or fill, so that they cannot be washed into a stream or lake.

- Prevention of downstream sedimentation and pollution. Provisions may include but not be limited to oil/grit separators, detention ponds, buffering filter strips, silt barriers, etc., to prevent downstream sedimentation and pollution.

- Restoration plans must include performance standards such as the types of vegetation to be used, the timing of implementation, and contingency plans if the replanting is not successful. Restoration of disturbed areas should utilize native vegetation.

Finally, in the event implementation of the proposed project will involve activities and impacts requiring a LSAA, please contact the Sacramento Valley-Central Sierra Region for a notification packet and fee schedule for a LSAA.

This project will have an impact to fish and/or wildlife habitat. Assessment of fees under Public Resources Code Section 21089 and as defined by Fish and Game Code Section 711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

Pursuant to Public Resources Code Sections 21092 and 21092.2, the DFG requests written notification of proposed actions and pending decisions regarding this project. Written notifications should be directed to this office.

Thank you for the opportunity to review this project. If the DFG can be of further assistance, please contact Mr. Dan Gifford, Senior Wildlife Biologist, at (209) 369-8851 or, Mr. Kent Smith, Habitat Conservation Supervisor, at (916) 358-2382.

Sincerely,

Larry L. Eng, PhD
Acting Regional Manager

cc: Mr. Ken Sanchez
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W2605
Sacramento, CA 92825-1888

cc: Mr. Dan Gifford
Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

CSD-1
COUNTY SANITATION DISTRICT 1
Wastewater Conveyance For a Growing Sacramento

10545 Armstrong Avenue
Mather
California
95655
Tele: [916] 876-6000
Fax: [916] 876-6160
www.csd-1.com

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April 12, 2005
E225.000

APR 15 2005

Hilary Anderson
Planning Department
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

Subject: Notice of Preparation (NOP)- Rancho Cordova General Plan

Dear Ms. Anderson:

County Sanitation District 1 (CSD-1) and Sacramento Regional County Sanitation District (SRCSD) have reviewed the Notice of Preparation (NOP) for the Draft Environmental Impact Report (EIR).

Subject city areas are predominately within the boundaries of CSD-1, SRCSD, and the Urban Service Boundaries (USB) as defined by the CSD-1 Master Plan. The ultimate plan for conveyance and treatment of city properties shall be by the Districts as specified in the General Plan, where applicable.

In order for the Districts to more fully evaluate the subject plans' impact on District systems, sewer studies will often be needed for specific areas as developments take place. Those studies shall demonstrate the interim and permanent connection(s) to the Districts' systems. Such studies may be refined by supplemental studies as the scope and details of the subject projects become more defined. Small, discrete projects may often not require such formal sewer studies.

We expect that if projects within the City General Plan and District Areas are subject to currently established policies, ordinances, fees, and to conditions of approval, then mitigation measures within the EIR will adequately address the sewage aspects of the plan. We anticipate a less than significant impact to the sewage facilities due to mitigation.

Certain city areas, however, not within our District's or Urban Service Area Boundaries would require annexation to our Districts and possibly changes to the Urban Service Boundaries.

If you have any questions regarding these comments, please call Stephen Moore at (916) 876-6296 or myself at (916) 876-6094.

Sincerely,

Wendy Haggard

Wendy Haggard, P.E.
Department of Water Quality
Development Services

WH/SM: cc

cc: Maria Cablao
Amber Schalansky

anderson041205.ltr.doc

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

APR 20 2005

Ms. Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

Re: Notice of Preparation (NOP) of the Environmental Impact Report (EIR) for the Rancho Cordova General Plan

Dear Ms. Anderson:

Thank you for the opportunity to comment on the NOP of the EIR for the Rancho Cordova General Plan (RCGP). We received your email extending the comment period deadline to 21 April 2005. As you are aware, EPA has been involved in regulatory issues under section 404 of the Clean Water Act (CWA) pertaining to the Sunrise Douglas Community Planning Area (SDCPA) since 1988. We have invested heavily in assisting Sacramento County with CWA planning and permitting issues.

Pursuant to the California Environmental Quality Act (CEQA), the City of Rancho Cordova is preparing an EIR for the RCGP which will evaluate the environmental impacts associated with development of the general plan area. The City of Rancho Cordova supports a diverse assemblage of habitat types supporting federal listed threatened and endangered species. Included in those habitat types are waters of the United States, which encompass approximately 6.4 percent of the planning area (City of Rancho Cordova General Plan: Existing Conditions Report).

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States. The U.S. Army Corps of Engineers Regulatory Branch implements the Section 404 permit program which relies on EPA's 404(b)(1) Guidelines to authorize projects that are the least environmentally damaging practicable alternative to achieve the project purpose. Specifically, regulations at 40 CFR 230.10(a) state that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. Where the activity associated with a discharge does not require access or proximity to, or siting within, the special aquatic site in question to achieve its basic purpose, practicable alternatives are assumed to be available, unless clearly demonstrated otherwise. "Practicable" is defined as available and capable of being done, taking into account cost, existing technology, and logistics in light of the overall project purpose (see 40 CFR 230.10(a)(2)).

Due to the importance of the aquatic resources within the SDCPA, a subset of the general plan area, EPA participated with federal and state agencies, landowners, developers and their consultants, in developing a framework for integrating compliance with the Federal Guidelines promulgated under CWA 404(b)(1), CEQA, and the National Environmental Protection Act. The result was a *"Conceptual-Level Stategy for Avoiding, Minimizing, and Preserving Aquatic Resource Habitat in the Sunrise-Douglas Community Plan Area."* We have sent you copies of the conceptual strategy and a map showing associated preserve areas, in previous comment letters related to NOP's for SDCPA projects. Further buildout of the general plan area may result in significant impacts to aquatic resources. EPA continues its commitment to working with federal, state, and local agencies and landowners/developers to provide environmental protection while addressing the needs of a developing community.

Please contact Elizabeth Goldmann at (415) 972-3398, or Paul Jones of my staff at (415) 972-3470, to discuss ways to coordinate our efforts and ensure environmental protection of the natural habitat within the City of Ranch Cordova General Plan Area.

Sincerely,

Michael Monroe

for Tim Vendlinski, Manager
Wetlands Regulatory Office

Department of Water Resources

Keith DeVore, Director

Including service to the cities of

Elk Grove and Rancho Cordova

SACRAMENTO COUNTY
WATER AGENCY

April 21, 2005

Hilary Anderson

City of Rancho Cordova

3121 Gold Canal Drive

Rancho Cordova, CA 95670

RE: Comments On The Notice Of Preparation For The Environmental Impact Report For The Rancho Cordova General Plan

Dear Ms. Anderson:

Thank you for the opportunity to comment on the Notice of Preparation for the above referenced project. The EIR should discuss growth based on the availability of water supplies as delineated in the Water Forum Agreement. The EIR should also assess the availability of water supplies to support proposed growth in Rancho Cordova in the context of the groundwater contamination which underlies much of the project area.

If you have any questions, please fee free to contact me at 874-5039.

Sincerely,

Darrell K. Eck

Darrell K. Eck

Senior Civil Engineer

cc: John Coppola

Municipal Services Agency

Planning and Community Development
Robert Sherry, Director

County of Sacramento

Terry Schutten, County Executive
Cheryl Creson, Agency Administrator

Richard Maddox, Code Compliance
Leighann Moffitt, Long Range Planning
Dave Pevny, Community Planning
Ana Rhodes, Administration

RECEIVED BY
APR 27 2005
PACIFIC MUNICIPAL CONSULTANTS

April 25, 2005

Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

RE: Notice of Preparation - Environmental Impact Report for the City of Rancho Cordova General Plan

Dear Hilary:

Thank you for the opportunity to review the above-captioned report. The staff of the Planning & Community Development Department has reviewed the document and offers the following comments:

General Comments

1. While Sacramento County is interested in providing comments concerning the proposed Rancho Cordova General Plan EIR, we are not able to adequately respond as the proposed project lacks a clearly defined project description, draft elements and policies. We request that the City extend the review period 30 days after a complete project is defined.

2. Sacramento County recognizes the need for a planning study area as part of the General Plan Update project; however, we are concerned regarding the urban designation of large areas that are under the jurisdiction of Sacramento County, much of which is outside our designated Urban Policy Area. Any planning activities outside the Rancho Cordova city limits should involve careful coordination with the County of Sacramento.

Comments on the Initial Study Check List

1. *Section II. Agriculture Resources, a) & c), page 6* – The Initial Study Checklist recognizes the potentially significant impacts to agriculture. In the EIR, please quantify these impacts, and present what steps will be taken to mitigate for the loss of Agricultural Land and conversion of farmland to non-agricultural uses.

2. *Section VII. Hazards and Hazardous Materials, h), pages 14-15* – Exposure of people to loss, injury or death involving wild land fires was identified as less than significant impact because the Planning Area is not located near or intermixed with any wild lands. There is a vernal pool

827 7th Steet, Room 230, Sacramento CA 95814 • (916) 874-6141 • fax (916) 874-6400 • www.saccounty.net

preserve of 400 acres located in the Sunrise Douglas Community Plan Area. As part of the Mather Field Regional Park, a vernal pool preserve is proposed that could include approximately 1000 acres. These grassland areas have the potential for wildfires. Due to the proximity of these preserves intermixed with proposed urban development; it should be considered "potentially significant unless mitigation incorporated".

3. *Section VIII. Hydrology and Water Quality, g), page 16* – Item is identified as having a less than significant impact, as well as a potentially significant impact unless mitigation is incorporated. The City might consider reviewing the Water Forum EIR for consistency to the City's initial study checklist. Many of the impacts listed in the City's initial study as potentially significant unless mitigation is incorporated are listed as potentially significant impact in the Water Forum EIR.

4. *Section IX. Land Use Planning, b), page 18* – We request that the following inconsistency be addressed in the EIR: the tunnel designation proposed for Mather Field is not consistent with the County's Transportation Plan nor circulation plans adopted for the Mather Specific Plan.

4. *Section X. Mineral Resources, b), page 19* – This was identified as "No Impact" because there are no resource recovery sites delineated on any local general plans. However, there are mineral resource areas identified on Sacramento County's 1993 General Plan and associated Land Use Diagram. The County's terminology is "Aggregate Resource Area". It should be addressed in the EIR and analyzed for impact because they are shown to occur inside the current city limits (east of Sunrise Boulevard and south of White Rock Road) as well as in the proposed "Planning Area" (west of Mather Field).

5. *Section XV. Transportation/Traffic, c), page 25* – A "No Impact" determination was made for possible changes in air traffic patterns or changes in location that results in substantial safety risks. The addition of new residential areas in and around the flight path to Mather could result in changes in air traffic patterns or change in locations of air traffic. The County has tested alternate flight patterns due to complaints by residents in the City of Folsom and El Dorado County. Additional new residents in the City of Rancho Cordova along the flight paths could trigger additional requests to change the air traffic pattern to alleviate noise. This is potentially significant unless mitigation is incorporated and should be reviewed in the EIR.

6. *Section XVI. Utilities and Service Systems, f), page 26* – The Initial Study Checklist states that landfill issues will have a less than significant impact due do to the City of Rancho Cordova's contract with BFI Waste Systems and their operation of their own transfer facility and current practice of not hauling non-recyclables to Kiefer Landfill. What assurances are there that the City of Rancho Cordova can continue this practice and what contingencies are in place should the opportunity to haul the City's trash outside of Sacramento County cease to exist?

7. *Section XVI. Utilities and Service Systems, f), pages 26-27* – What is the landfill's capacity that BFI is using for the City's waste? Can the landfill handle the future growth of the City, as well as its exiting commitments to other communities?

SS:ss:ab:jl:rr
RC-NOPresponse

Please contact Surinder Singh or Anna Whalen of my staff at (916) 874-6141 if you have any questions regarding these comments.

Sincerely,

Robert Sherry
Planning Director

RS:ss:aw:jl:rr

c: Surinder Singh
Leighann Moffitt
Anna Whalen
Rich Radmacher
John Lundgren

SS:ss:ab:jl:rr
RC-NOPresponse

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Alan C. Lloyd, Ph.D.
Agency Secretary

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

12 May 2005

RECEIVED BY
MAY 17 2005
PACIFIC MUNICIPAL CONSULTANTS

Hilary Anderson
City of Rancho Cordova
3121 Gold Canal Drive
Rancho Cordova, CA 95670

PROPOSED PROJECT REVIEW, CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA), NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE RANCHO CORDOVA GENERAL PLAN, STATE CLEARINGHOUSE #2005022137, RANCHO CORDOVA, SACRAMENTO COUNTY

As a Responsible Agency, as defined by CEQA, we have reviewed the Notice of Preparation of an Environmental Impact Report for the Rancho Cordova General Plan. Based on our review, we have the following comments regarding the proposed project.

Storm Water

A NPDES General Permit for Storm Water Discharges Associated with Construction Activities, NPDES No. CAS000002, Order No. 99-28-DWQ is required when a site involves clearing, grading, disturbances to the ground, such as stockpiling, or excavation that results in soil disturbances of one acre or more of total land area. Construction activity that involves soil disturbances on construction sites of less than one acres and is part of a larger common plan of development or sale, also requires permit coverage. Coverage under the General Permit must be obtained prior to construction. More information may be found at http://www.swrcb.ca.gov/stormwtr/construction.html

Post Construction Storm Water Management

Manage storm water to retain the natural flow regime and water quality, including not altering baseline flows in receiving waters, not allowing untreated discharges to occur into existing aquatic resources, not using aquatic resources for detention or transport of flows above current hydrology, duration, and frequency. All storm water flows generated on-site during and after construction and entering surface waters should be pre-treated to reduce oil, sediment, and other contaminants. The local municipality where the proposed project is located may now require post construction storm water Best Management Practices (BMPs) pursuant to the Phase II, SWRCB, Water Quality Order No. 2003 – 0005 – DWQ, NPDES General Permit No. CAS000004, WDRS for Storm Water Discharges from Small Municipal Separate Storm Sewers Systems (MS4). The local municipality may require long-term post-construction BMPs to be incorporated into development and significant redevelopment projects to protect water quality and control runoff flow.

Wetlands and/or stream course alteration

Section 401 of the federal Clean Water Act requires any project that impacts waters of the United States (such as streams and wetlands) to file a 401 Water Quality Certification application with this office. The project proponent must certify the project will not violate state water quality standards. Projects include, but are not limited to, stream crossings, modification of stream banks or stream courses, and the filling or modification of wetlands. If a U.S. Army Corp of Engineers (ACOE) permit is required for the project, then Water Quality Certification must be obtained prior to initiation of project activities. The proponent must follow the ACOE 404(b)(1) Guidance to assure approval of their 401 Water Quality Certification application. The guidelines are as follows:

1. **Avoidance** (Is the project the least environmentally damaging *practicable* alternative?)
2. **Minimization** (Does the project minimize any adverse effects to the impacted wetlands?)
3. **Mitigation** (Does the project mitigate to assure a no net loss of functional values?)

If, after avoidance and minimization guidelines are considered and wetland impacts are still anticipated:

- determine functional losses and gains (both permanent and temporal; both direct and indirect)
- conduct adequate baselines of wetland functions including vegetation, wildlife, hydrology, soils, and water quality
- attempt to create/restore the same wetland type that is impacted, in the same watershed
- work with a regional context to maximize benefits for native fish, wildlife, vegetation, as well as for water quality, and hydrology
- use native species and materials whenever possible
- document all efforts made to avoid the minimize adverse wetland impacts
- be prepared to develop performance criteria and to track those for between 5 to 20 years
- be prepared to show project success based on achieving wetland functions
- if the project fails, be prepared to repeat the same process (via financial assurance), with additional acreage added for temporal losses
- specify how the mitigation project will be maintained in perpetuity and who will be responsible for the maintenance

For more information regarding Water Quality Certification may be found at http://www.waterboards.ca.gov/centralvalley/available_documents/wq_cert/application.pdf

Dewatering Permit

The proponent may be required to file a Dewatering Permit covered under Waste Discharge Requirements General Order for Dewatering and Other Low Threat Discharges to Surface Waters Permit, Order No. 5-00-175 (NPDES CAG995001) provided they do not contain significant quantities of pollutants and are either (1) four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 mgd:

a. Well development water
b. Construction dewatering
c. Pump/well testing
d. Pipeline/tank pressure testing
e. Pipeline/tank flushing or dewatering
f. Condensate discharges
g. Water Supply system discharges
h. Miscellaneous dewatering/low threat discharges

Industrial

A NPDES General Permit for Storm Water Discharges Associated with Industrial Activities, NPDES No. CAS000001, Order No. 97-03-DWQ regulates 10 broad categories of industrial activities. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The General Industrial Permit also requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring plan. The General Industrial Permit requires that an annual report be submitted each July 1. More information may be found at http://www.swrcb.ca.gov/stormwtr/industrial.html

For more information, please visit the Regional Boards website at http://www.waterboards.ca.gov/centralvalley/ or contact me at 916.464.4663.

CHRISTINE PALISOC
Environmental Scientist
Storm Water Unit
916.464.4663

cc: Scott Morgan, State Clearinghouse, Sacramento

RANCHO CORDOVA GENERAL PLAN SCOPING MEETING COMMENTS FROM MARCH 9, 2005

HAZARDS & HAZARDOUS MATERIALS

- What about asbestos naturally occurring in Ranch Cordova?
- Will the EIR analyze asbestos in rock form?

TRANSPORTATION AND CIRCULATION

- How will the EIR measure pedestrian-friendly streets and land use patterns?
- Alternative map with more street connections?
- What do we do with improvements outside of the City?
- What is timing of improvements on Sunrise Boulevard?

NOISE

- What about race track noise (4 miles away)?
- What about noise bouncing off of sound walls?
- What about rubberized asphalt?
- What about noise from mine tailing, aggregate and rock crushing?
- Is there a limit on noise levels and timing?

HYDROLOGY AND WATER QUALITY

- What about contamination issues from the landfill?
- What about Aerojet, Mather & Douglas groundwater contamination?

BIOLOGICAL RESOURCES

- What about the Endangered Species?
- Why is VELB a listed species?
- Will the EIR explore alternatives of a consolidated wetland preserve and have high density residential (e.g. avoidance strategy)?
- Will the EIR explain how to restore riparian corridors like Laguna Creek?

LAND USE

- How do we obtain very urban densities around transit stations where ownership is fragmented?
- What are the parking standards?

4.4 – Hazards Appendix: SWRCB LUST Sites Table and SLIC Sites Table

SWRCB LEAKING UNDERGROUND STORAGE TANKS IN THE RANCHO CORDOVA PLANNING AREA

SITE NAME	STREET #	STREET	CROSS STREET	CITY	ZIP	DISCOVERED DATE	HOW DISCOVERED	FUNDING	LEAK CAUSE	LEAK SOURCE	REPORT DATE	ENFORCEMENT DATE	ENFORCEMENT TYPE	HOW STOPPED	STOP DATE	CONTACT RP	RP ADDRESS	PROGRAM	SUMMARY WATER SYSTEM
JIFFY LUBE	10149	FOLSOM BLVD	LA LOMA	RANCHO CORDOVA	95670	1986-12-31 00:00:00					1987-08-05 00:00:00	1965-01-01 00:00:00	N			DAUNHAVER, BILL	629 J STREET (2ND FLOOR), SACRAMENTO, CA 95814	LUST	
EQUIP. DIV. YARD	9661	CONSERVATION RD (CASE # 1)	BRADSHAW	SACRAMENTO	95826	1985-12-12 00:00:00					1985-12-12 00:00:00	1965-01-01 00:00:00	N			SACRAMENTO CO PUBLIC WORKS	827 SEVENTH STREET, SACRAMENTO, CA 95814	LUST	
BLDG 04090		AEROJET RD		RANCHO CORDOVA	95670						1988-02-03 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
COOK DEVELOPMENT COMPANY	3355	MATHER FIELD RD		RANCHO CORDOVA	95670	1990-09-19 00:00:00		F			1990-09-19 00:00:00	1965-01-01 00:00:00	N			COOK DEVELOPMENT COMPANY	11020 WHITE ROCK RD #100, RANCHO CORDOVA, CA 95670	LUST	
CIRCLE-K #477 (FORMER)	3329	MATHER FIELD RD		RANCHO CORDOVA	95670	1994-03-09 00:00:00						1965-01-01 00:00:00	N			CIRCLE K	P.O. BOX 52084, PHOENIX, AZ 85072	LUST	
HUNT & SON'S	11361	FOLSOM BLVD		RANCHO CORDOVA	95670	1991-09-17 00:00:00					1991-09-13 00:00:00	1965-01-01 00:00:00	N			HUNT & SON'S INC	PO BOX 277670, SACRAMENTO, CA 95827	LUST	
TRIANGLE ROCK	5411	MAYHEW RD	JACKSON RD	SACRAMENTO	95827	1997-12-07 00:00:00					1997-12-07 00:00:00	1965-01-01 00:00:00	N		1997-12-07 00:00:00	TRIANGLE ROCK	5411 MAYHEW RD, SACRAMENTO, CA 95827	LUST	
BEACON #3603 (FORMER)	10299	FOLSOM BLVD		RANCHO CORDOVA	95670	1989-10-23 00:00:00		F			1989-10-23 00:00:00	1965-01-01 00:00:00	N			ULTRAMAR	C/O USA PETROLEUM CORP., 905 RANCHO CONEJO BLVD.	LUST	
BUILDING 18010	18010	MATHER FIELD BLVD		MATHER AFB	95655			D			1987-01-21 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 10400	10400	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-05 00:00:00		D			1988-02-09 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 01058		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
C C MYERS INC	3286	FITZGERALD RD	WHITE ROCK RD	RANCHO CORDOVA	95742	1992-12-15 00:00:00		F			1992-12-30 00:00:00	1965-01-01 00:00:00	N			C C MYERS	3286 FITZGERALD RD,SAC,CA 95742	LUST	
BUILDING 3965	3965	MATHER FIELD BLVD		MATHER AFB	95655	1994-06-01 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 7033	7033	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-24 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 10030	10030	MATHER FIELD BLVD		MATHER AFB	95655	1994-06-01 00:00:00		D			1994-06-01 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
ANRAK CORPORATION	5820	MAYHEW		SACRAMENTO	95829	2003-03-30 00:00:00	UM	LOPF	UNK	D	2003-05-08 00:00:00		OEFA	NPP	2003-03-30 00:00:00	ANRAK CORPORATION	5820 MAYHEW ROAD	LUST	
BUILDING 18015	18015	MATHER FIELD BLVD		MATHER AFB	95655	1986-06-08 00:00:00		D			1986-07-01 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 10090	10090	MATHER FIELD BLVD		MATHER AFB	95655	1987-12-18 00:00:00		D			1988-01-20 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 3226	3226	MATHER FIELD BLVD		MATHER AFB	95655	1988-12-29 00:00:00		D			1990-07-24 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
WAYSIDE LUMBER CO	11277	TRADE CENTER DR	SUNRISE AVE	RANCHO CORDOVA	95670	1994-08-08 00:00:00					1994-08-31 00:00:00	1965-01-01 00:00:00	N		1994-08-08 00:00:00	WAYSIDE LUMBER CO	11277 TRADE CENTER DR, RANCHO CORDOVA, CA 95742	LUST	
AMERICAN RIVER FISH HATCHERY	2101	NIMBUS RD	HAZEL AVENUE	SACRAMENTO	95670	1997-08-05 00:00:00	TC		UNK	T	2003-12-08 00:00:00	1965-01-01 00:00:00	CLOS	CT	1997-08-05 00:00:00	CALIF. DEPARTEMNT OF FISH & GAME	2125 19TH ST, SUITE 201, SACRAMENTO, CA 95818	LUST	RUDY'S HIDEAWAY
CIRCLE-K #1361	10785	COLOMA RD	SUNRISE BOULEVARD	RANCHO CORDOVA	95670	1986-06-18 00:00:00					1986-06-18 00:00:00	1965-01-01 00:00:00	N			CIRCLE K	6101 N SIERRA AVE, FONTANA, CA 92335	LUST	
BLDG 01096		AEROJET RD		RANCHO CORDOVA	95670	1987-09-15 00:00:00					1987-09-15 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
BUILDING 18020	18020	MATHER FIELD BLVD		MATHER AFB	95655			D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 01022		AEROJET RD		RANCHO CORDOVA	95670	1995-07-20 00:00:00						1965-01-01 00:00:00	N			AEROJET		LUFT	
TEXACO	3000	ZINFANDEL DR		RANCHO CORDOVA	95670	1986-12-15 00:00:00					1986-12-15 00:00:00	1965-01-01 00:00:00	N			TEXACO		LUST	
SAMCO PROPERTY	9701	JACKSON RD	BRADSHAW	SACRAMENTO	95827	1992-08-21 00:00:00					1993-03-12 00:00:00	1993-01-22 00:00:00	N			LERA, VINCENT	1101 BROADWAY, SAC, CA 95818	LUST	
FIRE STATION # 62 (CASE # 2)	3646	BRADSHAW RD	GOELH	RANCHO CORDOVA	95827	1998-07-29 00:00:00					1998-07-29 00:00:00	1965-01-01 00:00:00	N			SACRAMENTO METRO FIRE DEP	2101 HURLEY, SACRAMENTO, CA 95825	LUST	
BUILDING 4587	4587	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-24 00:00:00		D			1994-08-31 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 01028		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
BUILDING 10120	10120	MATHER FIELD BLVD		MATHER AFB	95655	1993-06-16 00:00:00		D			1993-07-22 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
SACRAMENTO BRANCH CENTER	9661	CONSERVATION RD (CASE #2)	BRADSHAW	SACRAMENTO	95827							1965-01-01 00:00:00	N			SACRAMENTO COUNTY	609 NINTH ST, SACRAMENTO, CA 95814	LUST	
STANLINE INC	2477	MERCANTILE DR	FOLSOM BLVD	RANCHO CORDOVA	95670	1991-07-18 00:00:00					1991-10-18 00:00:00	1965-01-01 00:00:00	N			EQUITABLE REAL ESTATE	1 BUSH ST,SAN FRANSISCO,CA 94104	LUST	
GRANITE CONSTRUCTION COMPANY	6201	HEDGE AVE	ALDER	SACRAMENTO	95829	1987-08-20 00:00:00					1987-09-18 00:00:00	1965-01-01 00:00:00	N			GRANITE CONSTRUCTION COMPANY	3801 POWER INN ROAD, SACRAMENTO, CA 95851	LUST	
SHELL SS	9100	KIEFER BLVD	SOUTH PORT	SACRAMENTO	95826	1998-05-27 00:00:00					1998-05-27 00:00:00	1965-01-01 00:00:00	N			SHELL OIL	PO BOX 8080, MARTINEZ, CA 94553	LUST	
SHELL SERVICE STATION	9199	FOLSOM BOULEVARD	LA RIVIERA	SACRAMENTO	95826	2003-05-27 00:00:00	TC		UNK	UNK	2003-05-27 00:00:00	2003-05-27 00:00:00	CLOS	NT	2003-05-27 00:00:00	SHELL OIL PRODUCTS US	PO BOX 7869	LUST	
BUILDING 4145	4145	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-26 00:00:00		D			1988-02-26 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
CHEMICAL WASTE MGT.	11855	WHITE ROCK RD	SUNRISE	RANCHO CORDOVA	95670	1994-01-19 00:00:00		F			1994-01-20 00:00:00	1965-01-01 00:00:00	N			CHEMICAL WASTE MGT.	11855 WHITE ROCK RD, RANCHO CORDOVA, CA 95742	LUST	
SAMUEL D. TARPIN TRUST	11118	JACKSON RD		SACRAMENTO	95830	1992-05-06 00:00:00		F			1992-05-06 00:00:00	1992-08-31 00:00:00	N			SAMUEL TARPIN TRUST	BOX 19422, SACRAMENTO, CA 95819	LUST	
BLDG 04068		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
BUILDING 7090	7090	MATHER FIELD BLVD		MATHER AFB	95655	1994-06-30 00:00:00		D			1994-12-19 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
CHEVRON #9-6080 CASE #1	2358	SUNRISE BLVD	ZINFANDEL	RANCHO CORDOVA	95670	1989-11-17 00:00:00					1989-12-12 00:00:00	1965-01-01 00:00:00	N			CHEVRON	P.O.BOX 5004 SAN RAMON, CA 95826	LUST	
ARCO #5330	2896	ZINFANDEL DR (CASE #1)	HWY 50	RANCHO CORDOVA	95670	1991-12-06 00:00:00					1991-12-06 00:00:00	1965-01-01 00:00:00	N			ARCO	17315 STUDEBAKER RD,CERRITOS,CA 90701	LUST	
BUILDING 14995	14995	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-24 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
CHEVRON #9-6080 CASE #2	2358	SUNRISE BLVD	ZINFINDEL	RANCHO CORDOVA	95670	1996-03-29 00:00:00		R			1996-03-29 00:00:00	1965-01-01 00:00:00	N			CHEVRON	600A BOLLINGER CANYON RD, SAN RAMON, CA 94583	LUST	
ARCO #5340	2295	SUNRISE BLVD	COLOMA ROAD	RANCHO CORDOVA	95670	1989-08-28 00:00:00		F			1989-08-28 00:00:00	1965-01-01 00:00:00	FREV		1989-08-28 00:00:00	BP WEST COAST PRODUCTS	FOUR CENTERPOINTE DRIVE	LUST	
EXXON #7-3457	10670	COLOMA RD (CASE # 1)		RANCHO CORDOVA	95670	1991-12-22 00:00:00					1991-12-04 00:00:00	1965-01-01 00:00:00	N			EXXON	1200 SMITH ST, 31ST FL, HOUSTON, TX 77002	LUST	
BLDG 00002		AEROJET RD		RANCHO CORDOVA	95670						1987-03-10 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
BUILDING 1218	1218	MATHER FIELD BLVD		MATHER AFB	95655			D			1988-03-15 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
7-ELEVEN STORE #14098	10246	MILLS STATION RD	MATHER FIELD RD	RANCHO CORDOVA	95670	1998-10-29 00:00:00					1999-03-24 00:00:00	1965-01-01 00:00:00	N			SOUTHLAND CORP	10220 S.W. GREENBERG RD, SUITE 470, PORTLAND, OR 97223	LUST	
TOSCO #7490	2707	SUNRISE BLVD	FOLSOM BLVD	RANCHO CORDOVA	95670	1998-04-22 00:00:00					1999-11-01 00:00:00	1965-01-01 00:00:00	N			TOSCO MARKETING COMPANY	1380 LEADHILL RD, SUITE 120, ROSEVILLE, CA 95661	LUST	
BUILDING 4844	4844	MATHER FIELD BLVD		MATHER AFB	95655			D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 04045		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET	PO BOX 13222 - BLDG 2001	LUFT	
CHEVRON	10401	FOLSOM BLVD		RANCHO CORDOVA	95670	1987-07-17 00:00:00					1987-07-17 00:00:00	1965-01-01 00:00:00	N			TC SERVICES	450 N ROXBURY #400, BEVERLY HILLS, CA 90210	LUST	
GOLDEN BEAR CENTER	3581	MATHER FIELD RD		RANCHO CORDOVA	95670	1994-04-26 00:00:00					1994-04-26 00:00:00	1965-01-01 00:00:00	N			WILLIAMS, GERALD	10816 BERWICK, RANCHO CORDOVA, CA 95670	LUST	
WALSH STATION AUTOMOTIVE	9497	JACKSON RD		SACRAMENTO	95826	1994-10-19 00:00:00					1996-05-30 00:00:00	1965-01-01 00:00:00	N			WALSH STATION AUTOMOTIVE	681 RIVERGATE WAY, SACRAMENTO, CA 95826	LUST	
BRANCH CENTER MOTOR POOL	3800	BRANCH CENTER RD		SACRAMENTO	95827	1999-03-31 00:00:00						1965-01-01 00:00:00	N			SACRAMENTO COUNTY	609 9TH ST, SACRAMENTO, CA 95814	LUST	
HIGHWAYS & BRIDGES	9600	CONSERVATION RD	BRADSHAW	SACRAMENTO	95827	1986-03-26 00:00:00					1986-03-26 00:00:00	1965-01-01 00:00:00	N			SACRAMENTO COUNTY	827 7TH STREET, SACRAMENTO, CA 95814	LUST	
BUILDING 21030	21030	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-08 00:00:00		D			1988-02-16 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
OLYMPIAN CITRUS RD	2732	CITRUS RD		RANCHO CORDOVA	95670	1999-07-19 00:00:00	SAS					1965-01-01 00:00:00	FREV			OLYMPIAN	260 MITCHELLE CT, SAN FRANCISXO, CA 94080	LUST	
BEUTLER HEATING & AC	9605	OATES DR	BRADSHAW	SACRAMENTO	95827	1993-02-16 00:00:00					1993-02-16 00:00:00	1965-01-01 00:00:00	N			BEUTLER, GARY	9605 OATES DR, SACRAMENTO, CA 95827	LUST	P D M STROCAL INC
BUILDING 3388	3388	MATHER FIELD BLVD		MATHER AFB	95655	1988-09-22 00:00:00		D			1990-07-24 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
BUILDING 3272	3272	MATHER FIELD BLVD		MATHER AFB	95655	1987-12-30 00:00:00		D			1988-01-14 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
PACIFIC COAST BLDG PRODUCTS	9353	JACKSON RD	LISWELCH	SACRAMENTO	95826	1990-08-13 00:00:00		F			1990-08-13 00:00:00	1993-03-24 00:00:00	N			A. GOETZ & SON, INC	8041 RAVINIA COURT, FAIR OAKS, CA 95628	LUST	
FLYING V FILLING STATION	9700	JACKSON RD	BRADSHAW RD	SACRAMENTO	95826	1997-03-04 00:00:00	UM	R	UNK	P,	1997-04-02 00:00:00	1965-01-01 00:00:00	FREV	NT,	1997-04-07 00:00:00	ELAINE MENG	9700 JACKSON ROAD	LUST	
AZTECA CONSTRUCTION	3871	SECURITY PARK DR	DOUGLAS RD	RANCHO CORDOVA	95670	1989-11-20 00:00:00		F			1991-03-12 00:00:00	1993-02-16 00:00:00	N			AZTECA CONSTRUCTION	4745 LEI ST, FAIR OAKS, CA 95628	LUST	
SHELL	3100	BRADSHAW RD		SACRAMENTO	95827	2000-05-30 00:00:00	TC				2001-12-05 00:00:00	1965-01-01 00:00:00	NOR			SHELL (EQUIVA)	PO BOX 7869, BURBANK, CA 91510	LUST	
BUILDING 3389	3389	MATHER FIELD BLVD		MATHER AFB	95655	1989-02-07 00:00:00		D			1990-07-24 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
RANCHO TIRE SRVC	10321	FOLSOM BLVD		RANCHO CORDOVA	95670						1988-06-02 00:00:00	1965-01-01 00:00:00	N			BAKER, DICK	10321 FOLSOM, RANCHO CORDOVA, CA	LUST	
DARPETRO EXXON	10051	FOLSOM BLVD		SACRAMENTO	95827	1991-01-16 00:00:00		F			1991-01-16 00:00:00	1965-01-01 00:00:00	FREV			DARPETRO-GASCO-BENETO	3450 EL CAMINO AVENUE, CERES, CA 95307	LUST	
QUALITY TUNE-UP #51	10801	FOLSOM BLVD		RANCHO CORDOVA	95670	1996-06-26 00:00:00					1996-07-11 00:00:00	1965-01-01 00:00:00	CLOS	CT	1996-06-26 00:00:00	QUALITY TUNE-UP	3031 TISCH WAY, SAN JOSE, CA 94128	LUST	
HASTIES SAND & GRAVEL	9350	JACKSON RD	HEDGE ST	SACRAMENTO	95826	1997-06-05 00:00:00						1965-01-01 00:00:00	N			HASTIES SAND & GRAVEL	9350 JACKSON RD, SACRAMENTO, CA 95826	LUST	
BLDG 20009		AEROJET RD		RANCHO CORDOVA	95670						1993-03-23 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
BUILDING 10410	10410	MATHER FIELD BLVD		MATHER AFB	95655			D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
ECONO LUBE N TUNE #63	9025	FOLSOM BOULEVARD	LA QUINTA DRIVE	SACRAMENTO	95826	2004-04-26 00:00:00	TC	LOPF	UNK	UNK	2004-07-21 00:00:00		CLOS	CT	2004-04-26 00:00:00	DAVE SCHAFFERS	4911 BIRCH STREET	LUST	
BLDG 01062		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET	PO BOX 13222 - BLDG 2001, SACRAMENTO, CA 95813-6000	LUFT	
BUILDING 3398	3398	MATHER FIELD BLVD		MATHER AFB	95655	1995-06-20 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
SACRAMENTO RENDERING	11350	KIEFER BLVD	SURRISE BLVD	SACRAMENTO	95830	1999-01-13 00:00:00						1965-01-01 00:00:00	N			SACRAMENTO RENDERING	11350 KIEFER BLVD, SACRAMENTO, CA 95830	LUST	
STATION 62, RANCHO CORDOVA FD	3646	BRADSHAW RD	GOETHE	SACRAMENTO	95827	1987-01-22 00:00:00						1965-01-01 00:00:00				RANCHO CORDOVA FIRE DISTRICT	3121 GOLD CANAL DRIVE, RANCHO CORDOVA, CA 95670	LUST	
BLDG 20001		AEROJET RD		RANCHO CORDOVA	95670						1993-03-23 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
CIRCLE-K #1244 (FORMER)	9408	KIEFER BLVD	TALLYHO DRIVE	SACRAMENTO	95826	1997-08-27 00:00:00	TC		UNK	UNK	1998-01-08 00:00:00	1965-01-01 00:00:00	CLOS	CT	1997-08-27 00:00:00	ED RALSTON	76 BROADWAY	LUST	
HUNT AND SONS	11341	WHITE ROCK ROAD		RANHO CORDOVA	95827	2003-11-25 00:00:00	UM		UNK	UNK	2003-12-05 00:00:00		FREV	NPP	2003-11-25 00:00:00	R DEAN HUNT	137 CASCADE FALLS DRIVE	LUST	
PEP BOYS	10899	FOLSOM BLVD		RANCHO CORDOVA	95670	1997-07-29 00:00:00						1965-01-01 00:00:00	N			PEP BOYS	3111 W. ALLIGHNEY ST,PHILIDELPHIA, PA 19132	LUST	
TOSCO #4541 (FORMER SS)	10399	FOLSOM BLVD		RANCHO CORDOVA	95670	1998-07-08 00:00:00					1999-03-03 00:00:00	1965-01-01 00:00:00	N			TOSCO MARKETING CO	1380 LEAD HILL RD, SUITE 120, ROSEVILLE, CA 95661	LUST	
BUILDING 1010100	10100	MATHER FIELD BLVD		MATHER AFB	95655	1987-11-02 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 01037		AEROJET RD		RANCHO CORDOVA	95670						1993-03-23 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
BUILDING 4015	4015	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-24 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 05026		AEROJET RD		RANCHO CORDOVA	95670						1988-09-14 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
BUILDING 8150	8150	MATHER FIELD BLVD		MATHER AFB	95655	1994-05-16 00:00:00		D			1994-08-31 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 3169	3169	MATHER FIELD BLVD		MATHER AFB	95655	1994-05-05 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
BLDG 20019		AEROJET RD		RANCHO CORDOVA	95670						1990-07-26 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
WALKER PRE CAST	8900	FRUITRIDGE RD	WATT	SACRAMENTO	95826	1995-03-01 00:00:00					1995-04-17 00:00:00	1965-01-01 00:00:00	N			WALKER PRE CAST	8900 FRUITRIDGE RD, SACRAMENTO, CA 95826	LUST	
U-HAUL #706-59	11351	PYRITES WAY		RANCHO CORDOVA	95670	1992-08-05 00:00:00		R			1992-08-05 00:00:00	1965-01-01 00:00:00	N			U-HAUL REAL ESTATE CO	P O BOX 29046, PHOENIX, AZ 85038	LUST	
ROONEY RANCH	7303	SLOUGHHOUSE RD	JACKSON HWY	ELK GROVE	95624	1990-07-01 00:00:00					1993-03-23 00:00:00	1965-01-01 00:00:00	N			WONG, SUN G.	4191 MOSS DR, SACRAMENTO, CA 95822	LUST	
BUILDING 3286	3286	MATHER FIELD BLVD		MATHER AFB	95655	1988-12-29 00:00:00		D			1990-07-24 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
SAC CO - H&B EQUIP YARD	9600	BRANCH CENTER RD		SACRAMENTO	95827	1986-09-29 00:00:00					1986-09-29 00:00:00	1965-01-01 00:00:00	N			SACRAMENTO CO PUBLIC WORKS		LUST	
TEICHERT READY MIX	8609	JACKSON RD		SACRAMENTO	95826	1995-04-14 00:00:00					1987-06-25 00:00:00	1965-01-01 00:00:00	N			A. TEICHERT & SON	PO BOX 15002, SACRAMENTO, CA 95851	LUST	OKI NURSERY,KIEFER
FIRE STATION #65	11201	COLOMA RD		RANCHO CORDOVA	95670	1998-07-31 00:00:00					1998-09-04 00:00:00	1965-01-01 00:00:00	N			SAC CO FIRE DEPARTMENT	3121 GOLD RUN RD, RANCHO CORDOVA, CA 95670	LUST	
BUILDING 10072	10072	MATHER FIELD BLVD		MATHER AFB	95655	1987-11-20 00:00:00		D			1987-12-03 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
CORDOVA RENTALS	10077	FOLSOM BLVD	ROUTIER	RANCHO CORDOVA	95670	1990-05-02 00:00:00		F			1990-05-15 00:00:00	1965-01-01 00:00:00	N			ALICE TALBOTT REVOCABLE TRUST	2828 CATANIA WAY, SACRAMENTO, CA 95826	LUST	
BUILDING 10300	10300	MATHER FIELD BLVD		MATHER AFB	95655	1987-12-02 00:00:00		D			1987-12-03 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BROWNIE MUFFLER CO	10849	FOLSOM BLVD		RANCHO CORDOVA	95670	1994-07-14 00:00:00					1996-04-18 00:00:00	1965-01-01 00:00:00	N			BROWNIE MUFFLER CO	PO BOX 232384, SACRAMENTO, CA 85823	LUST	
HARLAN PROPERTY	11358	AMALGAM WAY	Pyrites	RANCHO CORDOVA	95670	1994-08-24 00:00:00	TC		C	T	1995-03-31 00:00:00	1965-01-01 00:00:00	N	CT	1994-08-24 00:00:00	HARLAN PROPERTY	11358 AMALGAM WAY, RANCHO CORDOVA, CA 95670	LUST	
EXXON #7-0244	2931	MATHER FIELD RD	MILLS STATION ROAD	RANCHO CORDOVA	95670	1991-09-24 00:00:00	TC	F	UNK	UNK	1991-09-25 00:00:00	1965-01-01 00:00:00	FREV	NT		JENNIFER C. SEDLACHEK	4096 PIEDMONT AVE #194	LUST	
DARPETRO EXXON (FORMER)	10001	FOLSOM BLVD		SACRAMENTO	95827	1991-05-02 00:00:00		F			1991-05-02 00:00:00	1965-01-01 00:00:00	N			DARPETRO-GASCO-BENETO	3450 EL CAMINO AVE., CERES, CA 95307	LUST	

SWRCB LEAKING UNDERGROUND STORAGE TANKS IN THE RANCHO CORDOVA PLANNING AREA

REFUELING STN #31	31	MATHER FIELD BLVD		MATHER AFB	95655	1989-07-18 00:00:00		D			1989-07-20 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 7039	7039	MATHER FIELD BLVD		MATHER AFB	95655	1994-05-02 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
FOLSOM LAKE TOYOTA	1940	ZINFANDEL DR		RANCHO CORDOVA	95670	1994-11-29 00:00:00					1995-01-03 00:00:00	1965-01-01 00:00:00	N			FOLSOM LAKE TOYOTA	1940 ZINFINDEL DR, SACRAMENTO, CA 95670	LUST	
SHELL	2939	MATHER FIELD RD		RANCHO CORDOVA	95670						1990-02-26 00:00:00	1965-01-01 00:00:00	N			SHELL		LUST	
MOBIL COUNTRY CLUB	2473	SUNRISE BLVD		RANCHO CORDOVA	95670	1990-11-16 00:00:00					1990-11-19 00:00:00	1965-01-01 00:00:00	N			COUNTRY CLUB INVESTORS	PO BOX 580, ORANGEVALE, CA 95662	LUST	
TEICHERT PRE-CAST CEMENT	8775	JACKSON RD		SACRAMENTO	95826	1987-06-26 00:00:00					1987-06-26 00:00:00	1965-01-01 00:00:00	N			A. TEICHERT & SON	PO BOX 15002, SACRAMENTO, CA 95851	LUST	
BUILDING 4150	4150	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-23 00:00:00		D			1988-02-23 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
DOTTLING/DAVIS PARTNER	11300	AMALGAM WAY		RANCHO CORDOVA	95670						1987-10-09 00:00:00	1965-01-01 00:00:00	N			DOTTLING/DAVIS PARTNER	11300 AMALGAM ST, RANCHO CORDOVA, CA 95670	LUST	
CHEVRON #9-0195	3001	ZINFANDEL DR	OLSEN DR	RANCHO CORDOVA	95670	1996-11-18 00:00:00	UM		F	T	1999-11-01 00:00:00	1965-01-01 00:00:00	FREV			CHEVRON	BOX 6004, SAN RAMON, CA 94583	LUST	
BLDG 01056		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
SPRINT	3068	KILGORE		RANCHO CORDOVA	95670	1990-06-20 00:00:00		F			1990-06-22 00:00:00	1965-01-01 00:00:00	N			SPRINT	3068 KILGORE, RANCHO CORDOVA, CA 95670	LUST	
BUILDING 2410	2410	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-03 00:00:00		D			1988-02-09 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 46010		AEROJET RD		RANCHO CORDOVA	95670						1986-02-28 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
BP #01921	11079	FOLSOM BLVD		RANCHO CORDOVA	95670	1993-01-27 00:00:00		F			1993-01-27 00:00:00	1993-02-05 00:00:00	FREV			BP OIL CO	295 SW 41ST ST, BLDG 13, SUITE N, RENTON, WA 98055	LUST	
CHEVRON	3300	BRADSHAW RD		SACRAMENTO	95827						1990-08-14 00:00:00	1965-01-01 00:00:00	N			CHEVRON		LUST	P D M STROCAL INC
BUILDING 8158	8158	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-06 00:00:00		D			1988-02-17 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
CAMELLIA MEMORIAL LAWN	10221	JACKSON RD	BRADSHAW	SACRAMENTO	95827	1991-06-13 00:00:00		F			1991-06-18 00:00:00	1992-03-04 00:00:00	N			CAMELLIA MEMORIAL LAWN	10221 JACKSON RD, SACRAMENTO, CA 95827	LUST	
E-Z STOP	10501	FOLSOM BOULEVARD	MILLS PARK DRIVE	RANCHO CORDOVA	95670	1998-12-04 00:00:00	UM	LOPF	UNK	D	2005-03-27 00:00:00		VER	CT	1998-10-04 00:00:00	PARVINDER SINGH	10501 FOLSOM BOULEVARD	LUST	
BUILDING 7022C	7022	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-22 00:00:00		D			1988-03-03 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 18051	18051	MATHER FIELD BLVD		MATHER AFB	95655	1988-02-22 00:00:00		D			1988-02-29 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
NIMBUS WINERY	12401	FOLSOM BLVD	HAZEL AVE	RANCHO CORDOVA	95670	2000-09-09 00:00:00					2001-10-19 00:00:00	1965-01-01 00:00:00	FREV			RUSSELL KNAYER	PO BOX 1068, PLACERVILLE, CA 95667	LUST	
ARCO #5330	2896	ZINFANDEL DR (CASE #2)	HWY 50	RANCHO CORDOVA	95670	2000-10-13 00:00:00					2000-10-13 00:00:00	1965-01-01 00:00:00	FREV		2000-10-13 00:00:00	BP WEST COAST PRODUCTS	FOUR CENTERPOINTE DRIVE	LUST	
BLDG 01086		AEROJET RD		RANCHO CORDOVA	95670						1986-02-07 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
BUILDING 10065	10065	MATHER FIELD BLVD		MATHER AFB	95655	1993-06-01 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 48021		AEROJET RD		RANCHO CORDOVA	95670	1987-09-15 00:00:00					1987-09-15 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
UNOCAL #6425	3312	BRADSHAW RD	HWY 50	SACRAMENTO	95826	1994-11-21 00:00:00					1994-12-05 00:00:00	1965-01-01 00:00:00	N			UNOCAL	2929 E. IMPERIAL HWY, BREA, CA 92621	LUST	
BUILDING 2595	2595	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-27 00:00:00		D			1994-12-19 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 01001		AEROJET RD		RANCHO CORDOVA	95670						1988-08-15 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15669, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
BLDG 01034		AEROJET RD		RANCHO CORDOVA	95670	1988-06-06 00:00:00					1988-06-06 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	
#200252D-AC		AEROJET RD		RANCHO CORDOVA	95670	1989-10-16 00:00:00					1989-10-16 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 13222, BLDG. 2001, SACRAMENTO, CA 95813	LUFT	
BLDG 36015		AEROJET RD		RANCHO CORDOVA	95670						1987-09-16 00:00:00	1965-01-01 00:00:00	N			AEROJET	P.O. BOX 15699C, BLDG 46010, SACRAMENTO, CA 95852	LUFT	
BUILDING 3308	3308	MATHER FIELD BLVD		MATHER AFB	95655	1988-12-08 00:00:00		D			1990-07-24 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	
BUILDING 14517	14517	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-24 00:00:00		D			1994-09-01 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
JACKSON BUSINESS PARK	9156	JACKSON RD		SACRAMENTO	95827	1992-05-01 00:00:00		F			1992-05-12 00:00:00	1992-10-21 00:00:00	N			JACKSON BUSINESS PARK	2020 MARCONI AVE SACRAMENTO,CA 95821	LUST	
COLOMA GAS & FOOD	10670	COLOMA RD (CASE # 2)	MCGREGOR	RANCHO CORDOVA	95670	2001-03-13 00:00:00	UM		UNK	D	2001-05-14 00:00:00	1965-01-01 00:00:00	CLOS	NPP	2001-03-12 00:00:00	LAWRENCE & MAGGIE FU	3921 WATT AVE, SACRAMENTO, CA 95821	LUST	
BUILDING 7010	7010	MATHER FIELD BLVD		MATHER AFB	95655	1994-04-24 00:00:00		D			1994-08-31 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 10060	10060	MATHER FIELD BLVD		MATHER AFB	95655			D			1993-03-23 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 7080	7080	MATHER FIELD BLVD		MATHER AFB	95655	1988-05-12 00:00:00		D			1988-03-15 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 33206	33206	MATHER FIELD BLVD		MATHER AFB	95655	1993-06-01 00:00:00		D				1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BUILDING 7100	7100	MATHER FIELD BLVD		MATHER AFB	95655	1994-05-02 00:00:00		D			1994-08-31 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
FAIR OAKS WRECKING	11350	BRIDGE ST S		RANCHO CORDOVA	95670						1993-03-23 00:00:00	1965-01-01 00:00:00	N			FAIR OAKS WRECKING	11350 S BRIDGE ST, RANCHO CORDOVA, CA 95670	LUST	
BUILDING 16100	16100	MATHER FIELD BLVD		MATHER AFB	95655	1987-12-22 00:00:00		D			1987-12-22 00:00:00	1965-01-01 00:00:00	N			DOD US AIR FORCE	AFBCA/DBM, 10503 ARMSTRONG AVE, MATHER, CA 95655-4101	DOD	MATHER AFB - MAIN BASE
BLDG 05068		AEROJET RD		RANCHO CORDOVA	95670	1987-10-15 00:00:00					1987-10-15 00:00:00	1965-01-01 00:00:00	N			AEROJET		LUFT	

SWRCB SLIC (SPILLS, LEAKS, INVESTIGATIONS, AND CLEAN-UP) IN THE RANCHO CORDOVA PLANNING AREA

BUSINESS NAME	ADDRESS	CITY	STATE	LEAD AGENCY	RESPONSIBILITY	SUBSTANCE	STATUS
Purity Oil/Delta Gunite	11100 WHITE ROCK ROAD	Rancho Cordova	CA	CORI CONDON	PURITY OIL	PET, VOC	Case Open
MCDONNELL DOUGLAS/AEROJET INACTIVE	4000 ACRES BOUNDED BY DOUGLAS & SUNRISE	RANCHO CORDOVA	CA	ALEX M. MACDONALD	MCDONNELL DOUGLAS CORP	DIO, PAH, PCB, PER, PET, VOC	

4.5 – Traffic Appendix: Traffic Modeling Data

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Zinfandel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7700	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2139	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2197	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2197	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	57.7	mi/h
Number of lanes, N	4	
Density, D	38.1	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Bradshaw to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2306	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2368	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2368	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Folsom to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	4300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1194	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2453	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	63.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2453	pc/h/ln
Free-flow speed, FFS	63.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	2	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Folsom to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1667	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	3423	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	63.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3423	pc/h/ln
Free-flow speed, FFS	63.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	2	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Hazel to Folsom
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1917	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2625	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2625	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Hazel to Folsom
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	4500	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1250	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	1712	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1712	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S	64.0	mi/h
Number of lanes, N	3	
Density, D	26.7	pc/mi/ln

Level of service, LOS D

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Hazel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1917	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2625	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2625	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Mather To Bradshaw
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2722	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2796	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2796	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Mather to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2306	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2368	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2368	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Sunrise to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7200	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2000	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2739	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2739	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Sunrise to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	5800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1611	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2206	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2206	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S	56.6	mi/h
Number of lanes, N	3	
Density, D	39.0	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Sunrise to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2222	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2282	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2282	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	55.2	mi/h
Number of lanes, N	4	
Density, D	41.4	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Zinfandel to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9600	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2667	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2739	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2739	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
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Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Zinfandel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2028	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2083	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2083	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	60.5	mi/h
Number of lanes, N	4	
Density, D	34.4	pc/mi/ln

Level of service, LOS D

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Bradshaw to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	2030 Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9500	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2639	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2710	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2710	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Hazel to Folsom
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1917	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2625	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2625	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Bradshaw to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8100	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2250	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2311	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2311	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	54.2	mi/h
Number of lanes, N	4	
Density, D	42.6	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Folsom to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	5800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1611	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	3309	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	63.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3309	pc/h/ln
Free-flow speed, FFS	63.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	2	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Bradshaw to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	10100	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2806	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2881	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2881	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Hazel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6400	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1778	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2434	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2434	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Hazel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1889	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2587	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2587	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Mather To Bradshaw
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2722	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2796	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2796	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Mather To Bradshaw
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2722	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2796	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2796	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Mather to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8100	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2250	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2311	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2311	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	54.2	mi/h
Number of lanes, N	4	
Density, D	42.6	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Sunrise to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1667	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2282	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2282	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S	54.3	mi/h
Number of lanes, N	3	
Density, D	42.0	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Sunrise to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8400	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2333	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2396	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2396	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Sunrise to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7600	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2111	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2168	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2168	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	58.5	mi/h
Number of lanes, N	4	
Density, D	37.0	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Zinfandel to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2472	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2539	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2539	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Zinfandel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7500	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2083	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2140	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2140	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	4	
Density, D	36.1	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Zinfandel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, 2030 Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7800	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2167	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2225	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2225	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	56.9	mi/h
Number of lanes, N	4	
Density, D	39.1	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Zinfandel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7500	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2083	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2140	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2140	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	4	
Density, D	36.1	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Bradshaw to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2306	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2368	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2368	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Folsom to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	5400	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1500	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	3081	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	2	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	4.5	mi/h
Free-flow speed, FFS	63.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3081	pc/h/ln
Free-flow speed, FFS	63.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	2	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Hazel to Folsom
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6500	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1806	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2472	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2472	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Hazel to Folsom
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	4300	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1194	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	1636	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1636	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S	64.3	mi/h
Number of lanes, N	3	
Density, D	25.4	pc/mi/ln

Level of service, LOS C

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Hazel to Sunrise
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	6400	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1778	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2434	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2434	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	WB
From/To:	Mather To Bradshaw
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2750	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2824	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2824	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Mather to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	8900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2472	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2539	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2539	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Sunrise to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1944	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2663	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2663	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	EB
From/To:	Sunrise to Hazel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	5600	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1556	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2130	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	64.5	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2130	pc/h/ln
Free-flow speed, FFS	64.5	mi/h
Average passenger-car speed, S	58.5	mi/h
Number of lanes, N	3	
Density, D	36.4	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Sunrise to Zinfandel
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	7400	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2056	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2111	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2111	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S	59.9	mi/h
Number of lanes, N	4	
Density, D	35.2	pc/mi/ln

Level of service, LOS E

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	PM
Freeway/Direction:	WB
From/To:	Zinfandel to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9000	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2500	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2568	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2568	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	BCF
Agency or Company:	F&P
Date Performed:	01/23/06
Analysis Time Period:	AM
Freeway/Direction:	EB
From/To:	Bradshaw to Mather
Jurisdiction:	Rancho Cordova/CT
Analysis Year:	BO Land Use, BO Roadways
Description:	

Flow Inputs and Adjustments

Volume, V	9900	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2750	v
Trucks and buses	5	%
Recreational vehicles	1	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.974	
Driver population factor, fp	1.00	
Flow rate, vp	2824	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	1.00	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Base	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	2.5	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	66.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2824	pc/h/ln
Free-flow speed, FFS	66.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln

Level of service, LOS F

Overall results are not computed when free-flow speed is less than 55 mph.

Rancho Cordova General Plan Six Hour Volumes: 2030 Land Use, 2030 Roadway Network				
Freeway Segment	**From**	**To**	**6 HR Base Year Volume**	**6 HR Future Forcast Volume**
EB US-50	Bradshaw Rd	Mather Field Rd	40,539	45,400
	Mather Field Rd	Zinfandel Blvd	37,958	42,000
	Zinfandel Blvd	Sunrise Blvd	33,695	38,300
	Sunrise Blvd	Hazel Blvd	25,700	34,000
	Hazel Ave	Folsom Blvd	21,056	27,000
WB US-50	Mather Field Rd	Bradshaw Rd	41,478	48,800
	Zinfandel Blvd	Mather Field Rd	40,033	46,000
	Sunrise Blvd	Zinfandel Blvd	36,528	40,100
	Hazel Blvd	Sunrise Blvd	27,155	33,600
	Folsom Blvd	Hazel Ave	27,004	31,000

Rancho Cordova General Plan Six Hour Volumes: Build Out Land Use, 2030 Roadway Network				
Freeway Segment	**From**	**To**	**6 HR Base Year Volume**	**6 HR Future Forcast Volume**
EB US-50	Bradshaw Rd	Mather Field Rd	40,539	46,600
	Mather Field Rd	Zinfandel	37,958	43,100
	Zindfandel Blvd	Sunrise	33,695	39,000
	Sunrise Blvd	Hazel	25,700	34,400
	Hazel Ave	Folsom Blvd	21,056	27,100
WB US-50	Mather Field Rd	Bradshaw Rd	41,478	49,700
	Zinfandel	Mather Field Rd	40,033	46,500
	Sunrise	Zindfandel Blvd	36,528	40,800
	Hazel	Sunrise Blvd	27,155	34,200
	Folsom Blvd	Hazel Ave	27,004	32,100

Rancho Cordova General Plan Six Hour Volumes: Build Out Land Use, Build Out Roadway Network				
Freeway Segment	**From**	**To**	**6 HR Base Year Volume**	**6 HR Future Forcast Volume**
EB US-50	Bradshaw Rd	Mather Field Rd	40,539	46,400
	Mather Field Rd	Zinfandel Blvd	37,958	43,600
	Zinfandel Blvd	Sunrise Blvd	33,695	38,700
	Sunrise Blvd	Hazel Blvd	25,700	33,200
	Hazel Ave	Folsom Blvd	21,056	26,000
WB US-50	Mather Field Rd	Bradshaw Rd	41,478	49,400
	Zinfandel Blvd	Mather Field Rd	40,033	47,300
	Sunrise	Zinfandel Blvd	36,528	40,200
	Hazel Blvd	Sunrise Blvd	27,155	32,600
	Folsom Blvd	Hazel Ave	27,004	30,000

Rancho Cordova General Plan

AM Peak Hour Ramp Volumes: 2030 Land Use, 2030 Roadway Network

Freeway Ramp		Lanes	2004/2005 Count	Forecast Volume	Forecast Volume (Assumes 5% Heavy Vehicles)	Recommend Additional Lanes?
EB US-50 (Bradshaw)	Diag On	1	978	1,900	2,200	YES
EB US-50 (Bradshaw)	Loop On	1	309	1,200	1,400	NO
EB US-50 (Bradshaw)	Off Ramp	1	1,190	1,200	1,400	NO
WB US-50 (Bradshaw)	Loop On	1	856	900	1,000	NO
WB US-50 (Bradshaw)	Diag On	1	349	400	500	NO
WB US-50 (Bradshaw)	Off Ramp	1	981	1,000	1,200	NO
EB US-50 (Mather)	Diag On	1	235	400	500	NO
EB US-50 (Mather)	Loop On	1	262	600	700	NO
EB US-50 (Mather)	Off Ramp	1	1,725	2,000	2,300	YES
WB US-50 (Mather)	Loop On	1	399	700	800	NO
WB US-50 (Mather)	Diag On	1	489	600	700	NO
WB US-50 (Mather)	Off Ramp	1	829	1,000	1,200	NO
EB US-50 (Zinfandel)	Diag On	1	282	600	700	NO
EB US-50 (Zinfandel)	Loop On	1	144	200	200	NO
EB US-50 (Zinfandel)	Off Ramp	1	2,045	2,000	2,300	YES
WB US-50 (Zinfandel)	Loop On	1	420	900	1,000	NO
WB US-50 (Zinfandel)	Diag On	1	498	1,600	1,800	YES
WB US-50 (Zinfandel)	Off Ramp	1	911	900	1,000	NO
EB US-50 (Sunrise)	Diag On	1	392	400	500	NO
EB US-50 (Sunrise)	Loop On	1	391	900	1,000	NO
EB US-50 (Sunrise)	Off Ramp	1	1,552	1,700	2,000	YES
WB US-50 (Sunrise)	Loop On	1	486	600	700	NO
WB US-50 (Sunrise)	Diag On	1	1,465	1,700	2,000	YES
WB US-50 (Sunrise)	Off Ramp	1	1,080	1,100	1,300	NO
EB US-50 (Hazel)	Diag On	1	66	300	300	NO
EB US-50 (Hazel)	Loop On	1	709	1,300	1,500	YES
EB US-50 (Hazel)	Off Ramp	2	920	2,900	3,300	NO
WB US-50 (Hazel)	Loop On	1	290	300	300	NO
WB US-50 (Hazel)	Diag On	2	1,834	2,100	2,400	NO
WB US-50 (Hazel)	Off Ramp	1	739	700	800	NO

Rancho Cordova General Plan PM Peak Hour Ramp Volumes: 2030 Land Use, 2030 Roadway Network						
Freeway Ramp		Lanes	2004/2005 Count	Forecast Volume	Forecast Volume (Assumes 5% Heavy Vehicles)	Recommend Additional Lanes?
EB US-50 (Bradshaw)	Diag On	1	769	1,300	1,500	YES
EB US-50 (Bradshaw)	Loop On	1	413	1,500	1,700	YES
EB US-50 (Bradshaw)	Off Ramp	1	1,381	1,400	1,600	YES
WB US-50 (Bradshaw)	Loop On	1	872	900	1,000	NO
WB US-50 (Bradshaw)	Diag On	1	560	1,400	1,600	YES
WB US-50 (Bradshaw)	Off Ramp	1	1,294	1,300	1,500	YES
EB US-50 (Mather)	Diag On	1	647	800	900	NO
EB US-50 (Mather)	Loop On	1	327	400	500	NO
EB US-50 (Mather)	Off Ramp	1	963	1,400	1,600	YES
WB US-50 (Mather)	Loop On	1	783	1,400	1,600	YES
WB US-50 (Mather)	Diag On	1	374	400	500	NO
WB US-50 (Mather)	Off Ramp	1	564	1,100	1,300	NO
EB US-50 (Zinfandel)	Diag On	1	679	700	800	NO
EB US-50 (Zinfandel)	Loop On	1	118	200	200	NO
EB US-50 (Zinfandel)	Off Ramp	1	835	1,300	1,500	YES
WB US-50 (Zinfandel)	Loop On	1	1,853	1,900	2,200	YES
WB US-50 (Zinfandel)	Diag On	1	762	800	900	NO
WB US-50 (Zinfandel)	Off Ramp	1	615	1,200	1,400	NO
EB US-50 (Sunrise)	Diag On	1	617	600	700	NO
EB US-50 (Sunrise)	Loop On	1	455	700	800	NO
EB US-50 (Sunrise)	Off Ramp	1	1,740	1,800	2,100	YES
WB US-50 (Sunrise)	Loop On	1	697	900	1,000	NO
WB US-50 (Sunrise)	Diag On	1	1,079	1,100	1,300	NO
WB US-50 (Sunrise)	Off Ramp	1	937	1,900	2,200	YES
EB US-50 (Hazel)	Diag On	1	272	300	300	NO
EB US-50 (Hazel)	Loop On	1	760	800	900	NO
EB US-50 (Hazel)	Off Ramp	2	1,588	2,400	2,800	NO
WB US-50 (Hazel)	Loop On	1	213	600	700	NO
WB US-50 (Hazel)	Diag On	2	773	1,700	2,000	NO
WB US-50 (Hazel)	Off Ramp	1	1,277	1,700	2,000	YES

Rancho Cordova General Plan

AM Peak Hour Ramp Volumes: Build Out Land Use, 2030 Roadway Network

Freeway Ramp		Lanes	2004/2005 Count	Forecast Volume	Forecast Volume (Assumes 5% Heavy Vehicles)	Recommend Additional Lanes?
EB US-50 (Bradshaw)	Diag On	1	978	1,900	2,200	YES
EB US-50 (Bradshaw)	Loop On	1	309	1,200	1,400	NO
EB US-50 (Bradshaw)	Off Ramp	1	1,190	1,200	1,400	NO
WB US-50 (Bradshaw)	Loop On	1	856	900	1,000	NO
WB US-50 (Bradshaw)	Diag On	1	349	300	300	NO
WB US-50 (Bradshaw)	Off Ramp	1	981	1,000	1,200	NO
EB US-50 (Mather)	Diag On	1	235	400	500	NO
EB US-50 (Mather)	Loop On	1	262	500	600	NO
EB US-50 (Mather)	Off Ramp	1	1,725	2,200	2,500	YES
WB US-50 (Mather)	Loop On	1	399	600	700	NO
WB US-50 (Mather)	Diag On	1	489	1,000	1,200	NO
WB US-50 (Mather)	Off Ramp	1	829	1,100	1,300	NO
EB US-50 (Zinfandel)	Diag On	1	282	600	700	NO
EB US-50 (Zinfandel)	Loop On	1	144	200	200	NO
EB US-50 (Zinfandel)	Off Ramp	1	2,045	2,300	2,600	YES
WB US-50 (Zinfandel)	Loop On	1	420	1,100	1,300	NO
WB US-50 (Zinfandel)	Diag On	1	498	1,600	1,800	YES
WB US-50 (Zinfandel)	Off Ramp	1	911	1,000	1,200	NO
EB US-50 (Sunrise)	Diag On	1	392	400	500	NO
EB US-50 (Sunrise)	Loop On	1	391	800	900	NO
EB US-50 (Sunrise)	Off Ramp	1	1,552	1,800	2,100	YES
WB US-50 (Sunrise)	Loop On	1	486	800	900	NO
WB US-50 (Sunrise)	Diag On	1	1,465	1,800	2,100	YES
WB US-50 (Sunrise)	Off Ramp	1	1,080	1,200	1,400	NO
EB US-50 (Hazel)	Diag On	1	66	400	500	NO
EB US-50 (Hazel)	Loop On	1	709	1,100	1,300	NO
EB US-50 (Hazel)	Off Ramp	2	920	2,800	3,200	NO
WB US-50 (Hazel)	Loop On	1	290	300	300	NO
WB US-50 (Hazel)	Diag On	2	1,834	2,200	2,500	NO
WB US-50 (Hazel)	Off Ramp	1	739	700	800	NO

Rancho Cordova General Plan

PM Peak Hour Ramp Volumes: Build Out Land Use, 2030 Roadway Network

Freeway Ramp		Lanes	2004/2005 Count	Forecast Volume	Forecast Volume (Assumes 5% Heavy Vehicles)	Recommend Additional Lanes?
EB US-50 (Bradshaw)	Diag On	1	769	1,300	1,500	YES
EB US-50 (Bradshaw)	Loop On	1	413	1,500	1,700	YES
EB US-50 (Bradshaw)	Off Ramp	1	1,381	1,400	1,600	YES
WB US-50 (Bradshaw)	Loop On	1	872	900	1,000	NO
WB US-50 (Bradshaw)	Diag On	1	560	1,400	1,600	YES
WB US-50 (Bradshaw)	Off Ramp	1	1,294	1,300	1,500	YES
EB US-50 (Mather)	Diag On	1	647	800	900	NO
EB US-50 (Mather)	Loop On	1	327	400	500	NO
EB US-50 (Mather)	Off Ramp	1	963	1,400	1,600	YES
WB US-50 (Mather)	Loop On	1	783	1,500	1,700	YES
WB US-50 (Mather)	Diag On	1	374	500	600	NO
WB US-50 (Mather)	Off Ramp	1	564	1,100	1,300	NO
EB US-50 (Zinfandel)	Diag On	1	679	700	800	NO
EB US-50 (Zinfandel)	Loop On	1	118	200	200	NO
EB US-50 (Zinfandel)	Off Ramp	1	835	1,300	1,500	YES
WB US-50 (Zinfandel)	Loop On	1	1,853	2,100	2,400	YES
WB US-50 (Zinfandel)	Diag On	1	762	800	900	NO
WB US-50 (Zinfandel)	Off Ramp	1	615	1,200	1,400	NO
EB US-50 (Sunrise)	Diag On	1	617	600	700	NO
EB US-50 (Sunrise)	Loop On	1	455	700	800	NO
EB US-50 (Sunrise)	Off Ramp	1	1,740	1,800	2,100	YES
WB US-50 (Sunrise)	Loop On	1	697	1,000	1,200	NO
WB US-50 (Sunrise)	Diag On	1	1,079	1,100	1,300	NO
WB US-50 (Sunrise)	Off Ramp	1	937	1,900	2,200	YES
EB US-50 (Hazel)	Diag On	1	272	300	300	NO
EB US-50 (Hazel)	Loop On	1	760	800	900	NO
EB US-50 (Hazel)	Off Ramp	2	1,588	2,400	2,800	NO
WB US-50 (Hazel)	Loop On	1	213	600	700	NO
WB US-50 (Hazel)	Diag On	2	773	1,700	2,000	NO
WB US-50 (Hazel)	Off Ramp	1	1,277	1,500	1,700	YES

Rancho Cordova General Plan

AM Peak Hour Ramp Volumes: Build Out Land Use, Build Out Roadway Network

Freeway Ramp		Lanes	2004/2005 Count	Forecast Volume	Forecast Volume (Assumes 5% Heavy Vehicles)	Recommend Additional Lanes?
EB US-50 (Bradshaw)	Diag On	1	978	1,900	2,200	YES
EB US-50 (Bradshaw)	Loop On	1	309	1,100	1,300	NO
EB US-50 (Bradshaw)	Off Ramp	1	1,190	1,200	1,400	NO
WB US-50 (Bradshaw)	Loop On	1	856	900	1,000	NO
WB US-50 (Bradshaw)	Diag On	1	349	400	500	NO
WB US-50 (Bradshaw)	Off Ramp	1	981	1,000	1,200	NO
EB US-50 (Mather)	Diag On	1	235	600	700	NO
EB US-50 (Mather)	Loop On	1	262	500	600	NO
EB US-50 (Mather)	Off Ramp	1	1,725	2,100	2,400	YES
WB US-50 (Mather)	Loop On	1	399	600	700	NO
WB US-50 (Mather)	Diag On	1	489	700	800	NO
WB US-50 (Mather)	Off Ramp	1	829	1,100	1,300	NO
EB US-50 (Zinfandel)	Diag On	1	282	400	500	NO
EB US-50 (Zinfandel)	Loop On	1	144	200	200	NO
EB US-50 (Zinfandel)	Off Ramp	1	2,045	2,300	2,600	YES
WB US-50 (Zinfandel)	Loop On	1	420	800	900	NO
WB US-50 (Zinfandel)	Diag On	1	498	1,700	2,000	YES
WB US-50 (Zinfandel)	Off Ramp	1	911	1,000	1,200	NO
EB US-50 (Sunrise)	Diag On	1	392	500	600	NO
EB US-50 (Sunrise)	Loop On	1	391	800	900	NO
EB US-50 (Sunrise)	Off Ramp	1	1,552	1,700	2,000	YES
WB US-50 (Sunrise)	Loop On	1	486	900	1,000	NO
WB US-50 (Sunrise)	Diag On	1	1,465	1,700	2,000	YES
WB US-50 (Sunrise)	Off Ramp	1	1,080	1,100	1,300	NO
EB US-50 (Hazel)	Diag On	1	66	200	200	NO
EB US-50 (Hazel)	Loop On	1	709	1,300	1,500	YES
EB US-50 (Hazel)	Off Ramp	2	920	2,200	2,500	NO
WB US-50 (Hazel)	Loop On	1	290	300	300	NO
WB US-50 (Hazel)	Diag On	2	1,834	2,100	2,400	NO
WB US-50 (Hazel)	Off Ramp	1	739	700	800	NO

Rancho Cordova General Plan

PM Peak Hour Ramp Volumes: Build Out Land Use, Build Out Roadway Network

Freeway Ramp		Lanes	2004/2005 Count	Forecast Volume	Forecast Volume (Assumes 5% Heavy Vehicles)	Recommend Additional Lanes?
EB US-50 (Bradshaw)	Diag On	1	769	1,400	1,600	YES
EB US-50 (Bradshaw)	Loop On	1	413	1,300	1,500	YES
EB US-50 (Bradshaw)	Off Ramp	1	1,381	1,500	1,700	YES
WB US-50 (Bradshaw)	Loop On	1	872	900	1,000	NO
WB US-50 (Bradshaw)	Diag On	1	560	1,400	1,600	YES
WB US-50 (Bradshaw)	Off Ramp	1	1,294	1,300	1,500	YES
EB US-50 (Mather)	Diag On	1	647	800	900	NO
EB US-50 (Mather)	Loop On	1	327	400	500	NO
EB US-50 (Mather)	Off Ramp	1	963	1,300	1,500	YES
WB US-50 (Mather)	Loop On	1	783	1,400	1,600	YES
WB US-50 (Mather)	Diag On	1	374	400	500	NO
WB US-50 (Mather)	Off Ramp	1	564	1,200	1,400	NO
EB US-50 (Zinfandel)	Diag On	1	679	700	800	NO
EB US-50 (Zinfandel)	Loop On	1	118	200	200	NO
EB US-50 (Zinfandel)	Off Ramp	1	835	1,400	1,600	YES
WB US-50 (Zinfandel)	Loop On	1	1,853	2,200	2,500	YES
WB US-50 (Zinfandel)	Diag On	1	762	800	900	NO
WB US-50 (Zinfandel)	Off Ramp	1	615	1,100	1,300	NO
EB US-50 (Sunrise)	Diag On	1	617	600	700	NO
EB US-50 (Sunrise)	Loop On	1	455	700	800	NO
EB US-50 (Sunrise)	Off Ramp	1	1,740	1,700	2,000	YES
WB US-50 (Sunrise)	Loop On	1	697	800	900	NO
WB US-50 (Sunrise)	Diag On	1	1,079	1,100	1,300	NO
WB US-50 (Sunrise)	Off Ramp	1	937	1,900	2,200	YES
EB US-50 (Hazel)	Diag On	1	272	300	300	NO
EB US-50 (Hazel)	Loop On	1	760	800	900	NO
EB US-50 (Hazel)	Off Ramp	2	1,588	2,100	2,400	NO
WB US-50 (Hazel)	Loop On	1	213	300	300	NO
WB US-50 (Hazel)	Diag On	2	773	1,500	1,700	NO
WB US-50 (Hazel)	Off Ramp	1	1,277	1,600	1,800	YES

SACOG #	Location	Project Description	Pre-2003 Funding	Total Cost	Year

(in current year dollars)

Sacramento County Projects

CALTRANS DISTRICT 3 / *TIER 1: PUBLICLY FUNDED*

SAC20370	Elk Grove Rail Station	Construct platform, shelter, landscaping and parking for intercity passenger rail station, San Joaquin Rail Corridor.		$800,000	2003
CAL17850	I-5	Add carpool lanes from downtown Sacramento to Sacramento International Airport.		$150,000,000	2020
CAL17840	I-5	Add carpool lanes from Pocket Road to U.S. 50.		$100,000,000	2020
CAL17860	I-5	Construct auxiliary lanes from Richards Boulevard to Garden Highway.		$10,000,000	2006
CAL18370	I-5	Install ramp meters, carpool Bypasses, additional on ramps, traffic monitoring stations and closed-circuit TV installation from Pocket Road to I-80.		$6,035,000	2005
CAL18410	I-5 and I-80	Add carpool lane connectors between I-5 and I-80.		$100,000,000	2019
CAL18390	I-5 and U.S. 50	Add carpool lane connectors between I-5 and U.S. 50.		$50,000,000	2016
CAL17910	I-80	Add third lane connector to Route 51 (Capital City Freeway).	$9,980,000	$9,980,000	2003
CAL18380	I-80	Install ramp metering, traffic monitoring stations, closed-circuit TV installation, message signs, and upgrade count stations to TMS on I-80 from Yolo County line to Route 244 (Longview Drive).		$5,621,000	2007
CAL15135	I-80	Add carpool lanes from Longview to the Placer County line.	$28,507,000	$28,507,000	2005
CAL18450	I-80	Add carpool lanes from Longview Drive to I-5.		$75,000,000	2016
CAL18220	I-80 at I-5	Revise existing interchange.		$35,000,000	2016
CAL18400	Route 99 and U.S. 50	Add carpool lane connectors between Route 99 and U.S. 50.		$50,000,000	2014
CAL15510	Route 99 at Elverta Road	Construct new interchange.		$25,000,000	2012
SAC19360	Sunrise Boulevard at U.S. 50	Upgrade interchange.	$7,162,000	$7,162,000	2003
CAL16790	U.S. 50	Add carpool lanes and community enhancements on U.S. 50 from Downtown Sacramento to Sunrise Boulevard.		$96,500,000	2010
CAL17800	U.S. 50 at I-5	Construct traffic operations system (Junction of U.S. 50 and I-5).		$3,000,000	2006

CALTRANS DISTRICT 3 / *TIER 2*

CAL17845	I-5	Add carpool Lanes from Pocket Road to Elk Grove Boulevard.		$40,000,000	2014

SACOG #	Location	Project Description	Pre-2003 Funding	Total Cost	Year
(in current year dollars)					

CITY OF CITRUS HEIGHTS / *TIER 1: PUBLICLY FUNDED*

SAC19000	Antelope Road	Widen from I-80 to Auburn Boulevard construction of sidewalks, Class 2 Bike lanes, sound walls, landscaping and installation of new traffic signals.		$8,880,000	2005
SAC15030	Antelope Road	Widen from four to six lanes, from Roseville Road to I-80.	$2,250,000	$8,050,000	2005
SAC23010	Fountain Square Drive	Extend from the existing terminus to Stock Ranch Road.		$600,000	2005
SAC15300	Greenback Lane	Widen from four to six lanes, from Auburn Boulevard to Dewey Drive.	$4,900,000	$9,900,000	2005
SAC16880	Old Auburn Road	Widen from two to three lanes, from Fair Oaks Boulevard to northern city limits with Class 1 bike lane.	$1,705,000	$8,730,000	2006
SAC16910	Sunrise Boulevard	Widen from four to six lanes, including a raised median from Antelope Road to Placer County.		$6,200,000	2022
SAC16920	Sunrise Boulevard	Widen from four to six lanes, including raised median from Oak Avenue to Antelope Road.	$284,906	$7,634,906	2016
SAC22440	Sunrise Boulevard	Widen from four to six lanes, Arcada Drive to Oak Avenue, including bike lanes, landscaping, and pedestrian facilities.		$8,750,000	2019

CITY OF ELK GROVE / *TIER 1: DEVELOPER- OR PARTIALLY DEVELOPER-FUNDED*

SAC20280	Big Horn Boulevard	Construct new road to four lanes, from Poppy Ridge Road to Elk Grove Boulevard.		$3,002,950	2007
SAC19035	Bond Road	Widen from two to four lanes, from east of Union Pacific Rail Road to Waterman.		$1,034,000	2008
SAC19020	Bond Road	Widen from two to four lanes, from Waterman Road to Bradshaw Road.		$3,030,200	2008
SAC19030	Bond Road	Widen from two to four lanes, from Elk Grove-Florin Road to Union Pacific Rail Road.	$160,000	$784,000	2003
SAC19010	Bruceville Road	Widen from two to four lanes, from Kammerer Road to Poppy Ridge Road.		$4,000,900	2014
SAC19100	Bruceville Road	Widen from two to four lanes, from Poppy Ridge Road to Elk Grove Boulevard.		$4,687,950	2008
SAC21640	Elk Grove Boulevard	Design and develop enhancements between Elk Grove-Florin Road and Waterman Road.		$4,252,000	2004
SAC20340	Franklin Boulevard	Widen from two to four lanes, from Kammerer Road to Poppy Ridge Road.		$5,542,650	2010
SAC20290	Franklin Boulevard	Widen from two to four lanes, from Poppy Ridge Road to Elk Grove Boulevard.		$5,926,883	2006
SAC19150	Lewis Stein Road	Construct three lanes of new road, bridge at Laguna Creek and traffic signals and interconnect at Big Horn and Sheldon, from Big Horn Boulevard to Sheldon Road.		$5,927,500	2003
SAC20330	Poppy Ridge Road	Construct new road to four lanes, from Franklin Boulevard to Bruceville Road.		$4,851,468	2006
SAC20320	Poppy Ridge Road	Widen from two to four lanes, from Bruceville Road to West Stockton Boulevard.		$5,328,800	2008
SAC20520	Route 99 at Grant Line Interchange	Reconstruct the interchange.	$2,000,000	$31,000,000	2010
SAC19380	Route 99 at Sheldon Road Interchange	Construct the interchange.	$1,576,000	$39,492,000	2008

SACOG #	Location	Project Description	FY 2003 Funding	Total Cost	Year Open
(in current year dollars)					
SAC15660	Sheldon Road	Widen from two to four lanes, from Bruceville Road to Route 99 and from East Stockton Boulevard to Elk Grove-Florin Road.	$1,081,697	$3,543,073	2007
SAC17560	Sheldon Road	Widen from four to six lanes, from Bruceville Road to Route 99.		$1,000,000	2012
SAC19160	Sheldon Road	Widen from two to four lanes, from Elk Grove-Florin Road to Waterman Road.		$1,264,000	2010
SAC20250	West Stockton Boulevard at Laguna Creek Bridge	Replace existing bridge with a new structure to provide two traffic lanes, an access lane, shoulders and a raised sidewalk on west side of bridge.		$1,700,000	2006
CITY OF FOLSOM DEPARTMENT OF PUBLIC WORKS / *TIER 1: PUBLICLY FUNDED*					
SAC22340	American River Bridge	In Folsom, construct crossing of the American River below Folsom Dam with approaches. (Replacement of Folsom Dam Road)		$85,000,000	2010
SAC21250	Blue Ravine Road	Widen westbound approach to Folsom Boulevard to provide dual left-turn lanes and exclusive through and right-turn lanes.		$1,200,000	2006
SAC18400	East Bidwell Street	Widen to six lanes, from Oak Avenue Parkway to Blue Ravine Road.		$800,000	2010
SAC22060	East Natoma Street	Widen from two to four lanes, from Fargo Way to Blue Ravine Road.		$1,100,000	2003
SAC20220	Folsom Historic District	Construct park-and-ride lot.	$105,000	$555,000	2003
SAC20570	Folsom Railroad Block	Redevelop into a multi-modal transit center.		$3,000,000	2005
SAC16190	Folsom-Auburn Road	Widen from two to four lanes from Folsom Dam Road to Beals Point Road.	$2,850,000	$2,850,000	2003
SAC21280	Green Valley Road	Widen from two to four lanes, from East Natoma to Sacramento/El Dorado County line.		$1,200,000	2010
SAC21210	Iron Point Road	Widen to six lanes, from Black Diamond Drive to East Bidwell Street.		$3,000,000	2020
SAC22280	Oak Avenue Parkway	Widen to four to six lanes, from Folsom-Auburn Road to Baldwin Dam Road.		$1,100,000	2006
CITY OF FOLSOM DEPARTMENT OF PUBLIC WORKS / *TIER 1: DEVELOPER- OR PARTIALLY DEVELOPER-FUNDED*					
SAC21220	Broadstone Parkway	Construct four-lane section from Golf Links Drive to Empire Ranch Road.		$4,000,000	2006
SAC21230	Empire Ranch Road	Construct four-lane section of road, from El Dorado County line to Iron Point Road.		$6,200,000	2006
SAC21130	Iron Point Road	Extend with four-lane intersection from Grover Road east to East Bidwell Street to El Dorado County.		$6,000,000	2005
SAC19890	U.S. 50 at Empire Ranch Road	Construct four-lane interchange with U.S. 50 at extension of Empire Ranch Road (formerly Russell Ranch Road).		$15,800,000	2006
CITY OF FOLSOM DEPARTMENT OF PUBLIC WORKS / *TIER 2*					
SAC21270	Sibley Street	Widen to four lanes, from Glenn Drive to Blue Ravine Road.		$1,500,000	2010
SAC19880	U.S. 50 at Oak Avenue	Construct four-lane interchange for newly extended Oak Avenue		$15,000,000	2008

SACOG #	Location	Project Description	[illegible] Funding	Total Cost	[illegible]

(in current year dollars)

CITY OF GALT DEPARTMENT OF PUBLIC WORKS / *TIER 1: PUBLICLY FUNDED*

SAC20580	Central Galt Interchange	Replace/reconstruct interchange and widen overpass to four lanes with bike lanes.	$1,200,000	$17,000,000	2008
SAC17180	Carillion Boulevard Extension	Construct new road, from Simmerhorn Road to Crystal Way.		$2,500,000	2006
SAC20590	Route 99 —Twin Cities Road Interchange	Widen overpass to four lanes with addition of bike lanes.		$10,000,000	2015
SAC17200	Simmerhorn Road Extension	Construct new road to extend from existing terminus to Carol Drive and Amador Avenue.		$2,800,000	2007

CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS / *TIER 1: PUBLICLY FUNDED*

SAC22790	4th Avenue	Extend from 65th Street to Ramona Avenue.		$10,000,000	2020
SAC18260	5th Street	Extend as a four-lane roadway from H Street to F Street.		$1,300,000	2006
SAC22800	6th Street	Extend as a four-lane roadway, between Richards Boulevard and H Street.		$8,400,000	2010
SAC18360	7th Street	Widen from two to four lanes, from Richards to Vine Street.		$4,600,000	2005
SAC22810	7th Street	Widen to four lanes from E Street to Richards Boulevard.		$20,000,000	2008
SAC18230	7th Street	Extend from E Street to North B Street.	$24,053,975	$24,053,975	2004
SAC22891	Arden Way	Operating and Maintenance for Arden Way Smart Corridor from 2010 to 2025.		$2,100,000	2015
SAC22890	Arden Way	Implement a Smart Corridor on Arden Way from Del Paso to Watt Avenue.		$1,953,910	2015
SAC19560	Arden Way at Route 51 Capital City Freeway Interchange	Underpass improvements to remove restriction caused by columns and widen to six lanes.		$19,529,000	2014
SAC16050	Arena Boulevard	Construct as an eight-lane facility, from current terminus to I-5.	$1,627,000	$1,727,000	2004
SAC18590	Arena Boulevard	Extend as a six-lane road from current terminus at Duckhorn to I-5 without interchange.	$783,000	$883,000	2004
SAC22840	Bell Avenue	Widen from two to four lanes, from Norwood Avenue to Raley Boulevard.		$4,524,000	2016
SAC17590	Bruceville Road	Widen from two to four lanes, from Sheldon Road to Cosumnes River Boulevard.	$900,000	$3,800,000	2007
SAC23650	Bruceville Road	Between Sheldon Road and Cosumnes River Boulevard; widen to six lanes.		$6,000,000	2010
SAC21390	Central City	Implement Central City Two-way Conversion and Community Plan project.	$643,182	$1,903,831	2005
SAC18380	Cosumnes River Boulevard	Extend from Franklin to Freeport with an interchange at I-5.	$850,000	$50,000,000	2008
SAC15920	Cosumnes River Boulevard	Widen from two to four lanes, from Center Parkway to Bruceville		$970,000	2008
SAC15930	Cosumnes River Boulevard	Widen to four lanes, from Franklin Boulevard to Center Parkway.		$1,696,000	2008

(in current year dollars)

SACOG #	Location	Project Description	Prior Year Funding	Total Cost	Year
SAC22880	Del Paso Road	Widen from four to six lanes, from El Centro to I-5.		$392,000	2010
SAC23320	Del Paso Road	Widen from four to six lanes, from Truxel Road to East city limits.		$3,361,000	2020
SAC18480	Del Paso Road	Widen to four lanes, from the West City limits to El Centro Road.	$1,678,000	$1,678,000	2003
SAC15970	Del Paso Road	Widen to six lanes, from Truxel Road to I-5.	$2,473,000	$2,473,000	2006
SAC22870	Del Paso Road at I-5 Overcrossing	Widen overcrossing to six lanes.		$1,700,000	2006
SAC18460	East Commerce Way	Extend as a two-lane facility, from planned Club Center Drive to Del Paso Road.		$3,831,000	2008
SAC18440	East Commerce Way	Extend as a four-lane road, from planned Club Center Road. to Elkhorn Boulevard.		$3,076,000	2010
SAC18580	East Commerce Way	Extend as a four-lane road, from planned Natomas Crossing Drive to San Juan Road.		$1,895,000	2010
SAC18570	East Commerce Way	Extend as a six-lane road, from Arena Boulevard to the planned Natomas Crossing Drive.		$1,796,000	2008
SAC18470	East Commerce Way	Widen two to six lanes, from Club Center Drive to Del Paso Road.		$8,000,000	2015
SAC18740	El Centro Road	Extend northeasterly over I-5 and east to East Commerce Way.		$2,167,000	2020
SAC18610	El Centro Road	Widen from two to four lanes, from Del Paso Road to Arena Boulevard.		$3,390,000	2011
SAC23330	El Centro Road	Widen to four lanes, from Arena Boulevard to San Juan Road.		$4,200,000	2012
SAC23680	Elder Creek Road	Widen to four lanes, from Florin Perkins to South Watt Avenue.		$6,100,000	2019
SAC23690	Elder Creek Road	Widen to four lanes, from Power Inn to Florin Perkins Road.		$6,133,000	2023
SAC18510	Elkhorn Boulevard	Widen from four to six lanes, from Route 99 to East City Limits.		$7,000,000	2015
SAC18500	Elkhorn Boulevard	Widen to four lanes, from Route 99 east to the City limits (related interchange widening listed under Route 99).		$11,367,000	2010
SAC16000	Exposition Boulevard at Route 160	Construct split-diamond interchange.		$34,050,000	2020
SAC23350	F Street	Extend as a two-lane road, from 7th to 3rd Street.		$1,400,000	2006
SAC16010	Florin-Perkins Road	Widen to six lanes, from Folsom Boulevard to Fruitridge Road.		$12,148,000	2020
SAC22610	Folsom Boulevard	Widen to four lanes, from Hornet Drive to 67th Street.	$1,600,000	$16,228,000	2009
SAC22110	Fruitridge Road	Streetscape and traffic improvements between 65th Street Expressway and Power Inn Road.		$869,279	2003
SAC23370	Fruitridge Road	Widen to six lanes, from Florin Perkins Road to South Watt Avenue.		$6,663,000	2017
SAC17620	Garden Highway	Widen to four lanes, from the western terminus of the Arden Garden Connector to 300 feet east of I-5 ramps.		$34,756,000	2025
SAC23390	Gateway Boulevard	Construct a new road, from North 12th to North 7th Street (two lanes).		$16,500,000	2008
SAC22080	Gateway Park Boulevard	Widen from two to four lanes, from Truxel Road to Arena Boulevard.		$1,767,000	2006

SACOG #	Location	Project Description	Pre-2006 Funding	Total Cost	Year
(in current year dollars)					
SAC18540	Gateway Park Drive	Widen from two to four lanes, from Del Paso Road to Arena Boulevard.		$3,103,000	2006
SAC20800	Howe at Power Inn Road	Widen from four to six lanes with operational improvements and U.S. 50 ramp access improvements, from College Town Drive to Folsom Boulevard.	$7,136,000	$7,236,000	2003
SAC18640	I-5	Add a second auxiliary lane, from I-80 to the Arena Boulevard interchange (formerly North Market Boulevard).		"$1,191,000"	2004
SAC20010	I-5 at Arena Boulevard Interchange	Construct six-lane Arena Boulevard (formerly North Market Boulevard) interchange and single auxiliary lane in each direction on I-5 from I-80 to Del Paso Road.		$13,490,000	2004
SAC20670	I-5 at I-80 Interchange	Reconstruct ramp from eastbound to northbound traffic.		$13,000,000	2016
SAC18170	I-5 at Richards Boulevard Interchange	Widen from five to eight lanes and improve I-5 ramp terminals through the interchange; reconstruct the intersections at Jibboom Street and Bercut Drive to improve capacity.		$2,918,000	2008
SAC18670	I-5 at Route 99 Interchange	Add a second southbound on-ramp lane from Route 99 to I-5.		$216,000	2010
SAC23400	I-5 at West El Camino	Construct a northbound entrance ramp and southbound exit ramp. Modify the northbound I-5 to I-80 ramp to accommodate the proposed interchange ramps.		$18,263,000	2015
SAC22530	I-5 Decking	Provide connection over I-5 between river esplanade and Crocker District, Capitol Avenue to O Street.		$13,800,000	2008
SAC18700	I-80 at Northgate Boulevard Interchange	Extend the existing westbound off-ramp onto Northgate Boulevard for safety reasons, add auxiliary lane to westbound on-ramp.		$3,732,000	2015
SAC18650	I-80 at West El Camino Interchange	Expand to four lanes and modify ramps.		$5,417,000	2012
SAC20811	Jed Smith Drive	Realign and extend as a two-lane connection between California State University, Sacramento and Folsom Boulevard.		$4,000,000	2008
SAC23430	Main Avenue	Widen from two to four lanes from Norwood Avenue to Rio Linda Boulevard.		$4,524,000	2018
SAC18150	Metro Air Parkway Interchange at I-5	Construct new interchange near Sacramento International Airport	$2,694,000	$11,507,000	2006
SAC23480	Natomas Boulevard	Widen from two to four lanes, Elkhorn Boulevard to Club Center Drive.		$2,805,000	2015
SAC23470	Natomas Boulevard	Widen from two to six lanes, from Club Center Drive to North Park Drive.		$1,099,000	2012
SAC23460	Natomas Boulevard	Widen to six lanes, from North Park Drive to Del Paso Road.		$2,063,000	2015
SAC18560	Natomas Crossing Drive	Build as four-lane road from I-5 westward to El Centro Road.		$3,646,000	2016
SAC18720	Natomas Crossing Drive at I-5	Construct overcrossing of I-5.		$1,597,000	2016
SAC16060	Northgate Boulevard	Elevate existing two-lane roadway, from Route 160 to Garden Highway.		$1,202,685	2007
SAC23820	Northgate Boulevard	Widen to four lanes, from Route 160 to Garden Highway.		$8,000,000	2013
SAC16070	Power Inn Road	Widen to six lanes, from Fruitridge Road to 14th.		$13,931,000	2015

SACOG #	Location	Project Description	Pre-2003 Funding	Total Project Cost	Year
(in current year dollars)					
SAC20820	Power Inn Road	Widen from four to six lanes with expanded intersection along Power Inn Road from Folsom Boulevard to 14th Avenue, from Folsom Boulevard to 14th Avenue.	$6,535,000	$6,535,000	2004
SAC23520	Rail yards Access Road	Improve Jibboom Street between Richards Boulevard and the rail yards site to provide access to the site from the north.		$6,407,000	2008
SAC20780	Ramona Avenue	Extend two-lane roadway and center turn lane from 4th Avenue to 14th Avenue and from 14th Avenue to Folsom Boulevard with bike lanes.		$3,000,000	2008
SAC16092	Richards Boulevard	Widen from two to five lanes with bike lanes, from north 7th Street to North 12th Street.	$3,870,049	$3,970,049	2003
SAC23840	Richards Boulevard	Widen to six lanes, from Route 160 to Bercut Drive.		$10,000,000	2008
SAC23530	Roseville Road	Widen from two to four lanes, from Connie Drive to Sacramento City Limits		$3,353,000	2021
SAC16040	Route 16 (Jackson Road)	Realign as a four-lane roadway, from Power Inn Road to South Watt Avenue.		$15,000,000	2015
SAC21540	Route 160 at Northgate Interchange	Add an eastbound on-ramp and a westbound off-ramp.	$1,130,625	$18,000,000	2007
SAC22660	Route 160 at Richards Boulevard	Install signalized intersection.	$900,000	$900,000	2003
CAL16900	Route 99	Add a lane in each direction from I-5 to Elkhorn Boulevard.		$1,733,000	2024
SAC18690	Route 99 at Elkhorn Boulevard Interchange	Expand the interchange to accommodate the widening of Elkhorn Boulevard from two to six lanes.		$2,762,000	2015
SAC23810	Route 99 at Meister Way overcrossing	Construct freeway overcrossing, South of Elkhorn Boulevard; Meister Way.		$1,006,000	2025
SAC23540	South Watt	Widen to six lanes, between Elder Creek Road and Fruitridge Road.		$18,637,000	2020
SAC20350	Sacramento Intermodal Terminal	Develop intermodal transportation terminal for heavy rail, light rail, and bus services.		$10,000,000	2009
SAC18600	Snowy Egret Way	Construct as a four-lane road south of Del Paso Road, from El Centro Road to Commerce Way.		$2,237,000	2021
SAC18710	Snowy Egret Way at I-5	Construct overcrossing of I-5 for the planned Snowey Egret Way that will run east-west from El Centro Road to Commerce Way.		$2,580,000	2022
SAC23850	South Watt Avenue	Widen to four lanes, from Jackson Road to Elder Creek.		$10,000,000	2012
SAC23860	South Watt Avenue	Widen to six lanes, from Fruitridge Road to Folsom Boulevard.		$10,000,000	2025
SAC20390	Southern Pacific Depot	Renovate historic Southern Pacific Depot and undertake public improvements on the surrounding site to redefine the Depot as a true intermodal depot by improving coordination between Amtrak and Capital Corridor service, light rail transit and bus service.		$2,180,058	2003
SAC20380	Southern Pacific Depot	Depot acquisition.		$875,000	2003

SACOG #	Location	Project Description	Pre-2004 Funding	Total Cost	Year
(in current year dollars)					
SAC22550	Stockton Boulevard	Install streetscaping improvements, Broadway to Fruitridge Road.		$2,995,034	2004
SAC21460	Stockton Boulevard	Provide minor curb, gutter and sidewalk improvements, and streetscaping from Fruitridge Road to El Parisio Avenue.		$749,500	2003
SAC22650	Sutterville Road at 23rd Street	Realign Sutterville Bypass/23rd Street and Sutterville Road and install new traffic signal.		$1,700,000	2006
SAC20761	Traffic Operations Center	Connect 100 traffic signals, including Intelligent Transportation Systems technology that are located outside of the Central City to the City's existing transportation operations center.		$8,500,000	2006
SAC20762	Traffic Operations Center	Connect 100 traffic signals, including Intelligent Transportation Systems technology that are located outside of the Central City to the City's existing transportation operations center.		$9,900,000	2010
SAC20763	Traffic Operations Center	Connect 100 traffic signals, including Intelligent Transportation Systems technology that are located outside of the Central City to the City's existing transportation operations center.		$11,100,000	2015
SAC20764	Traffic Operations Center	Connect 100 traffic signals, including Intelligent Transportation Systems technology that are located outside of the Central City to the City's existing transportation operations center.		$10,000,000	2020
SAC16120	West El Camino Avenue	Widen from two to four lanes and add bike lanes, from I-5 to I-80.	$800,000	$8,700,000	2003
CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS / *TIER 2*					
SAC23630	65th Street	Widen to six lanes, from Highway 50 to Broadway.		$4,000,000	2025
SAC22850	Bell Avenue	Widen from two to four lanes, from Raley Boulevard to Winters Street.		$1,647,000	2010
SAC18660	I-5 road	Add a northbound auxiliary lane, between Del Paso Road to Route 99.		$714,000	2008
SAC23410	Kiefer Boulevard	Widen from two to four lanes, between Florin-Perkins Road to South Watt Avenue.		$3,393,000	2020
SAC19550	Raley Boulevard	Widen to four lanes, from Santa Ana Avenue to Ascot Avenue.		$3,961,000	2008
SAC20000	Route 51 (Capital City Freeway) at Exposition Boulevard	Add eastbound on-ramps.		$3,000,000	2015
SAC16100	Sutter's Landing Parkway (Richards Boulevard)	Construct from its eastern terminus at Route 160 to Route 51 including interchanges at Route 51 (Capital City Freeway) and Route 160.		$50,000,000	2008
SAC22540	Various Locations	Install SMART Traffic Calming in south Midtown area.		$225,913	2004
SAC16130	West El Camino	Widen from four to six lanes and add bike lanes, I-80 to Natomas Main Drainage Canal.		$6,000,000	2025
SACRAMENTO COUNTY DEPARTMENT OF AIRPORTS / *TIER 1: PUBLICLY FUNDED*					
SAC22940	Airport Loop Road	Construct a two-lane, three-mile roadway with the following alignment: Elkhorn Boulevard at Lone Tree Road, Elkhorn southwest towards Power Line Road, along the north side of I-5, and loop into the airport, merging with Airport Boulevard.		$19,327,000	2019

SACOG #	Location	Project Description	Pre-2003 Funding	Total Cost	Year
(in current year dollars)					

SACRAMENTO COUNTY DEPARTMENT OF TRANSPORTATION / *TIER 1: PUBLICLY FUNDED*

SAC22330	American River	Reserve flexible funds for improved access across the American River between Howe Avenue and Hazel Avenue.		$80,000,000	2025
SAC22750	Countywide	Perform Sacramento County Circulation Congestion Relief Study, and follow-up engineering and environmental studies.		$4,000,000	2004
SAC15230	Elkhorn Boulevard	Widen from four to six lanes, from Watt Avenue to Don Julio Boulevard.	$970,000	$3,916,000	2004
SAC19570	Fair Oaks Boulevard	Widen from two to four lanes, from Sunset Avenue to Madison Avenue.		$3,595,000	2009
SAC20141	Florin Road	Implement Phase 2 of the economic revitalization master plan for the Florin Road area by improving the safety, infrastructure and appearance of the corridor from Franklin to Stockton.		$3,804,700	2003
SAC18080	Folsom Boulevard	Grade separation of Watt Avenue and the light rail tracks south of the Folsom Boulevard intersection and Watt Avenue.	$2,230,000	$10,456,000	2006
SAC15260	Folsom Boulevard	Widen to four or five lanes, from Sunrise Boulevard to Aerojet Road.	$6,323,000	$6,323,000	2004
SAC21470	Folsom Boulevard	Project development to install landscaping and streetscaping on Folsom Boulevard between Rod Beaudry Drive and Sunrise Boulevard.		$3,405,000	2007
SAC21480	Franklin Boulevard	Project development to provide landscaping and streetscaping between Fruitridge Road and Florin Road, and along Martin Luther King Jr. Boulevard, Fruitridge Road, and 47th Avenue.	$4,288,000	2006	
SAC21510	Fulton Avenue	Implement Phase 1 of the improvements specified in the Fulton Avenue Conceptual Beautification Master Plan from Arden Way to Auburn Boulevard.		$4,662,025	2003
SAC22710	Fulton Avenue	Provide aesthetic enhancements for Fulton Avenue, Arden Way to Auburn Boulevard (Phase 2).		$6,000,000	2005
SAC23300	Greenback and Hazel	Build tunnels to underground the intersection of Greenback and Hazel.		$20,000,000	2025
SAC18070	Greenback Lane at I-80 Interchange	Widen the overcrossing by two lanes (one lane each direction), modify freeway ramps for ramp metering, and add auxiliary lanes.	$14,769,000	$14,769,000	2003
SAC22770	Greenback at Sunrise Boulevard	Smart Corridor.		$7,600,000	2009
SAC21500	Hazel Avenue	Widen American River Bridge and approaches from four to six lanes and widen Hazel from American River Bridge to Madison from four to six lanes with bike lanes and signals.	$2,996,320	$44,000,000	2008
SAC23080	Hazel Avenue	Widen from four to six lanes from Madison to Sacramento/Placer County line.		$51,786,000	2015
SAC16500	Madison Avenue	Widen from four to six lanes, from Sunrise Boulevard to Hazel Avenue.		$5,650,000	2007
SAC19370	Madison Avenue at I-80	Upgrade interchange.	$11,989,000	$11,989,000	2004
SAC21445	McClellan Commuter Center	Construct a commute center facility at former McClellan Air Force Base.		$3,000,000	2005

SACOG #	Location	Project Description	Pre-2003 Funding	Total Cost	Year
(in current year dollars)					
SAC19711	Sunrise Boulevard	Widen from two to four lanes, from Route 16 to north of Douglas Road.		$9,053,430	2006
SAC20840	Various Locations	Traffic Operations System.		$16,000,000	2006
SAC22200	Watt Avenue	Install curbs, gutters, sidewalks, pedestrian signals, street lighting, and landscaping, From Capital City Freeway to Route 16. Phase 2 of master plan.		$7,500,000	2007
SAC22720	Watt Avenue	Provide aesthetic enhancements, from Antelope Road to Capitol City Freeway.		$3,000,000	2007
SAC22070	Watt Avenue	Implement Phase 3 priority and mobility enhancement demonstration project. Watt Avenue Smart Corridor (Phase 3 intelligent transportation systems project).		$3,010,000	2004
SAC22100	Watt Avenue	Watt Avenue Transit Priority and Mobility Enhancement Demonstration Phase 1 and 2.		$3,995,000	2003
SAC21610	Watt Avenue	Provide streetscape enhancements from Route 51 to State Route 16.		$3,096,000	2006
SAC19350	Watt/Folsom at U.S. 50 Interchange	Modify the freeway interchange.	$1,650,000	$15,402,000	2006
SACRAMENTO COUNTY DEPARTMENT OF TRANSPORTATION / *TIER 1: DEVELOPER- OR PARTIALLY DEVELOPER-FUNDED*					
SAC22980	Alta Sunrise Boulevard	Construct a six-lane roadway from U.S. 50 to International Drive extension. This includes a south only interchange with U.S. 50 and pedestrian and bicycle facilities.		$45,000,000	2015
SAC22020	Antelope North Road	Widen from two to four lanes, from Poker Lane to Olive Avenue.		$438,000	2005
SAC19790	Antelope Road	Widen from four to six lanes, from Don Julio Boulevard to Roseville Road.		$735,000	2010
SAC19310	Bradshaw Road	Widen from two lanes to four lanes, from Calvine Road to Florin Road.	$7,162,000	$7,162,000	2006
SAC19320	Bradshaw Road	Widen from two to four lanes, from Florin to Morrison Creek.	$3,125,000	$8,705,000	2004
SAC19040	Calvine Road	Widen from two to four lanes, from 1000 feet east of Kingsbridge Drive to Vineyard Road.	$1,341,000	$7,363,000	2004
SAC19060	Don Julio Boulevard	Widen from two to four lanes, from Antelope Road to North Loop Boulevard.		$759,000	2007
SAC22410	Douglas Road	Widen from two to four lanes, from Excelsior Road to Sunrise Boulevard.		$11,067,000	2006
SAC22420	Douglas Road	Widen from two to four lanes, from Sunrise Boulevard to Grant Line Road.		$6,320,000	2007
[illegible]	Eagles Nest Road	Widen from two to four lanes, from Kiefer Boulevard to Douglas Road.		$4,630,050	2018
SAC15170	Elk Grove-Florin Road	Widen from two to four lanes, from Gerber Road to Florin Road.		$2,210,000	2007
SAC15180	Elkhorn Boulevard	Widen from two to four lanes, from Rio Linda Boulevard to Route 99.		$14,000,000	2007
SAC15220	Elkhorn Boulevard	Widen from four to six lanes, from Don Julio Boulevard to Diablo Drive.	$7,140,000	$7,140,000	2003
SAC22300	Elverta Road	Widen from two to four lanes, from Rio Linda Boulevard to connection to north side of the Sacramento International Airport. Includes bicycle and pedestrian facilities.		$26,000,000	2017
SAC19620	Elverta Road	Widen from two to four lanes including Dry Creek Bridge to six lanes, from Rio Linda Boulevard to Watt Avenue.	$340,000	$7,455,000	2008

SACOG #	Location	Project Description	RTP 2003 Funding	Total Cost	Year Built
(in current year dollars)					
SAC19630	Fair Oaks Boulevard	Widen from two to four lanes, from Greenback Lane to Old Auburn Road.		$1,088,000	2020
SAC16800	Fair Oaks Boulevard	Widen from four to six lanes including signal modifications at Marconi, Stanley, Grant, and Engle Road, from Marconi Avenue to Engle Road.		$5,739,000	2007
SAC15250	Folsom Boulevard	Widen from four to six lanes, from Mather Field Road to Coloma Road.		$5,000,000	2012
SAC19640	Franklin Boulevard	Widen from four to six lanes, from Martin Luther King, Jr. Boulevard to Florin Road.		$4,000,000	2010
SAC19690	Gerber Road	Widen from two to four lanes, from Elk Grove-Florin Road to Vineyard Road.		$6,688,000	2015
SAC19670	Grant Line Road	Widen from two to four lanes, from Bond Road to Sloughhouse Road.		$11,000,000	2008
SAC19660	Grant Line Road	Widen from two to four lanes, from Sloughhouse Road to Sunrise Boulevard.		$4,000,000	2008
SAC19090	Greenback Lane	Widen from four to six lanes, from Sunrise to Hazel Avenue.		$5,000,000	2006
SAC15360	Hazel Avenue	Widen from two to four lanes, from Oak Avenue to Old Auburn Road in Placer County.	$7,852,067	$7,852,067	2003
SAC22990	International Drive	Construct a six-lane roadway from current terminus to Alta Sunrise Boulevard. Includes bicycle and pedestrian facilities.		$6,000,000	2010
SAC22900	Kammerer Road	Construct a six-lane roadway from Grant Line at Route 99 interchange to I-5 at Hood Franklin Boulevard. Can be changed to widening of existing streets.		$18,443,980	2015
SAC22905	Kammerer Road	Enhance as a four-lane parkway connecting I-5 and Route 99. (Upgrade of Kammerer Road project)		$31,556,020	2021
SAC22320	Kiefer Boulevard	Construct a four-lane roadway from Bradshaw Road to Sunrise Boulevard. Includes bicycle and pedestrian facilities.		$10,000,000	2025
SAC16510	Madison Avenue	Widen from four to six lanes, from Hazel Avenue to Greenback Lane.		$3,445,000	2007
SAC18160	Metro Air Parkway	Construct new road to four lanes, from I-5 to Elverta Road.		$6,500,000	2006
SAC23160	Sacramento County	Construct a new four-lane, limited-access road from Grant Line Road/ White Rock Road through Aerojet's property to U.S. 50 near Hazel Avenue.		$9,335,000	2015
SAC19120	North Loop Boulevard	Widen from two to four lanes, from Elverta Road to Don Julio Boulevard.	$222,000	$1,975,000	2004
SAC19680	Roseville Road	Widen from two to four lanes, from Watt Avenue to Antelope Road.		$3,000,000	2015
SAC19170	South Watt Avenue	Widen from two to four lanes with left turn lanes, from Alderson Avenue to Route 16.	$396,000	$3,090,000	2006
SAC19290	South Watt Avenue	Widen from two to four lanes, from Florin Road to Route 16.		$6,530,000	2008
SAC19700	Stockton Boulevard	Widen from four to six lanes, from Elsie to Florin Road.		$3,464,000	2010
SAC19710	Sunrise Boulevard	Widen from two to four lanes, from north of Douglas Road to Grant Line Road.		$10,000,000	2009
SAC15750	Watt Avenue	Widen from four to six lanes, from Don Julio Boulevard to Elkhorn Boulevard.		$2,674,397	2007
SAC15720	Watt Avenue	Widen from four to six lanes, from Elkhorn Boulevard to Antelope Road.		$1,080,000	2006
SAC20240	Zinfandel Road	Construct new road to six lanes, from Douglas Road to south terminus.		$4,790,000	2006

SACOG #	Location	Project Description			
(in current year dollars)					

SACRAMENTO COUNTY DEPARTMENT OF TRANSPORTATION / *TIER 2*

SAC19300	Dwight Road	Construct new road to four lanes, from Laguna Boulevard to Franklin Boulevard.		$1,300,000	2010
SAC20360	McClellan Commuter Rail Station	Construct a rail station at former McClellan Air Force Base.		$5,000,000	2008
CAL15410	Route 16 (Jackson Road)	Widen from two to four lanes and add continuous left turn lane, from South Watt Avenue to Excelsior Road.		$6,000,000	2008

SACRAMENTO REGIONAL TRANSIT DISTRICT / *TIER 1: PUBLICLY FUNDED*

REG15600	29th Street Light Rail Station	Build transit center.		$750,000	2015
REG16460	4th Avenue at Wayne Hultgren Light Rail Station	Construct a light rail station.	$1,080,000	$1,080,000	2003
REG16170	Antelope Road at I-80	Park-and-ride lot.		$1,000,000	2006
REG17380	Arden at Oxford Crossing	Install automatic crossing gates and related equipment.		$225,000	2003
REG15590	CNG Fueling Facility	Funding supplement for the expansion of the existing compressed natural gas fuel facility to install two additional compressors and associated equipment.		$400,000	2003
REG17325	Downtown-Natomas -Airport Corridor	Light rail extension from Natomas Town Center to Sacramento International Airport.		$101,000,000	2015
REG17320	Downtown-Natomas-Airport Light Rail Corridor	Light rail extension from Downtown Sacramento to Natomas Town Center.	$5,000,000	$270,000,000	2012
REG17290	Florin Road at Light Rail Intersection	Construct grade separation.		$6,500,000	2004
REG15040	Folsom Light Rail Corridor	Downtown Sacramento Folsom—light rail extension (including vehicle purchase).	$191,323,008	$206,678,000	2005
REG17350	I-5 at Elk Grove Boulevard	Build a new park-and-ride lot.		$500,000	2004
REG17340	I-5 at Laguna Boulevard	Build new park-and-ride lots.		$500,000	2004
REG17221	I-80 Light Rail Corridor	Extend light rail from Watt Ave. to Antelope Road.		$290,000,000	2023
REG17020	Metro Heavy Repair Facility	Design and construct a new light rail vehicle heavy repair facility at the existing Regional Transportation Metro property in Sacramento.		$10,655,000	2004
REG17060	Midtown Dispatch Facility	Acquire and remodel a facility for light rail operator dispatch near the 13th Street light rail station.		$1,650,000	2003

SACOG #	Location	Project Description			
(in current year dollars)					
REG16470	Northeast Light Rail Corridor	Double-track all existing single track sections and make various improvements to implement express service from Watt/I-80 to Downtown Sacramento.	$5,100,000	$36,100,000	2007
REG15303	RT District	Purchase compressed natural gas buses for fleet expansion and replacement—2010 to 2023.		$45,000,000	2015
REG15900	RT District	Construct off-street bus transfer facilities, park and ride lots, and related facilities at key locations in the region, including future light rail stations.		$5,000,000	2025
REG15310	RT District	Expand the CNG bus fleet by 150 buses by 2010 to provide increased bus service.		$55,000,000	2010
REG15940	RT District	Implement ITS and demand response communication systems.		$4,200,000	2021
REG15220	RT District	Lump sum of engineering to assess social, economic and environmental effects of projects.		$7,200,000	2025
REG15890	RT District	Lump sum of rehabilitation and replacement of paratransit vehicles and expansion of the fleet.		$50,225,000	2025
REG17120	RT District	Make final certificate of participation payments on the original compressed natural gas fleet of 75 buses.		$2,500,000	2003
REG15411	RT District	Phase 2: Replace damaged bicycle lockers and provide additional lockers throughout the system from 2006 to 2015.		$250,000	2015
REG17160	RT District	Purchase computerized train tracking system that will provide automatic train locations and a public address system to advise customers of train approaches and service delays.		$3,036,900	2003
REG17300	Satellite Bus Maintenance Facility	Site and build satellite bus maintenance facility in Sacramento.		$67,500,000	2008
REG17190	South Line Light Rail Corridor	Extend light rail from Cosumnes River College/Calvine-Auberry to Elk Grove. (Phase 3)		$182,000,000	2019
REG15052	South Line Light Rail Corridor	Extend light rail, Downtown Sacramento to Meadowview. (Phase 1)	$222,000,000	$222,000,000	2003
REG15053	South Line Light Rail Corridor	Extend light rail from Meadowview Road to Cosumnes River College/Calvine-Auberry. (Phase 2)	$4,000,000	$144,000,000	2009
REG17670	Stockton Boulevard	Construct Bus Rapid Transit improvements, Cosumnes College to Downtown Sacramento.		$6,070,000	2004
REG17430	Sunrise Boulevard	Implement Bus Rapid Transit.		$20,000,000	2009
REG17330	Watt Avenue	Implement Bus Rapid Transit.		$20,000,000	2006
SACRAMENTO REGIONAL TRANSIT DISTRICT / *TIER 2*					
REG17220	Northeast Light Rail Corridor	Extend light rail from Antelope Road to the City of Roseville.		$130,000,000	2025
REG15304	RT District	Compressed natural gas bus acquisition for expansion (89 buses).		$32,930,000	2025
REG17230	South Light Rail Corridor	Extend light rail line from Meadowview Road Laguna West.		$91,470,000	2019

SACOG #	Location	Project Description		
(in current year dollars)				

SACRAMENTO TRANSPORTATION AUTHORITY / *TIER 1: PUBLICLY FUNDED*

SAC16310	Sacramento and Yolo Counties	Provide motorist assistance and towing of disabled vehicles during a.m. and p.m. commute periods on various highways in Sacramento County and a portion of I-80 in Yolo County. (Freeway Service Patrol)	$3,570,000	2005

SACOG / *TIER 1: PUBLICLY FUNDED*

The following are placeholders projects for multi-modal connectors, for the purpose of modeling. Studies will determine the final projects.

SAC20510	Grant Line Road	Add frontage roads to connect various local access roads that intersect Grant Line Road between Elk Grove Boulevard and Sloughhouse Road.	$25,000,000	2012
SAC20530	Grant Line Road	Widen from two to four lanes, Route 99 to Bond Road.	$12,000,000	2008
SAC15370	Hazel Avenue	Add carpool and transit capacity between Madison Avenue and U.S. 50.	$30,000,000	2019
SAC15380	Hazel Avenue	Add grade separation, ramps, and frontage connections at Gold River Road.	$20,000,000	2018
SAC15390	Hazel Avenue	Add undercrossing, turn ramps, and community enhancements at Greenback Lane.	$20,000,000	2021
SAC15400	Hazel Avenue	Improve Madison Avenue intersection.	$20,000,000	2017
SAC19720	Sunrise Boulevard	Add overcrossing and ramps at Route 16.	$20,000,000	2014
SAC23220	White Rock Road	Realign and widen with shoulders from Sunrise Park Drive to El Dorado County Line.	$20,000,000	2017

4.6 – Air Quality Appendix: URBEMIS Report

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGPCA.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	2,905.58	258.55	3,588.07	10.67	482.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	194.74	144.05	1,806.13	5.08	867.52

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	3,100.32	402.61	5,394.20	15.75	1,349.53

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGPCA.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	16.07	210.23	104.64	0.00	0.40
Hearth	1,766.10	46.95	3,225.62	7.60	480.58
Landscaping	39.32	1.37	257.82	3.07	1.03
Consumer Prdcts	677.88	-	-	-	-
Architectural Coatings	406.22	-	-	-	-
TOTALS (tpy, unmitigated)	2,905.58	258.55	3,588.07	10.67	482.00

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UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	147.28	112.09	1,417.53	4.02	686.22
Regnl shop. center	24.03	18.46	221.28	0.58	99.59
General office building	14.58	7.47	92.48	0.26	44.81
Industrial park	8.84	6.03	74.84	0.22	36.91
TOTAL EMISSIONS (tons/yr)	194.74	144.05	1,806.13	5.08	867.52

Includes correction for passby trips.
Includes the following double counting adjustment for internal trips:
Residential trips: 32.85 % reduction. Nonresidential trips: 50.00 % reduction.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2040 Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	25,307.67	6.43 trips/dwelling unit	75,923.00	487,865.72
Regnl shop. center		21.47 trips/1000 sq. ft.	5,764.63	123,766.60
General office building		1.66 trips/1000 sq. ft.	21,614.31	35,879.78
Industrial park		3.48 trips/1000 sq. ft.	7,705.69	26,815.81
		Sum of Total Trips		674,327.91
		Total Vehicle Miles Traveled		3,144,064.78

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	49.90	0.00	100.00	0.00
Light Truck < 3,750 lbs	16.40	0.00	100.00	0.00
Light Truck 3,751- 5,750	17.20	0.00	100.00	0.00
Med Truck 5,751- 8,500	7.80	0.00	100.00	0.00
Lite-Heavy 8,501-10,000	0.90	0.00	77.80	22.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.80	0.00	25.00	75.00
Heavy-Heavy 33,001-60,000	0.70	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	2.00	35.00	65.00	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	3.70	0.00	91.90	8.10

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			

% of Trips - Commercial (by land use)

Regnl shop. center	2.0	1.0	97.0
General office building	35.0	17.5	47.5
Industrial park	41.5	20.8	37.8

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGenPlan.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	12,347.99	1,966.26	5,736.45	56.83	22.62

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	1,948.67	1,202.60	16,853.51	49.42	8,398.23

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	14,296.66	3,168.86	22,589.96	106.25	8,420.85

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGPNCA.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	1,949.85	176.17	2,382.11	7.07	319.46

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	150.82	111.12	1,387.97	3.89	665.15

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	2,100.67	287.29	3,770.08	10.96	984.61

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGPNCA.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	11.00	144.15	73.39	0.00	0.27
Hearth	1,170.48	31.12	2,137.78	5.03	318.50
Landscaping	26.07	0.91	170.94	2.04	0.68
Consumer Prdcts	449.26	-	-	-	-
Architectural Coatings	293.04	-	-	-	-
TOTALS (tpy, unmitigated)	1,949.85	176.17	2,382.11	7.07	319.46

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UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	97.61	74.29	939.47	2.66	454.79
Regnl shop. center	25.87	19.88	238.24	0.62	107.23
General office building	9.97	5.11	63.25	0.18	30.65
Industrial park	17.36	11.85	147.01	0.42	72.49
TOTAL EMISSIONS (tons/yr)	150.82	111.12	1,387.97	3.89	665.15

Includes correction for passby trips.
Includes the following double counting adjustment for internal trips:
Residential trips: 32.85 % reduction. Nonresidential trips: 50.00 % reduction.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2040 Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	16,772.67	6.43 trips/dwelling unit	50,318.00	323,333.21
Regnl shop. center		21.47 trips/1000 sq. ft.	6,206.54	133,254.52
General office building		1.66 trips/1000 sq. ft.	14,783.33	24,540.33
Industrial park		3.48 trips/1000 sq. ft.	15,135.29	52,670.84
		Sum of Total Trips		533,798.90
		Total Vehicle Miles Traveled		2,410,637.22

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	49.90	0.00	100.00	0.00
Light Truck < 3,750 lbs	16.40	0.00	100.00	0.00
Light Truck 3,751- 5,750	17.20	0.00	100.00	0.00
Med Truck 5,751- 8,500	7.80	0.00	100.00	0.00
Lite-Heavy 8,501-10,000	0.90	0.00	77.80	22.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.80	0.00	25.00	75.00
Heavy-Heavy 33,001-60,000	0.70	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	2.00	35.00	65.00	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	3.70	0.00	91.90	8.10

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			

% of Trips - Commercial (by land use)

RCGPNCA1

Regnl shop. center	2.0	1.0	97.0
General office building	35.0	17.5	47.5
Industrial park	41.5	20.8	37.8

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGPSPA.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	3,126.40	285.17	3,833.39	11.38	513.90

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	236.36	174.43	2,178.81	6.10	1,042.96

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	3,362.76	459.61	6,012.20	17.48	1,556.86

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\RCGPSPA.urb
Project Name: Rancho Cordova General Plan
Project Location: Lower Sacramento Valley Air Basin
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES (Tons per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	17.82	233.66	119.55	0.00	0.44
Hearth	1,882.92	50.06	3,438.98	8.10	512.37
Landscaping	41.92	1.46	274.86	3.28	1.09
Consumer Prdcts	722.71	-	-	-	-
Architectural Coatings	461.02	-	-	-	-
TOTALS (tpy, unmitigated)	3,126.40	285.17	3,833.39	11.38	513.90

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UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	157.03	119.51	1,511.29	4.29	731.61
Regnl shop. center	42.62	32.75	392.53	1.03	176.67
General office building	16.84	8.63	106.79	0.30	51.75
Industrial park	19.87	13.55	168.20	0.48	82.94
TOTAL EMISSIONS (tons/yr)	236.36	174.43	2,178.81	6.10	1,042.96

Includes correction for passby trips.
Includes the following double counting adjustment for internal trips:
Residential trips: 32.85 % reduction. Nonresidential trips: 50.00 % reduction.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2040 Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	26,981.67	6.43 trips/dwelling unit	80,945.00	520,136.06
Regnl shop. center		21.47 trips/1000 sq. ft.	10,225.91	219,550.46
General office building		1.66 trips/1000 sq. ft.	24,959.75	41,433.21
Industrial park		3.48 trips/1000 sq. ft.	17,317.42	60,264.66
		Sum of Total Trips		841,384.40
		Total Vehicle Miles Traveled		3,779,837.38

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	49.90	0.00	100.00	0.00
Light Truck < 3,750 lbs	16.40	0.00	100.00	0.00
Light Truck 3,751- 5,750	17.20	0.00	100.00	0.00
Med Truck 5,751- 8,500	7.80	0.00	100.00	0.00
Lite-Heavy 8,501-10,000	0.90	0.00	77.80	22.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.80	0.00	25.00	75.00
Heavy-Heavy 33,001-60,000	0.70	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	2.00	35.00	65.00	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	3.70	0.00	91.90	8.10

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	27.3	21.2	51.5			

% of Trips - Commercial (by land use)

Regnl shop. center	2.0	1.0	97.0
General office building	35.0	17.5	47.5
Industrial park	41.5	20.8	37.8

SUMMARY OF URBEMIS MODELING RESULTS

Increases in regional criteria air pollutants were calculated using the Urbemis2002 (v8.7) computer program. This program estimates criteria pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for large community-based plans, where specific land uses have not yet been identified, may not fully account for site-specific conditions, but has been used to provide a reasonable estimation of emissions based on typical land use development conditions. Emissions were calculated based on default assumptions provided in the model for the lower Sacramento Valley region. Model default assumptions for pass-by and double-counting adjustments were included. Actual emissions will vary depending on how development occurs, the specific types of land uses developed, and emission control measures implemented.

INPUT ASSUMPTIONS

PLANNING OR FOCUS AREA (Model Run)	Dwelling Units		Commercial		Office		Industrial	
Planning or Focus Area (Model Run)	/# Units	Trip Gen Rate	/1000sqft	Trip Gen Rate	/1000 sqft	Trip Gen Rate	/1000 sqft	Trip Gen Rate
General Plan Planning Area (RCGPPA)	126,241.00	6.42	11,971,169	21.47	36,397,637	1.66	22,840,982	3.48
City Area (RCGPCA)	75,923.00		5,764,627		21,614,312		7,705,690	
Non-City Area/Unincorporated (RCGPNCA)	50,318.00		6,206,542		14,783,325		15,135,292	
Planning Areas Total (RCGPSPA)	198,630		10,225,913		24,959,754		17,317,424	

PROJECTED ANNUAL EMISSIONS

PLANNING OR FOCUS AREA (Model Run)	AREA SOURCE EMISSIONS (TONS/YR)			MOBILE SOURCE EMISSIONS (TONS/YR)			TOTAL EMISSIONS (TONS/YR)		
	ROG	NOX	PM10	ROG	NOX	PM10	ROG	NOX	PM10
General Plan Planning Area (RCGPPA)	12,347.99	1,966.26	22.62	1,948.67	1,202.60	8,398.23	14,296.66	3,168.86	8,420.85
City Area (RCGPCA)	2,905.58	258.55	482.00	194.74	144.05	867.52	3,100.32	402.61	1349.53
Non-City Area/Unincorporated (RCGPNCA)	1,949.85	176.17	319.46	150.82	111.12	665.15	2,100.67	287.29	984.61
Planning Areas Total (RCGPSPA)	3,126.40	285.17	513.90	236.36	174.43	1,042.96	3,362.76	459.61	1556.86

PROJECTED DAILY EMISSIONS

PLANNING OR FOCUS AREA (Model Run)	AREA SOURCE EMISSIONS (TONS/DAY)			MOBILE SOURCE EMISSIONS (TONS/DAY)			TOTAL EMISSIONS (TONS/DAY)		
	ROG	NOX	PM10	ROG	NOX	PM10	ROG	NOX	PM10
General Plan Planning Area (RCGPPA)	33.83	5.39	0.06	5.34	3.29	23.01	39.17	8.68	23.07
City Area (RCGPCA)	7.96	0.71	1.32	0.53	0.39	2.38	8.49	1.10	3.70
Non-City Area/Unincorporated (RCGPNCA)	5.34	0.48	0.88	0.41	0.30	1.82	5.76	0.79	2.70
Planning Areas Total (RCGPSPA)	8.57	0.78	1.41	0.65	0.48	2.86	9.21	1.26	4.27

4.7 – Noise Appendix: Highway Traffic Noise Prediction Model

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network - Existing 2004/2005
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR 16	Excelsior Rd	Eagles Nest Rd	11,400	83		17	3	6	55	100	
2	SR 16	Sunrise Blvd	Grant Line Rd	15,400	83		17	3	6	55	100	
3	SR 16	Grant Line Rd	East of Grant Line Rd	12,300	83		17	3	6	55	100	
4	SR 16	Excelsior Rd	Bradshaw Rd	13,700	83		17	3	6	55	100	
5	Kiefer Blvd	Grant Line Rd	SR 16	1,625	85		15	2	1	45	100	
6	Mather Blvd	Femoyer St	Douglas	6,000	85		15	2	1	45	100	
7	Douglas Rd	Mather Blvd	Sunrise	5,000	85		15	2	1	45	100	
8	Douglas Rd	Sunrise Blvd	Grant Line	2,300	85		15	2	1	45	100	
9	International Dr	South White Rock Rd	Zinfandel	12,000	85		15	2	1	45	100	
10	International Dr	Zinfandel Dr	Kilgore	6,800	85		15	2	1	45	100	
11	White Rock Rd	Zinfandel Dr	Sunrise	17,900	85		15	2	1	45	100	
12	White Rock Rd	Sunrise Blvd	Grant Line	4,400	85		15	2	1	45	100	
13	Folsom Blvd	Sunrise Blvd	Hazel	13,300	85		15	2	1	45	100	
14	Folsom Blvd	Watt	Bradshaw	24,900	85		15	2	1	45	100	
15	Folsom Blvd	Bradshaw	Mather	22,700	85		15	2	1	45	100	
16	Folsom Blvd	Mather	Coloma	33,500	85		15	2	1	45	100	
17	Folsom Blvd	Coloma	Zinfandel	26,100	85		15	2	1	45	100	
18	Folsom Blvd	Zinfandel	Sunrise	17,000	85		15	2	1	45	100	
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	26,400	85		15	2	1	45	100	
20	Mather Field Rd	US-50 EB Ramps	International	33,700	85		15	2	1	45	100	
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	22,700	85		15	2	1	45	100	
22	Zinfandel Dr	US-50 EB Ramps	White Rock	41,900	85		15	2	1	45	100	
23	Zinfandel Dr	White Rock Rd	International	19,700	85		15	2	1	45	100	
24	Zinfandel Dr	Folsom Blvd	Sunrise	10,600	85		15	2	1	45	100	

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Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network - Existing 2004/2005
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description										
Segment	Roadway Name	From	To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
25	Sunrise Blvd	Gold Country Blvd	Coloma	75,800	85		15	2	1	45	100	
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	82,400	85		15	2	1	45	100	
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	52,100	85		15	2	1	45	100	
28	Sunrise Blvd	Folsom Blvd	White Rock	37,200	85		15	2	1	45	100	
29	Sunrise Blvd	White Rock Rd	Douglas	24,600	85		15	2	1	45	100	
30	Sunrise Blvd	Douglas Rd	SR 16	20,000	85		15	2	1	45	100	
31	Sunrise Blvd	SR 16	Grant Line Rd	13,600	85		15	2	1	45	100	
32	Hazel Ave	US-50 WB Ramps	Winding Way	53,000	85		15	2	1	45	100	
33	Grant Line Rd	White Rock Rd	Douglas	6,000	85		15	2	1	45	100	
34	Grant Line Rd	Douglas Rd	SR 16	6,700	85		15	2	1	45	100	
35	Grant Line Rd	SR 16	Sunrise	5,600	85		15	2	1	45	100	
36	Colma Rd	Sunrise Blvd	Folsom	20,400	85		15	2	1	45	100	
37	Gold Country	Sunrise Blvd	Hazel	9,700	85		15	2	1	45	100	
38	Bradshaw Rd	Old Placerville Rd	Kiefer	33,900	85		15	2	1	45	100	
39	Rancho Cordova Pkwy	US-50	White Rock	NA	85		15	2	1	45	100	
40	Rancho Cordova Pkwy	White Rock	Douglas	NA	85		15	2	1	45	100	
41	International	Rancho Cordova Pkwy	Sunrise	NA	85		15	2	1	45	100	
42	International	Sunrise	White Rock	NA	85		15	2	1	45	100	
43	International	White Rock	Bradshaw	NA	85		15	2	1	45	100	
44	US-50	Bradshaw Rd	Mather Field Rd	184,000	83		17	3	3	65	100	
45	US-50	Mather Field Rd	Zinfandel	168,000	83		17	3	3	65	100	
46	US-50	Zindfandel Blvd	Sunrise	149,000	83		17	3	3	65	100	
47	US-50	Sunrise Blvd	Hazel	122,000	83		17	3	3	65	100	
48	US-50	Folsom Blvd	Hazel Ave	108,000	83		17	3	3	65	100	
49	US-50	Folsom Blvd	Prairie City Rd	95,000	83		17	3	3	65	100	

BOLLARD
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Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR 16	Excelsior Rd	Eagles Nest Rd	47,300	83		17	3	6	55	100	
2	SR 16	Sunrise Blvd	Grant Line Rd	36,500	83		17	3	6	55	100	
3	SR 16	Grant Line Rd	East of Grant Line Rd	28,900	83		17	3	6	55	100	
4	SR 16	Excelsior Rd	Bradshaw Rd	56,600	83		17	3	6	55	100	
5	Kiefer Blvd	Grant Line Rd	SR 16	24,700	85		15	2	1	45	100	
6	Mather Blvd	Femoyer St	Douglas	37,700	85		15	2	1	45	100	
7	Douglas Rd	Mather Blvd	Sunrise	27,300	85		15	2	1	45	100	
8	Douglas Rd	Sunrise Blvd	Grant Line	24,100	85		15	2	1	45	100	
9	International Dr	South White Rock Rd	Zinfandel	69,600	85		15	2	1	45	100	
10	International Dr	Zinfandel Dr	Kilgore	71,200	85		15	2	1	45	100	
11	White Rock Rd	Zinfandel Dr	Sunrise	41,300	85		15	2	1	45	100	
12	White Rock Rd	Sunrise Blvd	Grant Line	57,000	85		15	2	1	45	100	
13	Folsom Blvd	Sunrise Blvd	Hazel	27,000	85		15	2	1	45	100	
14	Folsom Blvd	Watt	Bradshaw	26,200	85		15	2	1	45	100	
15	Folsom Blvd	Bradshaw	Mather	27,600	85		15	2	1	45	100	
16	Folsom Blvd	Mather	Coloma	39,400	85		15	2	1	45	100	
17	Folsom Blvd	Coloma	Zinfandel	29,700	85		15	2	1	45	100	
18	Folsom Blvd	Zinfandel	Sunrise	25,300	85		15	2	1	45	100	
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	38,400	85		15	2	1	45	100	
20	Mather Field Rd	US-50 EB Ramps	International	62,400	85		15	2	1	45	100	
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	31,100	85		15	2	1	45	100	
22	Zinfandel Dr	US-50 EB Ramps	White Rock	82,300	85		15	2	1	45	100	
23	Zinfandel Dr	White Rock Rd	International	44,800	85		15	2	1	45	100	
24	Zinfandel Dr	Folsom Blvd	Sunrise	12,300	85		15	2	1	45	100	

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Appendix B-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
25	Sunrise Blvd	Gold Country Blvd	Coloma	96,500	85		15	2	1	45	100	
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	110,000	85		15	2	1	45	100	
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	65,600	85		15	2	1	45	100	
28	Sunrise Blvd	Folsom Blvd	White Rock	62,300	85		15	2	1	45	100	
29	Sunrise Blvd	White Rock Rd	Douglas	50,000	85		15	2	1	45	100	
30	Sunrise Blvd	Douglas Rd	SR 16	46,500	85		15	2	1	45	100	
31	Sunrise Blvd	SR 16	Grant Line Rd	31,300	85		15	2	1	45	100	
32	Hazel Ave	US-50 WB Ramps	Winding Way	114,700	85		15	2	1	45	100	
33	Grant Line Rd	White Rock Rd	Douglas	60,700	85		15	2	1	45	100	
34	Grant Line Rd	Douglas Rd	SR 16	40,800	85		15	2	1	45	100	
35	Grant Line Rd	SR 16	Sunrise	31,600	85		15	2	1	45	100	
36	Colma Rd	Sunrise Blvd	Folsom	26,200	85		15	2	1	45	100	
37	Gold Country	Sunrise Blvd	Hazel	13,100	85		15	2	1	45	100	
38	Bradshaw Rd	Old Placerville Rd	Kiefer	82,900	85		15	2	1	45	100	
39	Rancho Cordova Pkwy	US-50	White Rock	64,800	85		15	2	1	45	100	
40	Rancho Cordova Pkwy	White Rock	Douglas	31,900	85		15	2	1	45	100	
41	International	Rancho Cordova Pkwy	Sunrise	20,500	85		15	2	1	45	100	
42	International	Sunrise	White Rock	70,900	85		15	2	1	45	100	
43	International	White Rock	Bradshaw	63,200	85		15	2	1	45	100	
44	US-50	Bradshaw Rd	Mather Field Rd	214,100	83		17	3	3	65	100	
45	US-50	Mather Field Rd	Zinfandel	187,400	83		17	3	3	65	100	
46	US-50	Zindfandel Blvd	Sunrise	170,000	83		17	3	3	65	100	
47	US-50	Sunrise Blvd	Hazel	157,800	83		17	3	3	65	100	
48	US-50	Folsom Blvd	Hazel Ave	136,800	83		17	3	3	65	100	
49	US-50	Folsom Blvd	Prairie City Rd	121,600	83		17	3	3	65	100	

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Appendix B-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR 16	Excelsior Rd	Eagles Nest Rd	47,700	83		17	3	6	55	100	
2	SR 16	Sunrise Blvd	Grant Line Rd	35,300	83		17	3	6	55	100	
3	SR 16	Grant Line Rd	East of Grant Line Rd	28,900	83		17	3	6	55	100	
4	SR 16	Excelsior Rd	Bradshaw Rd	53,800	83		17	3	6	55	100	
5	Kiefer Blvd	Grant Line Rd	SR 16	24,800	85		15	2	1	45	100	
6	Mather Blvd	Femoyer St	Douglas	28,800	85		15	2	1	45	100	
7	Douglas Rd	Mather Blvd	Sunrise	26,200	85		15	2	1	45	100	
8	Douglas Rd	Sunrise Blvd	Grant Line	23,100	85		15	2	1	45	100	
9	International Dr	South White Rock Rd	Zinfandel	71,400	85		15	2	1	45	100	
10	International Dr	Zinfandel Dr	Kilgore	70,600	85		15	2	1	45	100	
11	White Rock Rd	Zinfandel Dr	Sunrise	39,000	85		15	2	1	45	100	
12	White Rock Rd	Sunrise Blvd	Grant Line	48,800	85		15	2	1	45	100	
13	Folsom Blvd	Sunrise Blvd	Hazel	29,200	85		15	2	1	45	100	
14	Folsom Blvd	Watt	Bradshaw	25,900	85		15	2	1	45	100	
15	Folsom Blvd	Bradshaw	Mather	26,900	85		15	2	1	45	100	
16	Folsom Blvd	Mather	Coloma	39,900	85		15	2	1	45	100	
17	Folsom Blvd	Coloma	Zinfandel	30,000	85		15	2	1	45	100	
18	Folsom Blvd	Zinfandel	Sunrise	24,800	85		15	2	1	45	100	
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	39,300	85		15	2	1	45	100	
20	Mather Field Rd	US-50 EB Ramps	International	64,600	85		15	2	1	45	100	
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	31,500	85		15	2	1	45	100	
22	Zinfandel Dr	US-50 EB Ramps	White Rock	80,100	85		15	2	1	45	100	
23	Zinfandel Dr	White Rock Rd	International	44,500	85		15	2	1	45	100	
24	Zinfandel Dr	Folsom Blvd	Sunrise	12,400	85		15	2	1	45	100	

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Appendix B-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
25	Sunrise Blvd	Gold Country Blvd	Coloma	95,700	85		15	2	1	45	100	
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	109,100	85		15	2	1	45	100	
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	65,300	85		15	2	1	45	100	
28	Sunrise Blvd	Folsom Blvd	White Rock	43,700	85		15	2	1	45	100	
29	Sunrise Blvd	White Rock Rd	Douglas	44,700	85		15	2	1	45	100	
30	Sunrise Blvd	Douglas Rd	SR 16	43,400	85		15	2	1	45	100	
31	Sunrise Blvd	SR 16	Grant Line Rd	30,000	85		15	2	1	45	100	
32	Hazel Ave	US-50 WB Ramps	Winding Way	117,900	85		15	2	1	45	100	
33	Grant Line Rd	White Rock Rd	Douglas	68,400	85		15	2	1	45	100	
34	Grant Line Rd	Douglas Rd	SR 16	45,800	85		15	2	1	45	100	
35	Grant Line Rd	SR 16	Sunrise	34,000	85		15	2	1	45	100	
36	Colma Rd	Sunrise Blvd	Folsom	25,800	85		15	2	1	45	100	
37	Gold Country	Sunrise Blvd	Hazel	13,100	85		15	2	1	45	100	
38	Bradshaw Rd	Old Placerville Rd	Kiefer	75,100	85		15	2	1	45	100	
39	Rancho Cordova Pkwy	US-50	White Rock	48,700	85		15	2	1	45	100	
40	Rancho Cordova Pkwy	White Rock	Douglas	24,100	85		15	2	1	45	100	
41	International	Rancho Cordova Pkwy	Sunrise	18,000	85		15	2	1	45	100	
42	International	Sunrise	White Rock	71,300	85		15	2	1	45	100	
43	International	White Rock	Bradshaw	62,000	85		15	2	1	45	100	
44	US-50	Bradshaw Rd	Mather Field Rd	213,500	83		17	3	3	65	100	
45	US-50	Mather Field Rd	Zinfandel	189,300	83		17	3	3	65	100	
46	US-50	Zindfandel Blvd	Sunrise	168,600	83		17	3	3	65	100	
47	US-50	Sunrise Blvd	Hazel	153,300	83		17	3	3	65	100	
48	US-50	Folsom Blvd	Hazel Ave	133,000	83		17	3	3	65	100	
49	US-50	Folsom Blvd	Prairie City Rd	118,800	83		17	3	3	65	100	

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Appendix B-7

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Post 2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	SR 16	Excelsior Rd	Eagles Nest Rd	47,700	83		17	3	6	55	100	
2	SR 16	Sunrise Blvd	Grant Line Rd	35,300	83		17	3	6	55	100	
3	SR 16	Grant Line Rd	East of Grant Line Rd	28,900	83		17	3	6	55	100	
4	SR 16	Excelsior Rd	Bradshaw Rd	53,800	83		17	3	6	55	100	
5	Kiefer Blvd	Grant Line Rd	SR 16	24,800	85		15	2	1	45	100	
6	Mather Blvd	Femoyer St	Douglas	28,800	85		15	2	1	45	100	
7	Douglas Rd	Mather Blvd	Sunrise	26,200	85		15	2	1	45	100	
8	Douglas Rd	Sunrise Blvd	Grant Line	23,100	85		15	2	1	45	100	
9	International Dr	South White Rock Rd	Zinfandel	71,400	85		15	2	1	45	100	
10	International Dr	Zinfandel Dr	Kilgore	70,600	85		15	2	1	45	100	
11	White Rock Rd	Zinfandel Dr	Sunrise	39,000	85		15	2	1	45	100	
12	White Rock Rd	Sunrise Blvd	Grant Line	48,800	85		15	2	1	45	100	
13	Folsom Blvd	Sunrise Blvd	Hazel	29,200	85		15	2	1	45	100	
14	Folsom Blvd	Watt	Bradshaw	25,900	85		15	2	1	45	100	
15	Folsom Blvd	Bradshaw	Mather	26,900	85		15	2	1	45	100	
16	Folsom Blvd	Mather	Coloma	39,900	85		15	2	1	45	100	
17	Folsom Blvd	Coloma	Zinfandel	30,000	85		15	2	1	45	100	
18	Folsom Blvd	Zinfandel	Sunrise	24,800	85		15	2	1	45	100	
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	39,300	85		15	2	1	45	100	
20	Mather Field Rd	US-50 EB Ramps	International	64,600	85		15	2	1	45	100	
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	31,500	85		15	2	1	45	100	
22	Zinfandel Dr	US-50 EB Ramps	White Rock	80,100	85		15	2	1	45	100	
23	Zinfandel Dr	White Rock Rd	International	44,500	85		15	2	1	45	100	
24	Zinfandel Dr	Folsom Blvd	Sunrise	12,400	85		15	2	1	45	100	

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Appendix B-8

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Post 2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
25	Sunrise Blvd	Gold Country Blvd	Coloma	95,700	85		15	2	1	45	100	
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	109,100	85		15	2	1	45	100	
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	65,300	85		15	2	1	45	100	
28	Sunrise Blvd	Folsom Blvd	White Rock	43,700	85		15	2	1	45	100	
29	Sunrise Blvd	White Rock Rd	Douglas	44,700	85		15	2	1	45	100	
30	Sunrise Blvd	Douglas Rd	SR 16	43,400	85		15	2	1	45	100	
31	Sunrise Blvd	SR 16	Grant Line Rd	30,000	85		15	2	1	45	100	
32	Hazel Ave	US-50 WB Ramps	Winding Way	117,900	85		15	2	1	45	100	
33	Grant Line Rd	White Rock Rd	Douglas	68,400	85		15	2	1	45	100	
34	Grant Line Rd	Douglas Rd	SR 16	45,800	85		15	2	1	45	100	
35	Grant Line Rd	SR 16	Sunrise	34,000	85		15	2	1	45	100	
36	Colma Rd	Sunrise Blvd	Folsom	25,800	85		15	2	1	45	100	
37	Gold Country	Sunrise Blvd	Hazel	13,100	85		15	2	1	45	100	
38	Bradshaw Rd	Old Placerville Rd	Kiefer	75,100	85		15	2	1	45	100	
39	Rancho Cordova Pkwy	US-50	White Rock	48,700	85		15	2	1	45	100	
40	Rancho Cordova Pkwy	White Rock	Douglas	24,100	85		15	2	1	45	100	
41	International	Rancho Cordova Pkwy	Sunrise	18,000	85		15	2	1	45	100	
42	International	Sunrise	White Rock	71,300	85		15	2	1	45	100	
43	International	White Rock	Bradshaw	62,000	85		15	2	1	45	100	
44	US-50	Bradshaw Rd	Mather Field Rd	213,500	83		17	3	3	65	100	
45	US-50	Mather Field Rd	Zinfandel	189,300	83		17	3	3	65	100	
46	US-50	Zindfandel Blvd	Sunrise	168,600	83		17	3	3	65	100	
47	US-50	Sunrise Blvd	Hazel	153,300	83		17	3	3	65	100	
48	US-50	Folsom Blvd	Hazel Ave	133,000	83		17	3	3	65	100	
49	US-50	Folsom Blvd	Prairie City Rd	118,800	83		17	3	3	65	100	

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Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network - Existing 2004/2005
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	Autos	Medium Trucks	Heavy Trucks	Total
1	SR 16	Excelsior Rd	Eagles Nest Rd	64.6	56.9	63.8	68
2	SR 16	Sunrise Blvd	Grant Line Rd	65.9	58.2	65.1	69
3	SR 16	Grant Line Rd	East of Grant Line Rd	64.9	57.2	64.2	68
4	SR 16	Excelsior Rd	Bradshaw Rd	65.4	57.7	64.6	68
5	Kiefer Blvd	Grant Line Rd	SR 16	53.6	45.0	46.5	55
6	Mather Blvd	Femoyer St	Douglas	59.3	50.7	52.1	61
7	Douglas Rd	Mather Blvd	Sunrise	58.5	49.9	51.3	60
8	Douglas Rd	Sunrise Blvd	Grant Line	55.1	46.5	48.0	56
9	International Dr	South White Rock Rd	Zinfandel	62.3	53.7	55.2	64
10	International Dr	Zinfandel Dr	Kilgore	59.8	51.2	52.7	61
11	White Rock Rd	Zinfandel Dr	Sunrise	64.0	55.4	56.9	65
12	White Rock Rd	Sunrise Blvd	Grant Line	57.9	49.3	50.8	59
13	Folsom Blvd	Sunrise Blvd	Hazel	62.7	54.1	55.6	64
14	Folsom Blvd	Watt	Bradshaw	65.4	56.8	58.3	67
15	Folsom Blvd	Bradshaw	Mather	65.0	56.4	57.9	66
16	Folsom Blvd	Mather	Coloma	66.7	58.1	59.6	68
17	Folsom Blvd	Coloma	Zinfandel	65.6	57.0	58.5	67
18	Folsom Blvd	Zinfandel	Sunrise	63.8	55.2	56.7	65
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	65.7	57.1	58.6	67
20	Mather Field Rd	US-50 EB Ramps	International	66.8	58.1	59.6	68
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	65.0	56.4	57.9	66
22	Zinfandel Dr	US-50 EB Ramps	White Rock	67.7	59.1	60.6	69
23	Zinfandel Dr	White Rock Rd	International	64.4	55.8	57.3	66
24	Zinfandel Dr	Folsom Blvd	Sunrise	61.7	53.1	54.6	63

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Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network - Existing 2004/2005
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	To	Autos	Medium Trucks	Heavy Trucks	Total
25	Sunrise Blvd	Gold Country Blvd	Coloma	70.3	61.7	63.2	72
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	70.6	62.0	63.5	72
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	68.6	60.0	61.5	70
28	Sunrise Blvd	Folsom Blvd	White Rock	67.2	58.6	60.1	68
29	Sunrise Blvd	White Rock Rd	Douglas	65.4	56.8	58.3	67
30	Sunrise Blvd	Douglas Rd	SR 16	64.5	55.9	57.4	66
31	Sunrise Blvd	SR 16	Grant Line Rd	62.8	54.2	55.7	64
32	Hazel Ave	US-50 WB Ramps	Winding Way	68.7	60.1	61.6	70
33	Grant Line Rd	White Rock Rd	Douglas	59.3	50.7	52.1	61
34	Grant Line Rd	Douglas Rd	SR 16	59.7	51.1	52.6	61
35	Grant Line Rd	SR 16	Sunrise	59.0	50.4	51.8	60
36	Colma Rd	Sunrise Blvd	Folsom	64.6	56.0	57.5	66
37	Gold Country	Sunrise Blvd	Hazel	61.3	52.7	54.2	63
38	Bradshaw Rd	Old Placerville Rd	Kiefer	66.8	58.2	59.7	68
39	Rancho Cordova Pkwy	US-50	White Rock	NA	NA	NA	NA
40	Rancho Cordova Pkwy	White Rock	Douglas	NA	NA	NA	NA
41	International	Rancho Cordova Pkwy	Sunrise	NA	NA	NA	NA
42	International	Sunrise	White Rock	NA	NA	NA	NA
43	International	White Rock	Bradshaw	NA	NA	NA	NA
44	US-50	Bradshaw Rd	Mather Field Rd	78.9	70.1	73.6	80
45	US-50	Mather Field Rd	Zinfandel	78.5	69.7	73.2	80
46	US-50	Zindfandel Blvd	Sunrise	78.0	69.2	72.7	80
47	US-50	Sunrise Blvd	Hazel	77.1	68.3	71.8	79
48	US-50	Folsom Blvd	Hazel Ave	76.6	67.8	71.3	78
49	US-50	Folsom Blvd	Prairie City Rd	76.0	67.2	70.7	78

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Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	Autos	Medium Trucks	Heavy Trucks	Total
1	SR 16	Excelsior Rd	Eagles Nest Rd	70.8	63.1	70.0	74
2	SR 16	Sunrise Blvd	Grant Line Rd	69.7	61.9	68.9	73
3	SR 16	Grant Line Rd	East of Grant Line Rd	68.6	60.9	67.9	72
4	SR 16	Excelsior Rd	Bradshaw Rd	71.6	63.8	70.8	75
5	Kiefer Blvd	Grant Line Rd	SR 16	65.4	56.8	58.3	67
6	Mather Blvd	Femoyer St	Douglas	67.2	58.6	60.1	68
7	Douglas Rd	Mather Blvd	Sunrise	65.8	57.2	58.7	67
8	Douglas Rd	Sunrise Blvd	Grant Line	65.3	56.7	58.2	67
9	International Dr	South White Rock Rd	Zinfandel	69.9	61.3	62.8	71
10	International Dr	Zinfandel Dr	Kilgore	70.0	61.4	62.9	71
11	White Rock Rd	Zinfandel Dr	Sunrise	67.6	59.0	60.5	69
12	White Rock Rd	Sunrise Blvd	Grant Line	69.0	60.4	61.9	70
13	Folsom Blvd	Sunrise Blvd	Hazel	65.8	57.2	58.7	67
14	Folsom Blvd	Watt	Bradshaw	65.7	57.1	58.5	67
15	Folsom Blvd	Bradshaw	Mather	65.9	57.3	58.8	67
16	Folsom Blvd	Mather	Coloma	67.4	58.8	60.3	69
17	Folsom Blvd	Coloma	Zinfandel	66.2	57.6	59.1	67
18	Folsom Blvd	Zinfandel	Sunrise	65.5	56.9	58.4	67
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	67.3	58.7	60.2	69
20	Mather Field Rd	US-50 EB Ramps	International	69.4	60.8	62.3	71
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	66.4	57.8	59.3	68
22	Zinfandel Dr	US-50 EB Ramps	White Rock	70.6	62.0	63.5	72
23	Zinfandel Dr	White Rock Rd	International	68.0	59.4	60.9	69
24	Zinfandel Dr	Folsom Blvd	Sunrise	62.4	53.8	55.3	64

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Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	To	Autos	Medium Trucks	Heavy Trucks	Total
25	Sunrise Blvd	Gold Country Blvd	Coloma	71.3	62.7	64.2	73
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	71.9	63.3	64.8	73
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	69.6	61.0	62.5	71
28	Sunrise Blvd	Folsom Blvd	White Rock	69.4	60.8	62.3	71
29	Sunrise Blvd	White Rock Rd	Douglas	68.5	59.9	61.3	70
30	Sunrise Blvd	Douglas Rd	SR 16	68.2	59.5	61.0	69
31	Sunrise Blvd	SR 16	Grant Line Rd	66.4	57.8	59.3	68
32	Hazel Ave	US-50 WB Ramps	Winding Way	72.1	63.5	65.0	73
33	Grant Line Rd	White Rock Rd	Douglas	69.3	60.7	62.2	71
34	Grant Line Rd	Douglas Rd	SR 16	67.6	59.0	60.5	69
35	Grant Line Rd	SR 16	Sunrise	66.5	57.9	59.4	68
36	Colma Rd	Sunrise Blvd	Folsom	65.7	57.1	58.5	67
37	Gold Country	Sunrise Blvd	Hazel	62.7	54.0	55.5	64
38	Bradshaw Rd	Old Placerville Rd	Kiefer	70.7	62.1	63.5	72
39	Rancho Cordova Pkwy	US-50	White Rock	69.6	61.0	62.5	71
40	Rancho Cordova Pkwy	White Rock	Douglas	66.5	57.9	59.4	68
41	International	Rancho Cordova Pkwy	Sunrise	64.6	56.0	57.5	66
42	International	Sunrise	White Rock	70.0	61.4	62.9	71
43	International	White Rock	Bradshaw	69.5	60.9	62.4	71
44	US-50	Bradshaw Rd	Mather Field Rd	79.6	70.8	74.2	81
45	US-50	Mather Field Rd	Zinfandel	79.0	70.2	73.6	81
46	US-50	Zindfandel Blvd	Sunrise	78.6	69.7	73.2	80
47	US-50	Sunrise Blvd	Hazel	78.2	69.4	72.9	80
48	US-50	Folsom Blvd	Hazel Ave	77.6	68.8	72.3	79
49	US-50	Folsom Blvd	Prairie City Rd	77.1	68.3	71.8	79

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Appendix C-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	Autos	Medium Trucks	Heavy Trucks	Total
1	SR 16	Excelsior Rd	Eagles Nest Rd	70.8	63.1	70.0	74
2	SR 16	Sunrise Blvd	Grant Line Rd	69.5	61.8	68.7	73
3	SR 16	Grant Line Rd	East of Grant Line Rd	68.6	60.9	67.9	72
4	SR 16	Excelsior Rd	Bradshaw Rd	71.3	63.6	70.6	74
5	Kiefer Blvd	Grant Line Rd	SR 16	65.4	56.8	58.3	67
6	Mather Blvd	Femoyer St	Douglas	66.1	57.5	59.0	67
7	Douglas Rd	Mather Blvd	Sunrise	65.7	57.1	58.5	67
8	Douglas Rd	Sunrise Blvd	Grant Line	65.1	56.5	58.0	66
9	International Dr	South White Rock Rd	Zinfandel	70.0	61.4	62.9	71
10	International Dr	Zinfandel Dr	Kilgore	70.0	61.4	62.8	71
11	White Rock Rd	Zinfandel Dr	Sunrise	67.4	58.8	60.3	69
12	White Rock Rd	Sunrise Blvd	Grant Line	68.4	59.8	61.2	70
13	Folsom Blvd	Sunrise Blvd	Hazel	66.1	57.5	59.0	67
14	Folsom Blvd	Watt	Bradshaw	65.6	57.0	58.5	67
15	Folsom Blvd	Bradshaw	Mather	65.8	57.2	58.7	67
16	Folsom Blvd	Mather	Coloma	67.5	58.9	60.4	69
17	Folsom Blvd	Coloma	Zinfandel	66.3	57.6	59.1	67
18	Folsom Blvd	Zinfandel	Sunrise	65.4	56.8	58.3	67
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	67.4	58.8	60.3	69
20	Mather Field Rd	US-50 EB Ramps	International	69.6	61.0	62.5	71
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	66.5	57.9	59.3	68
22	Zinfandel Dr	US-50 EB Ramps	White Rock	70.5	61.9	63.4	72
23	Zinfandel Dr	White Rock Rd	International	68.0	59.4	60.8	69
24	Zinfandel Dr	Folsom Blvd	Sunrise	62.4	53.8	55.3	64

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Appendix C-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	To	Autos	Medium Trucks	Heavy Trucks	Total
25	Sunrise Blvd	Gold Country Blvd	Coloma	71.3	62.7	64.2	73
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	71.9	63.3	64.7	73
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	69.6	61.0	62.5	71
28	Sunrise Blvd	Folsom Blvd	White Rock	67.9	59.3	60.8	69
29	Sunrise Blvd	White Rock Rd	Douglas	68.0	59.4	60.9	69
30	Sunrise Blvd	Douglas Rd	SR 16	67.9	59.2	60.7	69
31	Sunrise Blvd	SR 16	Grant Line Rd	66.3	57.6	59.1	67
32	Hazel Ave	US-50 WB Ramps	Winding Way	72.2	63.6	65.1	73
33	Grant Line Rd	White Rock Rd	Douglas	69.8	61.2	62.7	71
34	Grant Line Rd	Douglas Rd	SR 16	68.1	59.5	61.0	69
35	Grant Line Rd	SR 16	Sunrise	66.8	58.2	59.7	68
36	Colma Rd	Sunrise Blvd	Folsom	65.6	57.0	58.5	67
37	Gold Country	Sunrise Blvd	Hazel	62.7	54.0	55.5	64
38	Bradshaw Rd	Old Placerville Rd	Kiefer	70.2	61.6	63.1	71
39	Rancho Cordova Pkwy	US-50	White Rock	68.4	59.7	61.2	70
40	Rancho Cordova Pkwy	White Rock	Douglas	65.3	56.7	58.2	67
41	International	Rancho Cordova Pkwy	Sunrise	64.0	55.4	56.9	65
42	International	Sunrise	White Rock	70.0	61.4	62.9	71
43	International	White Rock	Bradshaw	69.4	60.8	62.3	71
44	US-50	Bradshaw Rd	Mather Field Rd	79.6	70.7	74.2	81
45	US-50	Mather Field Rd	Zinfandel	79.0	70.2	73.7	81
46	US-50	Zindfandel Blvd	Sunrise	78.5	69.7	73.2	80
47	US-50	Sunrise Blvd	Hazel	78.1	69.3	72.8	80
48	US-50	Folsom Blvd	Hazel Ave	77.5	68.7	72.2	79
49	US-50	Folsom Blvd	Prairie City Rd	77.0	68.2	71.7	79

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Appendix C-7

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Post 2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	Autos	Medium Trucks	Heavy Trucks	Total
1	SR 16	Excelsior Rd	Eagles Nest Rd	70.8	63.1	70.0	74
2	SR 16	Sunrise Blvd	Grant Line Rd	69.5	61.8	68.7	73
3	SR 16	Grant Line Rd	East of Grant Line Rd	68.6	60.9	67.9	72
4	SR 16	Excelsior Rd	Bradshaw Rd	71.3	63.6	70.6	74
5	Kiefer Blvd	Grant Line Rd	SR 16	65.4	56.8	58.3	67
6	Mather Blvd	Femoyer St	Douglas	66.1	57.5	59.0	67
7	Douglas Rd	Mather Blvd	Sunrise	65.7	57.1	58.5	67
8	Douglas Rd	Sunrise Blvd	Grant Line	65.1	56.5	58.0	66
9	International Dr	South White Rock Rd	Zinfandel	70.0	61.4	62.9	71
10	International Dr	Zinfandel Dr	Kilgore	70.0	61.4	62.8	71
11	White Rock Rd	Zinfandel Dr	Sunrise	67.4	58.8	60.3	69
12	White Rock Rd	Sunrise Blvd	Grant Line	68.4	59.8	61.2	70
13	Folsom Blvd	Sunrise Blvd	Hazel	66.1	57.5	59.0	67
14	Folsom Blvd	Watt	Bradshaw	65.6	57.0	58.5	67
15	Folsom Blvd	Bradshaw	Mather	65.8	57.2	58.7	67
16	Folsom Blvd	Mather	Coloma	67.5	58.9	60.4	69
17	Folsom Blvd	Coloma	Zinfandel	66.3	57.6	59.1	67
18	Folsom Blvd	Zinfandel	Sunrise	65.4	56.8	58.3	67
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	67.4	58.8	60.3	69
20	Mather Field Rd	US-50 EB Ramps	International	69.6	61.0	62.5	71
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	66.5	57.9	59.3	68
22	Zinfandel Dr	US-50 EB Ramps	White Rock	70.5	61.9	63.4	72
23	Zinfandel Dr	White Rock Rd	International	68.0	59.4	60.8	69
24	Zinfandel Dr	Folsom Blvd	Sunrise	62.4	53.8	55.3	64

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Appendix C-8

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Post 2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description From	Segment Description To	Autos	Medium Trucks	Heavy Trucks	Total
25	Sunrise Blvd	Gold Country Blvd	Coloma	71.3	62.7	64.2	73
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	71.9	63.3	64.7	73
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	69.6	61.0	62.5	71
28	Sunrise Blvd	Folsom Blvd	White Rock	67.9	59.3	60.8	69
29	Sunrise Blvd	White Rock Rd	Douglas	68.0	59.4	60.9	69
30	Sunrise Blvd	Douglas Rd	SR 16	67.9	59.2	60.7	69
31	Sunrise Blvd	SR 16	Grant Line Rd	66.3	57.6	59.1	67
32	Hazel Ave	US-50 WB Ramps	Winding Way	72.2	63.6	65.1	73
33	Grant Line Rd	White Rock Rd	Douglas	69.8	61.2	62.7	71
34	Grant Line Rd	Douglas Rd	SR 16	68.1	59.5	61.0	69
35	Grant Line Rd	SR 16	Sunrise	66.8	58.2	59.7	68
36	Colma Rd	Sunrise Blvd	Folsom	65.6	57.0	58.5	67
37	Gold Country	Sunrise Blvd	Hazel	62.7	54.0	55.5	64
38	Bradshaw Rd	Old Placerville Rd	Kiefer	70.2	61.6	63.1	71
39	Rancho Cordova Pkwy	US-50	White Rock	68.4	59.7	61.2	70
40	Rancho Cordova Pkwy	White Rock	Douglas	65.3	56.7	58.2	67
41	International	Rancho Cordova Pkwy	Sunrise	64.0	55.4	56.9	65
42	International	Sunrise	White Rock	70.0	61.4	62.9	71
43	International	White Rock	Bradshaw	69.4	60.8	62.3	71
44	US-50	Bradshaw Rd	Mather Field Rd	79.6	70.7	74.2	81
45	US-50	Mather Field Rd	Zinfandel	79.0	70.2	73.7	81
46	US-50	Zindfandel Blvd	Sunrise	78.5	69.7	73.2	80
47	US-50	Sunrise Blvd	Hazel	78.1	69.3	72.8	80
48	US-50	Folsom Blvd	Hazel Ave	77.5	68.7	72.2	79
49	US-50	Folsom Blvd	Prairie City Rd	77.0	68.2	71.7	79

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Appendix D-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network - Existing 2004/2005
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
1	SR 16	Excelsior Rd	Eagles Nest Rd	32	69	150	322	695
2	SR 16	Sunrise Blvd	Grant Line Rd	39	85	183	394	849
3	SR 16	Grant Line Rd	East of Grant Line Rd	34	73	157	339	731
4	SR 16	Excelsior Rd	Bradshaw Rd	36	79	169	364	785
5	Kiefer Blvd	Grant Line Rd	SR 16	5	10	21	45	97
6	Mather Blvd	Femoyer St	Douglas	11	23	50	108	233
7	Douglas Rd	Mather Blvd	Sunrise	10	21	44	96	206
8	Douglas Rd	Sunrise Blvd	Grant Line	6	12	26	57	123
9	International Dr	South White Rock Rd	Zinfandel	17	37	80	172	370
10	International Dr	Zinfandel Dr	Kilgore	12	25	55	117	253
11	White Rock Rd	Zinfandel Dr	Sunrise	22	48	104	224	483
12	White Rock Rd	Sunrise Blvd	Grant Line	9	19	41	88	189
13	Folsom Blvd	Sunrise Blvd	Hazel	18	40	85	184	396
14	Folsom Blvd	Watt	Bradshaw	28	60	130	279	601
15	Folsom Blvd	Bradshaw	Mather	26	57	122	262	565
16	Folsom Blvd	Mather	Coloma	34	73	158	340	733
17	Folsom Blvd	Coloma	Zinfandel	29	62	134	288	620
18	Folsom Blvd	Zinfandel	Sunrise	22	47	100	216	466
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	29	63	135	290	625
20	Mather Field Rd	US-50 EB Ramps	International	34	74	159	342	736
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	26	57	122	262	565
22	Zinfandel Dr	US-50 EB Ramps	White Rock	39	85	183	395	851
23	Zinfandel Dr	White Rock Rd	International	24	51	111	239	514
24	Zinfandel Dr	Folsom Blvd	Sunrise	16	34	73	158	340

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Appendix D-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network - Existing 2004/2005
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
25	Sunrise Blvd	Gold Country Blvd	Coloma	59	126	272	586	1263
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	62	134	288	620	1335
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	46	98	212	457	984
28	Sunrise Blvd	Folsom Blvd	White Rock	36	79	169	365	786
29	Sunrise Blvd	White Rock Rd	Douglas	28	60	129	277	596
30	Sunrise Blvd	Douglas Rd	SR 16	24	52	112	241	520
31	Sunrise Blvd	SR 16	Grant Line Rd	19	40	87	186	402
32	Hazel Ave	US-50 WB Ramps	Winding Way	46	100	214	462	995
33	Grant Line Rd	White Rock Rd	Douglas	11	23	50	108	233
34	Grant Line Rd	Douglas Rd	SR 16	12	25	54	116	251
35	Grant Line Rd	SR 16	Sunrise	10	22	48	103	222
36	Colma Rd	Sunrise Blvd	Folsom	24	53	113	244	526
37	Gold Country	Sunrise Blvd	Hazel	15	32	69	149	321
38	Bradshaw Rd	Old Placerville Rd	Kiefer	34	74	159	343	739
39	Rancho Cordova Pkwy	US-50	White Rock	NA	NA	NA	NA	NA
40	Rancho Cordova Pkwy	White Rock	Douglas	NA	NA	NA	NA	NA
41	International	Rancho Cordova Pkwy	Sunrise	NA	NA	NA	NA	NA
42	International	Sunrise	White Rock	NA	NA	NA	NA	NA
43	International	White Rock	Bradshaw	NA	NA	NA	NA	NA
44	US-50	Bradshaw Rd	Mather Field Rd	231	497	1071	2307	4970
45	US-50	Mather Field Rd	Zinfandel	217	468	1008	2171	4677
46	US-50	Zindfandel Blvd	Sunrise	200	432	930	2004	4318
47	US-50	Sunrise Blvd	Hazel	175	378	814	1754	3779
48	US-50	Folsom Blvd	Hazel Ave	162	348	751	1617	3484
49	US-50	Folsom Blvd	Prairie City Rd	148	320	689	1485	3199

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Appendix D-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
1	SR 16	Excelsior Rd	Eagles Nest Rd	83	179	386	833	1794
2	SR 16	Sunrise Blvd	Grant Line Rd	70	151	325	700	1509
3	SR 16	Grant Line Rd	East of Grant Line Rd	60	129	278	599	1292
4	SR 16	Excelsior Rd	Bradshaw Rd	94	202	436	938	2022
5	Kiefer Blvd	Grant Line Rd	SR 16	28	60	129	278	598
6	Mather Blvd	Femoyer St	Douglas	37	79	171	368	793
7	Douglas Rd	Mather Blvd	Sunrise	30	64	138	297	639
8	Douglas Rd	Sunrise Blvd	Grant Line	27	59	127	273	588
9	International Dr	South White Rock Rd	Zinfandel	55	119	257	554	1193
10	International Dr	Zinfandel Dr	Kilgore	56	121	261	562	1211
11	White Rock Rd	Zinfandel Dr	Sunrise	39	84	182	391	843
12	White Rock Rd	Sunrise Blvd	Grant Line	48	104	225	485	1044
13	Folsom Blvd	Sunrise Blvd	Hazel	29	63	137	295	635
14	Folsom Blvd	Watt	Bradshaw	29	62	134	289	622
15	Folsom Blvd	Bradshaw	Mather	30	64	139	299	644
16	Folsom Blvd	Mather	Coloma	38	82	176	379	817
17	Folsom Blvd	Coloma	Zinfandel	31	68	146	314	676
18	Folsom Blvd	Zinfandel	Sunrise	28	61	131	282	608
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	37	80	173	373	803
20	Mather Field Rd	US-50 EB Ramps	International	51	111	239	515	1109
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	32	70	150	324	697
22	Zinfandel Dr	US-50 EB Ramps	White Rock	62	133	287	619	1334
23	Zinfandel Dr	White Rock Rd	International	41	89	192	413	890
24	Zinfandel Dr	Folsom Blvd	Sunrise	17	38	81	174	376

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Appendix D-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: 2030 Land Use Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
25	Sunrise Blvd	Gold Country Blvd	Coloma	69	148	320	689	1484
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	75	162	349	751	1619
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	53	115	247	532	1147
28	Sunrise Blvd	Folsom Blvd	White Rock	51	111	239	514	1108
29	Sunrise Blvd	White Rock Rd	Douglas	44	96	206	444	957
30	Sunrise Blvd	Douglas Rd	SR 16	42	91	196	423	912
31	Sunrise Blvd	SR 16	Grant Line Rd	33	70	151	325	700
32	Hazel Ave	US-50 WB Ramps	Winding Way	77	166	359	773	1665
33	Grant Line Rd	White Rock Rd	Douglas	51	109	235	506	1089
34	Grant Line Rd	Douglas Rd	SR 16	39	84	180	388	836
35	Grant Line Rd	SR 16	Sunrise	33	70	152	327	705
36	Colma Rd	Sunrise Blvd	Folsom	29	62	134	289	622
37	Gold Country	Sunrise Blvd	Hazel	18	39	84	182	392
38	Bradshaw Rd	Old Placerville Rd	Kiefer	62	134	289	622	1341
39	Rancho Cordova Pkwy	US-50	White Rock	53	114	245	528	1138
40	Rancho Cordova Pkwy	White Rock	Douglas	33	71	153	329	709
41	International	Rancho Cordova Pkwy	Sunrise	25	53	114	245	528
42	International	Sunrise	White Rock	56	121	260	561	1208
43	International	White Rock	Bradshaw	52	112	241	519	1119
44	US-50	Bradshaw Rd	Mather Field Rd	255	550	1185	2552	5498
45	US-50	Mather Field Rd	Zinfandel	234	503	1084	2335	5031
46	US-50	Zindfandel Blvd	Sunrise	219	471	1016	2188	4714
47	US-50	Sunrise Blvd	Hazel	208	449	967	2082	4486
48	US-50	Folsom Blvd	Hazel Ave	189	408	879	1893	4079
49	US-50	Folsom Blvd	Prairie City Rd	175	377	812	1750	3771

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Appendix D-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
1	SR 16	Excelsior Rd	Eagles Nest Rd	84	180	389	837	1804
2	SR 16	Sunrise Blvd	Grant Line Rd	69	148	318	685	1476
3	SR 16	Grant Line Rd	East of Grant Line Rd	60	129	278	599	1292
4	SR 16	Excelsior Rd	Bradshaw Rd	91	195	421	907	1954
5	Kiefer Blvd	Grant Line Rd	SR 16	28	60	129	278	600
6	Mather Blvd	Femoyer St	Douglas	31	66	143	308	663
7	Douglas Rd	Mather Blvd	Sunrise	29	62	134	289	622
8	Douglas Rd	Sunrise Blvd	Grant Line	27	57	123	265	572
9	International Dr	South White Rock Rd	Zinfandel	56	121	261	563	1214
10	International Dr	Zinfandel Dr	Kilgore	56	120	260	559	1205
11	White Rock Rd	Zinfandel Dr	Sunrise	38	81	175	376	811
12	White Rock Rd	Sunrise Blvd	Grant Line	44	94	203	437	942
13	Folsom Blvd	Sunrise Blvd	Hazel	31	67	144	310	669
14	Folsom Blvd	Watt	Bradshaw	29	62	133	287	617
15	Folsom Blvd	Bradshaw	Mather	29	63	136	294	633
16	Folsom Blvd	Mather	Coloma	38	82	177	382	823
17	Folsom Blvd	Coloma	Zinfandel	32	68	147	316	681
18	Folsom Blvd	Zinfandel	Sunrise	28	60	129	278	600
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	38	82	176	378	815
20	Mather Field Rd	US-50 EB Ramps	International	53	114	245	527	1135
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	33	70	152	326	703
22	Zinfandel Dr	US-50 EB Ramps	White Rock	61	131	282	608	1310
23	Zinfandel Dr	White Rock Rd	International	41	89	191	411	886
24	Zinfandel Dr	Folsom Blvd	Sunrise	18	38	81	175	378

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Appendix D-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Pre-2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
25	Sunrise Blvd	Gold Country Blvd	Coloma	68	148	318	685	1475
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	75	161	347	747	1610
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	53	114	246	531	1144
28	Sunrise Blvd	Folsom Blvd	White Rock	41	87	188	406	875
29	Sunrise Blvd	White Rock Rd	Douglas	41	89	191	412	888
30	Sunrise Blvd	Douglas Rd	SR 16	40	87	188	404	871
31	Sunrise Blvd	SR 16	Grant Line Rd	32	68	147	316	681
32	Hazel Ave	US-50 WB Ramps	Winding Way	79	170	365	787	1696
33	Grant Line Rd	White Rock Rd	Douglas	55	118	254	547	1179
34	Grant Line Rd	Douglas Rd	SR 16	42	90	194	419	903
35	Grant Line Rd	SR 16	Sunrise	34	74	159	344	740
36	Colma Rd	Sunrise Blvd	Folsom	29	62	133	286	616
37	Gold Country	Sunrise Blvd	Hazel	18	39	84	182	392
38	Bradshaw Rd	Old Placerville Rd	Kiefer	58	126	270	583	1255
39	Rancho Cordova Pkwy	US-50	White Rock	44	94	203	437	940
40	Rancho Cordova Pkwy	White Rock	Douglas	27	59	127	273	588
41	International	Rancho Cordova Pkwy	Sunrise	22	48	104	225	484
42	International	Sunrise	White Rock	56	121	261	563	1213
43	International	White Rock	Bradshaw	51	110	238	513	1105
44	US-50	Bradshaw Rd	Mather Field Rd	255	549	1182	2547	5488
45	US-50	Mather Field Rd	Zinfandel	235	506	1091	2351	5065
46	US-50	Zindfandel Blvd	Sunrise	218	469	1010	2176	4689
47	US-50	Sunrise Blvd	Hazel	204	440	948	2042	4400
48	US-50	Folsom Blvd	Hazel Ave	186	400	862	1858	4003
49	US-50	Folsom Blvd	Prairie City Rd	172	371	800	1723	3713

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Appendix D-7

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Post 2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
1	SR 16	Excelsior Rd	Eagles Nest Rd	84	180	389	837	1804
2	SR 16	Sunrise Blvd	Grant Line Rd	69	148	318	685	1476
3	SR 16	Grant Line Rd	East of Grant Line Rd	60	129	278	599	1292
4	SR 16	Excelsior Rd	Bradshaw Rd	91	195	421	907	1954
5	Kiefer Blvd	Grant Line Rd	SR 16	28	60	129	278	600
6	Mather Blvd	Femoyer St	Douglas	31	66	143	308	663
7	Douglas Rd	Mather Blvd	Sunrise	29	62	134	289	622
8	Douglas Rd	Sunrise Blvd	Grant Line	27	57	123	265	572
9	International Dr	South White Rock Rd	Zinfandel	56	121	261	563	1214
10	International Dr	Zinfandel Dr	Kilgore	56	120	260	559	1205
11	White Rock Rd	Zinfandel Dr	Sunrise	38	81	175	376	811
12	White Rock Rd	Sunrise Blvd	Grant Line	44	94	203	437	942
13	Folsom Blvd	Sunrise Blvd	Hazel	31	67	144	310	669
14	Folsom Blvd	Watt	Bradshaw	29	62	133	287	617
15	Folsom Blvd	Bradshaw	Mather	29	63	136	294	633
16	Folsom Blvd	Mather	Coloma	38	82	177	382	823
17	Folsom Blvd	Coloma	Zinfandel	32	68	147	316	681
18	Folsom Blvd	Zinfandel	Sunrise	28	60	129	278	600
19	Mather Field Rd	Folsom Blvd	US-50 WB ramps	38	82	176	378	815
20	Mather Field Rd	US-50 EB Ramps	International	53	114	245	527	1135
21	Zinfandel Dr	Folsom Blvd	US-50 WB Ramps	33	70	152	326	703
22	Zinfandel Dr	US-50 EB Ramps	White Rock	61	131	282	608	1310
23	Zinfandel Dr	White Rock Rd	International	41	89	191	411	886
24	Zinfandel Dr	Folsom Blvd	Sunrise	18	38	81	175	378

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Appendix D-8

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2005-532 Rancho Cordova General Plan
Description: Build Out Rancho Cordova Post 2030 Roadway Network
Ldn/CNEL: Ldn
Hard/Soft: Soft

		Segment Description		-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	From	To	75	70	65	60	55
25	Sunrise Blvd	Gold Country Blvd	Coloma	68	148	318	685	1475
26	Sunrise Blvd	Coloma Rd	US-50 WB Ramps	75	161	347	747	1610
27	Sunrise Blvd	US-50 EB Ramps	Folsom Blvd	53	114	246	531	1144
28	Sunrise Blvd	Folsom Blvd	White Rock	41	87	188	406	875
29	Sunrise Blvd	White Rock Rd	Douglas	41	89	191	412	888
30	Sunrise Blvd	Douglas Rd	SR 16	40	87	188	404	871
31	Sunrise Blvd	SR 16	Grant Line Rd	32	68	147	316	681
32	Hazel Ave	US-50 WB Ramps	Winding Way	79	170	365	787	1696
33	Grant Line Rd	White Rock Rd	Douglas	55	118	254	547	1179
34	Grant Line Rd	Douglas Rd	SR 16	42	90	194	419	903
35	Grant Line Rd	SR 16	Sunrise	34	74	159	344	740
36	Colma Rd	Sunrise Blvd	Folsom	29	62	133	286	616
37	Gold Country	Sunrise Blvd	Hazel	18	39	84	182	392
38	Bradshaw Rd	Old Placerville Rd	Kiefer	58	126	270	583	1255
39	Rancho Cordova Pkwy	US-50	White Rock	44	94	203	437	940
40	Rancho Cordova Pkwy	White Rock	Douglas	27	59	127	273	588
41	International	Rancho Cordova Pkwy	Sunrise	22	48	104	225	484
42	International	Sunrise	White Rock	56	121	261	563	1213
43	International	White Rock	Bradshaw	51	110	238	513	1105
44	US-50	Bradshaw Rd	Mather Field Rd	255	549	1182	2547	5488
45	US-50	Mather Field Rd	Zinfandel	235	506	1091	2351	5065
46	US-50	Zindfandel Blvd	Sunrise	218	469	1010	2176	4689
47	US-50	Sunrise Blvd	Hazel	204	440	948	2042	4400
48	US-50	Folsom Blvd	Hazel Ave	186	400	862	1858	4003
49	US-50	Folsom Blvd	Prairie City Rd	172	371	800	1723	3713

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Appendix E-1

Rancho Cordova General Plan
24hr Continuous Noise Monitoring at 149 Lord Way
Wednesday, January 11, 2006

Hour	Leq	Lmax	L50	L90
0:00	66.6	74.8	65.5	59.8
1:00	64.5	72.7	63.3	56.9
2:00	64.4	75.8	63.0	54.4
3:00	64.7	74.0	63.3	54.9
4:00	69.1	77.8	68.4	62.1
5:00	74.0	80.3	73.8	70.3
6:00	76.1	79.2	76.0	74.6
7:00	73.2	77.8	72.7	71.2
8:00	75.5	79.4	75.6	71.7
9:00	76.4	79.3	76.3	75.1
10:00	76.5	79.7	76.4	75.0
11:00	76.3	79.9	76.2	74.6
12:00	76.4	79.8	76.3	74.9
13:00	76.4	80.2	76.3	74.7
14:00	76.5	80.1	76.3	74.9
15:00	76.4	81.7	76.3	74.9
16:00	76.0	80.0	75.8	74.7
17:00	74.8	77.8	74.8	72.7
18:00	74.5	81.7	74.4	72.7
19:00	72.1	79.7	71.8	69.9
20:00	72.1	77.0	71.8	69.8
21:00	71.1	80.6	70.8	68.1
22:00	70.4	77.4	70.0	66.3
23:00	67.1	75.1	66.6	63.0

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	76.5	71.1	75.3	76.1	64.4	70.6
Lmax (Maximum)	81.7	77.0	79.7	80.3	72.7	76.4
L50 (Median)	76.4	70.8	74.8	76.0	63.0	67.8
L90 (Background)	75.1	68.1	73.0	74.6	54.4	62.5

Computed Ldn, dB	78.1
% Daytime Energy	83%
% Nighttime Energy	17%

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Appendix E-2

Rancho Cordova General Plan
24hr Continuous Noise Monitoring at 10835 Nestlenook Way
Thursday, January 12, 2006

Hour	Leq	Lmax	L50	L90
0:00	49.2	65.0	47.9	43.5
1:00	48.8	62.5	47.6	42.3
2:00	48.0	55.4	46.7	41.7
3:00	46.9	54.5	46.0	40.2
4:00	47.5	69.6	45.0	39.3
5:00	44.7	57.0	43.2	39.6
6:00	47.8	66.0	42.1	38.4
7:00	47.5	62.8	44.5	39.5
8:00	43.2	54.2	41.1	36.5
9:00	44.1	64.5	39.7	36.3
10:00	46.9	64.4	41.7	40.0
11:00	48.9	67.4	41.4	37.3
12:00	48.8	70.2	39.9	36.2
13:00	49.9	66.3	42.9	37.0
14:00	48.5	66.7	42.4	38.1
15:00	54.8	75.6	45.0	41.4
16:00	48.5	66.7	45.0	43.3
17:00	51.9	65.3	51.3	44.8
18:00	56.0	60.7	55.8	53.2
19:00	53.6	67.9	51.9	46.5
20:00	53.6	72.9	51.6	47.6
21:00	49.3	60.4	48.7	43.8
22:00	49.6	55.2	49.3	45.5
23:00	49.1	55.2	48.6	44.3

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56.0	43.2	51.1	49.6	44.7	48.2
Lmax (Maximum)	75.6	54.2	65.7	69.6	54.5	60.0
L50 (Median)	55.8	39.7	45.5	49.3	42.1	46.3
L90 (Background)	53.2	36.2	41.4	45.5	38.4	41.6

Computed Ldn, dB	55.1
% Daytime Energy	77%
% Nighttime Energy	23%

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Appendix E-3

Rancho Cordova General Plan
24hr Continuous Noise Monitoring at 7107 Grant Line Rd
Thursday, February 24, 2005

Hour	Leq	Lmax	L50	L90
0:00	52.6	76.7	38.2	33.4
1:00	52.7	75.3	34.7	31.9
2:00	55.0	77.0	33.5	30.1
3:00	53.7	79.8	35.6	30.5
4:00	57.7	76.5	42.3	36.2
5:00	64.0	80.5	51.9	45.2
6:00	69.3	81.8	62.7	52.1
7:00	69.1	81.3	62.5	52.8
8:00	69.3	88.1	61.4	46.8
9:00	66.8	80.2	55.8	44.9
10:00	66.1	81.6	52.0	43.0
11:00	66.2	79.3	54.9	44.1
12:00	65.4	80.7	50.8	42.2
13:00	66.0	83.8	52.1	42.1
14:00	67.0	85.0	54.8	44.2
15:00	68.4	81.2	60.1	45.8
16:00	69.1	80.9	62.1	45.2
17:00	69.4	86.3	62.3	45.7
18:00	67.5	83.1	57.4	43.0
19:00	64.1	81.0	50.6	42.3
20:00	62.1	80.2	46.7	37.9
21:00	62.6	82.0	48.1	40.2
22:00	60.6	76.5	46.5	40.3
23:00	57.5	75.1	39.9	33.4

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	69.4	62.1	67.1	69.3	52.6	62.0
Lmax (Maximum)	88.1	79.3	82.3	81.8	75.1	77.7
L50 (Median)	62.5	46.7	55.4	62.7	33.5	42.8
L90 (Background)	52.8	37.9	44.0	52.1	30.1	37.0

Computed Ldn, dB	69.6
% Daytime Energy	85%
% Nighttime Energy	15%

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4.9 – Water Appendix: Water Supply Evaluation

City of Rancho Cordova

Water Supply Evaluation

for the

City of Rancho Cordova General Plan

PREPARED FOR:

City of Rancho Cordova

March 8, 2006

EDAW

City of Rancho Cordova

Water Supply Evaluation

For the

City of Rancho Cordova General Plan

Prepared for:

City of Rancho Cordova

Contact:

Pat Angell

Prepared by:

EDAW, Inc.
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Sacramento, California 95814
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Francine Dunn
Project Manager

March 8, 2006

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ACRONYMS AND ABBREVIATIONS

Act	Urban Water Management Planning Act
afy	acre-feet per year
Agency Act	Sacramento County Water Agency Act
ASWC	American States Water Company
Cal-Am	California-American Water Company
Central Basin	Central Sacramento County Groundwater Basin
CEQA	California Environmental Quality Act
cfs	cubic feet per second
City	City of Rancho Cordova
Coloma WTP	Coloma Water Treatment Plant
CPUC	California Public Utilities Commission
CSCGF	Central Sacramento County Groundwater Forum
CVP	Central Valley Project
CWTP	Central Water Treatment Plant
Delta	Sacramento San Joaquin River Delta
DWR	California Department of Water Resources
EPA	United States Environmental Protection Agency
FRDS	Freeport Regional Diversion Structure
GMP	Groundwater Management Plan
gpm	gallons per minute
GSWC	Golden State Water Company
IGSM	Sacramento County Integrated Groundwater Surface Water Model
JPA	Joint Powers Authority
LAFCO	Sacramento County Local Agency Formation Commission
mgd	million gallons per day
NDMA	N-nitrosodimethylamine
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
OHWD	Omochumne-Hartnell Water District
POU	Place of Use
PSA	Purveyor Specific Agreements
Pyrites WTP	Pyrites Water Treatment Plant
Reclamation	U.S. Bureau of Reclamation
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SCWA	Sacramento County Water Agency
SMUD	Sacramento Municipal Utility District

SRCSD	Sacramento Regional County Sanitation District
SSWD	Sacramento Suburban Water District
SWP	State Water Project
SWRCB	State Water Resources Control Board
UPA	Urban Policy Area
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VOC	volatile organic compounds
WFA	Water Forum Agreement
WRMP	Water Recycling Master Plan
WSA	Water Supply Assessment
WSMP	Water Supply Master Plan

1 EXECUTIVE SUMMARY

This technical memorandum addresses water supply issues for the City of Rancho Cordova's (City) General Plan and General Plan EIR. It identifies the regional water supply regulatory and planning environment; water purveyors that currently provide water service within the City; water demands associated with buildout of the City's corporate limits (estimated to build out by 2030) and larger planning area (assumed, for purposes of this analysis, to build out by 2050; an actual build out year has not been determined) identified in its Draft General Plan; existing available water supplies that could meet a portion of the City's projected buildout water demands (e.g., buildout of planning area); the area within the City for which long-term water supplies have been secured (e.g., approved and planned projects/existing development); potential future sources of water to meet remaining buildout water demands; and a brief summary of the potential environmental impacts associated with delivering future water supplies to the City.

Because of the long planning horizon associated with buildout of the City's corporate limits (i.e., approximately 2030) and the City's planning area (i.e., approximately 2050), this water supply evaluation provides a summary of relevant water supply data based on information readily available from the City (land use plans and associated demands) and local water purveyors (existing and planned future water supplies and distribution facilities).

The City has identified two land use plans that contemplate a development pattern for land inside and outside its current corporate limits. Buildout of the City's corporate limits (approximately 20,000 acres) is anticipated to occur by 2030, while buildout of its planning area (an area approximately 3 times the size of the corporate limits) is not certain, but assumed to occur by 2050.

There are 3 water purveyors within the City's planning area: Sacramento County Water Agency (SCWA), Zone 40; Golden State Water Company (GSWC); and California-American Water Company (Cal-Am). Urban Water Management Plans (UWMP) for all water purveyors were obtained and used in this evaluation. The UWMPs identified the purveyor's existing and projected future water supplies and projected water demands through 2030 within each of their service areas.

SCWA's service area (i.e., Zone 40) encompasses approximately 70% of the City's planning area and SCWA would be the primary water purveyor within the City. SCWA has engaged in a long-term water supply planning process through its participation in the regional Water Forum planning process and the recent adoption of its *Zone 40 Water Supply Master Plan* (WSMP) (2005). The WSMP identifies the acreage of land area that could be served by existing and projected future water supplies through 2030 for an expected growth area of Sacramento County (as identified in the Sacramento County General Plan [1994]), based on planned land use pattern and density information available at the time the report was prepared. This area is known as the 2030 Study Area. SCWA's water supplies include surface water and groundwater resources that would, over the long-term, be conjunctively used to ensure that adequate groundwater levels are maintained throughout the Central Sacramento Groundwater Basin (Basin) and that both surface water and groundwater supplies are adequate to meet projected demands through 2030. While a majority of the City's planning area falls within Zone 40, only a portion falls within a subarea known as the 2030 Study Area.

Golden State Water Company (GSWC) also serves a portion (generally the northeastern portion) of the City's planning area. GSWC owns and operates the Cordova System, a water treatment and conveyance system that serves GSWC's service area. GSWC relies on both surface and groundwater to meet water demands within its service area. GSWC is projecting buildout within its service area by 2020.

Cal-Am is a privately owned water purveyor that provides urban water supply to portions of Rancho Cordova located near Sunrise Boulevard and Douglas Road. Cal-Am purchases wholesale water from SCWA. Cal-Am is projecting buildout within its service area by 2025.

Based on an analysis of potential supply and demand, it is likely that adequate supplies would be available to meet the City's water demands (i.e., 57,299 afy) associated with buildout of its corporate limits (see Section 5.3, "Availability of Supplies to Meet Projected Demands within the City of Rancho Cordova General Plan Planning Area"). However, based on total known future supplies (i.e., 77,620 afy), there would be a supply shortfall of approximately 51,089 afy to meet the City's total planning area demands (i.e., 128,709 afy). This shortfall occurs if development exceeds the total amount associated with buildout of the corporate boundaries.

If water supplies are not available to meet buildout water demands, the City would either need to stop approving new growth within its jurisdiction, or collaborate with regional water purveyors to investigate potential future water supply options within the context of the regional water supply planning environment. Investigation of future water supply options would likely require involvement from local water purveyors (GSWC, Cal-Am, and SCWA at a minimum, and other neighboring purveyors as appropriate), the Water Forum successor effort, and environmental groups. Because of the long-term and sometime contentious nature of new water supply planning, the feasibility of implementing new water supply options beyond those described in the Water Forum Agreement (a regional water supply plan, described in Section 3.3.1m "Water Forum Agreement") are unknown and speculative. Potential new water supply options that the City could pursue (in collaboration with local agencies/entities) to develop supplies to meet its planning area buildout water demands are listed below and described in greater detail in Section 5.4, "Future Water Supplies."

- Water transfers and exchanges with nearby water purveyors;
- Improved groundwater sustainability; and
- Expanded use of Recycled Water.

2 INTRODUCTION

The City of Rancho Cordova (City) is in the process of preparing, and ultimately will consider, the adoption of the *City of Rancho Cordova General Plan*. A general plan is the principal planning document that provides a blueprint for development within a community. A general plan addresses all aspects of development including housing, traffic, natural resources, open space, safety, land use, and public facilities (including water supply and facilities). Under state planning law, the General Plan must include a comprehensive, long-term plan for the physical development of both the City of Rancho Cordova and any land outside the corporate boundaries that the City has determined relates to its planning.

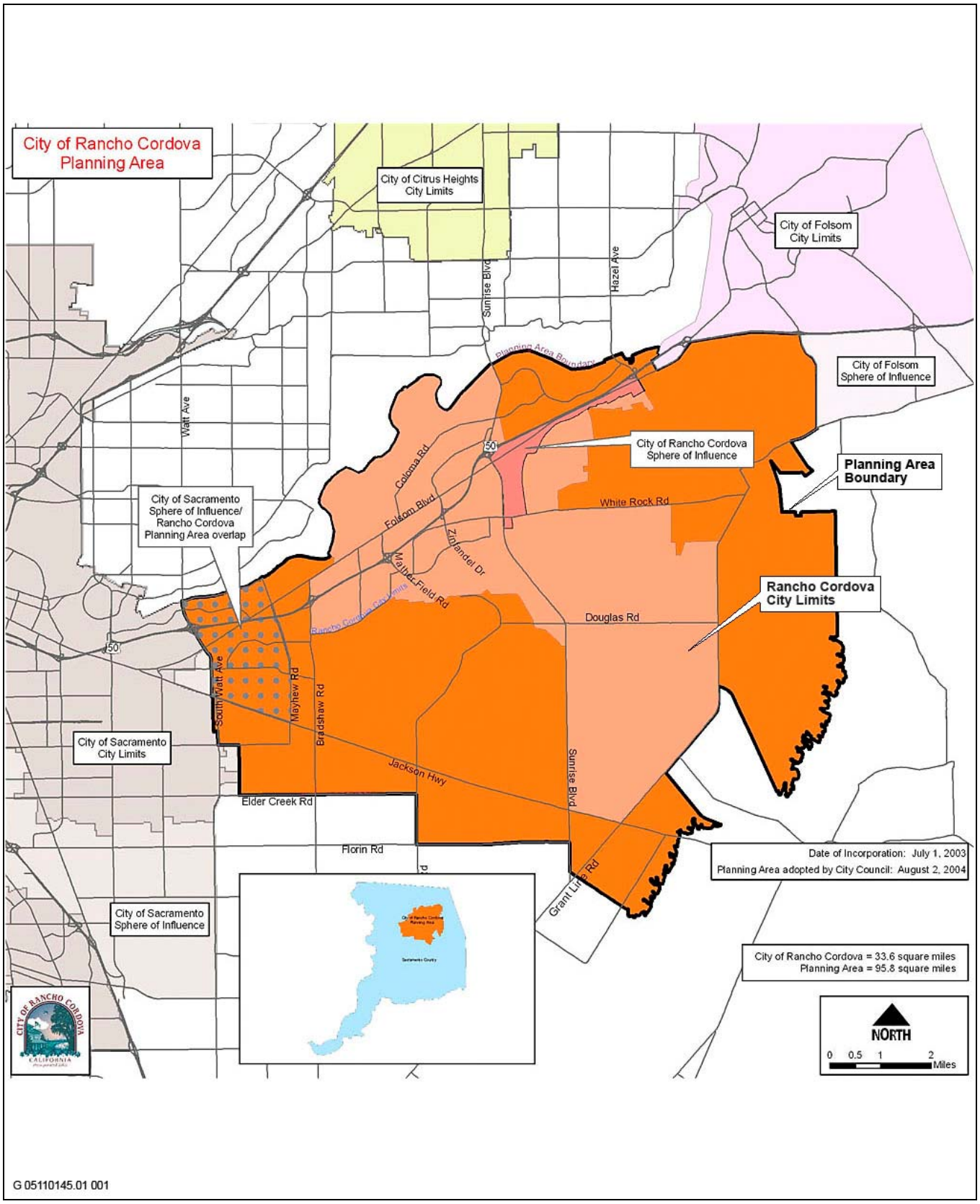
The City's General Plan outlines goals, objectives, and policies related to how growth and development would be allowed to proceed over a defined planning horizon. In addition, the City is required to prepare seven mandatory elements and any optional elements it deems necessary. The City's General Plan consists of the following elements:

- Land Use Element
- Circulation Element
- Housing Element
- Air Quality Element
- Open-space, Parks, and Trails Element
- Noise Element
- Safety Element
- Urban Design Element
- Economic Development Element
- Infrastructure, Services, and Finance Element
- Natural Resources Element
- Cultural and Historic Resources Element

In compliance with the California Environmental Quality Act (CEQA), the City is preparing an environmental impact report (EIR) that evaluates the environmental effects associated with implementation of its general plan. The City's General Plan and EIR are scheduled to be considered by the City Council in June 2006.

The city of Rancho Cordova is generally located in north central Sacramento County, immediately east and south of the city of Sacramento and west and south of the city of Folsom. Unincorporated lands under the jurisdiction of the County of Sacramento (County) border Rancho Cordova to the south. The city of Rancho Cordova consists of approximately 34 square miles of land (i.e., approximately 20,000 acres); its limits extend from Bradshaw Road on the west to the American River Parkway on the north, Grant Line Road on the east, and Jackson Highway on the south (Exhibit 1). As described above, state planning law requires that an agency consider and plan for areas within its jurisdiction and any areas outside its jurisdiction that would relate to its planning. As such, the City has identified a defined "Planning Area" (herein referred to as the "planning area") for its General Plan. This area consists of approximately 99 square miles of land (i.e., 61,383 acres) (areas in the city and unincorporated county), which is approximately three times the area currently within the City's corporate limits. In general, the City has included within its planning area those unincorporated county areas that border the city to the southwest and east. The planning area is generally bounded by Watt Avenue to the west, the American River to the north, Prairie City Road to the east, and Jackson Highway to the south (Exhibit 1).

This water supply evaluation addresses water supply issues associated with the City's plans for growth and development within its planning area. Where relevant, this document describes existing and projected water supply demands for areas that fall within the city limits (i.e., 20,000 acres) and for the larger planning area (i.e., 61,383 acres) as a whole. This water supply evaluation includes the following elements:



Source: City of Rancho Cordova 2006

City of Rancho Cordova General Plan Planning Area **Exhibit 1**

- **Chapter 1, "Executive Summary":** This chapter provides a summary of the results of this water supply evaluation.
- **Chapter 2, "Introduction":** This chapter describes the City's General Plan, the planning area under consideration, and organization of the water supply evaluation.
- **Chapter 3, "Regulatory and Planning Environment for Water Supply":** This chapter describes relevant legislation; water purveyors and agencies; related plans, projects, and agreements; and water resources within the Sacramento region.
- **Chapter 4, "Existing and Projected Water Demand and Supply":** This chapter describes the existing and projected water demands and available supplies for water purveyors in the City's planning area.
- **Chapter 5, "Projected Water Demands for the City of Rancho Cordova General Plan Planning Area":** This chapter describes the method by which water demands are projected, projected water demands within the Rancho Cordova city limits and for the City's larger planning area, the availability of known supplies to meet projected demands, and potential future supplies that could serve the city.
- **Chapter 6, "Potential Environmental Impacts Associated with Delivering Water to the City's Planning Area":** This section provides a brief summary of the potential environmental impacts that could occur with diversion, conveyance, treatment, and discharge of water supplies need to meet projected demands within the City's planning area.
- **Chapter 7, "References":** This chapter sets forth a comprehensive listing of all sources of information used in the preparation of this document.

3 REGULATORY AND PLANNING ENVIRONMENT FOR WATER SUPPLY

The planning, procurement, and management of new water supplies to meet the existing and projected future water demands within Rancho Cordova is a complex undertaking involving the coordination of numerous federal, state, and local agencies. The decision to pursue a local water supply project is subject to the issuance of water rights; environmental review under CEQA and sometimes the federal equivalent, the National Environmental Policy Act (NEPA); and other regulatory permitting requirements. Often it involves resolving complex issues among competing interests (e.g., development versus environmental interests).

California's complex scheme of rights to surface water and groundwater is based on the state's constitution, statutes, and common law. Rights to surface water are governed by a hybrid system of riparian and appropriative rights that are administered by the State Water Resources Control Board (SWRCB) and water rights established before the advent of the SWRCB's jurisdiction in 1914. Under riparian rights, users are entitled to make reasonable use of the natural flow of water in the watercourse to which their properties adjoin. Appropriative rights are established by diverting surplus water for non-riparian uses. Riparian water rights are essentially coequal ("correlative"), but are superior to appropriative rights. Water is allocated among appropriative users based on seniority, under the principle of "first in time, first in right." Accordingly, pre-1914 water rights trump appropriative rights established by the SWRCB.

Groundwater that flows in subterranean streams is allocated by the SWRCB according to the rules applicable to surface waters. Rights to groundwater that does not flow in such streams ("percolating" groundwater) are not administered by any state agency, but may be adjudicated by courts on a case-by-case basis (and, to some extent, may be regulated by local governments). When groundwater becomes overdrafted (i.e., more groundwater is pumped out of the basin than is replenished by natural or artificial systems), overlying users have first priority in using the available water, followed by appropriative users (i.e., users of groundwater not overlying the property from which it was pumped) in order of seniority. Where an appropriative user has been continuously withdrawing water from an overdrafted aquifer for more than 5 years, the appropriative right may become a prescriptive right, which is effectively treated as an overlying right for purposes of groundwater allocation.

Both surface water rights and groundwater rights are subject to a requirement in the state constitution that the end use be reasonable and beneficial.

3.1 WATER PLANNING–RELATED LEGISLATION

3.1.1 URBAN WATER MANAGEMENT PLANNING ACT

Each urban water supplier in California is required to prepare an Urban Water Management Plan (UWMP) and update the plan on or before December 31 in years ending in 5 and 0, pursuant to California Water Code Sections 10610–10657, as last amended by Senate Bill (SB) 318 (2004), the Urban Water Management Planning Act. SB 318 is the 18th amendment to the original bill requiring a UWMP, which was initially enacted in 1983. Amendments to SB 318 have focused on ensuring that the UWMP emphasizes and addresses drought contingency planning, water demand management, reclamation, and groundwater resources.

Under the current law, all urban water suppliers with more than 3,000 service connections or water use of more than 3,000 acre-feet per year (afy) are required to submit an UWMP to the California Department of Water Resources (DWR) every 5 years.

3.1.2 SENATE BILL 610

SB 610 (Chapter 643, Statutes of 2001) became effective January 1, 2002. The purpose of SB 610 is to strengthen the process by which local agencies determine the adequacy and sufficiency of current and future water supplies to meet current and future demands. SB 610 amended the California Public Resources Code to incorporate Water Code requirements within the CEQA process for certain types of projects. SB 610 also amended the Water Code to broaden the types of information included in a UWMP (Water Code Section 10620 et seq.). SB 610 consists of two primary components, the UWMP (described above) and the Water Supply Assessment (WSA) (Water Code Sections 10910–10915).

WATER CODE PART SECTION 10910

Water Code Section 10910 et seq. defines the projects for which the preparation of a WSA is required as well as the lead agency's responsibilities related to the WSA. The Water Code also clarifies the roles and responsibilities of the lead agency under CEQA and of the water supplier (i.e., public water system) with respect to describing current and future supplies compared to current and future demands. A WSA is required for:

- a proposed residential development of more than 500 dwelling units;
- a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- a proposed hotel or motel, or both, having more than 500 rooms;
- a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- a mixed-use development that includes one or more of the uses described above;
- a development that would demand an volume of water equivalent to or greater than the volume of water required by a 500-dwelling-unit project; and
- for lead agencies with fewer than 5,000 water service connections, any new development that would increase the number of water service connections in the service area by 10% or more.

Under Section 10910 of the Water Code, the lead agency must identify the affected water supplier and ask the supplier whether the new demands associated with the project are included in the supplier's UWMP. If the UWMP includes the demands, it may be incorporated by reference in the WSA (Water Code Section 10910[c][2]). If there is no public water system to serve the project, the lead agency must prepare the WSA (Water Code Section 10910[b]).

3.1.3 SENATE BILL 221

SB 221 requires a city or county to include as a condition of approval of any tentative map, parcel map, or development agreement for certain residential subdivisions a requirement that a "sufficient water supply" be available. Proof of a sufficient water supply must be based on a written verification from the public water system that would serve the development.

3.2 WATER PURVEYORS AND RELATED AGENCIES

The federal, state, regional, local, and private entities that could be involved in the City's water supply planning and development process are described below.

3.2.1 FEDERAL AGENCIES

U.S. BUREAU OF RECLAMATION

The U.S. Bureau of Reclamation (Reclamation) is part of the U.S. Department of the Interior and is responsible for the development and conservation of much of the water resources in the western United States. While the original purpose of Reclamation was to provide for the reclamation of arid and semiarid lands in the west, the agency's current mission covers a wider range of interrelated functions. These functions include providing municipal and industrial water supplies through the Central Valley Project (CVP); generating hydroelectric power; providing irrigation water for agriculture; improving water quality, flood control, and river navigation; providing river regulation and control and fish and wildlife enhancement; offering water-based recreation opportunities; and conducting research on a variety of water-related topics.

U.S. FISH AND WILDLIFE SERVICE AND NATIONAL MARINE FISHERIES SERVICE

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), in cooperation with other federal and state agencies, enforce the federal Endangered Species Act by evaluating the potential for impacts on candidate, threatened, and endangered fish and wildlife resources.

U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers (USACE) is responsible for issuing permits for the placement of fill or discharge of material into waters of the United States. These permits are required under Sections 401 and 404 of the Clean Water Act. Water supply projects that involve instream construction, such as dams or other types of diversion structures, trigger the need for these permits and related environmental reviews by USACE. USACE also is responsible for flood control planning and assisting state and local agencies with the design and funding of local flood control projects.

U.S. GEOLOGICAL SURVEY

The U.S. Geological Survey (USGS) National Water Use Information Program is responsible for compiling and disseminating the nation's water-use data. USGS works in cooperation with federal, state, and local environmental agencies to collect water-use information at the local level.

3.2.2 STATE AGENCIES

CALIFORNIA DEPARTMENT OF WATER RESOURCES

DWR is responsible for the preparation of the California Water Plan, management of the State Water Project (SWP), protection and restoration of the Sacramento–San Joaquin River Delta (Delta), regulation of dams, provision of flood protection, and other functions related to surface water and groundwater resources. These other functions include helping water agencies prepare their UWMPs and reviewing such plans to ensure that they comply with the related Urban Water Management Planning Act.

STATE WATER RESOURCES CONTROL BOARD

The SWRCB was established in 1967 to administer state water rights and water quality functions. The SWRCB and its nine regional water quality control boards (RWQCBs) administer water rights and enforce pollution control standards throughout the state. The SWRCB is responsible for the granting of water right permits and licenses through an appropriation process following public hearings and appropriate environmental review by applicants and responsible agencies. In granting water right permits and licenses, the SWRCB must consider all beneficial uses, including water for downstream human and environmental needs. In addition to granting the water right permits needed to operate new water supply projects, the SWRCB also issues water quality–related certifications to developers of water projects under Section 401 of the federal Clean Water Act.

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

The Central Valley RWQCB is responsible for the preparation and implementation of basin water quality plans consistent with the federal Clean Water Act; the enforcement of these plans ensures that local water quality is protected. The RWQCB may become involved in water supply programs as a responsible agency with respect to project impacts on downstream beneficial uses. The city of Rancho Cordova is within the jurisdiction of the Central Valley RWQCB.

CALIFORNIA DEPARTMENT OF FISH AND GAME

The California Department of Fish and Game (DFG) is a responsible agency with respect to the review of water right applications and also is responsible for issuing lake and streambed alteration permits for new water supply projects, as appropriate. DFG works in coordination with federal and state agencies to mitigate the impacts of projects on fish and wildlife resources, and is responsible for enforcing the California Endangered Species Act. DFG often helps establish instream flows (minimum releases below a dam or diversion structure) to maintain habitat below a project. Such release schedules may be included in water right permits and could affect the yield of a project.

3.2.3 LOCAL AGENCIES

SACRAMENTO COUNTY WATER AGENCY

Sacramento County Water Agency (SCWA) was formed in 1952 by a special legislative act of the State of California, the Sacramento County Water Agency Act (Agency Act). SCWA's purposes include, but are not limited to:

- making water available for any beneficial use of lands and inhabitants, and
- producing, storing, transmitting, and distributing groundwater.

SCWA's boundaries include all of Sacramento County and the agency is governed by a Board of Directors (ex officio, the County Board of Supervisors). Under the Agency Act, the County Board of Supervisors may contract with the federal government under reclamation laws with the same powers as irrigation districts, and with federal and state governments with respect to the purchase, sale, and acquisition of water. SCWA may also construct and operate any required capital facilities. There are currently several benefit zones within SCWA that are related to water supply (Zone 13, Zone 40, Zone 41, and Zone 50). Each has a unique purpose and generates revenue internally for carrying out that purpose. Zones relevant to Rancho Cordova are described below.

Sacramento County Water Agency Zone 40

Portions of the city of Rancho Cordova are located within SCWA Zone 40. Zone 40 was created in May 1985 by SCWA Resolution No. 663, which describes the boundaries of the zone and defines the projects to be undertaken

as "... the acquisition, construction, maintenance and operation of facilities for the production, conservation, transmittal, distribution and sale of ground or surface water or both for the present and future beneficial use of the lands or inhabitants within the zone." The boundaries and scope of Zone 40 activities were expanded in April 1999 by Resolution WA-2331. Zone 40 activities now include the use of recycled water in addition to surface water and groundwater. Once Zone 40 water facilities have been constructed, the facilities are granted to Zone 41, the public water purveyor (discussed below), for long-term operations and maintenance and eventual replacement.

Zone 40 is located in the central portion of Sacramento County (Exhibit 2). Much of Zone 40 currently consists of rural land uses (i.e., agricultural, agricultural/residential, and conservation reserve); however, rapid urbanization is occurring within the city of Elk Grove in the East Franklin and Laguna Ridge areas, in the unincorporated areas of the Vineyard and Mather service areas, and in the city of Rancho Cordova within the Sunrise Douglas and Sunrise Corridor service areas. Zone 40 generates revenue for its capital program through development fees and from special development capital fees collected bimonthly from Zone 41 retail water service customers within Zone 40 and wholesale water service customers in the Elk Grove Water Service area (Exhibit 3).

SACRAMENTO COUNTY LOCAL AGENCY FORMATION COMMISSION

The County Local Agency Formation Commission (LAFCo) regulates local-agency boundary changes, including annexations and changes to spheres of influence for each city and special district within the county. The LAFCo is also responsible for approving the boundaries and spheres of influence of each water purveyor in the county. Groundwater is the primary source of water for land not currently served by a water district. Lands currently not served by a water district must be annexed to the appropriate district prior to receiving municipal and industrial water supplies subject to approval by the LAFCo.

SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT

The County Environmental Management Department performs a number of public-health services related to water supply, including prescribing the authorized use of recycled water, inspecting industrial and commercial stormwater systems, inspecting public/private water systems, controlling cross connection water systems, inspecting septic systems, installing groundwater monitoring wells, and conducting land use evaluations with respect to water and wastewater demands. The department is also responsible for enforcing the County's Well Standards Ordinance, which helps protect groundwater quality and public health by, among other things, including certain requirements related to monitoring wells and other protective measures.

FREEPORT REGIONAL WATER AUTHORITY

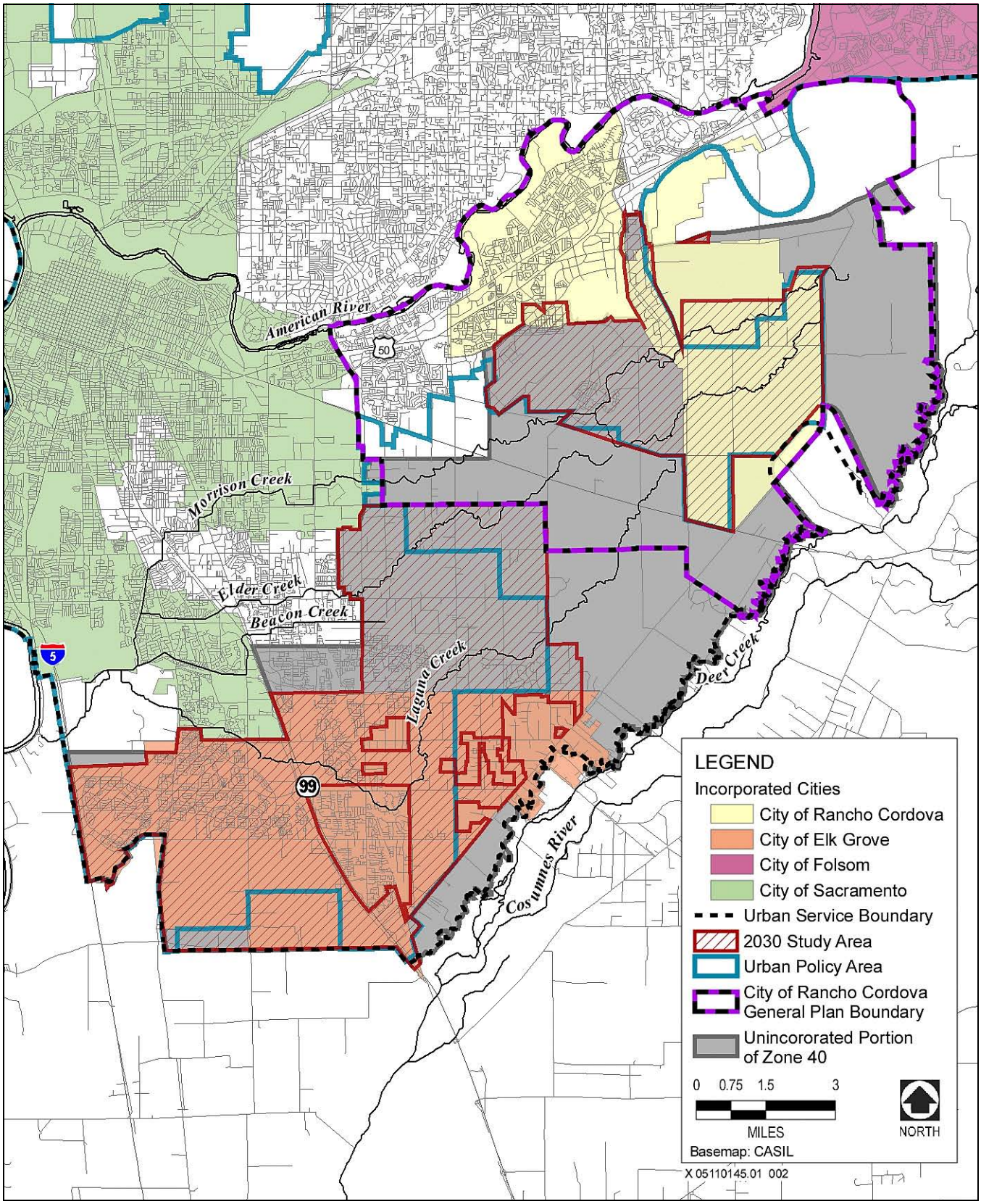
The Freeport Regional Water Authority (FRWA) was created in February 2002 by a Joint Powers Agreement of SCWA and East Bay Municipal Utility District in association with the City of Sacramento and with support from Reclamation. FRWA guides the financing, ownership, development, construction, and operation of the Freeport Regional Water Project, which is a joint effort to draw water from the Sacramento River near the town of Freeport, discussed below in Section 3.3.2.

3.2.4 WATER PURVEYORS WITHIN THE PLANNING AREA

Multiple water purveyors fall within the City's General Plan planning area. Water purveyors in the planning area are SCWA Zone 41, Golden State Water Company (GSWC), and California-American Water Company (Cal-Am). Exhibit 4 shows the water purveyors within the General Plan planning area.

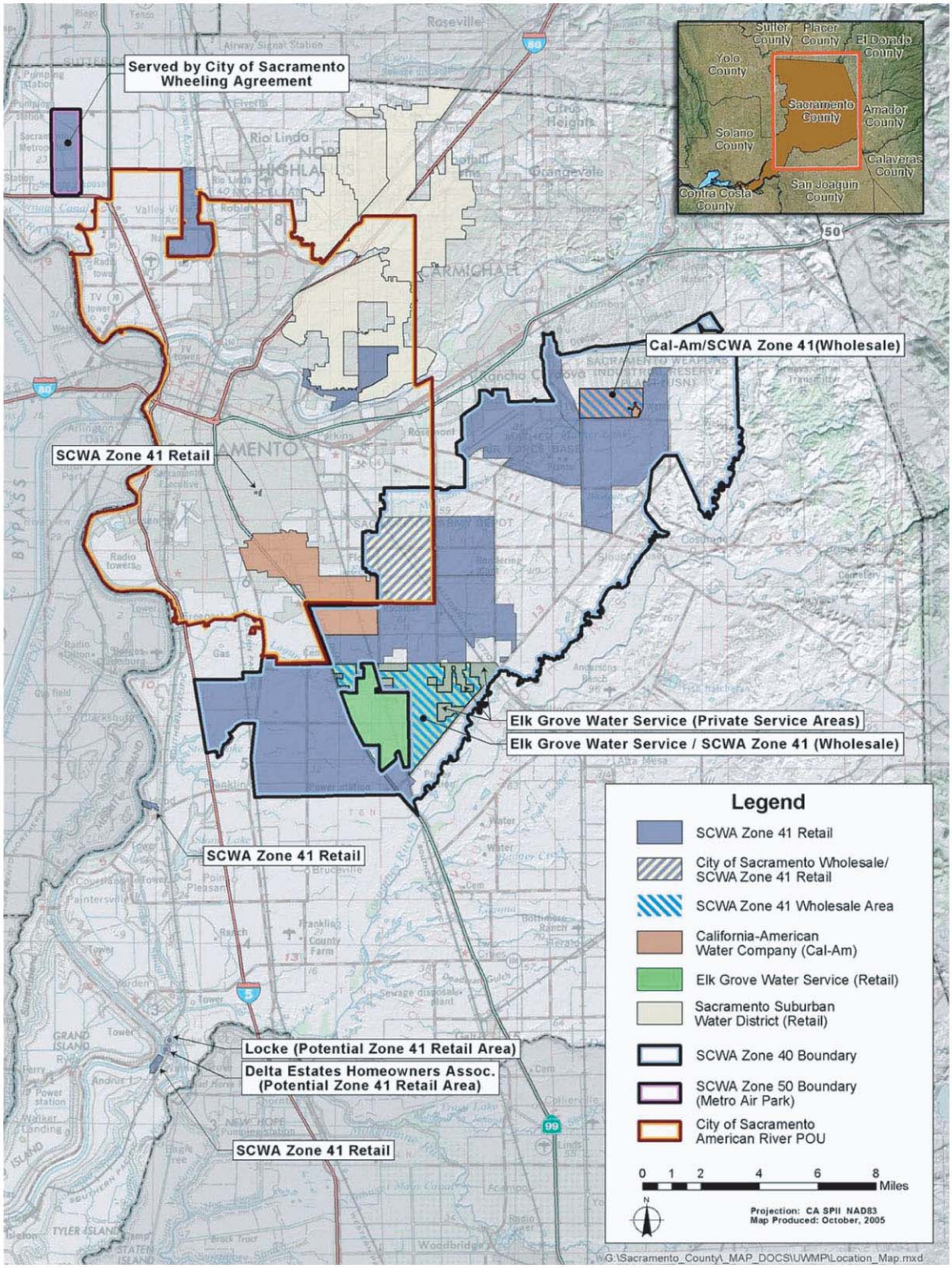
SACRAMENTO COUNTY WATER AGENCY ZONE 41

SCWA Zone 41 is a retail water supplier that provides safe and reliable drinking water to its various service areas located in both the unincorporated and incorporated (i.e., the Cities of Elk Grove and Rancho Cordova) portions



Source: County of Sacramento 1999, 2003; MWH 2003; U.S. Census Bureau 2002, cited in SCWA 2003

Incorporated Cities within SCWA Zone 40, and the Zone 40 2030 Study Area **Exhibit 2**



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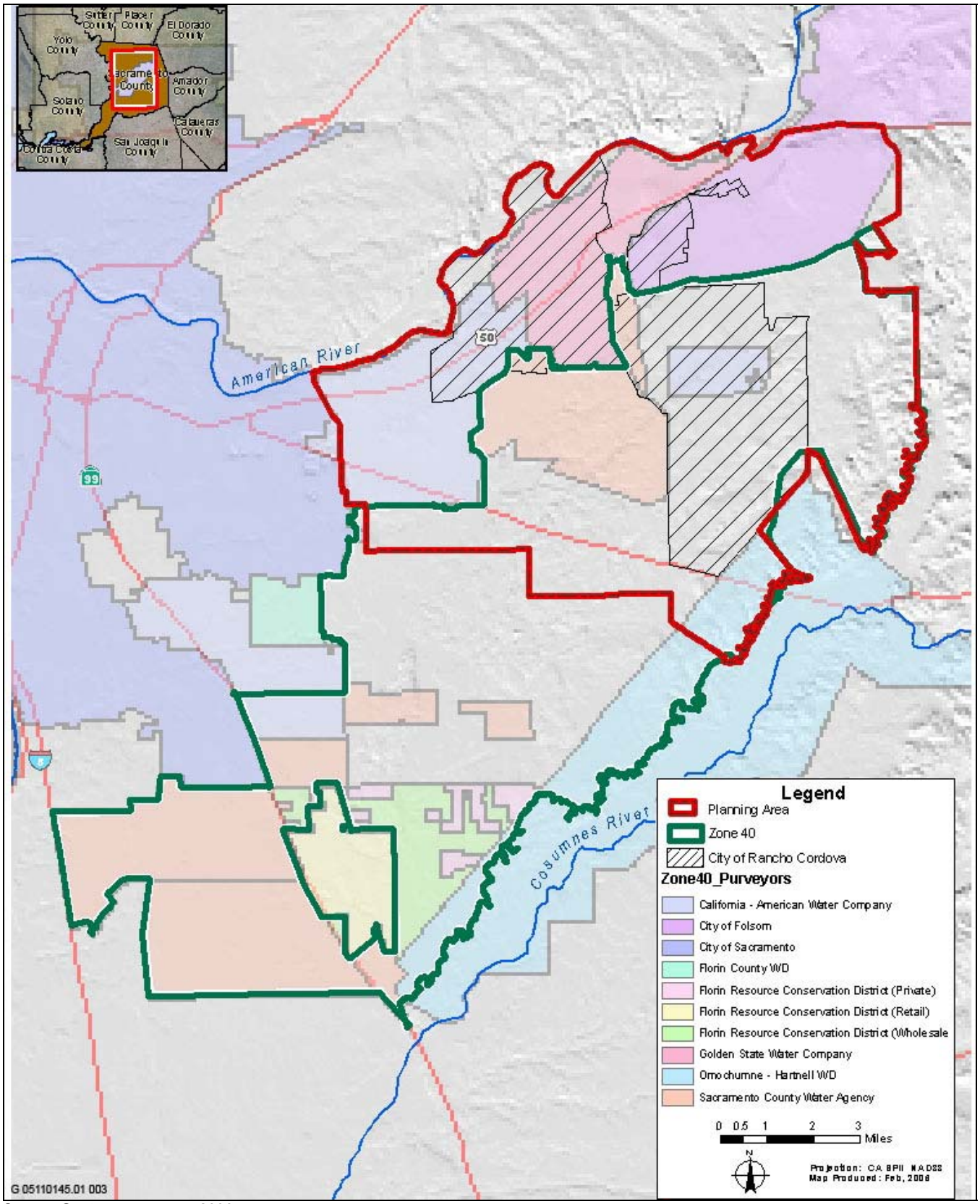
Source: SCWA 2005a

Service Areas for Retail Water Purveyors **Exhibit 3**



Source: Goetz, pers. comm. 2006

Water Purveyors within City of Rancho Cordova General Plan Planning Area **Exhibit 4**

of the county. Service areas include a portion of Walnut Grove, as well as Hood, Arden Park Vista, Northgate, the Southwest Tract, Zone 50, and Zone 40 (Exhibit 4). Zone 41 is responsible for the operation and maintenance of all the water supply facilities within these service areas. Revenues are collected by utility charges, connection permit fees, construction water permits, and grants, and collect monies to fund the design and construction; and operation, maintenance, and administration of water supply facilities. Water may come from wholesale water purveyors such as the City of Sacramento or American States Water Company or may be developed using facilities owned by Zone 41 (e.g., groundwater wells). Zone 41 retails and wholesales water to its defined service areas and to agencies with which agreements are in place to purchase water from SCWA.

Because SCWA plans for facilities within its service area through Zone 40 (e.g., *Zone 40 Water Supply Master Plan*) and Zone 41 is a retail water purveyor of Zone 40, the discussion that follows in this report will in most cases refer to Zone 40; however, for purposes of this analysis Zone 40 and 41 are interchangeable within the context of water supply planning for Rancho Cordova.

GOLDEN STATE WATER COMPANY

GSWC (formerly known as Southern California Water Company) owns and operates the Cordova System, a water treatment and conveyance system that serves GSWC's service area. GSWC is an investor-owned public utility company regulated by the California Public Utilities Commission. GSWC serves a portion of the city of Rancho Cordova and the unincorporated community of Gold River through its Cordova System (Exhibit 4). The service area for GSWC is bounded by Sunrise Boulevard (in the southern half of the service area) and Hazel Avenue (in the northern half) to the east, the former Mather Air Force Base to the south, Mather Field Road to the west, and the American River and the Gold River community to the north. The service area is characterized primarily by residential land uses, with some limited commercial and industrial land uses.

CALIFORNIA AMERICAN WATER COMPANY

Cal-Am is a privately owned water purveyor that provides urban water supply to portions of South Sacramento, North Highlands, Arden-Arcade, Rancho Cordova, Elverta, Citrus Heights, Antelope, the Security Park, and Walnut Grove. Cal-Am purchases wholesale water from SCWA Zone 40 and delivers water to portions of Rancho Cordova for urban use. Cal-Am's service area is shown in Exhibit 4.

3.3 RELATED PLANS, PROJECTS, AND AGREEMENTS

3.3.1 WATER FORUM AGREEMENT

Initiated in 1993, the Water Forum process brought together a diverse group of stakeholders that included business and agricultural leaders, citizens' groups, environmentalists, water managers, and local governments to evaluate available water resources and the future water needs of the Sacramento metropolitan area. These stakeholders identified two coequal objectives to guide the development of the Water Forum Agreement (WFA):

- Provide a reliable and safe water supply for the region's economic health and planned development through the year 2030.
- Preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

After a 6-year consensus-based stakeholder process, the WFA was completed. The WFA prescribes a regional conjunctive-use water program for the lower American River and the connected groundwater basin. The Water Forum also completed an environmental impact report (EIR) for the Water Forum Proposal. This document was certified by the two lead agencies (the City of Sacramento and the County) in December 1999. Please note that the WFA was formerly named the Water Forum Proposal. At the time that the City and County of Sacramento

adopted the project and they and other stakeholders adopted their purveyor specific agreements (PSAs), the name was changed to the WFA because it was an agreed-to proposal by all stakeholders.

The WFA includes PSAs that define the benefits each water purveyor will receive as a stakeholder and the actions each must take to receive these benefits. PSAs for the County of Sacramento/SCWA, the City of Sacramento, and Sacramento Municipal Utility District (SMUD) also describe commitments by these entities to address issues related to wheeling and wholesaling of surface water, CVP water transfers, and dry-year water supply in SCWA Zone 40.

The Water Forum process initiated a coordinated effort for regional water supply planning within the Sacramento region. Because of limited water supplies, the sensitive ecological values of the lower American River, and existing groundwater contamination within the Sacramento groundwater basins, purveyors and stakeholders came together and agreed to resolve longstanding conflicts through an interest-based negotiation process that led to formulation of the seven elements of the WFA and individual PSAs for each purveyor. In addition, all signatories to the WFA became members of the Water Forum successor effort, which is responsible for overseeing, monitoring, and reporting on the implementation of the WFA.

The WFA is a long-term water supply plan that addresses water supplies and demands to 2030 for existing (as of January 2000**)** purveyors and agencies. The WFA did not address water supplies beyond 2030 and did not account for new incorporations for the cities of Elk Grove and Rancho Cordova. Rather, the WFA analysis was based on existing land use plans that were available at the time it was prepared (i.e., the *County of Sacramento General Plan* [1994] and other relevant agency general plans). Since the WFA was adopted in 2000, the cities of Elk Grove and Rancho Cordova have incorporated and pursued development and implementation of long-term land use plans. In the case of Rancho Cordova, buildout of its planning area would continue well beyond 2030. The City is not a water supply purveyor and must rely on the services of SCWA, GSWC, and Cal-Am to meet its growing demand. For demands that exceed those accounted for and evaluated in the WFA and EIR, the City may need to consult with regional water purveyors and stakeholders to the WFA (e.g., environmental and business interests) to determine how its proposed water demands fit within the overall regional water supply planning context.

3.3.2 SCWA ZONE 40 WATER SUPPLY MASTER PLAN

In response to the requirements of the WFA, SCWA has undertaken a comprehensive water supply planning process through its *Zone 40 Water Supply Master Plan* (WSMP) (SCWA 2005a) to identify available water supplies, the land area that could be served by these supplies, and necessary infrastructure to deliver water to a subarea within Zone 40 known as the 2030 Study Area. The 2030 Study Area encompasses approximately 46,600 acres (including portions of the cities of Elk Grove and Rancho Cordova) (Exhibit 2) where development of industrial, commercial, office, and residential land uses is expected to occur and where demand for water is expected to be concentrated during the planning horizon of the WSMP (i.e., 2030).

As a signatory to the WFA, SCWA would ensure that water conservation and demand management—necessary steps to achieve WFA objectives—are integrated into future growth and water planning activities in its service area. SCWA identified a total acreage of land that could be served by existing and projected future water supplies and achieve the objectives of the WFA.

The Zone 40 WSMP provides a flexible plan of water management options that can be implemented and modified if conditions that affect the availability and feasibility of water supply sources change in the future. The goal of the Zone 40 WSMP is to define a conjunctive-use program of groundwater, surface water, remediated water, and recycled water supplies and a financing program for the construction of a new surface-water diversion structure, surface-water treatment plant, water conveyance pipelines, and groundwater extraction, treatment, and distribution facilities. The Zone 40 WSMP evaluates several options for facilities to deliver surface water and

groundwater to development within Zone 40, as well as the financing mechanisms to provide water to the 2030 Study Area.

Since approval of the Zone 40 WSMP (2005), SCWA has pursued and is in various stages of planning for several projects that would implement specific elements of the WSMP. These projects include:

- **Zone 40 Central Water Treatment Plant.** SCWA plans to construct the 78-acre Central Water Treatment Plant (CWTP) and associated water supply facilities to provide up to 85 million gallons per day (mgd) of potable water to existing and approved urban development within the SCWA Zone 40 area. The CWTP site is located at the northeast corner of Florin and Knox Roads, west of the Florin Road/Excelsior Road intersection in Sacramento County. An associated SCWA corporation yard to house facilities and store equipment would be colocated on the site, along with a groundwater treatment facility. The CWTP would have the capacity to treat 85 mgd of raw surface water and 13 mgd of raw groundwater to serve approved land uses in the Zone 40 service area. Initial phases of facility construction are anticipated to be completed by 2010 with full buildout by 2019.

- **Freeport Regional Water Project (FRWP).** SCWA and East Bay Municipal Utility District are constructing a diversion structure on the Sacramento River near the community of Freeport and a raw-water conveyance pipeline from the diversion structure to the central portion of Zone 40. SCWA is would construct a 85-mgd surface-water treatment facility in the central portion of Zone 40 (CWTP and described above), and the associated treated-water conveyance pipelines to deliver water to SCWA customers. This project is anticipated to be completed by 2010.

- **North Vineyard Well Field (formerly Excelsior Road Well Field) Project**. This well field would provide for the extraction of up to 10,000 afy of groundwater for replacement and/or new water supplies to serve existing or proposed development within Zone 40. Ultimately it would consist of up to eight wells located near Excelsior Road and Florin Road with a 30-inch raw-water pipeline to convey water to a new water treatment plant. The first phase consists of three wells (4,500 gallons per minute [gpm]) and would be expanded as new development or replacement supplies are needed. If wells within SCWA's Mather/Sunrise system (in the south west portion of the City's planning area) are shut down because of past groundwater contamination, any additional capacity remaining in the well field can be claimed as a replacement supply (as opposed to a new water supply) by SCWA. This project is currently being constructed, with the initial phase estimated to be complete at the end of 2006. The project is expected to be built out by 2011.

- **Eastern County Replacement Water Supply Project.** This project is a proposal by SCWA to use remediated groundwater supplies obtained through the agreements between the County, SCWA, Aerojet, and McDonnell Douglas Corporation for replacement water lost as a result of past groundwater contamination in the Sunrise corridor area. The remediated groundwater would replace lost groundwater supplies of Cal-Am or GSWC or would be used to serve new urban development on lands known as Aerojet lands in the northern portion of Zone 40 and for enhanced fishery flows along the Cosumnes River. This project currently is under environmental review and facilities included within this project are anticipated to be constructed by 2010.

It is important to note that during development of the Zone 40 WSMP, the general plans for the newly incorporated cities of Elk Grove and Rancho Cordova were not available; therefore, the County General Plan (1993) was the planning document used to project growth and development anticipated to occur within an area defined as the Urban Policy Area (UPA). The County's UPA is defined as the area anticipated to be built out with urban development within the planning horizon of the general plan (year 2024). Since development of the Zone 40 WSMP, the City has initiated a general plan process and has developed a proposed land use map for future growth and development within its jurisdiction. Exhibit 2 identifies the County's UPA, the Zone 40 boundary, and the City's planning area. Comparison of the boundaries shows that about 70% of the City's planning area falls within Zone 40.

3.3.3 AGREEMENTS BETWEEN SACRAMENTO COUNTY, SCWA, AEROJET, AND BOEING

The framework for addressing water supply issues associated with the contamination of the local groundwater supply from historical uses of the Aerojet site (a portion of which is now referred to as the Rio del Oro project site, located within the City's planning area) is provided in the agreements between Sacramento County, SCWA, and Aerojet (August 27, 2003) and between the County, SWCA, and Boeing (August 29, 2003). Under directives from the U.S. Environmental Protection Agency (EPA) and the SWRCB, both Aerojet and Boeing are required to pump groundwater that has been contaminated by chemicals associated with past activities at their sites; remove those chemicals by various treatment processes (remediation); and discharge the remediated water to surface water bodies/surface streams. The agreements prescribe the capture of remediated groundwater for beneficial use.

Pursuant to the agreements, right of use of remediated groundwater was granted to SCWA, which would capture the remediated water and provide additional treatment as needed for beneficial urban and environmental use. The agreements specify that the highest priority beneficial use of remediated water is for the replacement of groundwater capacity lost by water purveyors in the Sunrise corridor area. This includes groundwater capacity lost by GSWC and Cal-Am. Details of the GSWC agreement are discussed below. The next highest priority beneficial use of remediated water is for the supply of public water to proposed development of the Aerojet property, which includes the Rio del Oro and Westborough projects (see Section 5.2, "Planning Area Water Demands"). The remaining priority use is the enhancement of fishery flows along the Cosumnes River though conveyance of remediated water to the Folsom South Canal and discharge to the Cosumnes River. The remediated groundwater would be treated and delivered as part of SCWA's proposed Eastern County Replacement Water Supply Project described in Section 3.3.2, "SCWA Zone 40 Water Supply Master Plan."

3.3.4 WATER SUPPLY DELIVERY AGREEMENT BETWEEN AMERICAN STATES WATER COMPANY, SACRAMENTO COUNTY, AND SCWA

The water supply delivery agreement between American States Water Company (known in California as Golden State Water Co., GSWC), the County, and SCWA assists with the implementation of the settlement agreements entered into by the County with Aerojet (i.e., Aerojet) and Boeing (described in Section 3.3.3, "Agreements between Sacramento County, SCWA, Aerojet, and Boeing," above) by establishing the terms and conditions under which the County would be responsible for providing replacement groundwater to GSWC. The agreement provides a negotiated solution to sharing the groundwater resources in this portion of Sacramento County and requires the County to make replacement water available to GSWC consistent with an allocation plan that would be developed between the County and GSWC. The County would provide 5,000 afy of replacement water supplies from Aerojet/Boeing groundwater, extraction, and treatment (GET) facilities via discharge to the American River system and conveyed within the Folsom South Canal to GSWC's intake facilities. Replacement water supplies in addition to the 5,000 afy at the Folsom South Canal intake would be negotiated in an annual meet-and-confer session, but under no circumstances would the water volumes supplied by the County exceed the lesser of maximum GET pumping volumes or 15,200 afy. Based on GSWC current UWMP, discussed in Section 4.2, "Golden State Water Company (Cordova System)," GSWC has planned for the use of up to 6,329 afy from SCWA facilities in addition to the 5,000 afy from the Folsom South Canal (11,329 afy total replacement water supplies). The County would be responsible for construction and operation of facilities necessary to deliver the remaining replacement water to GSWC at the delivery points identified in the agreement. The County's obligation to provide replacement water to GSWC is also limited to an appropriate share of the total amount of remediated water conveyed by Aerojet and Boeing to the County. The County's obligation to furnish GSWC with replacement water further depends on the completion and certification of the environmental documentation necessary to construct the facilities required to deliver the replacement water to GSWC, and the County's ability to obtain any required regulatory approvals/permits. The facilities referred to in the agreement to treat and deliver the remediated groundwater are part of SCWA's proposed Eastern County Replacement Water Supply Project described in Section 3.3.2, "SCWA Zone 40 Water Supply Master Plan."

3.3.5 URBAN WATER MANAGEMENT PLANS FOR MUNICIPAL WATER PURVEYORS

The following 2005 UWMPs have been adopted by municipal water purveyors within the City's planning area pursuant to the guidelines set forth by the Urban Water Management Act described in Section 3.1.1, "Urban Water Management Planning Act:"

- *SCWA Zone 41 Urban Water Management Plan*
- *GSWC Cordova System Urban Water Management Plan*
- *California American Water Company Northern Division Urban Water Management Plan*

A description of these UWMPs is provided in Section 4, "Existing and Projected Water Demand and Supply for Water Purveyors in the City's Planning Area," below.

3.3.6 SCWA GROUNDWATER MANAGEMENT PLAN

SCWA prepared a Groundwater Management Plan (GMP) for Zone 40 (SCWA 2004). While GMPs are typically prepared for entire groundwater basins (in this case the Central Groundwater Basin), SCWA's GMP addresses only the boundaries of Zone 40, which encompasses most but not all of the Central Sacramento County Groundwater Basin (Central Basin). The decision to limit the extent of this GMP to Zone 40 was intentional because deliberations and discussion are currently under way between interested stakeholders regarding future governance and management of a "groundwater authority" for the Central Basin. The Zone 40 GMP is intended to be a document that can grow into, and perhaps be superseded by, the GMP that would be needed for the entire Central Basin.

The purpose of the GMP is to maintain a sustainable, high-quality groundwater resource for the users of the groundwater basin underlying Zone 40. Development of the Central Basin GMP would be through the governance structure currently under negotiations by the Central Sacramento County Groundwater Forum (CSCGF) (discussed below).

3.3.7 CENTRAL SACRAMENTO COUNTY GROUNDWATER FORUM

Acting on behalf of the Water Forum successor effort, DWR initiated the CSCGF by signing a Memorandum of Understanding with the Sacramento City-County Office of Metropolitan Water Planning (funded by SCWA and the City of Sacramento) to support discussions among stakeholders representing all segments of the community with an interest in developing a groundwater management structure and ultimately a GMP for the Central Basin. Stakeholders are organized into six interest groups: agriculture, agriculture/residential, business, environmental/community organizations, local governments/public agencies, and water purveyors. Each interest group is represented by five individuals who participate in the collaborative process known as the CSCGF.

The CSCGF is developing a GMP, which is currently in draft form and being reviewed by local stakeholder groups. It is anticipated that the new GMP would be adopted within the next 6 months (by August 2006). This plan would supersede the Zone 40 GMP described above. Information contained in the draft GMP as it pertains to future water supply planning for water purveyors such as SCWA who pump groundwater from the Central Basin is summarized in Section 3.3.6, "SCWA Groundwater Management Plan," of this report.

3.4 WATER RESOURCES IN THE PROJECT AREA

3.4.1 SURFACE WATER RESOURCES

Major surface waters in the vicinity of the Rancho Cordova planning area include the American River, Folsom Reservoir, and Lake Natoma to the north; Sacramento River to the west; and the Cosumnes River to the southeast (Exhibit 2). Surface waters within or near the Zone 40 2030 Study Area include Deer Creek, which is tributary to and parallels the Cosumnes River on the north, and the Morrison Creek Stream Group (Morrison, Elder, Gerber,

Unionhouse, Florin, and Laguna Creeks), which generally flow in a southwesterly direction southeast of the planning area, in the southeastern portion of Sacramento County.

SACRAMENTO RIVER

The Sacramento River drainage basin upstream of Zone 40 encompasses approximately 23,500 square miles and produces an average annual runoff of about 17,000,000 acre-feet (AF) at the Freeport gauging station (below the confluence with the American River). Principal reservoirs on the mainstream and tributaries to the Sacramento River and controlling flows in the lower Sacramento River include Lake Shasta, Trinity Lake, Lake Oroville, and Folsom Reservoir. Based on the 30-year record of data for the period 1968–1998, which spans a variety of water year types, individual monthly average flows have ranged from a low of 4,500 cubic feet per second (cfs) in October 1978 to a maximum of 87,000 cfs in January 1997. The average monthly flow for the 30-year period ranges between 13,000 cfs and 40,600 cfs with the lowest flows occurring in October and peak flows in February.

AMERICAN RIVER, FOLSOM RESERVOIR, AND LAKE NATOMA

The American River drainage basin encompasses approximately 1,900 square miles. Folsom Reservoir is the principal reservoir in the basin with a storage capacity of 975,000 AF. Several smaller reservoirs upstream of Folsom Reservoir contribute an additional 820,000 AF of storage capacity. Nimbus Dam impounds Lake Natoma downstream of Folsom Dam and regulates releases from Folsom Reservoir to the lower American River. The entrance facilities to the Folsom South Canal are located along the south shore of Lake Natoma immediately upstream of Nimbus Dam. Mean annual flow in the lower American River is 3,300 cfs; the design capacity of the channel for flood flows is 115,000 cfs.

COSUMNES RIVER

The Cosumnes River watershed extends from its headwaters, at an elevation of approximately 7,500 feet on the western slope of the Sierra Nevada, to the confluence with the Mokelumne River, approximately 10 miles south of SCWA Zone 40. The Cosumnes River is the last major river on the western slope of the Sierra Nevada with no major dams. Minor dams on the river are used for recreational and agricultural irrigation purposes.

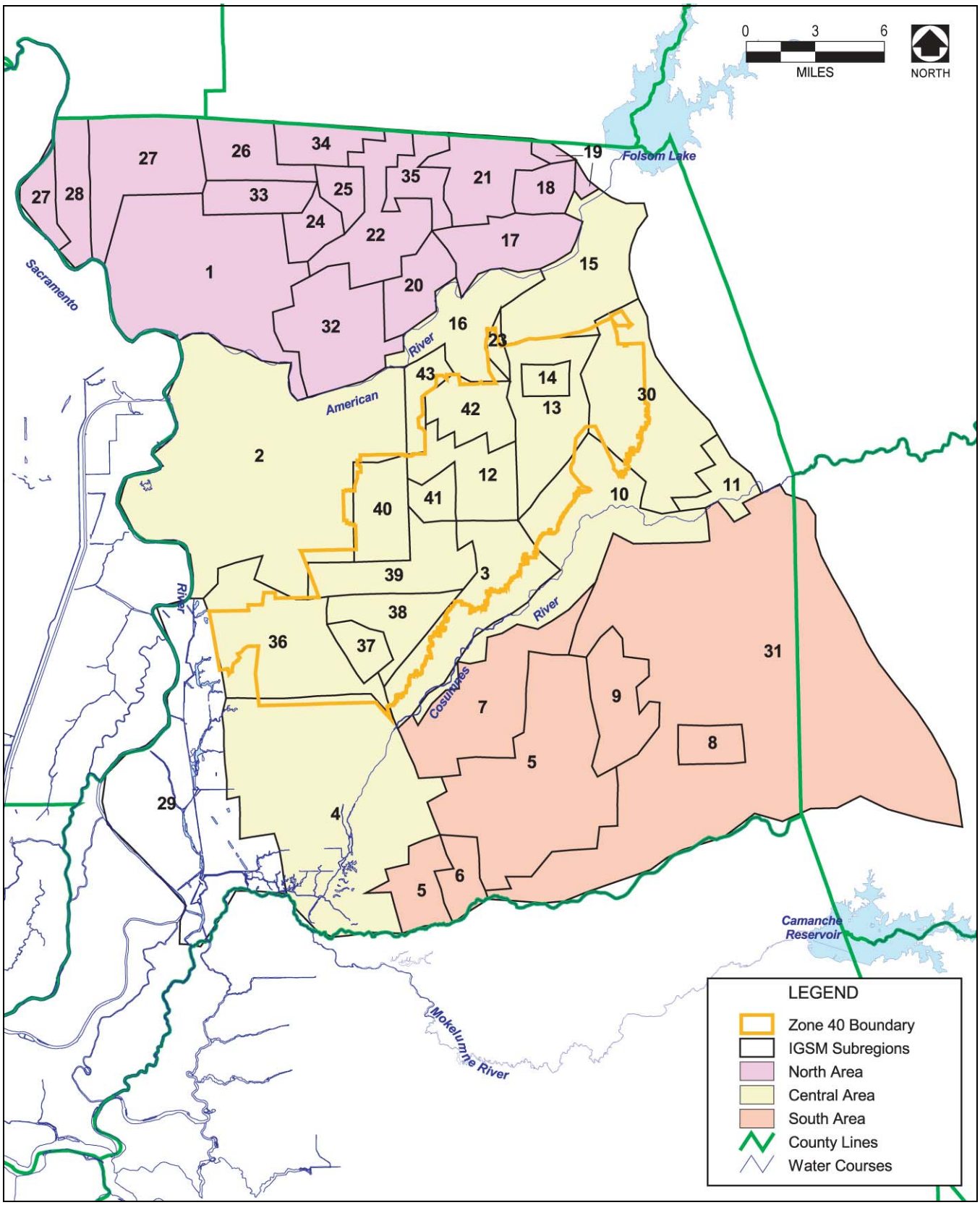
3.4.2 CENTRAL VALLEY PROJECT AND STATE WATER PROJECT

The CVP is a multipurpose project operated by Reclamation that stores and transfers water from the Sacramento, San Joaquin, and Trinity River basins to the Sacramento and San Joaquin Valleys. The SWP is operated by DWR and supplies water to approximately 30 member agencies throughout California.

3.4.3 GROUNDWATER RESOURCES

The Sacramento County groundwater system is part of the larger Sacramento Valley groundwater basin. Within Sacramento County three separate groundwater subbasins have been identified: North Area (the area north of the American River), Central Area (roughly the area between the American River and the Cosumnes River), and South Area (generally the area south of the Cosumnes River) (Exhibit 5). Historical groundwater use in each subbasin has resulted in the development of three regional cones of depression (SCWA 2003). Each of the groundwater areas is described below. (DWR 2003.)

- **North Area.** The North Area groundwater subbasin corresponds to the portion of the North American Sub-Basin, as defined by DWR (DWR Basin Number 5-21.64), that is located within Sacramento County. Basin 5-21.64 extends north into Placer and Sutter Counties. The North Area is bounded on the west by the Sacramento River, on the north by the Sacramento–Placer/Sutter County line, and on the south by the American River.



Source: WRIME 2003
Note: Numbers represent subregions within the groundwater basin for the regional hydrologic groundwater–surface water model.

Groundwater Basins **Exhibit 5**

- **Central Area.** The Central Area groundwater subbasin corresponds to the South American Sub-Basin (DWR Basin Number 5-21.65) and is located between the American River and the Cosumnes River. Zone 40 and the Rancho Cordova planning area are located within the Central Area.
- **South Area.** The South Area (Galt Area) groundwater subbasin corresponds to the portion of the DWR Cosumnes Sub-Basin (DWR Basin Number 5-22.16) that is located within Sacramento County. In the Sacramento County Integrated Groundwater–Surface Water Model the South Area is bounded on the north and west by the Cosumnes River, on the east by the boundary of the groundwater basin, and on the south by the Sacramento County line.

4 EXISTING AND PROJECTED WATER DEMAND AND SUPPLY FOR WATER PURVEYORS IN THE CITY'S PLANNING AREA

Developed and undeveloped areas within the City that are being planned for in the General Plan are served by the following water agencies/entities: SCWA, GSWC, and Cal-Am (Exhibit 4). The water supplies and demands of each are discussed in detail below. Water supplies for agricultural lands within the General Plan planning area are met with groundwater pumped by local wells from the Central Groundwater Basin (Central Basin). Lands that are currently undeveloped in the planning area are predominantly agriculture or grazing lands. As these lands are developed, the localized groundwater pumping would be discontinued and these areas would be served by one of the region's water purveyors through a combination of surface, groundwater, recycled, and remediated water supplies.

This section provides a summary of the different water supplies and the existing and projected water demands and supply conditions for each of the water purveyors within the City's planning area. Existing and projected water demands for each water purveyor within the City were obtained from the most recent UWMPs for each purveyor and supplemented with additional information obtained though a combination of adopted water supply master plans and communication with staff of the local water purveyors, as appropriate.

The total existing and projected water supplies and demands for water purveyors within the City's Planning Area are summarized in Table 1. The methodology used to calculate total water demands associated with the City's corporate limits and planning area demands is described in Section 5.1, "Methodology for Estimating Water Demands," below.

Table 1
Summary of Water Supply and Demand for Water Purveyors in the City of Rancho Cordova General Plan Planning Area

	Year	2010	2015	2020	2025	2030
SCWA Zone 40	Supply[1]					
	Surface Water	13,060	44,143	48,772	68,700	69,567
	Groundwater	34,125	28,837	40,470	31,324	39,097
	Recycled Water	4,400	4,400	4,400	4,400	4,400
	Total Supply	**51,585**	**77,380**	**93,642**	**104,424**	**113,064**
	Total Demands[1]	**51,585**	**77,380**	**93,642**	**104,424**	**113,064**
	Surplus/Deficit	**0**	**0**	**0**	**0**	**0**
Supply Allocated for SCWA Zone 40 North Service Area (NSA)—Within City's Planning Area (defined in Section 4.1.3)	***Supply***					***37,314[2]***
GSWC (all of GSWC's service area is within City's planning area)	Supply[3]					
	Surface Water	15,000	15,000	15,000	15,000	15,000
	Groundwater	9,518	10,499	10,814	10,829	10,829
	Total Supply	**24,518**	**25,499**	**25,814**	**25,829**	**25,829**
	Demands[2]	**19,518**	**20,499**	**20,814**	**20,829**	**20,829**
	Surplus/Deficit	**5,000**	**5,000**	**5,000**	**5,000**	**5,000**

Table 1 Summary of Water Supply and Demand for Water Purveyors in the City of Rancho Cordova General Plan Planning Area						
	Year	2010	2015	2020	2025	2030
Cal-Am	Supply[3]					
	Groundwater	43,600	33,650	34,180	33,550	33,910
	Wholesale Purchases	4,020	16,860	18,320	20,830	22,280
	Total Supply	**47,620**	**50,510**	**52,500**	**54,380**	**56,190**
	Demands[4]	**47,620**	**50,510**	**52,500**	**54,380**	**56,190**
	Surplus/Deficit	**0**	**0**	**0**	**0**	**0**
Supply Allocated for Cal-Am's Service Area within the City's Planning Area	***Supply***					***14,477***
City of Rancho Cordova General Plan Planning Area	Supply Available from Purveyors					**77,620[5]**
	Projected Demands					
	Corporate City Limits (2030)a					57,299
	Non-City Area[6]					71,410
	Total Demands					**128,709**
	Surplus/(Deficit)					**(51,089)**

Notes:
1. Data from SCWA Zone 41 UWMP, Table 5-1 and 5-2. Because SCWA would implement a conjunctive use water supply program, water supplies would never exceed projected demands because groundwater would be pumped and surface water would be used to meet, not exceed water demands. Supply and demand based on normal year type. (SWCA 2005b)
2. This supply is part of Zone 40's 2030 water supplies of 113,064 afy (SCWA 2005a).
3. Data from GSWC UWMP Table 3-1 and 4-9. Supply exceeds demand because GSWC does not plan to use 5,000 afy of its SMUD Water Transfer entitlement due to limited surface water treatment capacity and its desire to maintain its groundwater rights through the Aerojet Replacement Water operations. (GSWC 2005)
4. Data from Cal-Am UWMP. (Cal-Am 2006)
5. Sum of SCWA (37,314 afy), GSWC (25,829 afy), and Cal-Am's (14,477 afy) water supplies identified for the City's planning area.
6. Buildout for non-city area of Rancho Cordova projected to occur after 2030.

4.1 SACRAMENTO COUNTY WATER AGENCY ZONE 40

SCWA prepared an UWMP for Zone 41(SCWA's retail water purveyor for Zone 40) that addresses water supply and demand issues for the areas within Sacramento County where Zone 41 provides water services. The SCWA Zone 41 UWMP addresses delivering water not only to the Zone 40 area, but also to other areas outside of Zone 40, where Zone 41 has contracts to provide water (e.g., Zone 50, Sacramento Suburban Water District [SSWD], etc.) (Exhibit 3). Because SCWA's conjunctive use groundwater program would only be implemented within the Zone 40, the Zone 41 UWMP presents projected water supply and demand information separately for areas within Zone 40 and areas outside of Zone 40. However, the UWMP does not specifically describe how projected future water supplies would be allocated within the Zone 40 region (e.g., how water would be allocated to the City of Rancho Cordova).

To build upon its 2005 Zone 40 WSMP (described in Section 3.3.2, "SCWA Zone 40 Water Supply Master Plan."), SCWA is in the process of preparing a Water System Infrastructure Plan (WSIP) that addresses how

identified 2030 water supplies addressed in both the UWMP and the Zone 40 WSMP would be allocated among users within its service area. Because the Zone 40 2030 Study Area, where growth and development are expected to occur, includes portions of both Elk Grove and Rancho Cordova, the information being developed for the WSIP should help the City and SCWA to determine how much, if any, additional water supply and infrastructure would be needed to meet the anticipated growth and development in its planning area.

The analysis that follows summarizes information contained within the Zone 41 UWMP as it pertains to the Zone 40 region only and information from the draft WSIP (SCWA 2006) as it pertains to the North Service Area (NSA), which is the area within Zone 40 where a large portion of the City's planning area is located.

4.1.1 WATER SUPPLY SOURCES

The areas inside Zone 40 are served conjunctively with groundwater (pumped from the Central Basin), surface water, and recycled water. Surface water refers to water entitlements from the American and/or Sacramento Rivers. All surface water supplies require conventional treatment before distribution. Recycled water refers to wastewater treated to a tertiary (e.g., filtration and disinfection) level (Title 22, unrestricted use) at the Sacramento Regional Wastewater Treatment Plant and used for landscape irrigation.

Table 2 summarizes SCWA's Zone 40 current and planned water supplies for normal (e.g., normal years are years when rainfall and water supply represent the long-term average) water years. A description of these supplies follows the table.

Table 2
Average Annual Current and Planned Water Supplies for SCWA Zone 40 through 2030

Source	Water Supply (afy)
U.S. Bureau of Reclamation CVP Supply (SMUD 1, SMUD 2, and Fazio Water)	45,000
Appropriative Water Supplies [1]	14,586
Wholesale Water Agreement to serve the portion of Zone 40 that lies within the City of Sacramento's American River POU	9,300
Other Water Transfer Supplies[2]	5,200[2]
Zone 40 Groundwater[3]	40,900
Recycled Water (current use)[4]	4,400
Total Supplies	**114,186[5]**

Notes:
afy = acre-feet per year; CVP = Central Valley Project; GW = groundwater; POU = Place of Use; SMUD = Sacramento Municipal Utility District
1 This reflects the expected long term average yield and not the contract amount
2 This is an estimate of water that would be purchased only in dry and critically dry water years e.g. years when rainfall and hence water supplies are below and substantially below average and is not included in the total supply calculation.
3 Long-term annual average supply. Includes the use of replacement water.
4 A master plan by Sacramento Regional County Sanitation District is currently under way to evaluate the potential of expanding deliveries of recycled water.
5 Total water supplies identified in this table exceed those identified in Table 1 because Table 1 reflects a scenario whereby SCWA's conjunctive use program would ensure water supplies did not exceed the WSMP Zone 40 water demands of 113,064 afy. Table 2 shows average-annual supplies, whereby the average annual groundwater supply may not be reflective of the total amount that is pumped in a year to meet the actual demand, but rather the long-term average groundwater supply that is projected to be available.
Source: SCWA 2005b

ZONE 40 SURFACE WATER SUPPLIES

Appropriative Water Rights

SCWA has submitted an application to the SWRCB for the appropriation of water from the American and Sacramento Rivers (the County Board of Supervisors authorized submittal of this application on May 30, 1995). This water is considered "intermittent water" that typically would be available during the winter months of normal or wet years (e.g. years when rainfall and hence water supply are greater than average). This water could be used to meet system demands and possibly for future groundwater recharge through recharge percolating groundwater basins or direct injection of surface water into the aquifer. Based on water supply modeling (i.e., Calsim II) performed for the Zone 40 WSMP and the Freeport Regional Water Authority for the FRWP project, the maximum, minimum, and average annual use of appropriative water are projected to be 71,000 AF, 0 (acre-feet) AF, and 21,700 AF, respectively. In close to 30% of the years, 12,000 AF or less of appropriative water is projected to be used. The contract amount is based on the maximum water supply requirement of 71,000 afy.

Central Valley Project Supplies

SMUD 1 Assignment

Under the terms of a three-party agreement (SCWA, SMUD, and the City of Sacramento), and in accordance with SMUD's PSA, the City of Sacramento provides surface water to SMUD for use at two of SMUD's cogeneration facilities. (Because the cogeneration facilities are located within the City of Sacramento's American River Place of Use [POU], authorization for this CVP water assignment by the Bureau of Reclamation is not required.) SMUD, in turn, has assigned 15,000 afy of its CVP contract water to SCWA for municipal and industrial use. This CVP contract assignment is complete.

SMUD 2 Assignment

SMUD's PSA directs SMUD to assign a second 15,000 afy of surface water to SCWA for municipal and industrial uses and for SCWA to construct groundwater facilities necessary to provide water to meet SMUD's dry-year water shortage demand of up to 10,000 afy at its cogeneration facility. This CVP contract assignment is complete. SCWA and SMUD are continuing to negotiate the timing and exact amount of the dry-year shortage deliveries. Delivery of the dry-year shortage water supplies would be through the construction of additional groundwater facilities that would discharge into the Folsom South Canal.

Central Valley Project Water Public Law 101-514 ("Fazio" Water)

In April 1999, SCWA obtained a CVP water service contract pursuant to Public Law 101-514 (referred to as "Fazio water") that provides a permanent water supply of 22,000 afy with 15,000 afy allocated to SCWA and 7,000 afy allocated to the City of Folsom.

Based on modeling performed for the Zone 40 WSMP and the FRWP, the maximum, minimum, and average annual use of CVP (SMUD 1, SMUD 2, and Fazio) water were projected to be 45,000 AF, 8,700 AF, and 38,000 AF, respectively. The 45,000 AF maximum reflects the firm supply of CVP water in most years. Lesser amounts result from CVP deficiencies or cutbacks in dry years as per the terms of the municipal supply contract.

Other Supplies

SCWA would pursue purchase and transfer agreements with other entities that currently hold surface-water rights in the north Sacramento River basin. Estimated long-term average annual use of these water supplies would be approximately 5,200 AF. This water would be purchased only in dry and critically dry years. Because these supplies are not secured and the reliability of securing these supplies is not know, they are not included in the calculation of average annual supply.

City of Sacramento American River POU Water

SCWA would also enter into an agreement with the City of Sacramento whereby the City of Sacramento would sell surface water to SCWA for use in the portion of the 2030 Study Area that lies within the City of Sacramento's American River POU (Exhibit 3). The estimated long-term average annual volume of water that could be used within this POU would be approximately 9,300 AF. The maximum day capacity that would be purchased from the City is approximately 20 mgd.

SCWA GROUNDWATER SUPPLIES

Groundwater is a vital source of supply for Zone 40 and currently makes up a substantial portion of the supply inside of Zone 40. In 2004, groundwater accounted for 88% of total water supplies (SCWA 2005b). Over the long term, as Zone 40's use of surface water expands with new facilities, groundwater would be used to supplement surface water in a conjunctive use program that would lead to less reliance groundwater supplies in wet years and more reliance on these supplies in dry years. Over the long-term average, SCWA's extraction of groundwater would not exceed 40,900 afy. SCWA's source of groundwater supply comes from the Central Basin through a series of extraction wells and groundwater treatment plants, which is described in Section 3.4.3, "Groundwater Resources."

Groundwater Production

SCWA currently exercises and will continue to exercise its rights as a groundwater user and would extract water from the groundwater basin underlying Zone 40 for the beneficial use of its customers. As a signatory to the WFA, SCWA is committed to adhering to WFA-negotiated, long-term average sustainable yield of the Central groundwater basin (i.e., 273,000 afy). Projected future urban water demands within SCWA's 2030 Study Area would be approximately 113,000 afy (see Table 1) and would be met through a combination of surface water, groundwater, recycled water, and remediated water supplies (SCWA 2005b). In wet years, available surface water supplies would be maximized; in dry years, groundwater supplies would be maximized through increased pumping at SCWA's groundwater facilities, including the proposed North Vineyard Wellfield (see Section 3.3.2, "SCWA Zone 40 Water Supply Master Plan."

With implementation of the Zone 40 WSMP, projected 2030 groundwater pumping volumes from the Central Basin (pumping by SCWA, other purveyors, and agricultural interests) would range from 235,000 afy to 253,000 afy for urban and agricultural demands (SCWA 2005a). Of that volume, it is projected that SCWA Zone 40 would pump a long-term average of 40,900 afy to meet urban water demands within Zone 40 through 2030 (Table 3). Groundwater pumping is expected to increase in 2030 by approximately 60% from 2004 volumes. Historical groundwater pumping from 2000 to 2004 and projected future pumping are shown in Table 3.

Table 3
Historical and Projected Groundwater Pumping in Zone 40

Basin Name	Pumping by Year (afy)									
	2000	2001	2002	2003	2004	2010	2015	2020	2025	2030
Central Sacramento Zone 40	20,022	22,306	22,949	22,745	25,790	34,125	28,837	40,470	31,324	39,097

Notes:
afy = acre-feet per year. Projected groundwater pumping based on modeling performed for the Urban Water Management Plan and Zone 40 WSMP. Long-term average annual groundwater supply of 40,900 afy agreed to in the WFA used for planning purposes. The decrease in groundwater extractions in 2015 and in 2025 are a result of increase surface water treatment capacity coming on-line.
Source: SCWA 2005b

4.1.2 SCWA WATER AGREEMENTS

In addition to meeting water demands within Zone 40, SCWA has entered into agreements that require delivery of water to purveyors and environmental interests. Many of these agreements relate to the Aerojet and Boeing Agreements described in Sections 3.3.3, "Agreements between Sacramento County, SCWA, Aerojet, and Boeing" and 3.3.4, "Water Supply Delivery Agreement between American States Water Company, Sacramento County, and SCWA." A brief summary of these agreements is described below. The relationship of these agreements to water supply and infrastructure planning in the NSA are discussed in Section 4.1.3, "fZone 40 North Service Area Water Supply Demand and Infrastructure."

AEROJET & BOEING AGREEMENTS

The Aerojet and Boeing agreements (discussed above in Section 3.3.3, "Agreements between Sacramento County, SCWA, Aerojet, and Boeing") transfer ownership of remediated groundwater to SCWA to be used as a replacement water supply for groundwater capacity lost by SCWA, GSWC, and Cal-Am as a result of past groundwater contamination. Aerojet and the City of Folsom also have an agreement for replacement water supplies (i.e., 5,000 afy) related to contaminated groundwater. This agreement could potentially be transferred to SCWA subject to the City of Folsom's agreement. The likelihood of the City of Folsom agreeing to this transfer is unknown and speculative.

GOLDEN STATE WATER COMPANY

SCWA's agreement with GSWC (discussed above in Section 3.3.4, "Water Supply Delivery Agreement between American States Water Company, Sacramento County, and SCWA"); specifies delivering 5,000 afy of replacement to their intake facilities on the Folsom South Canal. GSWC's need for additional replacement water (i.e., water amounts greater than 5,000 afy) would be determined annually in a meet-and-confer session with SCWA. Regardless of demonstrated need, GSWC's maximum allocation of replacement water supply in any year could not exceed 15,200 AF (less the 5,000 afy delivered to GSWC at the Folsom South Canal).

CAL-AM AGREEMENT

Currently, no separate replacement water supply agreement exists between SCWA and Cal-Am. However, it is the intent of SCWA to negotiate such an agreement (SCWA 2005b). During negotiations SCWA has been working cooperatively with the City of Sacramento to investigate ways to deliver POU surface water (or replacement water in dry years) to Cal-Am's service area that lies within the POU (this includes up to 5,000 afy of either POU or replacement water). This would allow groundwater currently being extracted in the POU area to be imported into areas affected by groundwater contamination.

MEMORANDUM OF AGREEMENT (MOA) FOR MANAGEMENT OF WATER AND ENVIRONMENTAL RESOURCES ASSOCIATED WITH THE LOWER COSUMNES RIVER

Under the terms of this agreement, SCWA would provide 5,000 afy of remediated groundwater or provide a contribution of capital towards the purchase of an alternative supply for the Cosumnes River Flow Augmentation Project. In any year that water is not required to fulfill the objectives of the Cosumnes River Augmentation Project SCWA reserves the right to use the 5,000 AF of water for other purposes. Remediated water would be conveyed down the Folsom South Canal for delivery to the Cosumnes River from October through December. This water would be delivered though facilities constructed as part of the Eastern County Water Supply Project.

SMUD DRY YEAR WATER REQUIREMENTS

SMUD's Water Forum PSA contains a provision related to the transfer of SMUD 2 water which requires SCWA to provide up to 10,000 afy of groundwater to SMUD to maintain operations at their Rancho Seco facility. The

volume of water required by SMUD is based on hydrologic year type and the volume of cut back they may experience on their remaining CVP contract. Delivery of this water would be through the Folsom South Canal.

4.1.3 ZONE 40 NORTH SERVICE AREA WATER SUPPLY DEMAND AND INFRASTRUCTURE

In response to the rapid pace of new development and to reliably plan for water demands throughout its service area, SCWA had divided the Zone 40 service area into three major subareas for planning purposes. From east to west, these areas are identified as the North Service Area (NSA), the Central Service Area (CSA), and the South Service Area (SSA). A portion of the City's planning area is located within the boundary of the NSA as shown in Exhibit 6.

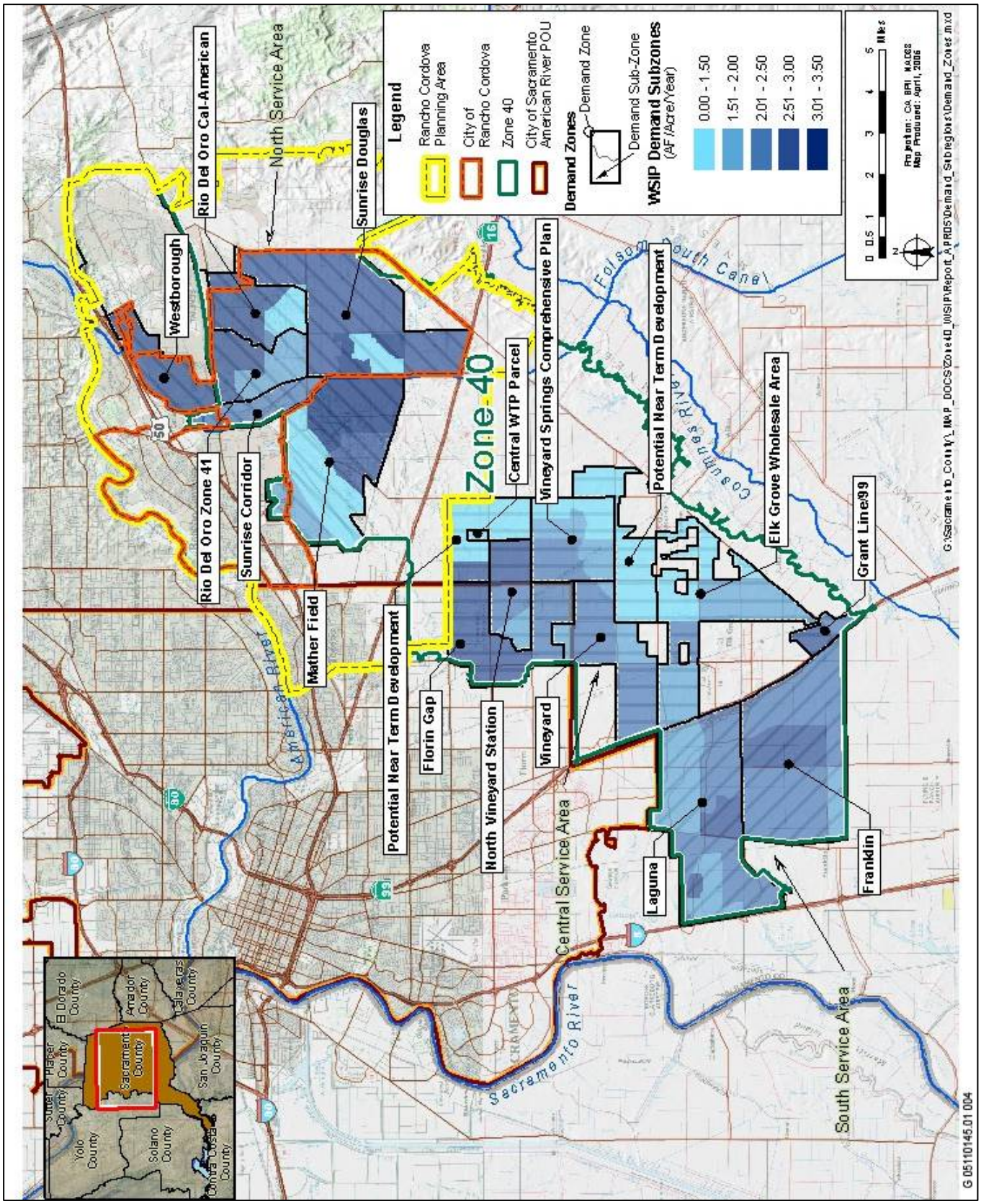
NORTH SERVICE AREA (NSA)

The NSA is located in the northern portion of Zone 40 and includes the areas SCWA identifies as Mather, Sunrise Corridor, Sunrise Douglas, Rio Del Oro (including the Cal-Am portion where wholesale of Zone 40 water supplies would be delivered), and Westborough (wholesale delivery of Zone 40 replacement water to GSWC as discussed below). SCWA completed a WSIP in April 2004 as part of its effort to address immediate water demands associated with development in the Sunrise Douglas Community Plan/Sunridge Specific Plan development area. Development of the Eastern County Replacement Water Supply Project (described in Section 3.3.2, "SCWA Zone 40 Water Supply Master Plan") and assumptions regarding amount, use, and location of diversion resulted in the need to update the initial WSIP. This WSIP is currently being updated and is in draft form. This report incorporates information from the draft WSIP for the NSA based on information provided by SCWA.

The primary purpose of the changes to the WSIP was ensure that groundwater extractions identified in the Aerojet agreements with SCWA do not result in an exceedance of the negotiated, long-term average sustainable yield of the Central Basin (i.e., 273,000 afy). A fundamental assumption in the development of the original WSIP for the NSA was that all remediated groundwater made available through the agreements would be diverted from the Folsom South Canal and that a new surface water treatment plant (WTP) would be constructed to treat this diverted water.

To ensure that the sustainable yield of the Central Basin would be maintain, the Eastern County Replacement Water Supply Project (prior to publication of its Notice of Preparation of an Environmental Impact Report) was modified such that 10,000 afy of remediated water would be diverted down the Folsom South Canal; 5,000 afy would be allocated to GSWC to meet their replacement water supply needs and 5,000 afy would be allocated for enhanced fishery flows on the Cosumnes River. The balance of the remediated groundwater (i.e., 25,000 afy) would be discharged to the American River where 5,000 afy may be diverted at the City of Sacramento's Fairbairn WTP for replacement water supplies for Cal-Am, and the remaining portion (i.e., 20,000 afy) would be diverted at the FRWP intake facility on the Sacramento River near the town of Freeport. SCWA has planned for the delivery of an additional 5,000 afy of replacement water supplies to GSWC (total 10,000 afy). Once diverted from the Sacramento River, the remediated groundwater would be conveyed to and treated at SCWA's Central WTP and distributed within the NSA system. Table 4 describes the proposed uses for remediated groundwater.

A portion or all of new development water demands within NSA (other than projects on Aerojet Lands [i.e., Rio Del Oro and Westborough]) are proposed to be met through Zone 40's overall conjunctive use water supply program as described in SCWA's Zone 40 WSMP. Elements of the conjunctive use program include extraction of groundwater in the southerly portions of the Sunrise Douglas Community Plan area and from the proposed North Vineyard Well Field located near Excelsior Road and Florin Road. Surface water and replacement water (to the extent that they are available for new growth as per the Aerojet and Boeing contracts), would be distributed from the proposed Central WTP once the FRWP diversion structure and the proposed Central WTP are constructed (initial phases anticipated to be completed by 2010). Initially (i.e., within the next 3-5 years),



Source: Goetz, pers. comm.. 2006

SCWA Zone 40 North Service Area **Exhibit 6**

development within the NSA would rely solely on groundwater as described above; however, once surface and replacement water become available, SCWA would serve this area conjunctively through its proposed distribution facilities.

Table 4
SCWA Agreements Regarding Treatment and Use of Remediated Groundwater and Replacement Water Supplies

Discharge to American River System and Diverted at the Folsom South Canal		
GSWC Replacement Water		5,000
Cosumnes River Environmental Flow		5,000
	Total	**10,000**
Discharged to the American River System		
Diversion at the City of Sacramento Fairbairn WTP [1]		5,000
Diversion at FRWP's intake facility on the Sacramento River [2]		15,000
	Total	**20,000**
Additional GSWC Replacement Water Supplies through Zone 40[3]		**5,000**
Total		**35,000**

Notes:
FRWA = Freeport Regional Water Authority; GSWC = Golden State Water Company; WTP = Water Treatment Plant
[1] Water diverted to City of Sacramento's Fairbairn Water Treatment Plant for California-American Water Company.
[2] Treated water piped to storage tank facilities near Sunrise Blvd and Douglas Road for use in North Service Area system.
[3] SCWA has agreement with GSWC for replacement water supplies up to a total of 15,200 including water diverted at Folsom South Canal. SCWA is estimating that it will provide an additional 5,000 afy of replacement water supplies to GSWC for a total of 10,000 afy out of the 15,200 afy. However; any replacement water in excess of the 5,000 af diverted at the Folsom South Canal must be developed by means of an annual meet-and-confer session between the County and GSWC.
Source: SCWA 2006

Both Rio Del Oro and Westborough are part of the "Aerojet Lands" identified in the agreements between Sacramento County, SCWA, Aerojet, and Boeing as described in Section 3.3.3, "Agreements between Sacramento County, SCWA, Aerojet, and Boeing". While Westborough lies outside of Zone 40, Rio del Oro is located within Zone 40 and SCWA would be the purveyor that serves this project provided that a sufficient quantity of water would remain after replacement water supply obligations are met according to the agreements. Westborough would likely receive water supplies through Zone 40 using the replacement water provided to GSWC via the Folsom South Canal. Rio del Oro would receive water supplies identified in the Eastern County Replacement Water Supply Project (i.e., water supplies would come from the replacement water diverted at FRWP intake structure and treated at the Central WTP).

The water allocated in Aerojet's agreement with the City of Folsom (i.e., 5,000 afy) could be used as a source of water for these projects; however, the City has not given any indication that they would transfer these water supplies to SCWA. Further, it is likely that the City of Folsom would use these supplies to serve the Easton Development project, which is located on Aerojet lands, but within the City of Folsom. Westborough would likely receive water supplies through Zone 40 using the replacement water provided to GSWC via the Folsom South Canal.

Existing and projected supplies and demand for the NSA as identified in the NSA's WSIP are presented in Table 5. Existing water demands within the NSA are approximately 2,404 afy, and projected future (2030) water demands are approximately 37,314 afy (approximately 15.5 times current demand).

Table 5 Existing and Projected Future Water Supply and Demand for the SCWA North Service Area					
Service Area	Demand Region	Existing Demand		Buildout Demand	
		Annual Average (afy)	Max Day (mgd)	Annual Average (afy)	Max Day (mgd)
NSA	Mather Field	1,327	2.37	7,624	13.61
	Rio Del Oro—Cal-Am	-	-	3,917	6.99
	Rio Del Oro—Zone 40	-	-	4,872	8.70
	Sunrise Corridor	1,077	1.92	1,077	1.92
	Sunrise Douglas	-	-	15,492	27.66
	Westborough	-	-	4,332	7.74
	NSA Total Demand	**2,404**	**4.29**	**37,314**	**66.62**

Notes: afy = acre-feet per year; Cal-Am = California-American Water Company; mgd = million gallons per day; NSA = North Service Area
Source: SCWA 2006

4.1.3 OVERALL ASSESSMENT OF SCWA WATER SUPPLY RELIABILITY

SCWA has developed a long-term conjunctive use plan that would result in water usage that reflects the goals of the WFA. In normal years, the conjunctive use program would result in average groundwater use of approximately 39,000 afy. In dry years, when surface water availability is limited, groundwater production would increase to 70,000 afy to make up for the reduction in surface water deliveries (i.e., dry-year cut backs). In consecutive dry years, water demand management programs would be implemented to a higher degree to reduce the potential impacts from increased groundwater extractions. Long-term average groundwater pumping levels within the Central Basin would equal 40,900 afy for Zone 40 and the negotiated long-term sustainable yield the Central Basin (i.e., collectively with all other groundwater users) of 273,000 afy.

With implementation of the Zone 40 WSMP, Zone 41 UWMP, and Zone 41 WSIP, and the NSA WSIP, Zone 40's NSA service area would be served with reliable, long-term water supplies. SCWA is a groundwater appropriator and intends to continue to extract groundwater to meet its customer demands within the limits of the negotiated sustainable yield of the Central Basin. SCWA has secured and is in the process of securing surface water entitlements that would allow SCWA to meet its projected 2030 water demands. In addition, SCWA has entered into agreements with Aerojet and Boeing (described in Section 3.3.3, "Agreements between Sacramento County, SCWA, Aerojet, and Boeing") for the transfer of ownership rights of remediated water discharged by Aerojet. This remediated water would be used for beneficial uses within Zone 40 and in the NSA (where portions of the City's planning area are located). Because SCWA intends to continue pumping groundwater, it has secured most of its surface water rights, has secured rights to beneficial reuse of remediated groundwater within its service area, and is proceeding with development of several water supply treatment and conveyance facilities, SCWA water supplies are considered to have a high reliability of being delivered. However, additional conveyance and treatment facilities would need to be approved and constructed to deliver these supplies to the NSA.

Providing reliable service to NSA is perhaps the most challenging of the three (i.e., North, Central, and South) SCWA service areas. Challenges surrounding the provision of water to the NSA: 1) the presence of groundwater contamination, 2) agreements prescribing the priority uses for replacement water supplies, 3) constructing the conveyance and treatment facilities to serve new development within Aerojet lands, 4) constructing the infrastructure necessary to serve new development in the Sunrise Douglas Community Plan area, 5) substantial changes in ground surface elevation creating a need for pressure zones, and 6) the relatively low yield of groundwater in the upper elevations where new development is taking place.

SCWA's use of replacement water supplies to serve the NSA and Aerojet lands is considered a challenge because the amount of replacement water supplies that SCWA has available to serve new growth and development is

dependent upon the amount of water that is ultimately delivered to other water purveyors for replacement water supplies (discussed in Section 4.1.2, "SCWA Water Agreements"). For example, GSWC has an agreement for replacement water supplies; 5,000 afy for diversion at the Folsom South Canal, and up to an additional 10,200 afy through SCWA Zone 40 facilities.

SCWA has also indicated that it anticipates entering into an agreement with Cal-Am to provide replacement water supplies and is currently planning on providing 5,000 afy. However, a separate replacement water supply agreement does not currently exist between SCWA and Cal-Am. The highest priority use for remediated groundwater is for replacement water for GSWC and Cal-Am. Once replacement water supply obligations are met (maximum of 20,200 afy combined for GSWC and Cal-Am), SCWA would use excess replacement water supplies (approximately 15,000 afy) to serve new growth and development on Aerojet lands (Rio del Oro, Westborough, etc.).

While SCWA has planned for adequate infrastructure (e.g., Central WTP, FRWP, North Vineyard Wellfield, Eastern County Replacement Water Supply Project) and the water supplies, themselves, are considered to have a high reliability of implementation (i.e., delivery to a designated user), SCWA could be limited in the amount of replacement water supplies (i.e., 15,000 afy) it is able to deliver to new development because GSWC's and cal-Am's agreements to receive replacement water supplies have priority over SCWA's delivery of replacement water supplies to new development.

4.2 GOLDEN STATE WATER COMPANY (CORDOVA SYSTEM)

GSWC's Cordova System service area is entirely within the City's planning area. An overview of water supply sources, existing and projected demands, and the reliability of supplies to meet projected demands is provided below. These data were obtained from the UWMP (GSWC 2005).

4.2.1 WATER SUPPLY SOURCES

The GSWC water supply for the Cordova System consists of surface water from the American River, groundwater extraction from the Central Basin, and future replacement water supplied by SCWA. Replacement water would be made available by SCWA (as allowed under the Aerojet agreement) to offset groundwater lost as a result of contamination of GSWC groundwater wells from past operations at the Aerojet facility. GSWC's agreement with SCWA for replacement water supplies is discussed in Section 3.3.4, "Water Supply Delivery Agreement between American States Water Company, Sacramento County, and SCWA." GSWC also entered into a temporary water transfer agreement with SMUD to allow GSWC to divert up to an additional 7,000 afy from the Folsom South Canal under SMUD's CVP contract entitlement. SMUD has a water service contract with the USBR (Contract No. 12-06-200-5198A) for delivery of as much as 60,000 AFY of municipal and industrial water from the CVP.

American River water is withdrawn from the Folsom South Canal, which extends through the Cordova System service area, and is treated at the Coloma WTP and the Pyrites WTP. The Coloma WTP has a maximum reliable daily treatment capacity of approximately 7,140 gallons per minute (gpm). The Pyrites WTP, which became operational in September 2005, has a maximum reliable daily treatment capacity of about 3,150 gpm. Collectively, the Coloma WTP and the Pyrites WTP provide sufficient capacity for treatment of more than 17,000 afy (10,290 gpm) of surface water diverted from the Folsom South Canal.

Currently, GSWC pumps groundwater from 15 active wells in the Central Basin. These wells have a maximum pumping capacity of 31,500 afy. However, between 2000 and 2004, the actual pumping rates averaged 11,630 afy.

Table 6 summarizes the current and planned water supplies available to GSWC for the Cordova System that would meet the projected water demands under normal water years. This water supply summary is based on

analysis of supplies from surface water, groundwater, and replacement water. Surface water from the American River, the SMUD water transfer and Aerojet replacement water (5,000 afy is diverted at the Folsom South Canal and is expected to be available in 2010) accounts for approximately 50 % of GSWC water supplies, while the remainder is provided by groundwater production and 5,000 afy of Aerojet replacement water delivered through SCWA facilities (as described in Section 3.3.4, "Water Supply Delivery Agreement between American States Water Company, Sacramento County, and SCWA"). There is no projected recycled water supply available for this system. GSWC's water supply is projected to increase by approximately 15 % between 2005 and 2030 (Table 6).

Table 6
Current and Planned Water Supplies for the GSWC Cordova System (afy)

Source	Year					
	2005	2010	2015	2020	2025	2030
Surface water from American River[1]	5,000	5,000	5,000	5,000	5,000	5,000
SMUD Water Transfer[2]	5,000	0	0	0	0	0
Aerojet Replacement Water via Folsom South Canal[3]	0	5,000	5,000	5,000	5,000	5,000
GSWC Untreated Groundwater[4]	8,116	7,450	4,500	4,500	4,500	4,500
Aerojet Replacement Water through SCWA[5]	0	2,068	5,999	6,314	6,329	6,329
Recycled Water	0	0	0	0	0	0
Total	**18,116**	**19,518**	**20,499**	**20,814**	**20,829**	**20,829**

Notes:
afy = acre-feet per year; GSWC = Golden State Water Company; SCWA = Sacramento County Water Agency; SMUD = Sacramento Municipal Utility District

1 GSWC American River rights.

2 Under this water transfer from SMUD, GSWC is entitled to divert up to 10,000 afy from the American River through July 29, 2007, and for additional years upon request. However, GSWC plans to use only 5,000 afy of this entitlement because of limited surface-water treatment capacity and its desire to maintain its groundwater rights through the Aerojet replacement-water operations.

3 Aerojet replacement-water obligation.

4 Based on GSWC's maximum annual extractions before 2005 and projected changes to groundwater supply through 2030.

5 SCWA would recapture, treat, and deliver groundwater to GSWC up to an additional 10,200 afy of groundwater discharged by Aerojet into the American River. Please note that GSWC is relying on a total of 11,329 afy of replacement supplies from SCWA. For amounts greater than 10,000 afy (i.e., 1,329 afy), GSWC and SCWA would need to negotiate the provision of these supplies on a yearly meet-and-confer basis.

Source: GSWC 2005

SURFACE WATER

GSWC possesses a pre-1914 appropriative right to divert up to 10,000 afy from the American River via the Folsom South Canal at a maximum withdrawal rate of 20 cfs or 13 mgd. Appropriative surface water rights initiated prior to 1914 are not subject to the Water Commission Act and successor laws relating to water right permitting requirements, and thus do not require a permit from the State Water Resources Control Board. In 1994, GSWC entered into an "Agreement for Reallocation of Water under Co-Tenancy Agreement" with the City of Folsom to lease 5,000 afy of its water rights to the City of Folsom. The company preserved 5,000 afy of the remaining water right which is diverted from the Folsom South Canal for use within the Cordova System. During the last 20 years, GSWC has used as much as 4,784 afy of this entitlement.

In addition to the 5,000 afy obtained from GSWC's pre-1914 water right to the American River, GSWC's temporary water-transfer agreement with SMUD allows GSWC to divert up to an additional 10,000 afy from the Folsom South Canal under SMUD's CVP contract entitlement. The SMUD agreement became effective on April

29, 2002 and expires on July 29, 2007, unless it is renewed pursuant to a request by GSWC. GSWC is also entitled to continue diversions of 5,000 afy from the Folsom South Canal pursuant to the terms of a settlement agreement reached with Aerojet. GSWC plans to use only 5,000 afy of its SMUD entitlement because of limited surface water treatment capacity at the Coloma WTP and the Pyrites WTP and its desire to maintain its groundwater rights through Aerojet replacement water operations (SCWA 2005).

The Cordova System's distribution facilities have been designed with several interconnections to neighboring water purveyors for emergency purposes. GSWC maintains three 6-inch interconnections with the Cal-Am's distribution system on the west side of the Cordova System, and a 12-inch interconnection with the City of Folsom's distribution system at the eastern edge of the Cordova System. In addition, the Cordova System has five water storage reservoirs with a total capacity of 9.5 million gallons; one additional reservoir with additional 5.0 million gallons of storage capacity is scheduled to be online in spring 2006.

GROUNDWATER

GSWC pumps groundwater for the Cordova System from 15 production wells located in the Central Basin. The Central Basin is a subbasin of the Sacramento Valley Groundwater Basin and is described above (section 3.4.3, "Groundwater Resources").

The Cordova System has a total normal-year capacity of 21,669 gpm (31,500 afy) (GSWC 2005). In some areas of the basin, groundwater has been impaired by contaminants, including volatile organic compounds (VOCs), perchlorate, and N-nitrosodimethylamine (NDMA) from Aerojet's rocket propellant manufacturing and testing facility located immediately east of the Cordova System. Groundwater contamination forced GSWC to decommission some wells. However, decommissioning the wells has not lowered GSWC's overall system production capacity because non-contaminated groundwater wells have been modified to increase their rated capacity.

It has been predicted that by 2015 all but two of GSWC's wells would experience contamination levels that may cause their inactivation (GSWC 2005). The two remaining wells, Wells 17 and 23, are not expected to be affected by contamination until at least 2032. These wells have a combined production capacity of 3,100 gpm (GSWC 2005).

Groundwater lost as a result of contamination would be replaced by Aerojet under its replacement water obligations. Approximately 5,000 afy of remediated groundwater would be discharged to the American River system. This water would be wheeled through, and withdrawn from, the Folsom South Canal: GSWC's current surface water point of diversion. Up to an additional 10,200 afy of remediated groundwater could be delivered to GSWC via the FRWP and Central WTP (agreement with SCWA and Aerojet discussed in Section 3.3.4, "Water Supply Delivery Agreement between American States Water Company, Sacramento County, and SCWA.")

Table 7 presents the projected groundwater pumping volumes by the Cordova System. As a result of changes in groundwater quality, the groundwater supply for the Cordova System is expected to decrease between 2005 and 2015.

Table 7
Projected Groundwater Pumping Volumes by Cordova System (afy)

Basin Name	Year					
	2005	2010	2015	2020	2025	2030
Central Sacramento	8,116	7,450	4,500	4,500	4,500	4,500

Note: afy = acre-feet per year
Source: GSWC 2005

4.2.2 EXISTING AND PROJECTED WATER DEMANDS

Projections of the existing and projected future water demands within GSWC's service area were calculated for the years 2005 through 2030 in 5-year increments. Future water demands were estimated based on population projections prepared by the Sacramento Area Council of Governments (SACOG). Billing data for the metered water connections from 1999 through 2004 were analyzed to obtain unit water use factors (i.e., the average water use per land use) for various land use categories with in GSWC's service area.

To provide an accurate projection of total water demand, other water uses (e.g., sales), as well as any water lost during conveyance (e.g., evaporation, leaks) has been incorporated in the total water demand projections. "Lost water" is defined as the difference between annual production and supply and annual sales. Included in the lost water are system losses (from leaks, reservoir overflows, or inaccurate meters) and water used in operations (e.g., system flushing). Because the Cordova System is not completely metered, the percent of unaccounted-for water for the metered accounts was used for both metered and unmetered areas. From 1999 through 2004, unaccounted-for water averaged 3.25% of the total production for the metered connections (GSWC 2005). Table 8 summarizes the projections of water sales, unaccounted-for water, and total water demand through the year 2030.

Table 8
Projected Water Sales, Unaccounted-for System Losses, and Total Water Demand (afy) for the GSWC Cordova System

Year	Projected Water Sales	Unaccounted-for System Losses	Total Water Demand
2000	15,880	533	16,413
2005	17,528	588	18,116
2010	18,885	633	19,518
2015	19,833	665	20,499
2020	20,139	675	20,814
2025	20,153	676	20,829
2030	20,153	676	20,829

Note: afy = acre-feet per year
Source: GSWC 2005

4.2.3 RELIABILITY OF WATER SUPPLY TO MEET DEMANDS

The Cordova System obtains its water supply from three sources: surface water, local groundwater, and replacement water under the settlement agreement with Aerojet. In general, GSWC's supply is expected to be 100 % reliable through 2030. This reliability is a result of: a highly reliable surface water supply from the American River, implementation of the settlement agreement prescribing priority uses for SCWA replacement water supplies, and historically reliable groundwater supply from the Central Basin.

RELIABILITY OF SURFACE WATER

As mentioned in Section 4.2.1, "Water Supply Sources," above, GSWC has a pre-1914 American River appropriative water right for the diversion of up to 5,000 afy for use in the Cordova System. Appropriative surface water rights initiated before 1914 are not subject to the Water Commission Act and successor laws relating to the water right permitting requirements, and thus do not require a permit from the State Water Resources Control Board. Because appropriative rights are granted priority based on the year of initiation, the

early priority date of GSWC's American River right (1851) provides this right a high priority, which in turn indicates that this supply has a high reliability of being delivered.

RELIABILITY OF GROUNDWATER

Since 1995, GSWC has extracted a long-term average of 11,753 afy of groundwater from the Central Basin (GSWC 2005). GSWC's highest historical production occurred in 2001 when 13,257 afy was pumped. As described above, portions of the basin are severely impaired by groundwater contamination, caused primarily by past operations at Aerojet, which is located immediately east of the Cordova System. This contamination has caused GSWC to suspend operation of several groundwater wells.

As a result of the contamination, GSWC filed litigation against both Aerojet and the State of California. GSWC settled its action against the State in January 2003 and settled with Aerojet in October 2004. Under the Settlement Agreement, Aerojet guarantees that replacement water supplies would be made available to offset lost groundwater production in the Cordova System, up to a maximum of 15,200 afy (also described in GSWC's agreements with Aerojet and SCWA). As discussed previously, 5,000 afy of replacement water supply would be diverted at the Folsom South Canal, the remaining portion would be made available through SCWA facilities on a meet-and-confer basis for supplies that exceed a total of 10,000 afy.

It is anticipated that in the future, additional groundwater wells may become affected by contamination. As a result, as GSWC wells are removed from the water supply system, remediated groundwater from Aerojet would be delivered to GSWC to offset any losses in groundwater pumping capacity subject to the terms of the adopted agreements between GSWC, SCWA, and Aerojet. Because of the agreements for replacement water supplies, water supplies lost from groundwater contamination (up to 10,000 afy) and replaced by SCWA are considered to have a high reliability for being delivered. GSWC's agreement for replacement water supplies with Aerojet and SCWA allow the delivery of up to an additional 5,200 afy (total not to exceed 15,200 afy). Replacement groundwater water supplies in excess of 10,000 afy would also be considered to have a high reliability for being delivered, although these supplies would need to be negotiated between GSWC and SCWA on an annual meet-and-confer basis.

Groundwater production from remaining wells is expected to produce up to 4,500 afy through at least 2030. Because of existing groundwater contamination, and the anticipation that these wells would be removed from service by 2032, groundwater pumped by GSWC is considered to have a moderate reliability of being delivered.

RELIABILITY OF REPLACEMENT WATER

As mentioned above, Aerojet and SCWA have entered into an agreement for the delivery of up to 15,200 afy of replacement water to GSWC. For the reasons described above, replacement water supplies are considered to have a high reliability of being delivered.

OVERALL ASSESSMENT OF CORDOVA SYSTEM WATER SUPPLY RELIABILITY

Supply reliability for the Cordova System depends on the reliability of the surface water rights, groundwater production, and replacement water supplied via agreements between GSWC, Aerojet, and SCWA. The replacement water measures undertaken by Aerojet and SCWA would ensure that GSWC has the supplies necessary to meet its projected water supply demands through 2030. Two production wells are expected to remain operational until at least 2032, which allows for the production of up to 4,500 afy of groundwater (Table 7). When this amount of groundwater is combined with 5,000 afy of surface water rights from the American River and up to 15,200 afy of replacement water from Aerojet and SCWA, a sufficient water supply (i.e., 24,700 afy) exists to meet all projected water demands (i.e., 20,829 afy) in the Cordova System. It should be noted that available GSWC supplies actually exceed the supplies needed to meet the projected demands because GSWC is not currently using a SMUD water transfer and does not expect to use the water transfer during its planning horizon

(i.e., 2030) to meet future demands. Because projected supplies currently exceed projected demands, GSWC's water supply is considered to have a high reliability of being delivered.

4.3 CALIFORNIA-AMERICAN WATER COMPANY

Cal-Am's Northern Division consists of nine distinct water systems forming one operational entity that is the largest private water operation in Sacramento County with a total of about 43,100 connections serving an estimated 170,500 people. The 9 systems are not all contiguous, but are surrounded by numerous other utilities. The 9 systems that comprise the Northern Division include: Antelope, Arden, Lincoln Oaks, Parkway, Suburban/Rosemont, Sunrise, West Placer, Isleton and Walnut Grove. The Sunrise system is also known as Security Park; however, it is referred to as Sunrise in the Cal-Am's UWMP (Cal-Am 2006). Suburban/Rosemont and Sunrise are the two Cal-Am systems that provide water to a portion of the City's planning area.

Because the service area of Cal-Am's Northern Division is so large, only the systems that provide water to the City's planning areas are discussed below. An overview of water supply sources, existing and projected water supply demands, and the reliability of water supplies to meet projected demands is provided below. These data were obtained from Cal-Am's UWMP (Cal-Am 2006).

4.3.1 WATER SYSTEM SUPPLY SOURCES

This section describes Cal-Am's water supply systems that would provide service within the City's planning area.

SUNRISE SERVICE AREA

Citizens Utilities (a private water utility provider which was later purchased by Cal-Am) purchased the Sunrise service area (also known as Security Park) from McDonnell Douglas in the early 1980s. It consists of approximately 2.8 square miles of land located immediately north of Douglas Road and east of Sunrise Boulevard, approximately 1.5 miles east of Mather Airport. Presently, this area is mostly undeveloped, serving approximately 20 commercial customers. The system includes five groundwater wells, only one of which is in regular use, with other wells available as needed for backup. The Sunrise Service area accounts for less than 0.1% of the Northern Division's production and sales.

SUBURBAN SERVICE AREA

The Suburban service area consists of two systems, the Suburban system and the Rosemont system. These systems lie adjacent to each other and span the north and south sides of U.S. Highway 50 about 9 miles east of downtown Sacramento. This service area (i.e., Suburban /Rosemont) is located entirely within the City's planning area, south of the American River, and north of Mather Airport and includes portions of the developed (i.e., urban) areas of Rancho Cordova. There are approximately 17,000 customers in the Suburban/Rosemont area, which are served via 8 groundwater wells for the Rosemont subarea and 20 wells within the Suburban subarea. In all, the Suburban service area accounts for approximately 30% of the Northern Division's production.

4.3.2 WATER SUPPLY DEMAND

Cal-Am has estimated future population levels within its Northern Division. These projections are identified by service area in 5-year intervals from 2000 to 2025 as shown in Table 9. Population levels within the Sunrise service area are not expected to increase from 2005 to 2025 because this area is fully built out with commercial land uses (Cal-Am 2006). Population levels within the Suburban/Rosemont subarea are expected to increase by only one percent from 2005 to 2025. Total population in the Northern Division service area is projected to increase by 21% from 2005 to 2020 (Table 9).

Table 9 Existing and Projected Population for Cal-Am's Northern Division by Service Area							
Service Area	2000	2005	2010	2015	2020	2025	Percentage Increase from 2005 to 2025
Antelope	25,250	25,880	26,527	26,792	27,059	27,329	6%
Lincoln Oaks	35,970	36,869	37,790	38,169	38,550	38,935	6%
Arden	2,397	2,456	2,517	2,542	2,568	2,594	6%
Suburban/Rosemont	49,754	49,882	50,510	50,138	50,269	50,398	1%
Parkway	37,085	53,735	54,787	55,848	56,817	58,012	8%
West Placer	0	675	6750	13,500	20,250	27,000	3900%
Sunrise	0	0	0	0	0	0	0%
Walnut Grove	466	477	489	495	499	504	6%
Isleton	857	879	901	910	919	928	6%
TOTAL	151,779	170,453	179,721	188,388	197,031	205,700	21%

Note: Cal-Am = California-American Water Company
Source: Cal-Am 2006

Cal-Am estimated existing and projected future water demands for the Northern Division for 2006 through 2025. (Table 10). Cal-Am's total demands are projected to grow from 47,620 afy in 2006 to 56,190 afy in 2025. This is an increase of 8,570 afy over the 25-year period, or approximately 18 % (Table 10). However, Cal-Am did not project individual service area water demands in its UWMP. Cal-Am notes that the Sunrise system accounts for less than 0.1% of the Northern Division's production and sales, and the Suburban system accounts for approximately 30% of the Northern Division's production and sales. Assuming that these percentages apply to both water supply and water demand, EDAW calculated water supplies and demands for the Sunrise and Suburban/Rosemont water systems using Cal-Am's projected growth factor of 1% for the Suburban/Rosemont service area and 0% for the Sunrise service area for the period from 2005 to 2025. These projected demands are shown in Table 10.

Table 10 Summary of Current and Projected Water Demand and Sources of Water Supply (afy) for Cal-Am					
Year	2005	2010	2015	2020	2025
Projected Demand	**47,620**	**50,510**	**52,500**	**54,380**	**56,190**
Projected Supply by Source					
Cal-Am Groundwater	43,600	33,650	34,180	33,550	33,910
Wholesale Surface Water Supply Purchases:					
Placer County Water Agency (West Placer Service Area)	140	1,360	2,720	4,080	5,440
SCWA (Parkway)	2,420	3,500	3,500	4,000	4,000
Citrus Heights Water District (Lincoln Oaks Intertie with SSWD)	20	9,000	9,000	9,500	9,500
City of Sacramento (Arden Intertie)	1,440	3,000	3,100	3,250	3,340

Table 10 Summary of Current and Projected Water Demand and Sources of Water Supply (afy) for Cal-Am					
Year	2005	2010	2015	2020	2025
Transfers and Exchanges	(See "Wholesale Purchases" above. Transfers and exchanges of water occur pursuant to conjunctive-use agreements.)				
Total Water Supply	**47,620**	**50,510**	**52,500**	**54,380**	**56,190**
Sunrise Service Area Demands	48	48	48	48	48
Suburban/Rosemont Service Area Demands	14,286	14,322	14,358	14,394	14,429
Total Cal-Am Water Demands within City planning area[1]	**14,334**	**14,370**	**14,406**	**14,442**	**14,477**

Notes:
afy = acre-feet per year; Cal-Am = California-American Water Company; SCWA = Sacramento County Water Agency; SSWD= Sacramento Suburban Water District
[1] Estimated demands for City's Planning Area based on projected population growth and percentage of water use for service areas within planning area compared to the total Northern Division service area.
Source: Cal-Am 2006

4.3.3 OVERALL ASSESSMENT OF CAL-AM WATER SUPPLY RELIABILITY

Cal-Am operates more than 100 groundwater wells in the Northern Division (inside and outside the Central Basin) for a total theoretical capacity of approximately 100,000 afy (Cal-Am 2006). It should be noted that while Cal-Am's system could pump up to 100,000 afy of groundwater, it is highly unlikely that Cal-Am would undertake such an aggressive groundwater pumping scenario in the Central Basin because of its commitments to adhere to the negotiated sustainable yield of the Central Basin (i.e., 273,000 afy). Further, this pumping capacity is for Cal-Am's Northern Division, of which some service areas are located outside the Central Basin. While all Cal-Am service areas, except for Isleton and Walnut Grove, have interties with other neighboring water purveyors; it is unknown what amount of Cal-Am's groundwater pumping capacity is available to exclusively serve the Sunrise and Suburban/Rosemont service area. Nonetheless, the presence of intertie connections between service areas at a minimum indicates that sufficient emergency groundwater reserves are available within its system. Further, groundwater currently pumped to serve the Northern Division and projected future pumping amounts (Table 10) are considered to have a high reliability of being delivered because Cal-Am has historically pumped a reliable supply of groundwater from its system. Cal-Am would tailor the Northern Division's water supply mix during dry and very dry years in cooperation with the Sacramento Groundwater Authority and the Central Sacramento Groundwater Forum determinations as to how much surface water would be available under conjunctive use programs in any given year (Cal-Am 2006). Cal-Am projects that they would be able to use as much as 23,300 af of imported surface water supplies during normal years. In a very dry year, or the third year of a multiple dry year scenario, Cal-Am projects 100% of the Division's total water supply would be groundwater (Cal-Am 2006).

Similar to the other water purveyors that rely on groundwater from the Central Basin, Cal-Am's groundwater wells within the Sunrise and Suburban/Rosemont service area could at some future point become impaired by the local contamination problem associated with past operations at Aerojet. Cal-Am has however has not entered into an agreement with SCWA for replacement water supplies. However, it is SCWA's intention to enter into an agreement for replacement water supplies with Cal-Am; and as a result, SCWA has planned for approximately 5,000 afy of replacement water supplies allocated to Cal-Am. See Section 4.1.2, "SCWA Water Agreements". Although Cal-Am has not relied upon replacement water supplies to meet future demands in its UWMP, water supplies potentially lost from groundwater contamination (up to 5,000 afy) and replaced by SCWA are considered to have a high reliability of being delivered.

4.4 OTHER WATER PURVEYORS IN THE VICINITY OF THE PLANNING AREA

Omochumne-Hartnell Water District (OHWD) is a primarily agricultural water district located adjacent to and partially overlapping the southeastern portion of the City's planning area (Exhibit 4). While OHWD does not own any water rights, it owns and operates surface water and groundwater distribution facilities for landowners in its service area. Land use within OHWD's service area is primarily in agriculture. Landowners divert water from the Cosumnes River using flashboards to create diversion dams, which allows flood irrigation for agricultural fields adjacent to the Cosumnes River. Landowners that are not located adjacent to the Cosumnes River have groundwater wells that are pumped for irrigation. (Lowry, pers. comm., 2006).

OHWD is a member of the Southeast Sacramento County Agricultural Water Authority, a Joint Powers Authority (JPA) made up of three water districts: OHWD, Clay Water District, and Galt Irrigation District. The JPA is involved in planning efforts regarding groundwater management, water resource utilization, flood control, and groundwater recharge. As part of these efforts, the JPA has been working with many other agencies and organizations, including SCWA in the management of regional groundwater and surface water resources.

While OHWD's service area does not encompass any portions of the City's planning area, it is a neighboring water purveyor that could be a source of potential future water supplies as land within its service area gradually converts from agricultural to urban land uses. .

The City of Folsom, Placer County Water Agency and SSWD are water purveyors in the vicinity of the planning area who may be able to water supplies to the City's planning area. These water districts and their potential to provide water supplies to the City are briefly discussed in Section are discussed in Section 5.4.1 "Water Transfers and Exchanges with nearby Purveyors."

5 PROJECTED WATER DEMANDS FOR THE CITY OF RANCHO CORDOVA GENERAL PLAN PLANNING AREA

5.1 METHODOLOGY FOR ESTIMATING WATER DEMANDS

The City provided total acreages for the existing and proposed land use designations in its corporate limits and the larger planning area. The City estimates that its corporate city limits would build out by 2030, while build out of its planning area would occur sometime after 2030. A specific timeline for build out of the planning area is not known and is dependant on local market conditions including demand for housing, employment uses, and timing of regional infrastructure, among a number of factors. For purposes of this water supply analysis, buildout of the City's planning area is assumed to occur by 2050.

This water supply evaluation uses the same methodology for estimating water demands that SCWA uses in its long-term water supply planning. To estimate projected water demands for the City's planning area, an individual unit water demand factor is applied to each land use designation within the planning area and projected water demands are calculated for each land use category in acre-feet per acre per year (af/acre/year). SCWA developed unit water demand factors for land use types in its 2030 Zone 40 WSMP (SCWA 2005a) and these demand factors are used to estimate the City's demands. SCWA's water demand factors reflect a 25.6 percent level of water conservation (compared with an unrestrained condition), pursuant to the guidelines set forth in the WFA and are normalized to account for hydrologic year differences.

5.2 PLANNING AREA WATER DEMANDS

Water demand estimates for the City's planning area were developed using the 2030 unit water demand factors presented in the Zone 40 WSMP for similar land use categories. The total annual water demand assumes system losses of 7.5%: the same factor used by SCWA (SCWA 2005a). Total annual water demands within the corporate city limits are estimated to be 57,299 afy at buildout. Water demands for the larger planning area (areas outside the corporate limits) are estimated to be 71,410 afy. Total water demands for the entire planning area are estimated to be 128,709 afy (Table 11).

Table 12 identifies projects within Rancho Cordova specific plan, comprehensive plan, and community planning areas that have been identified in the City's General Plan. As indicated in the table, many of these plans have either been approved or are currently proposed and proceeding through the planning process. Projects that have been approved by the City (or the County prior to the City's incorporation) have identified and secured a long-term reliable water supply source from one of the water purveyors within the City. Many of the proposed projects also have identified and/or secured a long-term water supply source. The water demands associated with many of the proposed projects have been accounted for in SCWA's water supply planning documents including the recently prepared SCWA Zone 40 WSMP, Zone 41 UWMP, and Zone 40 NSA WSIP.

As presented in Exhibit 6, SCWA is planning for the delivery of long-term water supplies to its NSA. Within the NSA, SCWA has identified the water demand areas of Westborough, Sunrise Douglas, Rio del Oro, Sunrise Corridor, and Mather Field. These areas are all within the City's corporate limits with the exception of Mather Field (located in the City's planning area). Table 13 lists SCWA's NSA demand areas and how these areas correspond to the City's planning area. The majority of the City's corporate limits fall within the NSA. Areas that lie outside the NSA fall within the service area of GSWC and Cal-Am, with the exception of a small area located in the southern portion of the NSA. This area is located within SCWA's Zone 40 2030 Study Area. While SCWA has allocated water supply and planned for infrastructure to serve its NSA, the total water demand within these planning areas may exceed the amount of water planned to be delivered to the NSA by SCWA. Service within the NSA will be on a first-come, first-served basis. As development occurs, SCWA will track service demands in relation to available supplies.

Table 11
Land Use and Water Demands at Buildout of the City of Rancho Cordova General Plan

Land Use [1]	Total Area (Acres)			Unit Water Demand Factor [2]	Water Demand (afy)		
	Corporate City Limits	Unincorporated City	Total Acreage Within Planning Area		Corporate City Limits	Unincorporated City	Total Planning Area Water Demands
Public/Quasi-Public	1,138	3,854	4,992	1.04	1,184	4,008	5,192
Parks and Open Space	2,392	1,810	4,202	3.46	8,276	6,263	14,539
Natural Resources	1,864	9,251	11,115	0.00	0	0	0
Rural Residential	0	1,135	1,135	1.33	0	1,510	1,510
Estate Residential	630	3,949	4,579	1.33	838	5,252	6,090
Low Density Residential	6,156	10,780	16,936	2.89	17,791	31,154	48,945
Medium Density Residential	3,423	266	3,689	3.70	12,665	984	13,649
High Density Residential	450	249	699	4.12	1,854	1,026	2,880
Residential Mixed Use	62	60	122	2.51	156	151	307
Office Mixed Use	1,788	1,118	2,906	2.75	4,917	3,075	7,992
Commercial Mixed Use	439	352	791	2.75	1,207	968	2,175
Village Center	222	225	447	2.51	557	565	1,122
Local Town Center	68	77	145	2.51	171	193	364
Regional Town Center	112	174	286	2.51	281	437	718
Transit Oriented Town Center	77	154	231	2.51	193	387	580
Light Industrial	961	2,940	3,901	2.71	2,604	7,967	10,571
Heavy Industrial	224	918	1,142	2.71	607	2,488	3,095
Surface Mining [3]	0	871	871	0.00	0	0	0
Developed Land Use	20,006	38,183	58,189		53,301	66,428	119,729
Water System Losses (7.5%)					3,998	4,982	8,980
Total Land and Water Use	**20,006**	**38,183**	**58,189**		**57,299**	**71,410**	**128,709**

Notes:
1 Land use designations and total acreage provided by Rancho Cordova correspond to the General Plan land use map.
2. Unit water demand factors based on Zone 40 WSMP (SCWA 2005a) for land use categories similar to City of Rancho Cordova land use categories. Demand factors reflect 25.6% level of water demand management consistent with the WFA.
3 Aggregate mining typically has a minimal water demand for wash-down and dust control.
Source: Angell, pers. comm., 2006

Table 12
Approved and Proposed Projects In Rancho Cordova

Project Name	Dwelling Units	Res. Acres	Com. Acres	Total Acres*
Approved Projects (all projects have secured water supplies)				
Sunridge Park (Phase I) - (Part of Sun Ridge Specific Plan[1])	801	244.2	NA	244.2
Anatolia I - (Part of Sun Ridge Specific Plan[1])	949	199.5	14.5	229.8
Anatolia II (Part of Sun Ridge Specific Plan[1])	886	244.7	11.1	298
Anatolia III (Part of Sun Ridge Specific Plan[1])	879	208	NA	208
Anatolia IV (Part of Sun Ridge Specific Plan[1])	134	25	NA	25
Mather East (Part of Sun Ridge Specific Plan[1])	NA	13.3	18.8	44.56
Sunrise Douglas Shopping Center	NA	NA	51	51
Villages of Zinfandel— Stone Creek Apartments	288	17.08	NA	17.08
Villages of Zinfandel GPA	719	527	18	823
North Douglas (Part of Sun Ridge Specific Plan[1])	680	120.9	NA	130.3
Capital Village[2]	836	85	32	117
Total	**6,172**	**1,685**	**145**	**2,188**
Proposed Projects				
Rio del Oro[3]	11,601	1,931	137	3,828.50
SunCreek[4]	5,459	2,901	306	3,410
The Preserve at Sunridge[1]	2,703	303.5	21.6	530
Sunridge East - (part of Sun Ridge Specific Plan[1])	3,042	393.6	25.7	609.4
Montelena - (part of Sun Ridge Specific Plan[1])	869	158.3	NA	251.9
Westborough[5]	6,000	1,000	274	1,518
Glenborough[5]	4,810	801	178	1,366
Bradshaw Landing[6]	NA	NA	NA	40.5
Legion of Christ Catholic College[6]	NA	NA	NA	300
Total	**34,484**	**7,488**	**942**	**11,854**
Total Approved and Proposed Projects	**40,656**	**9,173**	**1,087**	**14,042**

Notes:
1 Water supplies for these projects would be provided by the North Vineyard Wellfield operated by SCWA. See Section 5.2.1, "Sun Ridge Specific Plan Water Supply and Demand," below.
2 Water supplies identified for this project is unknown.
3 SCWA would provide replacement water supplies to this project (part of 15,000 afy of water diverted at FRWP.
4 SCWA would install and operate groundwater wells near Kiefer Road. Operation of these wells would remain within the negotiated sustainable yield of the Central Basin (i.e., 273,000 afy)
5 GSWC would provide replacement water supplies to serve this project.
6 Water demands associated with these projects have not been identified

Table 13 SCWA Demand Areas and City Planning Areas	
SCWA Demand Region	City of Rancho Cordova Planning Area
Mather Field	Mather Planning Area
Rio Del Oro - Cal American	Rio Del Oro Planning Area
Rio Del Oro - Zone 40	Rio Del Oro Planning Area
Sunrise Corridor	Sunrise Blvd South Planning Area
Sunrise Douglas	Suncreek/Preserve & Grant Line North Planning Area
Westborough	Westborough Planning Area
Note: Cal-Am = California-American Water Company; SCWA = Sacramento County Water Agency Source: SCWA 2006	

5.2.1 SUNRDIGE SPECIFIC PLAN WATER SUPPLY AND DEMAND

The Sun Ridge Specific Plan (SRSP) project was approved by the County Board of Supervisors in 2001 (City of Rancho Cordova was not incorporated at this time) (Sacramento County 2001a). The project consists of a land use plan for development of approximately 2,632-acres within the City's corporate limits with approximately 10,020 dwelling units, 173 acres of commercial uses, 78 acres of park uses, and 44 acres of school uses. Water supply planning for this project has been complicated and occurred within the context of the larger Sunrise Douglas Community Plan (SDCP). The SDCP project (also approved in 2001) provides an overall conceptual framework and policy direction for urbanization of approximately 6,042 acres within the City's corporate limits. Implementation of the SDCP and SRSP would result in the development of approximately 22,503 dwelling units and would support 479 acres of commercial, 177 acres of park and 148 acres of school uses. Buildout of the SRSP area is anticipated to occur by 2011, while buildout of the SDCP area would occur by approximately 2020.

The proposed SRSP was approved prior the implementation of SB 610 (became effective January 1, 2002), which is described above in Section 3.1.2, "Senate Bill 610." As such, the preparation of an SB 610 WSA was not required prior to approval of this project. Because the City is now the land use agency responsible for implementing specific development plans within the SRSP area and the City is engaging in the preparation of its General Plan and supporting General Plan water supply evaluation (this document), the City has asked for a description of the water supply sources identified for the SRSP and the long-term reliability of those sources to meet demands within the SRSP area during normal, dry, and multiple dry years. The discussion that follows describes SCWA's identified water supply sources to the SRSP area and the reliability of those supplies to meet demands based on the information contained in the Zone 41 UWMP.

SCWA would serve the SRSP area through their Zone 40 conjunctive use water supply system. Some of the specific development projects within the SRSP are identified in Table 12. Total water demands associated with the SRSP area are approximately 8,540 afy (approximately 7.62 mgd) (Sacramento County 2001a). SCWA has agreed to serve the SRSP area with groundwater from the NVWF, which is currently under construction (see Section 3.3.2, "SCWA Zone 40 Water Supply Master Plan.") SCWA has adopted resolution (Resolution No. WA-0607 on July 26, 2005) that specifically allocates water supplies from the NVWF to the SRSP project (Appendix A). Further, SCWA has accounted for the SRSP project within its UWMP (2005). The SCWA UWMP is discussed in Section 4, "Existing and Projected Water Demand and Supply for Water Purveyors in the City's Planning Area."

The NVWF provides for the extraction of up to 10,000 afy of groundwater and would consist of 8 wells located in the vicinity of Excelsior and Florin Roads and a 30-inch pipeline to convey raw groundwater to the Anatolia Water Treatment Plant (Anatolia WTP) located on Sunrise Boulevard. The total anticipated maximum day

capacity of the well field would be approximately 8,000 gpm. The first phase consists of 3 wells with a capacity of 4,500 gpm (one of these wells is considered a back-up and not part of the treatment plant's capacity). Additional capacity and wells will be added on an as needed basis.

Water supplies (including the NVWF) to serve the SRSP are part of SCWA's conjunctive use program for Zone 40. Table 1 presents the combination of surface water and groundwater supplies and entitlements that SCWA has identified for Zone 40. Section 4.1.2, "SCWA Water Agreements," described the conditions associated with SCWA'S water agreements. Table 1 also describes SCWA'S projected water demands within its service area over the next 20+ years (to 2030). Further, through its UWMP, SCWA has demonstrated the long-term reliability of its water supplies to meet projected water demands within its service area. Because the SRSP project is located within zone 40, has been planned for in SCWA'S water supply planning, SCWA has determined through its UWMP that reliable water supplies are available to meet its 2030 projected water demand under normal, dry, and multiple-dry water years, and a defined water supply (i.e., NVWF) has been allocated to serve the SRSP area, adequate long-term water supplies are available to meet buildout water demands of the SRSP area.

5.3 AVAILABILITY OF SUPPLIES TO MEET PROJECTED DEMANDS WITHIN CITY OF RANCHO CORDOVA GENERAL PLAN PLANNING AREA

The water purveyors within the planning area have developed water supplies to meet demands associated with expected growth and development in their service areas. SCWA has projected water demands based on assumptions regarding population growth and unit water demands associated with different land use types. SCWA used the best available data and information for developing water demand estimates (i.e., Sacramento County General Plan), and other recent information obtained regarding new development in the area (e.g. the draft WSIP)

SCWA provides water to new developments on a first-come first-served basis. Specific projects that are planned for in the future would be served with water supplies as the necessary conveyance and treatment facilities to deliver water to the newly developing areas are developed. Facilities currently proposed by SCWA include the: Zone 40 Central WTP, FRDP, NVWF, and the Eastern County Replacement Water Supply Project.

Using information provided by local water purveyors within the City's planning area, the total amount of 2030 water supplies for each water purveyor are presented in Table 14 and compared against existing and projected water demands for the City's planning area. Table 14 indicates that the combined water supplies of SCWA, GSWC and Cal-Am total approximately 77,620 AF in 2030.

Table 14
Summary of Projected 2030 Water Supply Available to Planning Area by Water Purveyors and City of Rancho Cordova Water Demands

Water Purveyor	Year	2030
SCWA Zone 40 NSA	Supply	37,314
GSWC	Supply	25,829
Cal-Am	Supply	14,477
Total Supply Available to Planning Area		**77,620**
City of Rancho Cordova General Plan Planning Area	Demands	
	City Area	57,299
	Non-City Area	71,410
	Total Demands	**128,709**
	Surplus/(Deficit)	(51,089)

The total water demands for the City's planning area would be approximately 57,299 AF with buildout of the corporate limits plus an additional 71,410 AF with buildout of the remaining planning area. Total water demands for the entire planning area (including the city limits) are 128,709 AF. Based on the combined available water supplies of the local purveyors to serve the planning area (i.e., 77,620 AF), there would be a water supply shortfall of approximately 51,089 AF (approximately 40% of the long-term total demands, considering development within the current city limits plus the planning area).

Because the majority of the City's corporate limit is located within GSWC's, Cal-Am's, or SCWA's NSA service areas and water supplies have been planned for buildout of these areas, adequate water supplies would likely be available to meet the City's corporate limit buildout water demands with implementation of the various water supply plans, agreements, and projects planned for by local water purveyors (described above) and assuming buildout occurs at the levels (e.g., densities) planned for by local purveyors . Beyond buildout of its corporate limits, new development projects would be served by SCWA (no other purveyors are located outside the City's corporate limits) on a first-come, first-served basis. While total supplies available (i.e., 77,620 AF) are greater than the City's corporate limit demands (i.e., 57,299 AF), indicating that additional growth beyond its corporate limits may be accommodated, the exact amount of water and corresponding land areas that could be served are currently unknown because SCWA would need to consider requests for service from the City in the context of all water demands throughout the Zone 40 service area. The City may be able to pursue additional growth beyond its corporate limits; however, the City would need to coordinate with SCWA to determine the total demands that could be met by existing and projected future water supplies.

If water supplies are not available to meet buildout water demands, the City would either need to stop approving new growth within its jurisdiction, or collaborate with regional water purveyors to investigate potential future water supply options in the context of the regional water supply planning environment. Investigation of future water supply options would likely require involvement from local water purveyors (GSWC, Cal-Am, and SCWA at a minimum, and other neighboring purveyors as appropriate), the Water Forum successor effort, and environmental groups. Because of the long-term and sometimes contentious nature of future water supply planning, the feasibility of implementing new water supply options beyond those described in the WFA are unknown. Regardless, the following section provides a brief summary of potential new water supply options the City could pursue (in collaboration with local agencies) to develop supplies to meet its planning area buildout water demands.

5.4 FUTURE WATER SUPPLIES

As shown in Exhibit 2, the portions of the City's planning area that are not within the corporate city limits are within SCWA's Zone 40. The portion southwest portion of the planning area that overlaps OHWD's service area is also within Zone 40's service area. To support the level of growth proposed by Rancho Cordova, additional water supplies would need to be acquired and/or the City would need to make efforts to substantially reduce its overall demand for potable water. There are a number of options in which water purveyors for the region could secure additional water supplies to accommodate the additional growth planned by the City. Reduction in potable water demand could be achieved through the use of recycled water for non-potable purposes. These options presented are considered very preliminary in nature. It is important to note that the City (as the land use agency) will need to actively participate in discussions with the local water purveyors, the Water Forum successor effort, and environmental groups to develop feasible solutions to providing new water supplies above and beyond those identified in the WFA and the necessary conveyance and treatment infrastructure to serve proposed growth and development. A combination of one or more of the potential options described below may allow the City to proceed with growth and development beyond its corporate limits.

5.4.1 WATER TRANSFERS AND EXCHANGES WITH NEARBY PURVEYORS

The water purveyors in the planning area (SCWA, GSWC, Cal-Am) could enter into agreements with nearby cities and agencies to secure new or surplus water supplies. Cities and agencies who purchase water from SCWA

or have jurisdictional boundaries that overlap Zone 40's boundaries would be a likely choice for developing such an agreement because the ability to develop distribution system interties. The interties would allow the easy transfer and exchange of water supplies between neighboring water purveyors without the need to construct substantial new conveyance infrastructure. The potential feasibility of water purveyors located near Rancho Cordova providing new water supplies to the City are discussed below.

CITY OF FOLSOM

GSWC has entered into an agreement with the City of Folsom to transfer 5,000 afy to the City of Folsom pursuant to its agreement for replacement water supplies with Aerojet. Within the agreement there is the option for the City of Folsom to transfer the 5,000 afy to the SCWA for its use within its conjunctive use water supply system. However, based in indications from the City of Folsom, the City does not anticipate the transfer of these supplies to SCWA would be likely. While Rancho Cordova could negotiate with the City of Folsom regarding the availability of these supplies, their ultimate transfer to SCWA would be unlikely.

PLACER COUNTY WATER AGENCY

Staff at the Placer County Water Agency was contacted to determine whether they had any available water supplies that could be exchanged or transferred to SCWA. Staff at Placer County Water Agency indicated that based on their Integrated Water Resources Plan, which is currently under preparation and was not available for review at the time this report was prepared, Placer County Water Agency would only have enough water supplies to meet its projected buildout water demands. No additional water supplies would be available from Placer County Water Agency for transfer or exchange agreements (Maisch, pers. comm., 2006).

SACRAMENTO SUBURBAN WATER DISTRICT

GSWC currently has an intertie with Sacramento Suburban Water District (SSWD)'s water distribution system. As of the date of this report, no reply has been received from SSWD regarding the potential availability of water transfer or exchange opportunities. The potential may exist for the acquisition of additional supplies to meet City demands; however, the City would need to coordinate with GSWC and SSWD to determine the feasibility of those supplies. If supplies are available, no substantial new infrastructure would need to be constructed because an intertie connection between these two agencies is already available. Additional distribution and treatment facilities may be required to convey the water from GSWC existing distribution to new growth areas to deliver these supplies to SCWA for distribution in the new growth areas.

NATOMAS CENTRAL MUTUAL WATER COMPANY

Natomas Central Mutual Water Company (Natomas Mutual) primarily provides irrigation water to its shareholders for agriculture purposes. Natomas Mutual has historically provided water to more than 33,200 acres of land north and west of the city limits of Sacramento and its service area is bordered on the west by the Sacramento River and stretches into Sutter County to the north. Natomas Mutual has water rights for 120,000 afy of water from the Bureau of Reclamation and diverts this water from the Sacramento River.

In March 2004, Natomas Mutual authorized its staff and consultants to finalize an operating agreement with GSWC to provide water and wastewater services to municipal and industrial users in the Natomas Basin via a separate conveyance system. (Natomas Central Mutual Water Company 2006). The partnership allows Natomas Mutual to serve all development within its service area, while preserving habitat, encouraging conservation, and maximizing the value of its shareholders' historic water rights. Just as important, the partnership with GSWC makes certain that the water Natomas draws from the Sacramento River, American River and from groundwater wells stays in northern California. As land is being converted from agricultural (predominantly rice) to residential land uses in Natomas Mutual's service area, the total water demands in the service area has decreased (rice

farming is a water intensive use). This has resulted in a potential surplus in Natomas Mutual's available water supplies.

Natomas Mutual has indicated that through the partnership with GSWC; they are looking for opportunities to market (e.g., sell, transfer) their surplus water supply (Strickland, pers. comm., 2006), although information regarding the specific amount of available water supplies is not available. The sale or transfer of water from Natomas Mutual to purveyors within Rancho Cordova would require approval by the State Water Resources Control Board, Division of Water Rights and the preparation of necessary environmental documentation. Further, additional conveyance and treatment facilities would likely be required to deliver water from Natomas Mutual's service area to the City's planning area.

5.4.2 IMPROVED GROUNDWATER SUSTAINABILITY

Groundwater use (i.e., by all groundwater users) in the Central Basin is restricted to the WFA, negotiated, long-term sustainable yield of 273,000 afy. The CSCGF is currently preparing a GMP that addresses ways to maintain groundwater sustainability (Eck, pers. comm., 2006). The CSCGF identified two primary activities that would result in an improved ability to sustain the viability of the groundwater resources for the Central Basin.

- Continue to investigate conjunctive use opportunities within the Central Basin area. SCWA and other groundwater users within the Central Basin will coordinate all recharge efforts.

- Continue to investigate opportunities for development of direct recharge facilities (e.g., well injection facilities) in addition to in-lieu recharge facilities (e.g., constructed recharge basins, discharge to riverbeds or streambeds).

The City could collaborate with SCWA and the CSCGF to investigate recharge and water banking opportunities available within the Central Basin. Through these investigations and implementation of a recharge program it could be determined that new supplies would be available to accommodate new growth within the region and these supplies could partially meet the City's projected water demands. The feasibility of implementing such a recharge program is currently under investigation by the CSCGF and would likely require the construction of additional facilities (e.g., groundwater injection wells, discharge structures, and new groundwater extraction wells if additional supplies are available).

Through investigation of the feasibility of large-scale groundwater recharge opportunities there may also be the potential opportunity to investigate and study the sensitivity of the negotiated, sustainable yield of the Central Basin. The City could coordinate with the Water Forum successor effort, CSCGF, and other groundwater appropriators to scientifically and comprehensively evaluate whether the Central Basin could support a higher yield what still maintaining the objectives of the WFA. Although dependant on the results of the investigation, it may be possible to pump additional groundwater from the Central Basin, which would facilitate new growth and development. A portion of these supplies could serve new growth within the City.

5.4.3 EXPAND USE OF RECYCLED WATER

Sacramento Regional County Sanitation District (SRCSD) is responsible for the collection, treatment, disposal and reuse (recycled water) of wastewater throughout most of the urbanized areas of Sacramento County, including the majority of service areas retailed water by SCWA.

Through an agreement between SCWA and SRCSD, the SRCSD has successfully implemented a 5 mgd (5,600 afy) Water Recycling Program. This program provides recycled water for SRCSD on-site uses and for large commercial irrigation customers within Zone 40 (e.g., commercial, industrial, right-of-way landscaping, schools, and parks). Recycled water is a desirable source of water for outdoor landscape irrigation and other non-potable uses because of its high reliability and its independence of hydrologic conditions in any given year. By increasing

the use of recycled water SRCSD may be able to reduce the amount of treated wastewater discharged to the river which may become a more cost effective solution for the SRCSD's 1.1 million ratepayers as wastewater regulations require ever higher treatment standards (and costs) for discharged effluent. SRCSD's boundary covers the Zone 40 region in the Rancho Cordova area. It is expected that the SRCSD's boundary will be expanded further to cover the areas in the City's planning area that are currently undeveloped as development plans are approved.

The most commonly used recycled water is defined as wastewater that has been treated to tertiary standards that meet Title 22 of the California Code of Regulations. Recycled water treated to this level can be used for all outdoor irrigation demands in a community, including; parks, schools, street medians, residential front and backyard landscaping, public open space, as well as industrial uses such as cooling water. In addition, recycled water is commonly used for environmental purposes such as wetlands and habitat restoration.

The Water Recycling Program on the Sacramento Regional Water Treatment Plant site was designed and constructed to be readily expandable to 10 mgd (11,200 afy) in accordance with SRCSD's Master Reclamation Permit (WDR #97- 146). A planned Water Recycling Facility plant expansion from 5 mgd to 10 mgd could serve new areas of planned and expected growth and public open space and golf course areas within the City of Sacramento. SRCSD will work in partnership with SCWA to serve these Zone 40 areas. The expanded water recycling facility and new water recycling service areas will be called Phase II of the SRCSD Water Recycling Program. Phase II construction will be timed with the need for the higher capacity and is currently expected to be in service by 2008- 2010.

To plan for water recycling projects beyond 2010, SRCSD is developing a Water Recycling Master Plan (WRMP) that would plan for water recycling through 2030. The overall project objective is to increase water recycling usage in the Sacramento region during peak irrigation months to a 30 mgd (33,600 afy) to 40 mgd (44,800 afy) level. Water recycling on this scale will allow SRCSD to better manage its effluent discharged to the Sacramento River and could help Sacramento Area water purveyors improve their water supply availability and reliability in terms of irrigation and industrial water supply. The WRMP effort will include significant outreach to stakeholders that could be associated with SRCSD's future water recycling plans. Stakeholders to be contacted during the WRMP are expected to include, among others; Sacramento Area water purveyors and users, land use planning authorities, land development leaders, and environmental interests. The WRMP will culminate in the development of a SRCSD Water Recycling Master Plan document that is expected to contain numerous water recycling project alternatives that will be evaluated for future SRCSD implementation.

One option being explored as part of the WRMP is the use of recycled water for agriculture which would supplement groundwater supplies. The reduction in groundwater use by agricultural users may "free up" groundwater supplies elsewhere in the same groundwater basin. This WRMP document is expected to be completed in mid-2006.

SCWA has indicated that the use of recycled water for non-potable purposes could reduce potable water demands by as much as 10% to 50% depending on the level of reuse that is prescribed(Eck, pers. comm., 2006). Using recycled water for public areas such as medians and park strips would reduce potable water demands by approximately 10-15%, while using recycled water for public area and residential outdoor areas (e.g. residential landscaping) could reduce overall potable water demands by as much as 50%.

The City should coordinate with the SRCSD to investigate the feasibility of implementing water recycling projects within its jurisdiction. Doing so over the long-term could substantially reduce the City's overall buildout water demands.

6 POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH DELIVERING WATER TO THE GENERAL PLAN PLANNING AREAS

This section briefly summarizes the potential environmental impacts associated with delivering water to the City's planning area. Potential impacts include those associated with construction and operation of facilities necessary for diverting, treating, and delivering water. Specific water supply sources to meet the City's build out planning area demands are not fully known. For those supplies that are not currently known, this assessment represents a preliminary overview of the types of impacts that could occur and would need to be addressed in detail in the future environmental documents prepared by the City or appropriate water agencies.

The City of Rancho Cordova is a land use agency and is responsible for the approval of new growth and development within its jurisdiction. In approving its General Plan and associated land use plan, the City would be approving a prescribed level of growth and development. The City must consider the direct and indirect impacts associated with approval of its General Plan, including the impacts associated with the provision of public services, such as a reliable water supply.

The population and employment growth associated with the City's proposed land use plans would cause an increase in local water demands. Demand for surface water and groundwater would increase as a result of new residential, commercial, and industrial development within Rancho Cordova; however, a portion of this demand may be reduced through the conversion of irrigated agricultural land to urban land uses. Insufficient water supplies are currently available to meet the City's 2030 (corporate limits) and 2050 (planning area) land use demands. The City would be required to secure additional water supplies to meet its projected demands. Increased groundwater pumping to meet demands would be limited because little surplus groundwater is available for pumping over the long term because planned future groundwater pumping would approximate the negotiated groundwater pumping yield for the Central Basin (i.e., 273,000 afy). As a result, there would be an increased demand for new surface water supplies or increased recycling and water conservation programs and an increased demand for local water purveyors to expand their service areas. Increased surface water demands could lead to increased water shortages, reductions in existing service levels of local water purveyors, and the inability of purveyors to serve new development.

To meet projected demands, water supply purveyors would need to pursue additional water supply projects that would bring in new water supplies or recycled water supplies to serve the city. Potential projects to secure additional supplies could include the negotiation of new water right transfers; construction of new diversion structures; expansion or construction of new water treatment plants; and construction of new potable water and recycled water distribution facilities. Examples of potential environmental impacts that could be caused by potential water supply projects that would serve the City's planning area are described in Table 15.

Table 15
Examples of Types of Environmental Impacts that could be caused by Other New Water Supply Projects, Water Rights Transfers, and Related Infrastructure

Types of Potentially Affected Resources	Related and Potential Impacts
Surface Water Hydrology	Changes in the magnitude and timing of flows in affected streams; changes in the level of affected reservoirs and lakes. Potential cumulative effects on the hydrology of Folsom Reservoir, South Fork American River, Middle Fork American River, and possibly other locations including the North Fork Cosumnes River, and Alder and Weber Creeks.

Table 15 Examples of Types of Environmental Impacts that could be caused by Other New Water Supply Projects, Water Rights Transfers, and Related Infrastructure	
Types of Potentially Affected Resources	Related and Potential Impacts
Geology and Soils	Increase in erosion and sedimentation from construction activities; change in sediment transport in streams; geologic hazards could cause problems for new facilities and their operators if they are not sited carefully.
Water Quality	Changes in stream and reservoir/lake temperature, dissolved oxygen, turbidity, total suspended solids, and other water quality parameters of concern during construction and operation of new facilities.
Fishery Resources including Special-status Species	Change in the amount and quality of fishery habitat in affect streams and reservoirs/lakes, and potential fish entrainment at possible diversion sites in lakes and streams.
Wetlands and Riparian Habitat	Changes in the amount or functions and values of various types of wetlands from the construction of new facilities, or in riparian areas from changes in the operation of reservoir/lakes and changes in streamflows. Riparian habitat could be affected by hydrology changes or new construction and is especially important habitat for wildlife and botanical species.
Botanical Resources including Special-status Species	Disturbance to rare plants and their habitat and other types of vegetation from construction activities or changes in hydrology along streams and at reservoirs and lakes.
Wildlife Resources including Special-status Species	Changes in the amount and quality of affected wildlife habitat near affected reservoir/lakes, and streams and where appurtenant facilities would be located.
Recreation	Changes in the quantity or quality of recreation opportunities, including fishing, boating, hiking, and whitewater rafting affected reservoirs/lakes and in affected streams; some impacts could also occur during construction and operation of new conveyance, treatment, storage, and pumping facilities.
Visual Resources	Changes in reservoir/lake levels, and streamflows and the addition of new project facilities could affect the visual environment. New pipelines, pumping stations, or transmission lines near or in residential areas or highly visited areas would cause negative impacts.
Agriculture	Some irrigated land or grazing land could be taken out of production where project conveyance facilities need to be located and to accommodate growth. The availability of surface water supplies for agricultural uses could increase.
Cultural Resources	Historic, prehistoric, and ethnographic resources could be affected by hydrology changes or the construction and maintenance of new facilities.
Compatibility with Existing Land Uses and Other Policies and Plans	Some new project facilities may not be compatible with surrounding land uses, or may be inconsistent with related federal, state, tribal, and local plans and policies (including those of the U.S. Forest Service, USFWS, and California Department of Fish and Game).

Table 15 Examples of Types of Environmental Impacts that could be caused by Other New Water Supply Projects, Water Rights Transfers, and Related Infrastructure	
Types of Potentially Affected Resources	Related and Potential Impacts
Mineral Resources	New project facilities could interfere with the extraction of minerals at known or yet-to-be-discovered mineral sites.
Public Utilities	The routing and sitting of new project facilities could interfere with the operation or maintenance of existing or planned public utilities, including communication and energy infrastructure.
Socioeconomic Resources	Customers of the water purveyors and other would enjoy the socioeconomic benefits associated with a more reliable water supply and related economic growth. Water rates would likely increase to help pay for new facilities. Facility construction would cause short-term and Beneficial employment and income impacts. Energy or mineral impacts would also cause related socioeconomic effects.
Air Quality and Noise	Air emissions from construction equipment and traffic and loud noises could occur during the construction phase of new projects. New pumping stations would likely cause adverse noise impacts for nearby residents and recreationists.
Transportation	Local roads would experience traffic increases during construction.
Public Health and Safety	Construction activities could create some safety hazards.
Growth-inducing Effects	New system infrastructure and water supply projects would likely cause growth-inducing impacts.
Source: EDAW 2006	

6.1 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS IDENTIFIED IN RELEVANT WATER SUPPLY PLANNING PROJECTS

The WFA, SCWA's Zone 40 WSMP and the NVWF, evaluated as an element of the Sunrise Douglas Community Plan/Sunridge Specific Plan, which are described in Sections 3.3.1, 3.3.2, and 5.2.1 respectively all have certified EIRs that addressed the environmental impacts associated with delivery of water supply resources within the region. A brief summary of the significant and unavoidable environmental impacts identified in the EIRs for the WFA, Zone 40 WSMP, and NVWF is provided below.

6.1.1 WATER FORUM AGREEMENT EIR (CITY AND COUNTY OF SACRAMENTO 1999)

- **Water Supply:** Reduced Deliveries to SWP and CVP contractors.
- **Water Quality:** Seasonal Changes to Sacramento River and Delta water quality.
- **Fisheries:** Reductions in seasonal availability of reservoir littoral habitat for Folsom Reservoir's warmwater fisheries; flow-related impacts to fall-run Chinook salmon; flow and temperature-related impacts to splittail;

contribution to cumulative impacts to warmwater fisheries of Shasta and Trinity reservoirs; cumulative temperature-related impacts to Sacramento River fisheries resources; and cumulative flow-related impacts to Delta fish populations.

- **Power Supply.** Contribution to cumulative reduction in average annual average CVP hydropower capacity and generation.

- **Recreation.** Reduced rafting and boating opportunities on the Lower American River; reduced boating opportunities on Folsom Reservoir; and decreased late-season swimming breach opportunities at Folsom Reservoir.

- **Land Use and Growth-inducing Impacts:** Substantial growth-inducement and resultant land use impacts.

- **Cultural Resources:** Increased cycles of inundation and drawdown affecting cultural resources sites around Folsom Reservoir.

6.1.2 ZONE 40 WATER SUPPLY MASTER PLAN EIR (SCWA 2003)

- **Growth-Inducing Impacts:** Implementation of the 2002 Zone 40 WSMP would result in the removal of one obstacle to growth (water supply) in the 2030 Study Area. Growth would result in the conversion of undeveloped areas in the 2030 Study Area to urban land uses resulting in impacts on biological resources, scenic resources, air quality, noise, traffic, and other effects of increased urbanization. Because mitigation of growth-related effects is in the purview of the County and the cities of Elk Grove and Rancho Cordova through their existing land use authority, and because SCWA itself has no such authority, the 2002 Zone 40 WSMP cannot feasibly provide for additional mitigation of growth-related environmental impacts. This is a significant and unavoidable impact.

- **Conversion of Prime Farmland or Farmland of Statewide Importance:** The 2030 Study Area includes Prime Farmland and Farmland of Statewide Importance. Although specific locations of conveyance pipelines and groundwater facilities are not known at this time, construction of these facilities on designated farmland could result in an incremental loss of this resource. Also, as an indirect impact, farmland conversion could occur as a result of unknown development supported by the water supply plan.

- **Visual Impact of Project Facilities:** Depending on the size, location, and design of new facilities, significant visual impacts may occur with implementation of the 2002 Zone 40 WSMP. Once additional information becomes available, and specific projects are proposed, additional environmental analysis would be required to determine the magnitude of impacts, if any, that would result.

- **Short Term Construction-Related Emissions:** Short term construction generated emissions could potentially exceed SMAQMD daily emission thresholds of 85 ppd for NOX and 275 ppd for fugitive dust (PM10). As a result, short term construction generated air quality impacts would be significant and unavoidable.

- **Short-Term Construction-Generated Noise:** Construction activities associated with development of project facilities could exceed County noise thresholds at nearby noise-sensitive land uses. This would be a significant and unavoidable noise impact.

- **Stationary Source Noise:** Operation of proposed stationary noise sources could result in noise levels at nearby noise-sensitive receptors which could exceed County noise ordinance standards. This is a significant and unavoidable noise impact.

- **Special-Status Species:** A total of 8 special-status plants and 26 special-status wildlife species have been recorded, or have the potential to occur, in the vicinity of the 2030 Study Area. Construction and maintenance of project facilities could result in loss and/or disturbance of special-status plants and animals and their habitat. This is a significant and unavoidable impact.

- **Sensitive Habitats:** The 2030 Study Area and nearby locations support a number of several sensitive habitats. Construction and maintenance of project facilities could result in loss, alteration, and/or temporary disturbance of sensitive habitats. This is a significant and unavoidable impact.

- **Potential Impact on the South Sacramento Habitat Conservation Plan:** Construction of WSMP water facilities would facilitate development that could, in turn, result in the potential loss of important habitat areas inside the USB that are potentially critical components of the SSHCP. It is anticipated that the area in the UPA would be developed and thus that little or no habitat mitigation associated with the SSHCP would occur in the UPA. In addition, the 8,400 acres of land inside the 2030 Study Area (as analyzed in this EIR) but outside the UPA contains no resources critical to the success of the SSHCP. If land use authorities direct development of these 8,400 acres consistent with the 2030 Study Area, implementation of the Zone 40 WSMP would not significantly affect the SSHCP. However, at this point, it is unknown if land use authorities would direct development in the aforementioned 8,400-acre study area or would direct development elsewhere within the USB, which could potentially affect the viability of the SSHCP. As mitigation, SCWA will provide funding to facilitate and expedite completion of the SSHCP. However, because of the uncertainty of future land use decisions that could result in development of land outside the 2030 Study Area, this impact is potentially significant and unavoidable.

6.1.3 North Vineyard Well Field Element of the Sunrise Douglas Community Plan/Sunridge Specific Plan EIR (Sacramento County 2001b)

- No significant unavoidable adverse impacts associated with the North Vineyard Well Field were identified.

7 REFERENCES

7.1 PRINTED REFERENCES

Cal-Am. *See* California-American Water Company.

California-American Water Company. 2006. Northern Division Urban Water Management Plan 2006 – 2010. Sacramento, CA.

California Department of Water Resources. 2003. *California's Groundwater*. DWR Bulletin 118-2003. Sacramento, CA.

City of Rancho Cordova. 2005. General Plan Website. Available http://gp.cityofranchocordova.org/ Accessed December 2005 -- February 2006.

DWR Bulletin 118-2003. Sacramento, CA.

County of Sacramento. 1993. *County of Sacramento General Plan.* Adopted December 15, 1993. Sacramento, CA.

County of Sacramento Department of Environmental Review and Assessment. 2001a (November). Sunrise Douglas Community Plan/Sunridge Specific Plan Final Environmental Impact Report.

———. 2001b (May). Sunrise Douglas Community Plan/Sunridge Specific Plan Project Revised and Recirculated Draft Environmental Impact Report.

DWR. *See* California Department of Water Resources.

Golden State Water Company. 2005 (October). 2005 Urban Water Management Plan—Cordova. Prepared by CH2MHILL.

GSWC. *See* Golden State Water Company.

Natomas Central Mutual Water Company. 2006. History of Natomas Central Mutual Water Company. Available http://www.natomaswater.com. Accessed February 2006.

Sacramento City-County Office of Metropolitan Water Planning. 1999 (January). *Draft Environmental Impact Report for the Water Forum Proposal.* Sacramento, CA.

———. 2000 (January). *Water Forum Agreement.* Sacramento, CA.

Sacramento County Water Agency. 2003 (November). *Sacramento County Water Agency 2002 Zone 40 Water Supply Master Plan Draft Environmental Impact Report.* Sacramento, CA. Prepared by EDAW, Inc. Sacramento, CA.

———. 2004 (October). *Sacramento County Groundwater Management Plan.* Sacramento, CA. Prepared by MWH Americas, Inc. (MWH).

———. 2005a (February). *Sacramento County Water Agency Zone 40 Water Supply Master Plan.* Prepared by MWH Americas, Inc.(MWH).

———. 2005b (December). *2005 Zone 41 Urban Water Management Plan.* Prepared by MWH Americas, Inc. (MWH).

———. 2006. Draft Water System Infrastructure Plan for SCWA's North Service Area

Water Resources and Information Management Engineering (WRIME), Inc. 2003 (September). Draft Hydrologic and Modeling Analysis for Zone 40 Water Supply Master Plan. Prepared for Sacramento County Department of Environmental Review and Assessment. Sacramento, CA.

WRIME. *See* Water Resources and Information Management Engineering, Inc.

7.2 PERSONAL COMMUNICATIONS

Angell, Patrick. Project Manager. Pacific Municipal Consultants. December 2005 through February 2006—telephone conversations with Diane Wagner of EDAW regarding land use for general plan and areas.

Eck, Darrell. Senior Engineer. Sacramento County Water Agency (SCWA). Multiple Meetings—January, February 2006. Discussions with Amanda Olekszulin (EDAW), Diane Wagner (EDAW) and Jonathan Goetz (MWH) regarding SCWA water supply and demand planning for North Service Area and Zone 40.

Goetz, Jon. Principal Engineer. MWH Americas, Inc. Multiple Meetings—January, February 2006-- Discussions with Amanda Olekszulin (EDAW), Diane Wagner (EDAW) and Darrell Eck (SCWA) regarding SCWA water supply and demand planning for North Service Area and Zone 40. Mr. Goetz also provided GIS data and maps showing SCWA's North Service Area and water purveyor boundaries within Sacramento County.

Jordan, Christopher. Assistant Planner. Pacific Municipal Consultants. January 3, 2006—telephone conversation with Diane Wagner of EDAW regarding population and land use estimates for planning areas.

Lowry, Ronald. General Manager. Omochumne-Hartnell Water District. January 3, 2006—telephone conversation with Diane Wagner of EDAW regarding water district's operations and water supply planning in Sacramento region.

Maisch, Einar. Strategic Affairs Director. Placer County Water Agency. January 31, 2006—telephone conversation with Amanda Olekszulin of EDAW regarding Placer County Water Agencies potential surplus water supplies for transfer and exchange opportunities.

Strickland, Wes. Partner. Hatch & Parent –A Law Corporation. January 31, 2006—telephone conversation with Diane Wagner of EDAW regarding Natomas Central Mutual Water Company's potential surplus water supplies and transfer and exchange opportunities.

Appendix A

North Vineyard Well Field Agreements

#62

COUNTY OF SACRAMENTO
Inter-Department Correspondence

January 8, 2003

TO: Keith DeVore, Director
Department of Water Resources

FROM: Cindy H. Turner, Clerk
Board of Directors
Sacramento County Water Agency

SUBJECT: **Item #50, January 7, 2003 Agenda**
ANATOLIA I, II, III SUBDIVISIONS – SUNRIDGE SPECIFIC PLAN WATER SUPPLY CONDITIONS (D. Nottoli)

The Board of Directors, at a regular meeting held on Tuesday, January 7, 2003, adopted Resolution No. **WA-2484** authorizing the North Vineyard Well Protection Agreement.

The Board further approved staff recommendations 2 through 4, with the addition that language for the subdivision map condition be amended as follows and transmitted to the Planning Commission, Planning Department, and Public Works for consideration:

> "*The Improvement Plan will not be approved until the E.I.R. on the well field is complete, agreements have been entered into, and contracts for construction have been let.*"

CHT:kj

cc: Lisa Travis, Deputy County Counsel
Dennis Yeast, DERA
Planning & Community Development
Planning Commission
Public Works

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SACRAMENTO COUNTY WATER AGENCY
CALIFORNIA

APPROVED
BOARD OF DIRECTORS
WA-2606; WA-3607
JUL 26 2005
BOARD OF DIRECTORS
By Cindy H. Turner
Clerk of the Board

For the Agenda of:
July 26, 2005

To: Board of Directors
Sacramento County Water Agency

From: Department of Water Resources

Subject: Approve North Vineyard Well Protection Agreements And Allocations From North Vineyard Well Field For The SunRidge Specific Plan Area

Contact: John Coppola, Principal Civil Engineer, 874-8936

Overview
Conditions of the SunRidge Specific Plan Zoning Agreement approved on July 17, 2002, require the Sacramento County Water Agency Board of Directors to make certain findings regarding water supply and to enter into an agreement with SunRidge owners for a well insurance program prior to approval of tentative maps.

Recommendations
That your Board:

1) Approve the North Vineyard Well Protection Agreement 2 and adopt the attached Resolution authorizing the Board Chair to execute the Agreement on behalf of the Water Agency.
2) Approve the Amended and Restated North Vineyard Well Protection Agreement and adopt the attached Resolution authorizing the Board Chair to execute the Agreement on behalf of the Water Agency.
3) Allocate 572.7 acre-feet average annual production capacity from the North Vineyard Well Field for the Anatolia IV, Grantline 208, and Sunridge Park Phase II development projects.

Measures/Evaluation
Measures/Evaluation are not applicable to this agenda item.

Fiscal Impact
Special development fees fund the Well Protection Program, which is administered by the Water Agency. Zone 40 water development fees fund the construction of facilities required to deliver water allocated from the North Vineyard Well Field and are included in the adopted final budget.

BACKGROUND

The Sacramento County Board of Supervisors approved a rezone of the SunRidge Specific Plan Area ("SSPA") by adoption of Ordinance SZC-2002-0014 on July 17, 2002. The Sacramento County Water Agency ("SCWA") will provide water supply to the SSPA and conditions of the rezone require that the SCWA Board of Directors make certain findings regarding the availability of water prior to the approval of any given tentative map.

Tentative map approval is also conditioned on approval of an agreement between SCWA and SSPA owners regarding a well insurance program to assure that land owners who own and operate wells in the vicinity of the North Vineyard Well Field are not financially impacted by its operation.

SSPA owners have submitted tentative map applications to the City of Rancho Cordova for the Anatolia IV, Grantline 208, and Sunridge Park development projects.

DISCUSSION

North Vineyard Well Protection Agreements

As a result of groundwater contamination in the vicinity of the SSPA, drinking water for the SSPA will be supplied from a well field located near Excelsior Road between Florin and Elder Creek Roads; conditions of approval limit average long-term groundwater production from the well field to 10,000 acre-feet per year (afy). Analysis performed for the SSPA EIR predicts that long-term pumping of 10,000 afy at the well field will cause the local groundwater table to drop an estimated 10 feet more than the long-term drop predicted to occur absent construction of the well field. SSPA owners volunteered to fund with development fees a North Vineyard Well Insurance Program to be administered by SCWA; program funds will be used to offset the cost of private well rehabilitation or replacement in the area potentially affected by NVWF operation. As a condition of tentative map approval, owners are required to enter into an agreement with SCWA regarding the terms and conditions of the program, including the following:

1. Parcels within a two mile radius of the NVWF can be eligible for the program.
2. Property owners may receive up to $13,600 per well for repair or replacement costs.
3. The initial development fee for the program is $400 per equivalent dwelling unit.
4. Reimbursement and fees will be indexed to the annual Construction Cost Index.
5. Owners have provided SCWA with $400,000 for initial program funding.

Submitted for your Board's approval are: 1) a North Vineyard Well Protection Agreement 2 with the owners of the North Douglas 1 & 2, Anatolia IV, Grantline 208 and Sunridge Park developments; and 2) a Restated and Amended North Vineyard Well Protection Agreement with the owners of the Anatolia I, II, and III projects.

The Amended and Restated Agreement supersedes the Well Protection Agreement approved by your Board on January 07, 2003, and includes three changes to the earlier Agreement: 1) the boundary of the eligible area has been modified to include those parcels with frontage on the south side of Spiva Road that were inadvertently excluded on the earlier document; 2) any owner or group of owners may provide the liability insurance required under Section 3b of the Agreement, whereas the earlier document had required that every owner provide an insurance policy; and 3) the Amended and Restated Agreement provides for termination of the program on July 01, 2016, and the transfer of

any remaining program funds to SCWA, whereas the earlier document did not include a definition of program termination. The Agreement with the North Douglas owners, et al., is consistent with these changes.

The Well Protection Program is in effect when SCWA begins operation of the Anatolia Water Treatment Facility; **Attachment A** provides information about the status of the Program.

North Vineyard Well Field Water Allocations

SSPA tentative maps cannot be approved until the SCWA Board of Directors determines that groundwater production from the NVWF to meet water demand will not cause:

1. annual average production from the NVWF to exceed 10,000 acre-feet;
2. local groundwater elevations to fall more than ten feet as a result of long-term NVWF operation;
3. a significant effect on groundwater contaminant movement.

The Board must then determine that sufficient water is available from the NVWF to supply a given tentative map development.

Facilities required to meet SSPA build-out water demand include seven wells (one of which is an emergency/standby well), six groundwater treatment filters, and two 2-million gallon storage tanks. These facilities will have the capacity to meet a maximum day demand of 9,000 gallons per minute (equal to an average annual supply of 7,250 acre-feet) and are being constructed in two phases. The recently completed first phase includes both storage tanks, groundwater filters, and three wells, with a maximum day production capacity of 3,000 gallons per minute (approximately 2,418 acre-feet average annual yield). In previous actions, your Board has approved the allocation of this entire first phase project capacity to SSPA projects (see **Attachment B**).

On June 14 your Board approved a Mitigated Negative Declaration of Environmental Impact for the 4th well in the NVWF; construction of this well and the remaining three filters at the treatment facility is scheduled for next year. Owners of the Anatolia IV, Grantline 208, and Sunridge Park projects (see **Attachment C**) have submitted applications for tentative map approval to the City of Rancho Cordova and are requesting allocations of water capacity from this 4th well; if granted, the total request of 572.7 acre-feet would fully allocate production capacity of this well.

Granting the requested allocation would bring the total NVWF allocation to 3,519 acre-feet, slightly more than 1/3 the 10,000 acre-foot ceiling recommended in the SSPA conditions of approval. NVWF production has just begun, so it is not possible to determine whether there are any local impacts on groundwater elevations or on contaminant movement, but given that the hydrologic analysis predicted a ten foot incremental drop in the groundwater table as a long-term effect of pumping the full 10,000 acre-feet from the well field, it is reasonable to conclude that production of 3,519 acre-feet will not result in a long-term effect greater than 10 feet. A similar conclusion could be reached regarding the effect on contaminant plume movement; contaminant movement is also closely monitored under existing regulatory programs and there has been no report of movement in the direction of the well field.

Your Board has also discussed production from the NVWF in the context of replacement water supply for contaminated municipal wells in the Rancho Cordova area and considered the "reservation" of some portion of production from the well field for this purpose. Permanent

replacement supply is provided for in SCWA's *Eastern Sacramento County Replacement Water Supply Project*. The Environmental Impact Report for this project is scheduled for completion in April 2006, and project design and construction will take an estimated 2 to 3 years. Delivery of replacement water for municipal use will also require construction of the Freeport Regional Water Project and Central Surface Water Treatment Plant, estimated to begin operation in 2011.

Municipal wells in the area continue to be at risk: in August of last year, the California-American Water Company shut down its 1,000 gpm Chettenham Drive Well (near Mather Field Road and Highway 50) as a result of perchlorate contamination, and other wells are considered vulnerable. SCWA has been asked to provide temporary replacement water from its Mather-Sunrise system.

Including the present allocation request, production from three wells has been allocated to SSPA development projects, and within a month your Board will be asked to consider allocation requests for a 4th well and a portion of a 5th well (see Attachment B). At the projected rate of actual development, approximately one well per year in the NVWF will be required to meet SSPA water demand, a total of six wells at 2011 build-out (see **Attachment D**). Based on the projections of water demand and production capacity shown on Attachment D, SCWA should be able to provide interim replacement supply from at least one well in the NVWF until the estimated date of delivery of water from the replacement project. Allocation of SSPA build-out demand will also leave 2,700 afy (two additional wells) available under the 10,000 acre-foot NVWF cap; a new treatment-storage facility would be required to make this water available for municipal use.

In light of this discussion, staff has concluded that it is appropriate to allocate the 572.7 afy production capacity from the NVWF for the Anatolia IV, Grantline 208, and Sunridge Park Phase II development projects. The status of the replacement project, the Freeport/Central Surface Water Treatment projects, and local well contamination will continue to be factors that affect future considerations of NVWF water allocation for new development.

Respectfully submitted,

_____
Keith DeVore, Director
Department of Water Resources

APPROVED:

Terry Schutten
County Executive

By: _____
Cheryl Creson, Administrator
Municipal Services Agency

Attachments (8)

cc: Brian Vail/ River West Investments
Larry Gualco/ Lennar Homes
Timothy Taron/ Hefner, Stark & Marois LLP
Cyrus Abhar, William Campbell/ City of Rancho Cordova
Ray Thompson/ County Counsel
Darrell Eck/ DWR

Attachment A

North Vineyard Well Protection Program

Letters Mailed

- 1st mailing 249 parcels
- 2nd mailing 149 parcels
- 3rd mailing 17 parcels
- 4th mailing 33 parcels

Responses

- 132 responses to all mailers (includes parcels with 0 wells)
- 11 non-responses to 3rd mailer
- 14 non- responses to 4th mailer

Site Visits

- 87 site visits (as of 6/27/05; includes visits to owners with multiple parcels)
- 107 working wells
- 9 non-working wells (4 to be repaired: will call back)
- 5 appointments outstanding

Attachment B

North Vineyard Well Field Water Allocations to Sunridge SPA

Project Name	Owner/Developer	AFY	Date of Request	Date of Board Approval	Total Allocation	
Backup/Emergency Well						Well #1
Anatolia I	AKT	544	11/19/2002	01/07/2003	544	Well #2
Anatolia II	AKT	722	11/19/2002	01/07/2003	1,266	
Anatolia III	AKT	574	11/19/2002	01/07/2003	1,840	Well #3
Sunridge Park	River West	451	04/07/2003	06/17/2003	2,291	
Mather East	Orin Bennett	90	04/21/2003	06/17/2003	2,381	
Anatolia I, II Comm/MF	AKT	202.7	06/15/2003	06/08/2004	2,584	Well #4
North Douglas #1	Lennar	248.3	07/29/2003	06/08/2004	2,832	
North Douglas #2	Lennar	113.6	07/29/2003	06/08/2004	2,946	
Anatolia IV	AKT	65.5	10/29/2003		3,012	
Grantline 208	River West	394.9	12/12/2003		3,407	
Sunridge Park Phase II	River West	112.3	12/15/2003		3,519	
Douglas 98	Woodside Homes	307	01/22/2004		3,826	Well #5
Cresleigh Sunridge (Lot J)	Cresleigh Homes	225.8	07/15/2004		4,052	
Douglas 103	Woodside Homes	181.4	09/28/2004		4,233	
Arista Del Sol	Pappas	471.46	09/29/2004		4,704	
Montelena (a.k.a. Sunridge 250)	Centex Homes	463.18	02/10/2005		5,167	Well #6
						Well #7

Each well/filter produces c.1,500 gpm MDD = 750 gpm ADD = 1,209 afy:

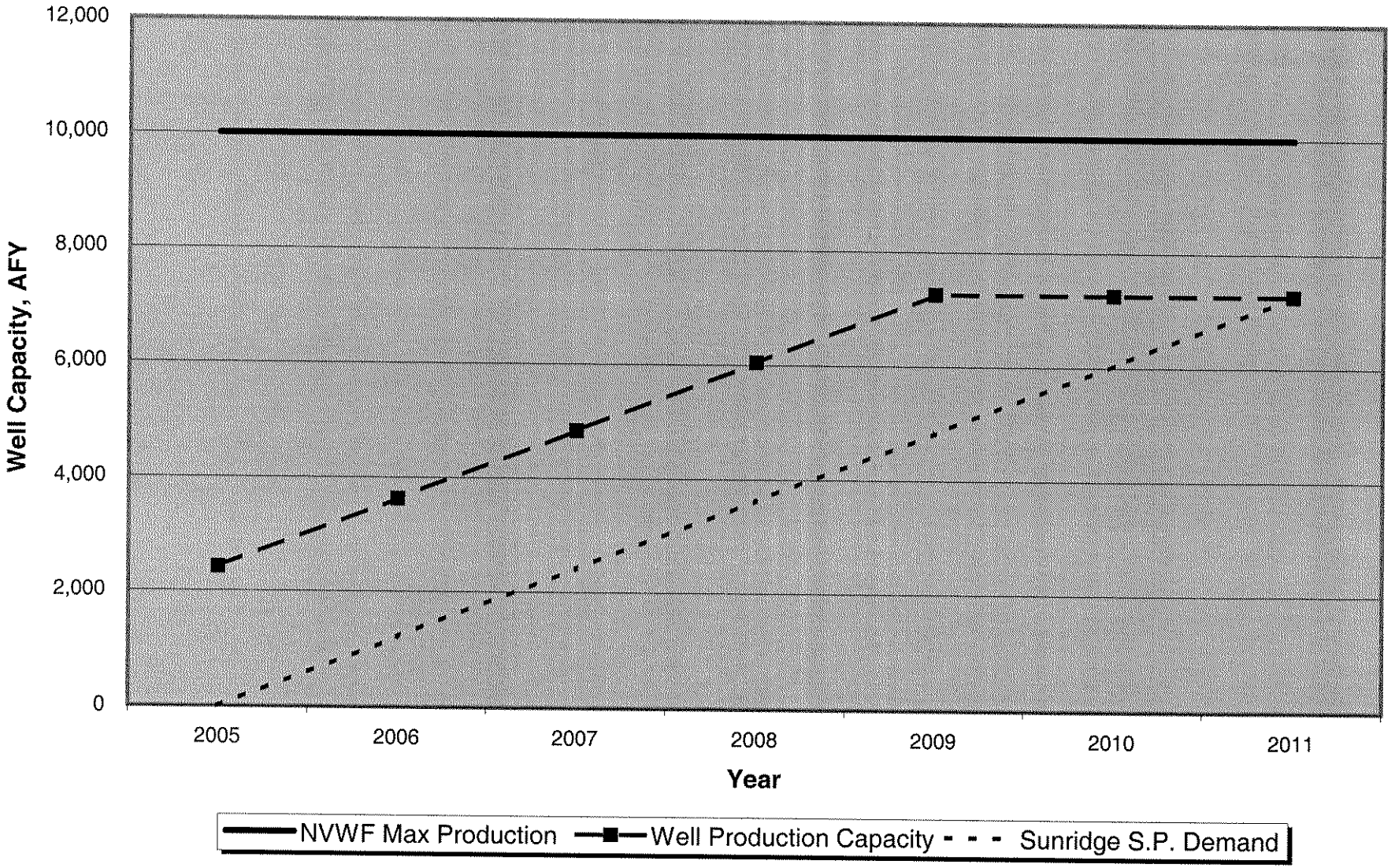
- Well #1 = backup/emergency well
- Well #2 = 1,209 afy
- Well #3 = 2,418 afy
- Well #4 = 3,627 afy
- Well #5 = 4,836 afy
- Well #6 = 6,045 afy
- Well #7 = 7,254 afy

Attachment C

Sunridge Property Owners

Attachment D

North Vineyard Well Field Production



Year	2005	2006	2007	2008	2009	2010	2011
Well Produ	2,418	3,627	4,836	6,045	7,254	7,254	7,254
NVWF Ma:	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Sunridge S	0	1,209	2,418	3,627	4,836	6,045	7,254

SACRAMENTO COUNTY WATER AGENCY
RESOLUTION AUTHORIZING THE AMENDED AND RESTATED NORTH VINEYARD WELL PROTECTION AGREEMENT

RESOLUTION NO. WA-0607

BE IT RESOLVED AND ORDERED that the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act, approve the Amended and Restated North Vineyard Well Protection Agreement and authorize the Chair of the Board of Directors to execute the Agreement on behalf of the SACRAMENTO COUNTY WATER AGENCY.

ON A MOTION by Director MacGlashan, and seconded by Director Dickinson, the foregoing Resolution was passed and adopted by the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, State of California, this 26th day of July, 2005, by the following vote, to wit:

AYES:	Directors,	MacGlashan, Nottoli, Peters, Dickinson
NOES:	Directors,	none
ABSENT:	Directors,	Collin
ABSTAIN:	Directors,	none

Chairman of the Board of Directors of the Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on JUL 26 2005

By: Yvonne Dawkins
Deputy Clerk, Board of Directors

COUNTY OF SACRAMENTO CALIFORNIA

(SEAL)

ATTEST: Cindy H. Turner
Clerk of the Board of Supervisors of Sacramento County, California, and ex officio Secretary of the Board of Directors of Sacramento County Water Agency

FILED
JUL 26 2005
BOARD OF DIRECTORS
By Cindy H. Turner
Clerk of the Board

CLERK OF THE BOARD

AMENDED AND RESTATED
NORTH VINEYARD WELL PROTECTION AGREEMENT

This Amended and Restated North Vineyard Well Protection Agreement ("Agreement") is entered into this 26 day of July, 2005, by and between SUNRIDGE LLC, A California Limited Liability Company (hereinafter, "OWNER") and the Sacramento County Water Agency, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act (California Water Code-Appendix, Chapter 66, commencing at Section 66-1 et seq.) (hereinafter, "SCWA").

RECITALS

1. On January 07, 2003 the SCWA Board of Directors adopted Resolution No. WA-2484 authorizing the North Vineyard Well Protection Agreement with OWNER. On said date, OWNER owned real property within the boundaries of the SunRidge Specific Plan (the "Specific Plan," approved by the Sacramento County Board of Supervisors on July 17, 2002, by Resolution No. 2002-0901, and as depicted on attached **Exhibit A**), which real property is commonly known as the Anatolia I, II and III projects (hereinafter "the Projects"), as depicted on **Exhibit B**, which is attached hereto and made a part hereof.

2. The SCWA water supply project that will serve the Specific Plan area is known as the North Vineyard Well Field ("NVWF"), which is located in the vicinity of the intersection of Florin Road and Excelsior Road in Sacramento County.

3. In order to assure that landowners who own and operate private wells in the vicinity of the NVWF are not adversely financially impacted by its operation, the owners of land within the Specific Plan Area (the "SPA Owners") volunteered to establish a fund (the "Well Protection Fund" or "Fund") to offset costs of well rehabilitation or replacement in the vicinity of the NVWF.

4. OWNER and SCWA desire to enter into this Amended and Restated North Vineyard Well Protection Agreement in order to define the obligations of OWNER

with respect to the Fund, and to set forth the terms and conditions pursuant to which the Fund will be administered; this Amended and Restated Agreement will supersede the January 07, 2003 Agreement.

NOW THEREFORE, OWNER and SCWA agree as follows:

1. **ESTABLISHMENT OF THE FEE**

a. OWNER agrees that SCWA shall collect a fee ("the Fee") from the permitee at the time a water connection permit is issued for any residential or non-residential use within the Specific Plan area. The amount of the Fee set forth herein shall be determined on the basis of the number of private wells eligible for the program, as determined pursuant to Paragraphs 2a, 2b and 2c below, multiplied by $13,600 (the agreed replacement cost of a typical residential well) and divided by the total number of equivalent dwelling units ("EDU's") in the Specific Plan Area, wherein one EDU shall be as defined in SCWA Ordinance No. 18. The Fee shall equal this amount (estimated at $380 per EDU, assuming 300 eligible wells and 10,100 EDU's at build-out of the Specific Plan) plus $20.00 per EDU for any and all program administrative costs incurred by SCWA.

b. When collected, the Fee shall be deposited in a specific SCWA account established for this purpose (the "Well Protection Fund" or "Fund").

c. In the event that the Fund experiences a shortfall so that SCWA is not able to pay benefits as hereinafter described, SCWA shall provide SPA Owners with written notice of said shortfall. If SPA Owners have not provided sufficient funds to make up such shortfall within thirty (30) days of the date of said written notice, SCWA shall withhold the issuance of water connection permits until sufficient funds have been advanced to cover anticipated costs and expenses from the Fund. The person(s) or entity making such advance shall receive Fee credit for such advance(s). Fee credits shall be the property of the person or entity making the advance and Fee credits shall be freely transferable within the Specific Plan Area. The owner of the Fee credits shall give prior written notice to SCWA of any transfer of credits in order

for such transfer to be effective. SCWA shall be under no obligation to recognize such transfer unless and until such written notice is received by SCWA.

d. SCWA shall, from time to time, review the projected number of EDU's at build-out of the Specific Plan and adjust the Fee accordingly to account for any change in the number of EDU's. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

e. SCWA shall keep an accurate accounting of all costs incurred in administering this program. SCWA may, at its discretion, increase the Fee as needed to pay for said administrative costs. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

f. SCWA may from time to time adjust the Fee pursuant to Paragraphs 1d, 1e, 3a and 3b. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment made pursuant to Paragraphs 1d and 1e.

2. ELIGIBILITY AND BENEFITS

a. During the term of the NVWF Well Protection Program established under this Agreement, any owner of land who owns and operates a well on a legal parcel which lies in whole or in part within the area (hereinafter, "the Covered Area") shown on the map attached hereto as **Exhibit C** and made a part hereof, shall be eligible for benefits under the NVWF Well Protection Program, provided such owner registers such well pursuant to Paragraphs 2b and 2c below.

b. SCWA shall provide timely written notice of the NVWF Well Protection Program to all owners of land within the Covered Area and of the requirement to register his/her well with the SCWA in order to qualify for the payment of benefits hereunder. SCWA shall determine the manner of registration, which shall provide a reasonable and fair opportunity for each such owner to register his/her well. Each such owner shall be required to request registration of his/her well not later than ninety (90) days after the date of the first written notice provided by SCWA; failure to request

registration of a well with SCWA within said time period shall disqualify any owner from receiving benefits hereunder without exception.

c. Upon receipt of written request for registration of one or more wells from an owner according to Paragraphs 2a and 2b, SCWA shall inspect each well to verify its existence and operating condition. Only an owner of land who has requested registration of his/her well, as herein provided, and whose well has been inspected as provided in this paragraph (hereinafter, "Eligible Well") shall be eligible for the payment of benefits under the program.

d. From and after the date upon which the SCWA accepts the NVWF for operation and maintenance, and continuing until (i) the Specific Plan Area has been built out and there are no funds remaining in the Fund, or (ii) the SPA Owners fail to perform any of their obligations under this Agreement, or (iii) July 01, 2020, whichever shall first occur, SCWA shall pay benefits from the Fund to the owner of an Eligible Well as follows:

    1) If an Eligible Well fails for any reason, other than mechanical or electrical failure of the pump and/or motor, to provide sufficient water capacity for its intended purpose, as determined by a qualified inspector, SCWA shall authorize payment from the Fund to reimburse the owner of such Eligible Well an amount sufficient to restore said sufficient water capacity, but in no event more than $13,600 (as adjusted annually per Paragraph 3a) for each such failed Eligible Well. SCWA has no additional obligation to pay for well failure other than under the terms of this Agreement.

    2) SCWA shall take reasonable actions to verify the loss of capacity of any Eligible Well; the cost of any such verification shall be included in the administrative costs for this program as described elsewhere in this Agreement. To be eligible for the benefit hereunder, the owner of an Eligible Well must submit a written claim to the SCWA for such benefit not later than sixty (60) days after the cost of restoration is incurred. Verification of the cost of restoration may be evidenced by an affidavit of the well driller/repair company which serviced the well.

3) Under this program, SCWA shall pay not more than $13,600 in benefits (as adjusted annually per Paragraph 3a) for any one Eligible Well. By administering the Fund in accordance with the terms of this Agreement, SCWA does not assume any liability and does not acknowledge that any well failure is caused in any manner or to any extent by operation of the NVWF.

e. Any amount remaining in the Fund at the expiration of the NVWF Well Protection Program, as defined above, shall be transferred without restriction to SCWA.

3. GENERAL PROVISIONS

a. The Fee and the maximum reimbursement amount per Eligible Well shall be indexed to the SCWA Ordinance No. 18 annual inflation index.

b. SPA Owners shall defend, indemnify and hold harmless the County of Sacramento, SCWA, their governing boards, officers, directors, agents, employees and volunteers from and against any and all demands, claims, actions, losses, liabilities, damages, and costs, including reasonable attorneys' fees, arising out of or resulting from the performance of this Agreement, except and in proportion to the extent caused by the negligence of County, SCWA, their governing boards, officers, directors, agents, employees and volunteers. SPA Owners shall provide insurance coverage in the type and amount indicated in **Exhibit D** of this Agreement in order to address SPA Owners' responsibilities under this indemnity. The insurance coverage described in **Exhibit D** may be provided by any one owner or combination of owners, so long as the coverage set forth in **Exhibit D** is provided. SCWA shall have the right but shall be under no obligation to purchase insurance or self-insure against SPA Owners' failure to perform their obligations under this indemnity and may adjust the Fee accordingly to pay for such coverage. The insurance coverage may be of the type and amount indicated in **Exhibit D** of this Agreement.

c. The terms and conditions of this Agreement shall inure to the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

d. This Agreement constitutes the entire Agreement between OWNER and SCWA pertaining to the subject matter contained herein and supersedes all prior and contemporaneous agreements, representations, and understandings. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing by all the Parties. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. No waiver shall be binding unless executed in writing by the Party making the waiver.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand on the date first above written.

SUNRIDGE LLC

By: AKT Development Corporation, A California Corporation

By: _____

SACRAMENTO COUNTY WATER AGENCY ("SCWA")

By: _____
Chair of the Board of Directors,
Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on JUL 28 2005

By: _____
Deputy Clerk, Board of Directors

COUNTY OF SACRAMENTO CALIFORNIA

ATTEST:

_____
Clerk of the Board of Directors

Approved as to Form:

_____
Deputy County Counsel

_____
Counsel for SUNRIDGE LLC

EXHIBIT A
Sunridge Specific Plan

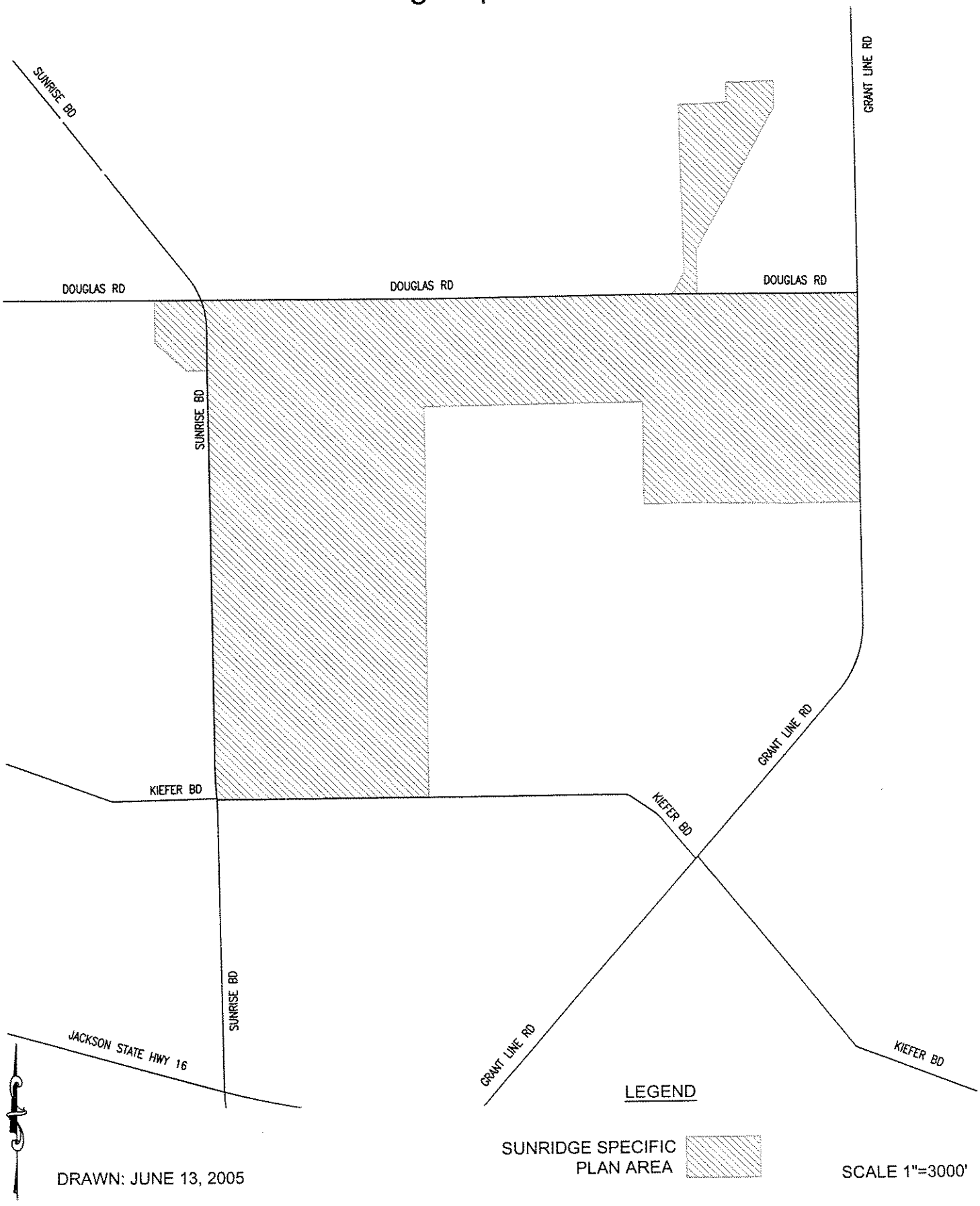
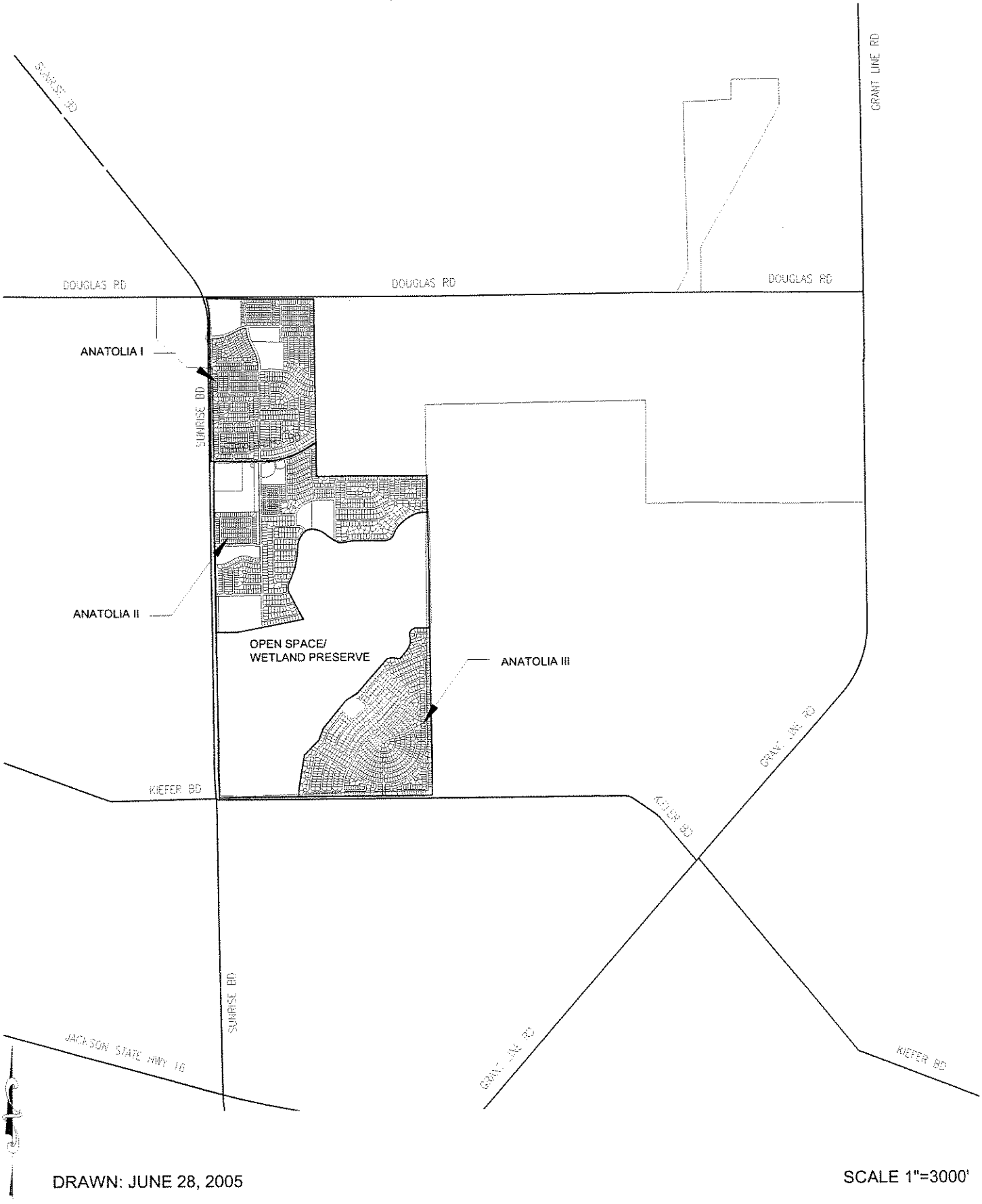


EXHIBIT B
Sunridge Property Owners

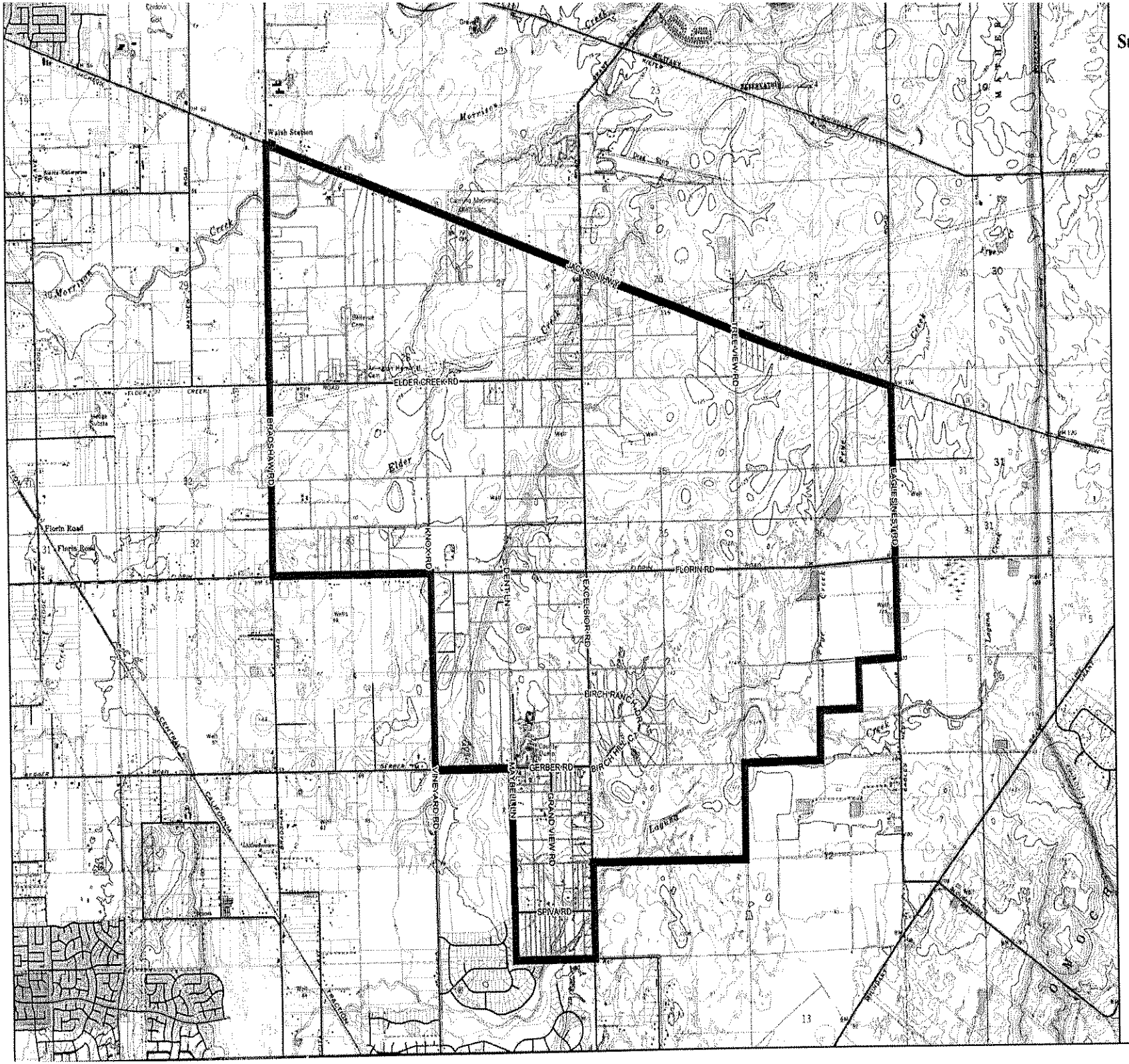


DRAWN: JUNE 28, 2005

SCALE 1"=3000'

Sunrise Douglas Community Plan
Sunridge Specific Plan

Exhibit C
Area Covered by
Well Insurance Program



= Boundary

= Sacramento County Parcel

Within Boundary

Outside Boundary

Scale 1:36,000 (1 inch represents 3,000 ft @ 11"x17")
Coverage presented in State Plane 2 NAD83
Parcel information from Sacramento Tax Assessor's Rolls
(data date December 2000)
Base data from USGS 7.5 minute topo quad sheets
Map Prepared: April 2004

0 0.5 1 Mile

N

MWH
Prepared by Sacramento GIS Lab

G:\Sunrise Douglas_MAP_DOCS\John_Hodgson\Parcels_April04.mxd

EXHIBIT D

INSURANCE REQUIREMENTS

Without limiting Owners' indemnification, Owners shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Owners, their agents, representatives or employees. SCWA shall retain the right at any time to review the coverage, form, and amount of the insurance required hereby. If in the opinion of the Sacramento County Risk Manager, insurance provisions in these requirements do not provide adequate protection for SCWA, County and for members of the public, SCWA may require Owners to obtain insurance sufficient in coverage, form and amount to provide adequate protection. SCWA's requirements shall be reasonable but shall be imposed to assure protection from and against the kind and extent of risks that exist at the time a change in insurance is required.

Verification of Coverage

Owners shall furnish the SCWA with certificates evidencing coverage required below. **Copies of required endorsements must be attached to provided certificates.** The Sacramento County Risk Manager may approve self-insurance programs in lieu of required policies of insurance if, in the opinion of the Risk Manager, the interests of the SCWA, County and the general public are adequately protected. All certificates, evidences of self-insurance, and additional insured endorsements are to be received and approved by the County before performance commences. The SCWA reserves the right to require that Owners provide complete, certified copies of any policy of insurance including endorsements offered in compliance with these specifications.

Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. GENERAL LIABILITY: Insurance Services Office's Commercial General Liability occurrence coverage form CG 0001. Including, but not limited to Premises/Operations, Products/Completed Operations, Contractual, and Personal & Advertising Injury, without additional exclusions or limitations, unless approved by the County Risk Manager.

Minimum Limits of Insurance

Owners shall maintain limits no less than:

1. General Liability shall be on an Occurrence basis (as opposed to Claims Made basis). Minimum limits and structure shall be:

   General Aggregate: $5,000,000

Deductibles and Self-Insured Retention

Any deductibles or self-insured retention that apply to any insurance required by this Agreement must be declared and approved by the SCWA.

Claims Made Professional Liability Insurance

If professional liability coverage is written on a Claims Made form:

1. The "Retro Date" must be shown, and must be on or before the date of the Agreement or the beginning of Agreement performance by Owners.

2. Insurance must be maintained and evidence of insurance must be provided for at least one (1) year after completion of the Agreement.

3. If coverage is cancelled or non-renewed, and not replaced with another claims made policy form with a "Retro Date" prior to the contract effective date, the Owners must purchase "extended reporting" coverage for a minimum of one (1) year after completion of the Agreement.

Other Insurance Provisions

The insurance policies required in this Agreement are to contain, or be endorsed to contain, as applicable, the following provisions:

All Policies:

1. ACCEPTABILITY OF INSURERS: Insurance is to be placed with insurers with a current A.M. Best's rating of no less than **A-:VII**. The Sacramento County Risk Manager may waive or alter this requirement, or accept self-insurance in lieu of any required policy of insurance if, in the opinion of the Risk Manager, the interests of the County and the general public are adequately protected.

2. MAINTENANCE OF INSURANCE COVERAGE: Owners shall maintain all insurance coverages in place at all times and provide the SCWA with evidence of each policy's renewal ten (10) days in advance of its anniversary date. Each insurance policy required by this Agreement shall be endorsed to state that coverage shall not be canceled by either party except after thirty (30) days' written notice for cancellation or sixty (60) days' written notice for non-renewal has been given to the SCWA. For non-payment of premium 10 days prior written notice of cancellation is required.

Commercial General Liability and/or Commercial Automobile Liability:

1. ADDITIONAL INSURED STATUS: The SCWA, the County, its officers, directors, officials, employees, and volunteers are to be endorsed as additional insureds as respects: liability arising out of activities performed by or on behalf of the Owners; products and completed operations of the Owners; premises owned, occupied or used by the Owners; or automobiles owned, leased, hired or borrowed by the Owners. The coverage shall contain no endorsed limitations on the scope of protection afforded to the County, its officers, directors, officials, employees, or volunteers.

2. CIVIL CODE PROVISION: Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

3. PRIMARY INSURANCE: For any claims related to this agreement, the Owners' insurance coverage shall be endorsed to be primary insurance as respects the SCWA, the County, their officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the SCWA, the County, their officers, directors, officials, employees, or volunteers shall be excess of the Owners' insurance and shall not contribute with it.

4. SEVERABILITY OF INTEREST: The Owners' insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. SUBOWNERS: Owners shall be responsible for the acts and omissions of all their subcontractors and additional insured endorsements as provided by Owners' subcontractors.

Notification of Claim

If any claim for damages is filed with Owners or if any lawsuit is instituted against Owners, that arise out of or are in any way connected with Owners' performance under this Agreement and that in any way, directly or indirectly, contingently or otherwise, affect or might reasonably affect County, Owners shall give prompt and timely notice thereof to County. Notice shall be prompt and timely if given within thirty (30) days following the date of receipt of a claim or ten (10) days following the date of service of process of a lawsuit.

SACRAMENTO COUNTY WATER AGENCY
RESOLUTION AUTHORIZING THE
NORTH VINEYARD WELL PROTECTION AGREEMENT 2

RESOLUTION NO. WA-2606

BE IT RESOLVED AND ORDERED that the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act, approve the North Vineyard Well Protection Agreement 2 and authorize the Chair of the Board of Directors to execute the Agreement on behalf of the SACRAMENTO COUNTY WATER AGENCY.

ON A MOTION by Director MacGlashan, and seconded by Director Dickinson, the foregoing Resolution was passed and adopted by the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, State of California, this 26th day of July, 2005, by the following vote, to wit:

AYES: Directors, MacGlashan, Nottoli, Peters, Dickinson

NOES: Directors, None

ABSENT: Directors, Collin

ABSTAIN: Directors, None

Chairman of the Board of Directors of the
Sacramento County Water Agency

(SEAL)

ATTEST: Cindy H. Turner
Clerk of the Board of Supervisors of Sacramento County, California, and ex officio Secretary of the Board of Directors of Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on JUL 26 2005

By: Gwayne Dowlenia
Deputy Clerk, Board of Directors

FILED

JUL 26 2005

BOARD OF DIRECTORS

By Cindy H. Turner
Clerk of the Board

CLERK OF THE BOARD

NORTH VINEYARD WELL PROTECTION AGREEMENT 2

This North Vineyard Well Protection Agreement 2 ("Agreement") is entered into this 26 day of July, 2005, by and between Sunridge Park LLC, A California Limited Liability Company; Grantline Investors LLC, A California Limited Liability Company; U.S. Homes/KB North Douglas LLC, A Delaware Limited Liability Company; and Sun Ridge LLC, A California Limited Liability Company; (hereinafter, "OWNERS") and the Sacramento County Water Agency, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act (California Water Code-Appendix, Chapter 66, commencing at Section 66-1 et seq.) (hereinafter "SCWA").

RECITALS

1. OWNERS own a portion of the real property within the boundaries of the SunRidge Specific Plan (the "Specific Plan", as depicted on attached **Exhibit A**), which specific plan was approved by the Sacramento County Board of Supervisors on July 17, 2002, by Resolution No. 2002-0901. The real property within the Specific Plan is herein referred to as the "Specific Plan Area." OWNERS' lands within the Specific Plan Area are commonly known as the North Douglas 1, North Douglas 2, Anatolia IV, Grantline 208, Sunridge Park, and Sunridge Park Phase II projects and are more particularly described and depicted on **Exhibit B**, which is attached hereto and made a part hereof (hereinafter "the Projects").

2. The SCWA water supply project that will serve the Specific Plan Area is known as the North Vineyard Well Field ("NVWF"), which is located in the vicinity of the intersection of Florin Road and Excelsior Road in Sacramento County.

3. In order to assure that landowners who own and operate private wells in the vicinity of the NVWF are not adversely financially impacted by its operation, the Owners of land within the Specific Plan Area (the "SPA Owners") volunteered to establish a fund (the "Well Protection Fund" or "Fund") to offset costs of well rehabilitation or replacement in the vicinity of the NVWF.

4. OWNERS and SCWA now desire to enter into this Agreement in order to define the obligations of OWNERS with respect to the Well Protection Fund, and to set forth the terms and conditions pursuant to which the Fund will be administered.

NOW THEREFORE, OWNERS and SCWA agree as follows:

1. **ESTABLISHMENT OF THE FEE**

a. OWNERS agree that SCWA shall collect a fee ("the Fee") from the permitee at the time a water connection permit is issued for any residential or non-residential use within the Specific Plan Area. The amount of the Fee set forth herein shall be determined on the basis of the number of private wells eligible for the program, as determined pursuant to Paragraphs 2a, 2b and 2c below, multiplied by $13,600 (the agreed replacement cost of a typical residential well) and divided by the total number of equivalent dwelling units ("EDU's") in the Specific Plan Area, wherein one EDU shall be as defined in SCWA Ordinance No. 18. The Fee shall equal this amount (estimated at $380 per EDU, assuming 300 eligible wells and 10,100 EDU's at build-out of the Specific Plan Area) plus $20.00 per EDU for any and all program administrative costs incurred by SCWA.

b. When collected, the Fee shall be deposited in a specific account of the SCWA established for this purpose (the "Well Protection Fund" or "Fund").

c. In the event that the Fund experiences a shortfall so that SCWA is not able to pay benefits as hereinafter described, SCWA shall provide SPA Owners with written notice of said shortfall. If SPA Owners have not provided sufficient funds to make up such shortfall within thirty (30) days of the date of said written notice, SCWA shall withhold the issuance of water connection permits until sufficient funds have been advanced to cover anticipated costs and expenses from the Fund. The person(s) or entity making such advance shall receive Fee credit for such advance(s). Fee credits shall be the property of the person or entity making the advance and Fee credits shall be freely transferable within the Specific Plan Area. The owner of the Fee credits shall give prior written notice to SCWA of any transfer of credits in order

for such transfer to be effective. SCWA shall be under no obligation to recognize such transfer unless and until such written notice is received by SCWA.

d. SCWA shall, from time to time, review the projected number of EDU's at build-out of the Specific Plan Area and adjust the Fee accordingly to account for any change in the number of EDU's. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

e. SCWA shall keep an accurate accounting of all costs incurred in administering this program. SCWA may, at its discretion, increase the Fee as needed to pay for said administrative costs. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

f. SCWA may from time to time adjust the Fee pursuant to Paragraphs 1d, 1e, 3a and 3b. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment made pursuant to Paragraphs 1d and 1e.

2. ELIGIBILITY AND BENEFITS

a. During the term of the NVWF Well Protection Program established under this Agreement, any owner of land who owns and operates a well on a legal parcel which lies in whole or in part within the area (hereinafter, "the Covered Area") shown on the map attached hereto as **Exhibit C** and made a part hereof, shall be eligible for benefits under the NVWF Well Protection Program, provided such owner registers such well pursuant to Paragraphs 2b and 2c below.

b. SCWA shall provide timely written notice of the NVWF Well Protection Program to all owners of land within the Covered Area and of the requirement to register his/her well with the SCWA in order to qualify for the payment of benefits hereunder. SCWA shall determine the manner of registration, which shall provide a reasonable and fair opportunity for each such owner to register his/her well. Each such owner shall be required to request registration of his/her well not later than ninety (90) days after the date of the first written notice provided by SCWA; failure to request

registration of a well with SCWA within said time period shall disqualify any owner from receiving benefits hereunder without exception.

c. Upon receipt of written request for registration of one or more wells from an owner according to Paragraphs 2a and 2b, SCWA shall inspect each well to verify its existence and operating condition. Only an owner of land who has requested registration of his/her well, as herein provided, and whose well has been inspected as provided in this paragraph (hereinafter, "Eligible Well") shall be eligible for the payment of benefits under the program.

d. From and after the date upon which the SCWA accepts the NVWF for operation and maintenance, and continuing until (i) the Specific Plan Area has been built out, and there are no funds remaining in the Fund, or (ii) the SPA Owners fail to perform any of their obligations under this Agreement, or (iii) July 01, 2020, whichever shall first occur, SCWA shall pay benefits from the Fund to the owner of an Eligible Well as follows:

    1) If an Eligible Well fails for any reason, other than mechanical or electrical failure of the pump and/or motor, to provide sufficient water capacity for its intended purpose, as determined by a qualified inspector, SCWA shall authorize payment from the Fund to reimburse the owner of such Eligible Well an amount sufficient to restore said sufficient water capacity, but in no event more than $13,600 (as adjusted annually per Paragraph 3a) for each such failed Eligible Well. SCWA has no additional obligation to pay for well failure other than under the terms of this Agreement.

    2) SCWA shall take reasonable actions to verify the loss of capacity of any Eligible Well; the cost of any such verification shall be included in the administrative costs for this program as described elsewhere in this Agreement. To be eligible for the benefit hereunder, the owner of an Eligible Well must submit a written claim to the SCWA for such benefit not later than sixty (60) days after the cost of restoration is incurred. Verification of the cost of restoration may be evidenced by an affidavit of the well driller/repair company which serviced the well.

3) Under this program, SCWA shall pay not more than $13,600 in benefits (as adjusted annually per Paragraph 3a) for any one Eligible Well. By administering the Fund in accordance with the terms of this Agreement, SCWA does not assume any liability and does not acknowledge that any well failure is caused in any manner or to any extent by operation of the NVWF.

e. Any amount remaining in the Fund at the expiration of the NVWF Well Protection Program, as defined above, shall be transferred without restriction to SCWA.

3. GENERAL PROVISIONS

a. The Fee and the maximum reimbursement amount per Eligible Well shall be indexed to the SCWA Ordinance No. 18 annual inflation index.

b. SPA Owners shall defend, indemnify and hold harmless the County of Sacramento, SCWA, their governing boards, officers, directors, agents, employees and volunteers from and against any and all demands, claims, actions, losses, liabilities, damages, and costs, including reasonable attorneys' fees, arising out of or resulting from the performance of this Agreement, except and in proportion to the extent caused by the negligence of County, SCWA, their governing boards, officers, directors, agents, employees and volunteers. SPA Owners shall provide insurance coverage in the type and amount indicated in **Exhibit D** of this Agreement in order to address SPA Owners' responsibilities under this indemnity. The insurance coverage described in **Exhibit D** may be provided by any one owner or combination of owners, so long as the coverage set forth in **Exhibit D** is provided. SCWA shall have the right but shall be under no obligation to purchase insurance or self-insure against SPA Owners' failure to perform their obligations under this indemnity and may adjust the Fee accordingly to pay for such coverage. The insurance coverage may be of the type and amount indicated in **Exhibit D** of this Agreement.

c. The terms and conditions of this Agreement shall inure to the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand on the date first above written.

U.S. HOMES/KB NORTH DOUGLAS, LLC
A Delaware Limited Liability Company

By: Lennar Renaissance, Inc.
A California Corporation
Its Managing Member

By: _____
Larry Gualco,
Vice President

Sun Ridge, LLC
A California Limited Liability Company

By: AKT Development Corporation
Managing Member

By: _____
Mark Enes,
Executive Vice President

Grantline Investors, LLC
A California Limited Liability Company

By: _____
Brian C. Vail,
Manager

Sunridge Park, LLC
A California Limited Liability Company

By: _____
Brian C. Vail,
Manager

SACRAMENTO COUNTY WATER AGENCY
("SCWA")

BY: _____
Chair of the Board of Directors,
Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on
JUL 26 2005
By: Gwenyne Dawkins
Deputy Clerk, Board of Directors

ATTEST:

Clerk of the Board of Directors

Approved as to Form:

Deputy County Counsel

Counsel for US HOMES/KB NORTH DOUGLAS, LLC

Counsel for Sun Ridge, LLC

Counsel for Grantline Investors, LLC

Counsel for Sunridge Park, LLC

EXHIBIT A
Sunridge Specific Plan

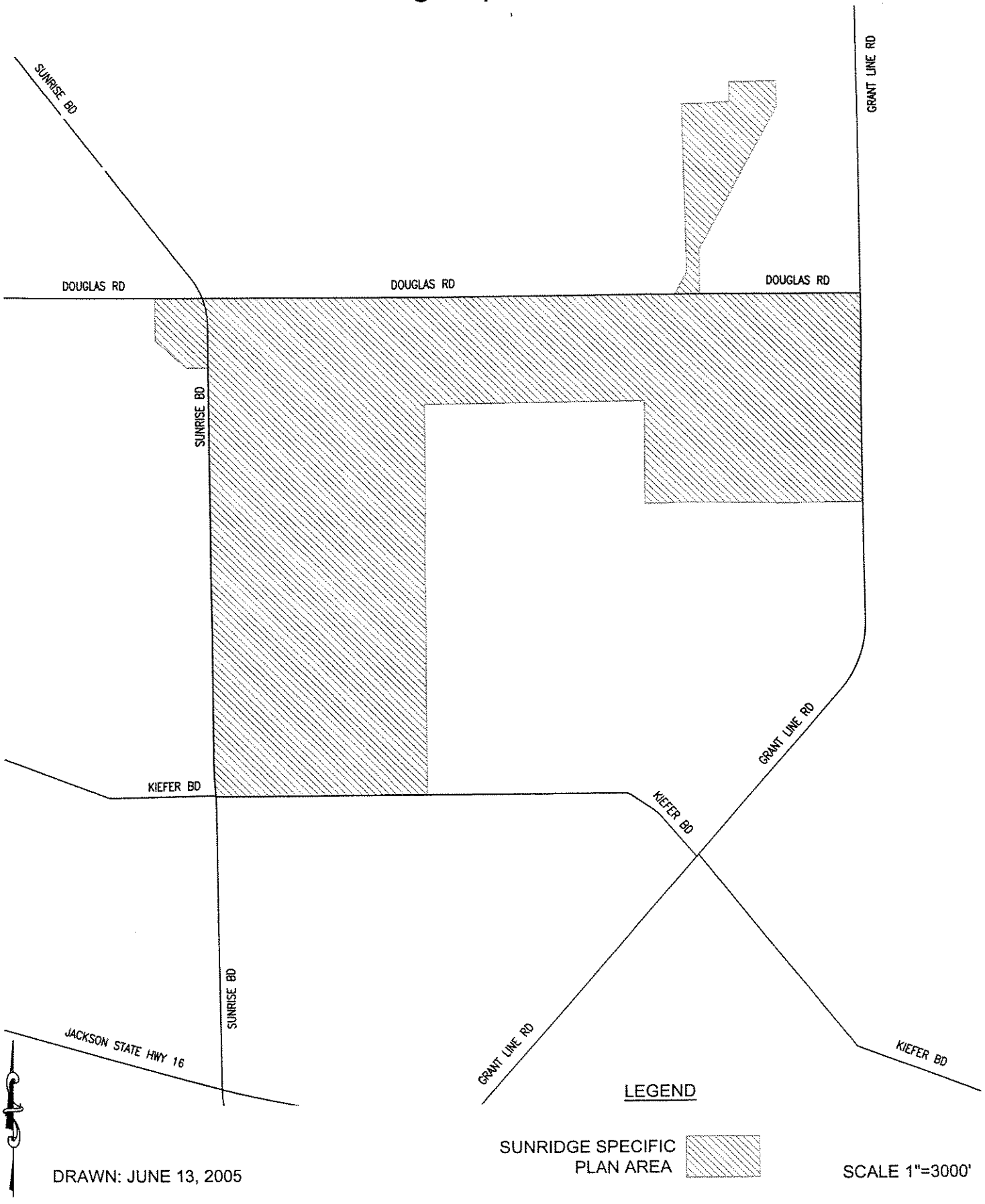
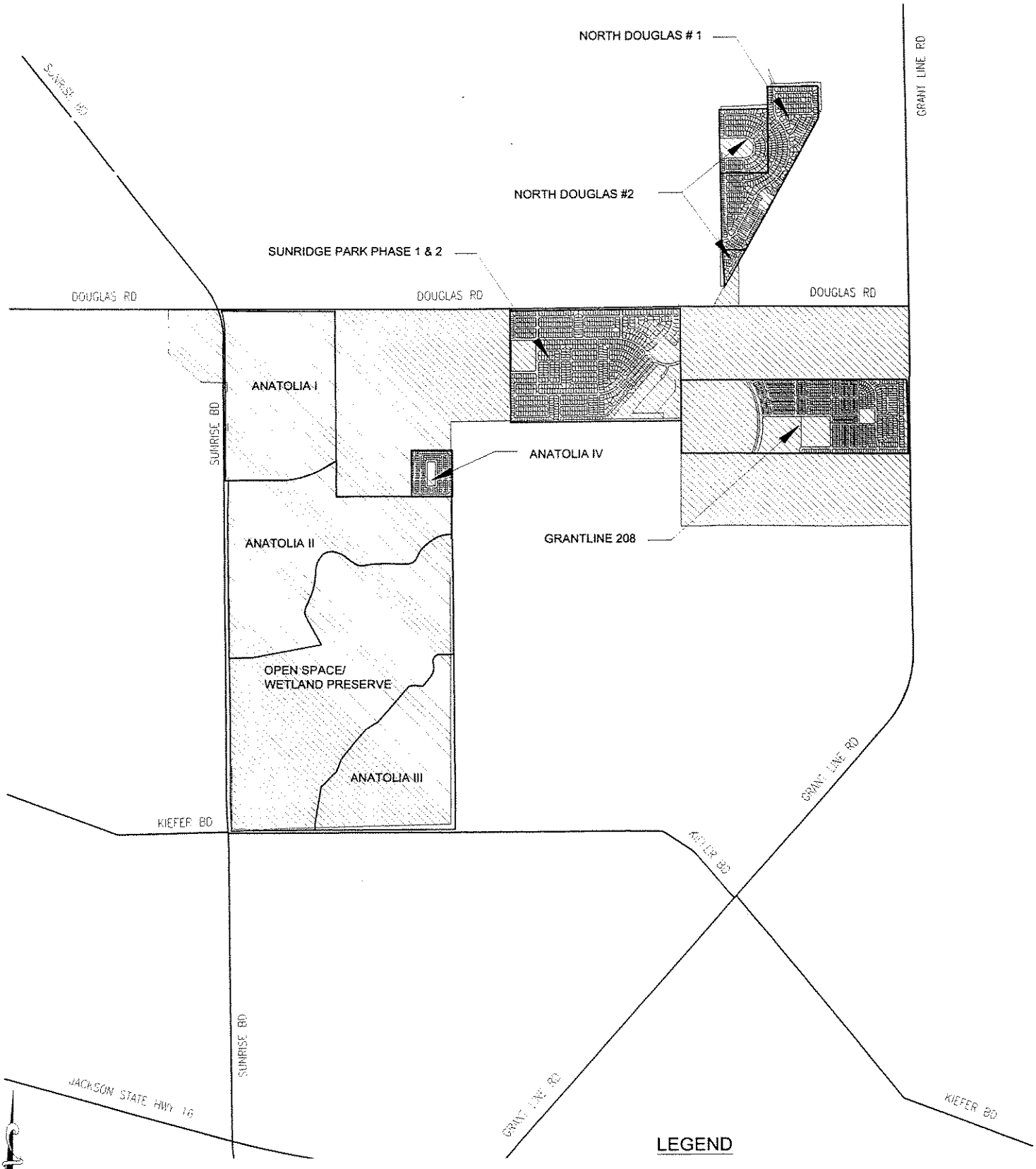


EXHIBIT B
Sunridge Property Owners

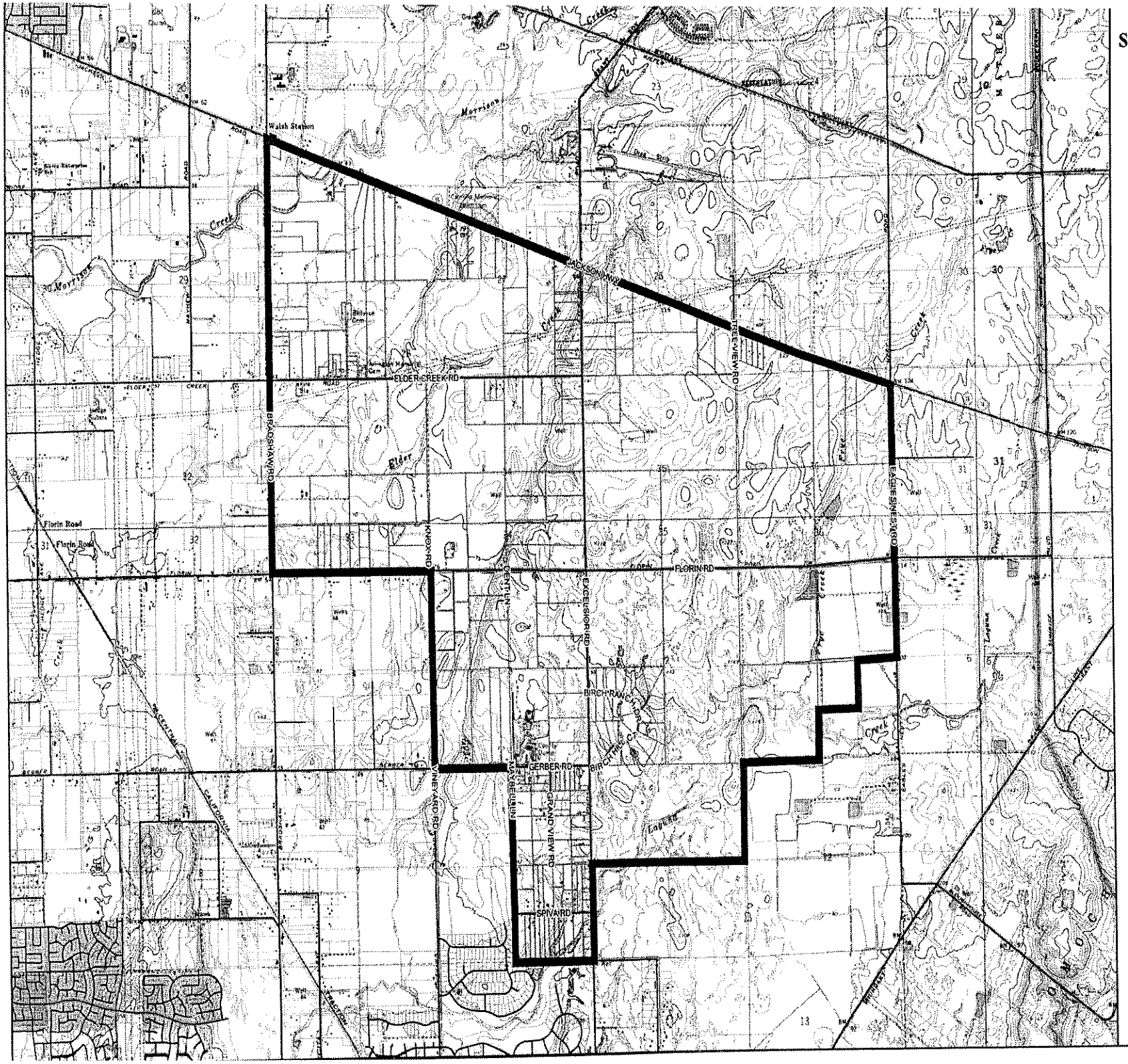


DRAWN: JUNE 13, 2005

SCALE 1"=3000'

Sunrise Douglas Community Plan
Sunridge Specific Plan

Exhibit C
Area Covered by
Well Insurance Program



= Boundary

= Sacramento County Parcel

Within Boundary

Outside Boundary

Scale 1:36,000 (1 inch represents 3,000 ft @ 11"x17")
Coverage presented in State Plane 2 NAD83
Parcel information from Sacramento Tax Assessor's Rolls
(data date December 2000)
Base data from USGS 7.5 minute topo quad sheets
Map Prepared: April 2004

0 0.5 1 Mile

N

MWH
Prepared by Sacramento GIS Lab

G:\Sunrise Douglas_MAP_DOCS\John_Hodgson\Parcels_April04.mxd

EXHIBIT D

INSURANCE REQUIREMENTS

Without limiting Owners' indemnification, Owners shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Owners, their agents, representatives or employees. SCWA shall retain the right at any time to review the coverage, form, and amount of the insurance required hereby. If in the opinion of the Sacramento County Risk Manager, insurance provisions in these requirements do not provide adequate protection for SCWA, County and for members of the public, SCWA may require Owners to obtain insurance sufficient in coverage, form and amount to provide adequate protection. SCWA's requirements shall be reasonable but shall be imposed to assure protection from and against the kind and extent of risks that exist at the time a change in insurance is required.

Verification of Coverage

Owners shall furnish the SCWA with certificates evidencing coverage required below. **Copies of required endorsements must be attached to provided certificates.** The Sacramento County Risk Manager may approve self-insurance programs in lieu of required policies of insurance if, in the opinion of the Risk Manager, the interests of the SCWA, County and the general public are adequately protected. All certificates, evidences of self-insurance, and additional insured endorsements are to be received and approved by the County before performance commences. The SCWA reserves the right to require that Owners provide complete, certified copies of any policy of insurance including endorsements offered in compliance with these specifications.

Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. GENERAL LIABILITY: Insurance Services Office's Commercial General Liability occurrence coverage form CG 0001. Including, but not limited to Premises/Operations, Products/Completed Operations, Contractual, and Personal & Advertising Injury, without additional exclusions or limitations, unless approved by the County Risk Manager.

Minimum Limits of Insurance

Owners shall maintain limits no less than:

1. General Liability shall be on an Occurrence basis (as opposed to Claims Made basis). Minimum limits and structure shall be:

   General Aggregate: $5,000,000

Deductibles and Self-Insured Retention

Any deductibles or self-insured retention that apply to any insurance required by this Agreement must be declared and approved by the SCWA.

Claims Made Professional Liability Insurance

If professional liability coverage is written on a Claims Made form:

1. The "Retro Date" must be shown, and must be on or before the date of the Agreement or the beginning of Agreement performance by Owners.

2. Insurance must be maintained and evidence of insurance must be provided for at least one (1) year after completion of the Agreement.

3. If coverage is cancelled or non-renewed, and not replaced with another claims made policy form with a "Retro Date" prior to the contract effective date, the Owners must purchase "extended reporting" coverage for a minimum of one (1) year after completion of the Agreement.

Other Insurance Provisions

The insurance policies required in this Agreement are to contain, or be endorsed to contain, as applicable, the following provisions:

All Policies:

1. ACCEPTABILITY OF INSURERS: Insurance is to be placed with insurers with a current A.M. Best's rating of no less than **A-:VII**. The Sacramento County Risk Manager may waive or alter this requirement, or accept self-insurance in lieu of any required policy of insurance if, in the opinion of the Risk Manager, the interests of the County and the general public are adequately protected.

2. MAINTENANCE OF INSURANCE COVERAGE: Owners shall maintain all insurance coverages in place at all times and provide the SCWA with evidence of each policy's renewal ten (10) days in advance of its anniversary date. Each insurance policy required by this Agreement shall be endorsed to state that coverage shall not be canceled by either party except after thirty (30) days' written notice for cancellation or sixty (60) days' written notice for non-renewal has been given to the SCWA. For non-payment of premium 10 days prior written notice of cancellation is required.

Commercial General Liability and/or Commercial Automobile Liability:

1. ADDITIONAL INSURED STATUS: The SCWA, the County, its officers, directors, officials, employees, and volunteers are to be endorsed as additional insureds as respects: liability arising out of activities performed by or on behalf of the Owners; products and completed operations of the Owners; premises owned, occupied or used by the Owners; or automobiles owned, leased, hired or borrowed by the Owners. The coverage shall contain no endorsed limitations on the scope of protection afforded to the County, its officers, directors, officials, employees, or volunteers.

2. CIVIL CODE PROVISION: Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

3. PRIMARY INSURANCE: For any claims related to this agreement, the Owners' insurance coverage shall be endorsed to be primary insurance as respects the SCWA, the County, their officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the SCWA, the County, their officers, directors, officials, employees, or volunteers shall be excess of the Owners' insurance and shall not contribute with it.

4. SEVERABILITY OF INTEREST: The Owners' insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. SUBOWNERS: Owners shall be responsible for the acts and omissions of all their subcontractors and additional insured endorsements as provided by Owners' subcontractors.

Notification of Claim

If any claim for damages is filed with Owners or if any lawsuit is instituted against Owners, that arise out of or are in any way connected with Owners' performance under this Agreement and that in any way, directly or indirectly, contingently or otherwise, affect or might reasonably affect County, Owners shall give prompt and timely notice thereof to County. Notice shall be prompt and timely if given within thirty (30) days following the date of receipt of a claim or ten (10) days following the date of service of process of a lawsuit.

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SACRAMENTO COUNTY WATER AGENCY
CALIFORNIA

APPROVED
BOARD OF DIRECTORS
WA-2609
SEP 06 2005
By Cindy H. Fowler
Clerk of the Board

For the Agenda of:
September 6, 2005
Timed: 11:30 a.m.

To: Board of Directors
Sacramento County Water Agency

From: Department of Water Resources

Subject: Approve North Vineyard Well Protection Agreement 3; Authorize The Chair Of The Sacramento County Water Agency To Execute The Agreement; Allocate Production Capacity From The North Vineyard Well Field For Douglas 98, Cresleigh Sunridge, Douglas 103 And Arista Del Sol Development Projects

Contact: John Coppola, Principal Civil Engineer, 874-8936

Overview
Conditions of the SunRidge Specific Plan Zoning Agreement approved on July 17, 2002, require the Sacramento County Water Agency Board of Directors to make certain findings regarding water supply and to enter into an agreement with SunRidge owners for a well insurance program prior to approval of tentative maps.

Recommendations
That your Board:

1) Approve the North Vineyard Well Protection Agreement 3 and adopt the attached Resolution authorizing the Board Chair to execute the Agreement on behalf of the Water Agency.
2) Allocate 1,142.5 acre-feet average annual production capacity from the North Vineyard Well Field for the Douglas 98, Cresleigh Sunridge, Douglas 103, and Arista del Sol development projects.

Measures/Evaluation
Measures/Evaluation are not applicable to this agenda item.

Fiscal Impact
Special development fees fund the Well Protection Program, which is administered by the Water Agency. Zone 40 water development fees fund the construction of facilities required to deliver water allocated from the North Vineyard Well Field.

BACKGROUND

The Sacramento County Board of Supervisors approved a rezone of the SunRidge Specific Plan Area ("SSPA") by adoption of Ordinance SZC-2002-0014 on July 17, 2002. The Sacramento County Water Agency ("SCWA") will provide water supply to the SSPA and conditions of the rezone require that the SCWA Board of Directors make certain findings regarding the availability of water prior to the approval of any given tentative map.

Tentative map approval is also conditioned on approval of an agreement between SCWA and SSPA owners regarding a well insurance program to assure that land owners who own and operate wells in the vicinity of the North Vineyard Well Field are not financially impacted by its operation.

SSPA owners have submitted tentative map applications to the City of Rancho Cordova for the Douglas 98, Cresleigh Sunridge, Douglas 103, and Arista del Sol development projects.

DISCUSSION

North Vineyard Well Protection Agreements
As a result of groundwater contamination in the vicinity of the SSPA, drinking water for the SSPA will be supplied from a well field located near Excelsior Road between Florin and Elder Creek Roads; conditions of approval limit average long-term groundwater production from the well field to 10,000 acre-feet per year (afy). Analysis performed for the SSPA EIR predicts that long-term pumping of 10,000 afy at the well field will cause the local groundwater table to drop an estimated 10 feet more than the long-term drop predicted to occur absent construction of the well field. SSPA owners volunteered to fund with development fees a North Vineyard Well Insurance Program to be administered by SCWA; program funds will be used to offset the cost of private well rehabilitation or replacement in the area potentially affected by NVWF operation. As a condition of tentative map approval, owners are required to enter into an agreement with SCWA regarding the terms and conditions of the program, including the following:

1. Parcels within a two mile radius of the NVWF can be eligible for the program.
2. Property owners may receive up to $13,600 per well for repair or replacement costs.
3. The initial development fee for the program is $400 per equivalent dwelling unit.
4. Reimbursement and fees will be indexed to the annual Construction Cost Index.
5. Owners have provided SCWA with $400,000 for initial program funding.

Submitted for your Board's approval are a North Vineyard Well Protection Agreement 3 with the owners of the Douglas 98, Cresleigh Sunridge, Douglas 103, and Arista del Sol developments.

This Agreement is identical to the Amended and Restated North Vineyard Well Protection Agreement and the North Vineyard Well Protection Agreement 2 approved by your Board on July 26, 2005.

The Well Protection Program became effective when on July 27, 2005 SCWA began operation of the Anatolia Water Treatment Facility; **Attachment A** provides information about the status of the Program.

North Vineyard Well Field Water Allocations
SSPA tentative maps cannot be approved until the SCWA Board of Directors determines that groundwater production from the NVWF to meet water demand will not cause:

1. annual average production from the NVWF to exceed 10,000 acre-feet;
2. local groundwater elevations to fall more than ten feet as a result of long-term NVWF operation;
3. a significant effect on groundwater contaminant movement.

The Board must then determine that sufficient water is available from the NVWF to supply a given tentative map development.

Facilities required to meet SSPA build-out water demand include seven wells (one of which is an emergency/standby well), six groundwater treatment filters, and two 2-million gallon storage tanks. These facilities will have the capacity to meet a maximum day demand of 9,000 gallons per minute (equal to an average annual supply of 7,250 acre-feet) and are being constructed in two phases. The recently completed first phase includes both storage tanks, groundwater filters, and three wells, with a maximum day production capacity of 3,000 gallons per minute (approximately 2,418 acre-feet average annual yield). In previous actions, your Board has approved the allocation of this entire first phase project capacity to SSPA projects (see **Attachment B**).

On September 6 your Board approved a Mitigated Negative Declaration of Environmental Impact for the 5th well in the NVWF. Owners of the Douglas 98, Cresleigh Sunridge, Douglas 103, and Arista del Sol projects (see **Attachment C**) have submitted applications for tentative map approval to the City of Rancho Cordova and are requesting allocations of water capacity from this 5th well; if granted, the total request of 1,142.5 acre-feet would fully allocate production capacity of this well.

Granting the requested allocation would bring the total NVWF allocation to 4,661 acre-feet, slightly less than 1/2 the 10,000 acre-foot ceiling recommended in the SSPA conditions of approval. NVWF production has just begun, so it is not possible to determine whether there are any local impacts on groundwater elevations or on contaminant movement, but given that the hydrologic analysis predicted a ten foot incremental drop in the groundwater table as a long-term effect of pumping the full 10,000 acre-feet from the well field, it is reasonable to conclude that production of 4,661 acre-feet will not result in a long-term effect greater than 10 feet. A similar conclusion could be reached regarding the effect on contaminant plume movement; contaminant movement is also closely monitored under existing regulatory programs and there has been no report of movement in the direction of the well field.

Your Board has also discussed production from the NVWF in the context of replacement water supply for contaminated municipal wells in the Rancho Cordova area and considered the "reservation" of some portion of production from the well field for this purpose. Permanent replacement supply is provided for in SCWA's *Eastern Sacramento County Replacement Water Supply Project*. The Environmental Impact Report for this project is scheduled for completion in April 2006, and project design and construction will take an estimated 2 to 3 years. Delivery of replacement water for municipal use will also require construction of the Freeport Regional Water Project and Central Surface Water Treatment Plant, estimated to begin operation in 2011.

Municipal wells in the area continue to be at risk: in August of last year, the California-American Water Company shut down its 1,000 gpm Chettenham Drive Well (near Mather Field Road and Highway 50) as a result of perchlorate contamination, and other wells are considered vulnerable. SCWA has been asked to provide temporary replacement water from its Mather-Sunrise system.

Including the present allocation request, production from four wells has been allocated to SSPA development projects, and within a month your Board will be asked to consider allocation requests for a 6th well. At the projected rate of actual development, approximately one well per year in the NVWF will be required to meet SSPA water demand, a total of six wells at 2011 build-out (see **Attachment D**). Based on the projections of water demand and production capacity shown on Attachment D, SCWA should be able to provide interim replacement supply from at least one well in the NVWF until the estimated date of delivery of water from the replacement project. Allocation of SSPA build-out demand will also leave 2,700 afy (two additional wells) available under the 10,000 acre-foot NVWF cap; a new treatment-storage facility would be required to make this water available for municipal use.

In light of this discussion, staff has concluded that it is appropriate to allocate the 1,142.5 afy production capacity from the NVWF for the Douglas 98, Cresleigh Sunridge, Douglas 103, and Arista del Sol development projects. The status of the replacement project, the Freeport/Central Surface Water Treatment projects, and local well contamination will continue to be factors that affect future considerations of NVWF water allocation for new development.

Respectfully submitted,

_____
Keith DeVore, Director
Department of Water Resources

APPROVED:

Terry Schutten
County Executive

By: _____
Cheryl Creson, Administrator
Municipal Services Agency

Attachments: Attachment A, North Vineyard Well Protection Program
Attachment B, North Vineyard Well Field Water Allocations to SunRidge SPA
Attachment C, Map of Sunridge Property Owners
Attachment D, North Vineyard Well Field Production
Resolution
North Vineyard Well Protection Agreement 3

cc: Jim Galovan/ Douglas Grantline 103 Investors, LLC & Douglas Road 98 Investors, LLC
Louie J. Pappas/ Arista del Sol
Voula L. Pappas/ Arista del Sol
Tom Wong/ Cresleigh Homes Corporation, a California Corporation
Cyrus Abhar, William Campbell/ City of Rancho Cordova
Ray Thompson/ County Counsel
Darrell Eck/ DWR

Attachment A

North Vineyard Well Protection Program

Letters Mailed

- 1st mailing 249 parcels
- 2nd mailing 149 parcels
- 3rd mailing 17 parcels
- 4th mailing 33 parcels

Responses

- 132 responses to all mailers (includes parcels with 0 wells)
- 11 non-responses to 3rd mailer
- 14 non- responses to 4th mailer

Site Visits

- 93 site visits (as of 8/16/05; includes visits to owners with multiple parcels)
- 113 working wells
- 9 non-working wells (4 to be repaired: will call back)

Attachment B

North Vineyard Well Field Water Allocations to SunRidge SPA

Project Name	Owner/Developer	AFY	Date of Request	Date of Board Approval	Total Allocation	
Backup/Emergency Well						Well #1
Anatolia I	AKT	544	11/19/2002	01/07/2003	544	Well #2
Anatolia II	AKT	722	11/19/2002	01/07/2003	1,266	
Anatolia III	AKT	574	11/19/2002	01/07/2003	1,840	Well #3
Sunridge Park	River West	451	04/07/2003	06/17/2003	2,291	
Mather East	Orin Bennett	90[1]	04/21/2003	06/17/2003	2,381	
Anatolia I, II Comm/MF	AKT	202.7	06/15/2003	06/08/2004	2,584	Well #4
North Douglas #1	Lennar	248.3	07/29/2003	06/08/2004	2,832	
North Douglas #2	Lennar	113.6	07/29/2003	06/08/2004	2,946	
Anatolia IV	AKT	65.5[2]	10/29/2003	07/26/2005	3,012	
Grantline 208	River West	394.9[3]	12/12/2003	07/26/2005	3,407	
Sunridge Park Phase II	River West	112.3[4]	12/15/2003	07/26/2005	3,519	
Douglas 98	Woodside Homes	307	01/22/2004		3,826	Well #5
Cresleigh Sunridge (Lot J)	Cresleigh Homes	225.8	07/15/2004		4,052	
Douglas 103	Woodside Homes	181.4	09/28/2004		4,233	
Arista Del Sol	Pappas	428.3[5]	09/29/2004		4,661	
Montelena (a.k.a. Sunridge 250)	Centex Homes	463.18	02/10/2005		5,124	Well #6
						Well #7

Each well/filter produces c.1,500 gpm MDD = 750 gpm ADD = 1,209 afy:

- Well #1 = backup/emergency well
- Well #2 = 1,209 afy
- Well #3 = 2,418 afy
- Well #4 = 3,627 afy
- Well #5 = 4,836 afy
- Well #6 = 6,045 afy
- Well #7 = 7,254 afy

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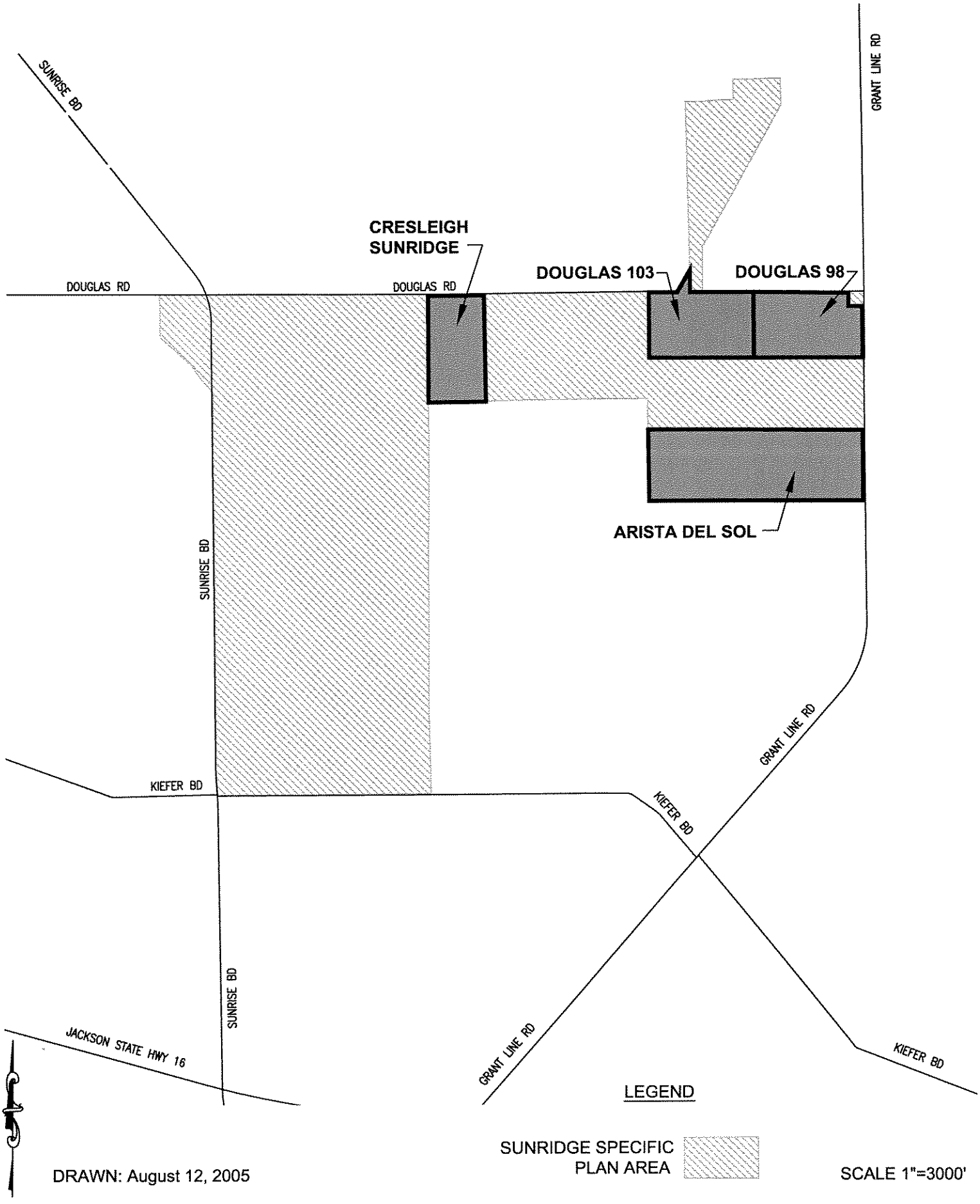
[1] Initial request for 116.7 afy; reduced to 90 based on 2030 Z40 WSMP unit water demands.
[2] Initial request for 64.7 afy; increased to 65.5 per revised request of 09/29/2004.
[3] Initial request of 480.6; reduced to 394.9 per revised request of 06/25/2005 due to wetlands/land use revisions.
[4] Initial request for 190.9 afy; reduced to 100.7 per revised request of 10/25/2004 due to wetlands, detention basin, SMUD substation; increased to 112.3 per revised request of 06/25/2005 due to wetlands/land use revisions.
[5] Initial request for 471.46 afy reduced to 428.3 per revised request of 06/09/2005 from Pappas Investments due to wetlands/land use revisions.

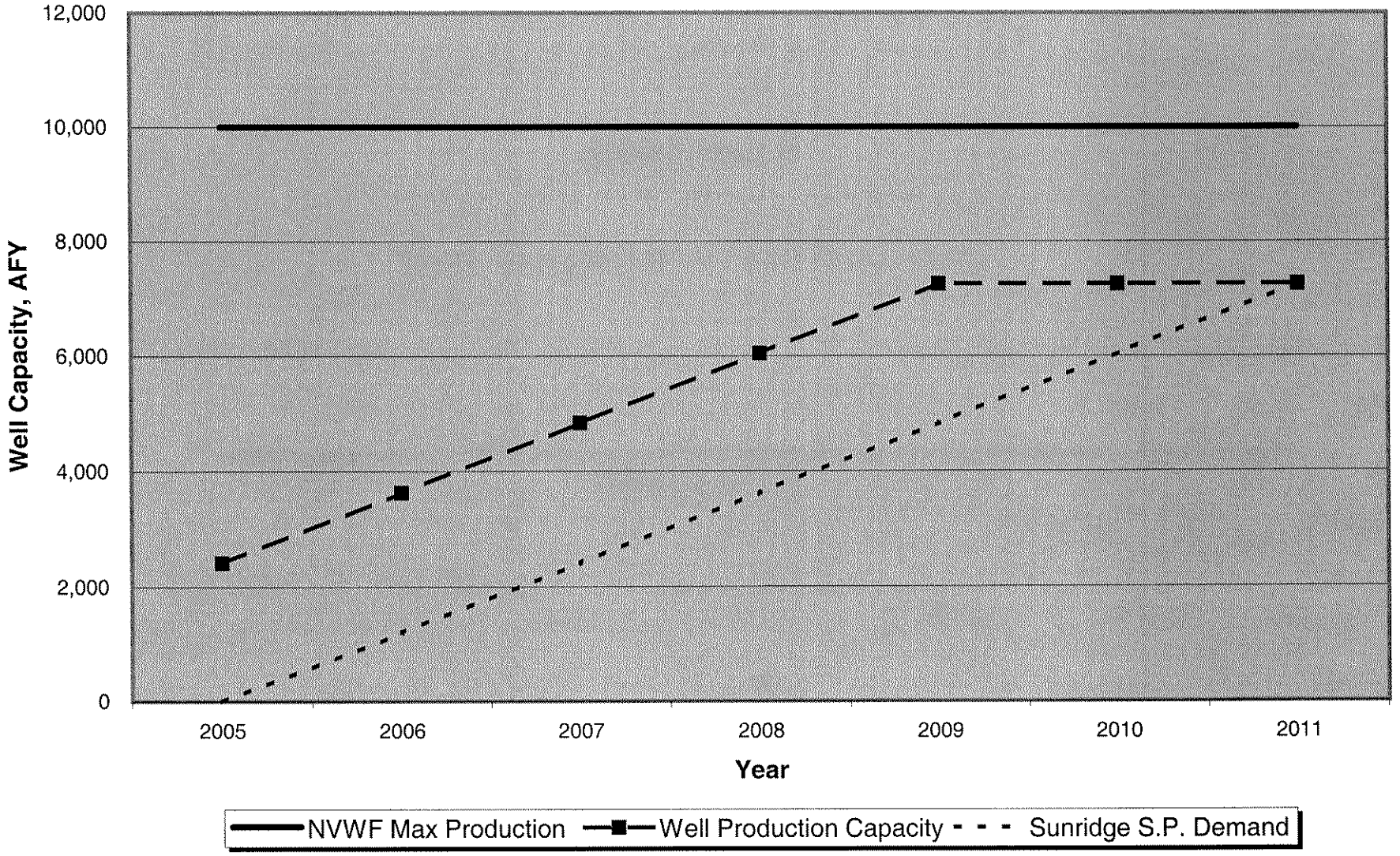
Attachment C

Sunridge Property Owners



Attachment D

North Vineyard Well Field Production



SACRAMENTO COUNTY WATER AGENCY
RESOLUTION AUTHORIZING THE
NORTH VINEYARD WELL PROTECTION AGREEMENT 3

RESOLUTION NO. WA-2609

BE IT RESOLVED AND ORDERED that the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act, approve the North Vineyard Well Protection Agreement 3 and authorize the Chair of the Board of Directors to execute the Agreement on behalf of the SACRAMENTO COUNTY WATER AGENCY.

ON A MOTION by Director Nottoli, and seconded by Director Dickinson, the foregoing Resolution was passed and adopted by the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, State of California, this 6th day of September, 2005, by the following vote, to wit:

AYES: Directors, MacGlashan, Nottoli, Peters, Dickinson

NOES: Directors, None

ABSENT: Directors, Collin

ABSTAIN: Directors, None

Chairman of the Board of Directors of the
Sacramento County Water Agency

(SEAL)

ATTEST:
Clerk of the Board of Supervisors of Sacramento County, California, and ex officio Secretary of the Board of Directors of Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on SEP 06 2005

By: Gwenyne Dewleng
Deputy Clerk, Board of Directors

FILED

SEP 06 2005

BOARD OF DIRECTORS

By Cindy H. Turner
Clerk of the Board

COUNTY OF SACRAMENTO
INTER-DEPARTMENT CORRESPONDENCE
DEPARTMENT OF WATER RESOURCES

MEMORANDUM

DATE: Thursday, September 01, 2005

TO: Cindy Turner
Clerk of the Board

FROM: Darrell Eck
Senior Civil Engineer – Sacramento County Water Agency

SUBJECT: **North Vineyard Well Protection Agreement #3**
BOS Hearing - Tuesday, September 6, 2005

Attached you will find 6 original agreements entitled 'North Vineyard Well Protection Agreement #3.' The documents have been signed by the appropriate developers and counsel for the developers. Additionally, the documents have been reviewed and signed by Deputy County Counsel, Ray Thompson.

This item is scheduled for a BOS hearing on Tuesday, September 6, 2005 at 11:30 pm.

If you have further questions feel free to contact me at 874-5039 or Bob Gardner (Associate Civil Engineer) at 874-8433.

NORTH VINEYARD WELL PROTECTION AGREEMENT 3

This North Vineyard Well Protection Agreement 3 ("Agreement") is entered into this _____ day of _____, 2005, by and between Douglas Grantline 103 Investors, LLC; Douglas Road 98 Investors, LLC; Cresleigh Homes Corporation, a California Corporation; and Louie J. Pappas and Voula L. Pappas for the Arista del Sol project; (hereinafter, "OWNERS") and the Sacramento County Water Agency, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act (California Water Code-Appendix, Chapter 66, commencing at Section 66-1 et seq.) (hereinafter "SCWA").

RECITALS

1. OWNERS own a portion of the real property within the boundaries of the SunRidge Specific Plan (the "Specific Plan", as depicted on attached **Exhibit A**), which specific plan was approved by the Sacramento County Board of Supervisors on July 17, 2002, by Resolution No. 2002-0901. The real property within the Specific Plan is herein referred to as the "Specific Plan Area." OWNERS' lands within the Specific Plan Area are commonly known as the Douglas 103, Douglas 98, Cresleigh Sunridge, and Arista del Sol projects and are more particularly described and depicted on **Exhibit B**, which is attached hereto and made a part hereof (hereinafter "the Projects").

2. The SCWA water supply project that will serve the Specific Plan Area is known as the North Vineyard Well Field ("NVWF"), which is located in the vicinity of the intersection of Florin Road and Excelsior Road in Sacramento County.

3. In order to assure that landowners who own and operate private wells in the vicinity of the NVWF are not adversely financially impacted by its operation, the Owners of land within the Specific Plan Area (the "SPA Owners") volunteered to establish a fund (the "Well Protection Fund" or "Fund") to offset costs of well rehabilitation or replacement in the vicinity of the NVWF.

4. OWNERS and SCWA now desire to enter into this Agreement in order to define the obligations of OWNERS with respect to the Well Protection Fund, and to set forth the terms and conditions pursuant to which the Fund will be administered.

NOW THEREFORE, OWNERS and SCWA agree as follows:

1. ESTABLISHMENT OF THE FEE

a. OWNERS agree that SCWA shall collect a fee ("the Fee") from the permitee at the time a water connection permit is issued for any residential or non-residential use within the Specific Plan Area. The amount of the Fee set forth herein shall be determined on the basis of the number of private wells eligible for the program, as determined pursuant to Paragraphs 2a, 2b and 2c below, multiplied by $13,600 (the agreed replacement cost of a typical residential well) and divided by the total number of equivalent dwelling units ("EDU's") in the Specific Plan Area, wherein one EDU shall be as defined in SCWA Ordinance No. 18. The Fee shall equal this amount (estimated at $380 per EDU, assuming 300 eligible wells and 10,100 EDU's at build-out of the Specific Plan Area) plus $20.00 per EDU for any and all program administrative costs incurred by SCWA.

b. When collected, the Fee shall be deposited in a specific account of the SCWA established for this purpose (the "Well Protection Fund" or "Fund").

c. In the event that the Fund experiences a shortfall so that SCWA is not able to pay benefits as hereinafter described, SCWA shall provide SPA Owners with written notice of said shortfall. If SPA Owners have not provided sufficient funds to make up such shortfall within thirty (30) days of the date of said written notice, SCWA shall withhold the issuance of water connection permits until sufficient funds have been advanced to cover anticipated costs and expenses from the Fund. The person(s) or entity making such advance shall receive Fee credit for such advance(s). Fee credits shall be the property of the person or entity making the advance and Fee credits shall be freely transferable within the Specific Plan Area. The owner of the Fee credits shall give prior written notice to SCWA of any transfer of credits in order

for such transfer to be effective. SCWA shall be under no obligation to recognize such transfer unless and until such written notice is received by SCWA.

d. SCWA shall, from time to time, review the projected number of EDU's at build-out of the Specific Plan Area and adjust the Fee accordingly to account for any change in the number of EDU's. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

e. SCWA shall keep an accurate accounting of all costs incurred in administering this program. SCWA may, at its discretion, increase the Fee as needed to pay for said administrative costs. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

f. SCWA may from time to time adjust the Fee pursuant to Paragraphs 1d, 1e, 3a and 3b. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment made pursuant to Paragraphs 1d and 1e.

2. ELIGIBILITY AND BENEFITS

a. During the term of the NVWF Well Protection Program established under this Agreement, any owner of land who owns and operates a well on a legal parcel which lies in whole or in part within the area (hereinafter, "the Covered Area") shown on the map attached hereto as **Exhibit C** and made a part hereof, shall be eligible for benefits under the NVWF Well Protection Program, provided such owner registers such well pursuant to Paragraphs 2b and 2c below.

b. SCWA shall provide timely written notice of the NVWF Well Protection Program to all owners of land within the Covered Area and of the requirement to register his/her well with the SCWA in order to qualify for the payment of benefits hereunder. SCWA shall determine the manner of registration, which shall provide a reasonable and fair opportunity for each such owner to register his/her well. Each such owner shall be required to request registration of his/her well not later than ninety (90) days after the date of the first written notice provided by SCWA; failure to request

registration of a well with SCWA within said time period shall disqualify any owner from receiving benefits hereunder without exception.

c. Upon receipt of written request for registration of one or more wells from an owner according to Paragraphs 2a and 2b, SCWA shall inspect each well to verify its existence and operating condition. Only an owner of land who has requested registration of his/her well, as herein provided, and whose well has been inspected as provided in this paragraph (hereinafter, "Eligible Well") shall be eligible for the payment of benefits under the program.

d. From and after the date upon which the SCWA accepts the NVWF for operation and maintenance, and continuing until (i) the Specific Plan Area has been built out, and there are no funds remaining in the Fund, or (ii) the SPA Owners fail to perform any of their obligations under this Agreement, or (iii) July 01, 2020, whichever shall first occur, SCWA shall pay benefits from the Fund to the owner of an Eligible Well as follows:

    1) If an Eligible Well fails for any reason, other than mechanical or electrical failure of the pump and/or motor, to provide sufficient water capacity for its intended purpose, as determined by a qualified inspector, SCWA shall authorize payment from the Fund to reimburse the owner of such Eligible Well an amount sufficient to restore said sufficient water capacity, but in no event more than $13,600 (as adjusted annually per Paragraph 3a) for each such failed Eligible Well. SCWA has no additional obligation to pay for well failure other than under the terms of this Agreement.

    2) SCWA shall take reasonable actions to verify the loss of capacity of any Eligible Well; the cost of any such verification shall be included in the administrative costs for this program as described elsewhere in this Agreement. To be eligible for the benefit hereunder, the owner of an Eligible Well must submit a written claim to the SCWA for such benefit not later than sixty (60) days after the cost of restoration is incurred. Verification of the cost of restoration may be evidenced by an affidavit of the well driller/repair company which serviced the well.

3) Under this program, SCWA shall pay not more than $13,600 in benefits (as adjusted annually per Paragraph 3a) for any one Eligible Well. By administering the Fund in accordance with the terms of this Agreement, SCWA does not assume any liability and does not acknowledge that any well failure is caused in any manner or to any extent by operation of the NVWF.

e. Any amount remaining in the Fund at the expiration of the NVWF Well Protection Program, as defined above, shall be transferred without restriction to SCWA.

3. GENERAL PROVISIONS

a. The Fee and the maximum reimbursement amount per Eligible Well shall be indexed to the SCWA Ordinance No. 18 annual inflation index.

b. SPA Owners shall defend, indemnify and hold harmless the County of Sacramento, SCWA, their governing boards, officers, directors, agents, employees and volunteers from and against any and all demands, claims, actions, losses, liabilities, damages, and costs, including reasonable attorneys' fees, arising out of or resulting from the performance of this Agreement, except and in proportion to the extent caused by the negligence of County, SCWA, their governing boards, officers, directors, agents, employees and volunteers. SPA Owners shall provide insurance coverage in the type and amount indicated in **Exhibit D** of this Agreement in order to address SPA Owners' responsibilities under this indemnity. The insurance coverage described in **Exhibit D** may be provided by any one owner or combination of owners, so long as the coverage set forth in **Exhibit D** is provided. SCWA shall have the right but shall be under no obligation to purchase insurance or self-insure against SPA Owners' failure to perform their obligations under this indemnity and may adjust the Fee accordingly to pay for such coverage. The insurance coverage may be of the type and amount indicated in **Exhibit D** of this Agreement.

c. The terms and conditions of this Agreement shall inure to the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand on the date first above written.

Jim Galovan, Authorized Agent
Douglas Grantline 103 Investors, LLC

Counsel for Douglas Grantline 103 Investors, LLC

BS GALAXIDAS [redacted] Authorized Agent
Douglas Road 98 Investors, LLC

Counsel for Douglas Road 98 Investors, LLC

Louie J. Pappas, Managing Partner
[redacted] Arista del Sol, LP

[redacted]

Counsel for [redacted] Arista del Sol, LP

Tom Wong,
Vice President and General Manager
Cresleigh Sunridge

Counsel for Owner, Cresleigh Sunridge

SACRAMENTO COUNTY WATER AGENCY
("SCWA")

BY: _____
Chair of the Board of Directors,
Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on SEP 06 2005

By: _____
Deputy Clerk, Board of Directors

ATTEST:

_____
Clerk of the Board of Directors

Approved as to Form:

_____
Deputy County Counsel

SACRAMENTO COUNTY WATER AGENCY
("SCWA")

BY: _____
Chair of the Board of Directors,
Sacramento County Water Agency

ATTEST:

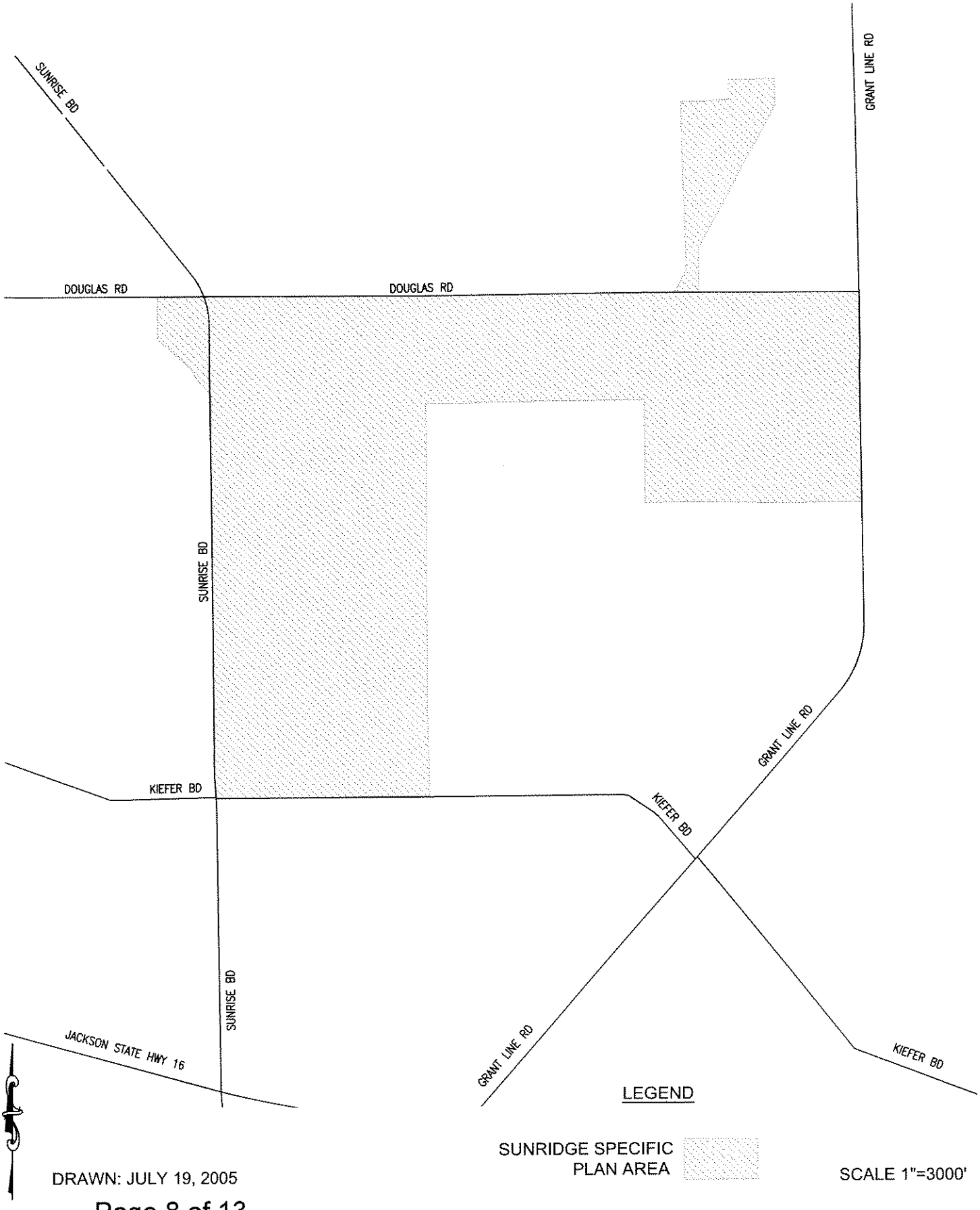
_____
Clerk of the Board of Directors

Approved as to Form:

_____
Deputy County Counsel

EXHIBIT A

Sunridge Specific Plan

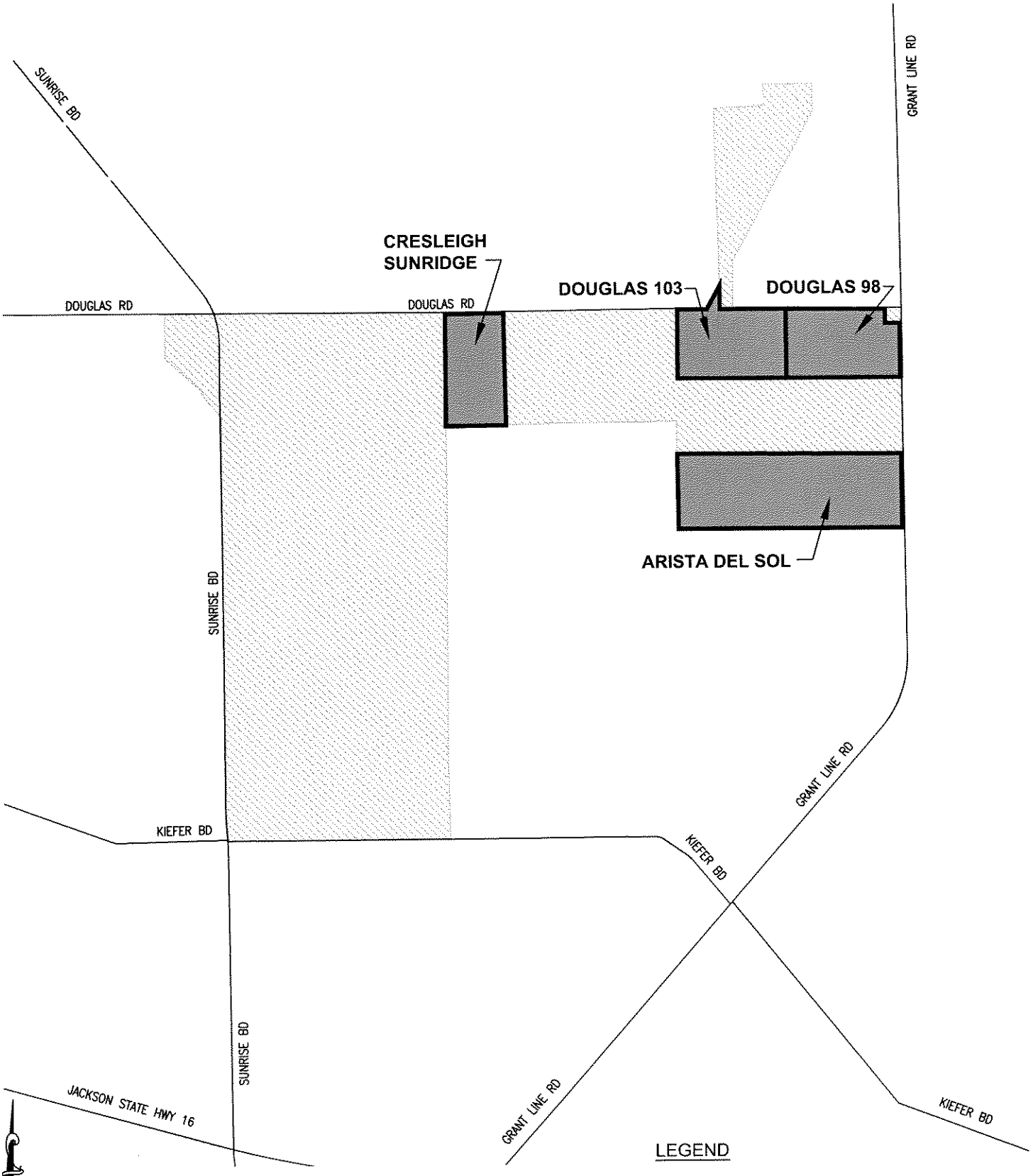


DRAWN: JULY 19, 2005

SCALE 1"=3000'

EXHIBIT B

Sunridge Property Owners



DRAWN: JULY 19, 2005

SCALE 1"=3000'

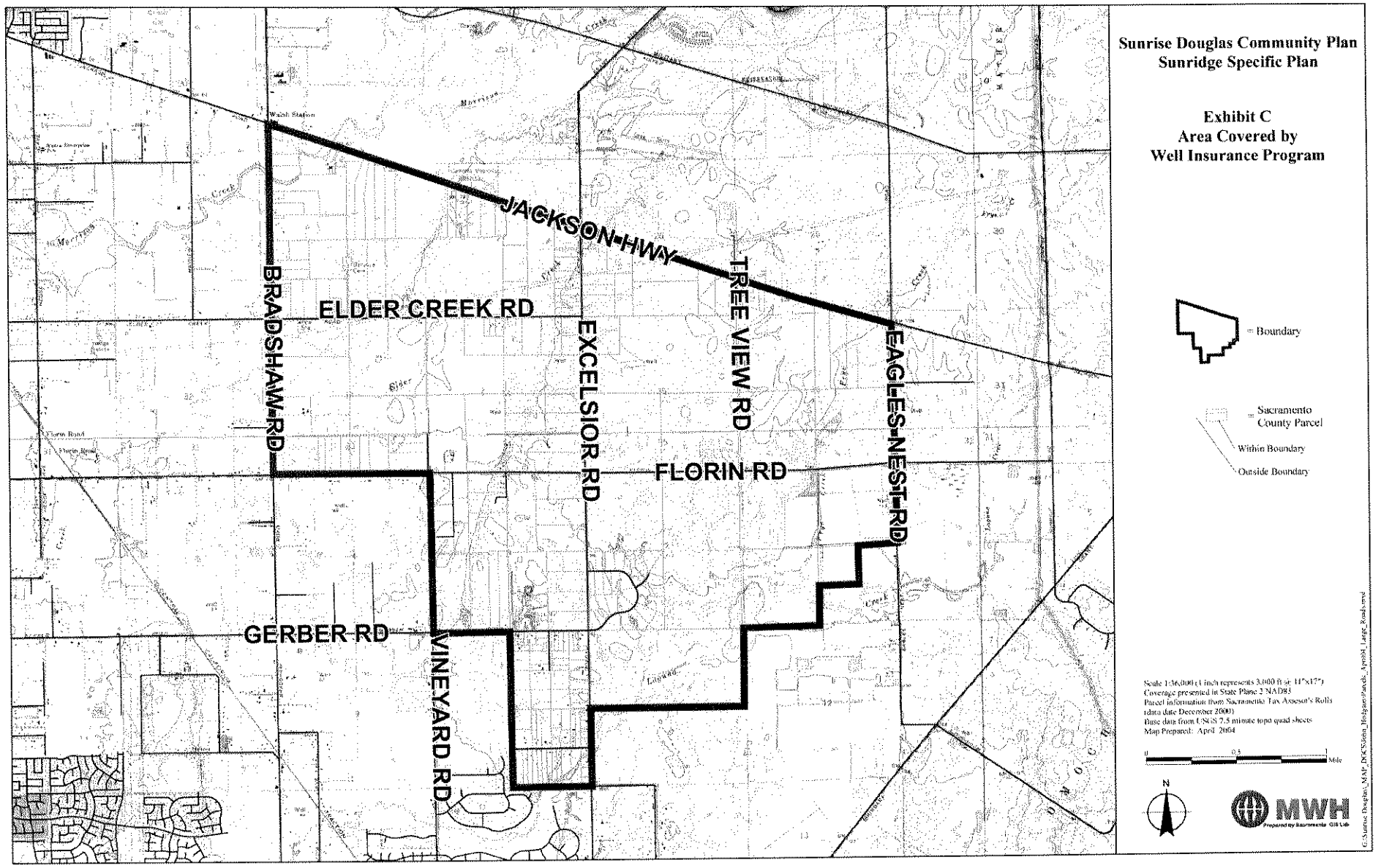

Sunrise Douglas Community Plan
Sunridge Specific Plan
Exhibit C
Area Covered by
Well Insurance Program
JACKSON HWY
ELDER CREEK RD
FLORIN RD
GERBER RD
BRADSHAW RD
EXCELSIOR RD
TREE VIEW RD
EAGLES NEST RD
VINEYARD RD
= Boundary
= Sacramento County Parcel
Within Boundary
Outside Boundary
Scale 1:36,000 (1 inch represents 3,000 ft or 11"x17")
Coverage presented in State Plane 2 NAD83
Parcel information from Sacramento Tax Assessor's Rolls
(data date December 2003)
Base data from USGS 7.5 minute topo quad sheets
Map Prepared: April 2004
0
0.5
1
Mile
N
MWH
Prepared by Sacramento GIS Lab
G:\Sunrise Douglas_MAP_DOCS\Exh_Hydrant\Parcels_April04_Large_Roads.mxd

EXHIBIT D

INSURANCE REQUIREMENTS

Without limiting Owners' indemnification, Owners shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Owners, their agents, representatives or employees. SCWA shall retain the right at any time to review the coverage, form, and amount of the insurance required hereby. If in the opinion of the Sacramento County Risk Manager, insurance provisions in these requirements do not provide adequate protection for SCWA, County and for members of the public, SCWA may require Owners to obtain insurance sufficient in coverage, form and amount to provide adequate protection. SCWA's requirements shall be reasonable but shall be imposed to assure protection from and against the kind and extent of risks that exist at the time a change in insurance is required.

Verification of Coverage

Owners shall furnish the SCWA with certificates evidencing coverage required below. **Copies of required endorsements must be attached to provided certificates.** The Sacramento County Risk Manager may approve self-insurance programs in lieu of required policies of insurance if, in the opinion of the Risk Manager, the interests of the SCWA, County and the general public are adequately protected. All certificates, evidences of self-insurance, and additional insured endorsements are to be received and approved by the County before performance commences. The SCWA reserves the right to require that Owners provide complete, certified copies of any policy of insurance including endorsements offered in compliance with these specifications.

Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. GENERAL LIABILITY: Insurance Services Office's Commercial General Liability occurrence coverage form CG 0001. Including, but not limited to Premises/Operations, Products/Completed Operations, Contractual, and Personal & Advertising Injury, without additional exclusions or limitations, unless approved by the County Risk Manager.

Minimum Limits of Insurance

Owners shall maintain limits no less than:

1. General Liability shall be on an Occurrence basis (as opposed to Claims Made basis). Minimum limits and structure shall be:

   General Aggregate: $5,000,000

Deductibles and Self-Insured Retention

Any deductibles or self-insured retention that apply to any insurance required by this Agreement must be declared and approved by the SCWA.

Claims Made Professional Liability Insurance

If professional liability coverage is written on a Claims Made form:

1. The "Retro Date" must be shown, and must be on or before the date of the Agreement or the beginning of Agreement performance by Owners.

2. Insurance must be maintained and evidence of insurance must be provided for at least one (1) year after completion of the Agreement.

3. If coverage is cancelled or non-renewed, and not replaced with another claims made policy form with a "Retro Date" prior to the contract effective date, the Owners must purchase "extended reporting" coverage for a minimum of one (1) year after completion of the Agreement.

Other Insurance Provisions

The insurance policies required in this Agreement are to contain, or be endorsed to contain, as applicable, the following provisions:

All Policies:

1. ACCEPTABILITY OF INSURERS: Insurance is to be placed with insurers with a current A.M. Best's rating of no less than **A-:VII**. The Sacramento County Risk Manager may waive or alter this requirement, or accept self-insurance in lieu of any required policy of insurance if, in the opinion of the Risk Manager, the interests of the County and the general public are adequately protected.

2. MAINTENANCE OF INSURANCE COVERAGE: Owners shall maintain all insurance coverages in place at all times and provide the SCWA with evidence of each policy's renewal ten (10) days in advance of its anniversary date. Each insurance policy required by this Agreement shall be endorsed to state that coverage shall not be canceled by either party except after thirty (30) days' written notice for cancellation or sixty (60) days' written notice for non-renewal has been given to the SCWA. For non-payment of premium 10 days prior written notice of cancellation is required.

Commercial General Liability and/or Commercial Automobile Liability:

1. ADDITIONAL INSURED STATUS: The SCWA, the County, its officers, directors, officials, employees, and volunteers are to be endorsed as additional insureds as respects: liability arising out of activities performed by or on behalf of the Owners; products and completed operations of the Owners; premises owned, occupied or used by the Owners; or automobiles owned, leased, hired or borrowed by the Owners. The coverage shall contain no endorsed limitations on the scope of protection afforded to the County, its officers, directors, officials, employees, or volunteers.

2. CIVIL CODE PROVISION: Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

3. PRIMARY INSURANCE: For any claims related to this agreement, the Owners' insurance coverage shall be endorsed to be primary insurance as respects the SCWA, the County, their officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the SCWA, the County, their officers, directors, officials, employees, or volunteers shall be excess of the Owners' insurance and shall not contribute with it.

4. SEVERABILITY OF INTEREST: The Owners' insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. SUBOWNERSS: Owners shall be responsible for the acts and omissions of all their subcontractors and additional insured endorsements as provided by Owners' subcontractors.

Notification of Claim

If any claim for damages is filed with Owners or if any lawsuit is instituted against Owners, that arise out of or are in any way connected with Owners' performance under this Agreement and that in any way, directly or indirectly, contingently or otherwise, affect or might reasonably affect County, Owners shall give prompt and timely notice thereof to County. Notice shall be prompt and timely if given within thirty (30) days following the date of receipt of a claim or ten (10) days following the date of service of process of a lawsuit.

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SACRAMENTO COUNTY WATER AGENCY
CALIFORNIA

APPROVED BOARD OF DIRECTORS WA-2622 OCT 18 2005 By Cindy H. Turner Clerk of the Board

For the Agenda of:
October 4, 2005

To: Board of Directors
Sacramento County Water Agency

From: Department of Water Resources

Subject: Approve North Vineyard Well Protection Agreement And Allocation From North Vineyard Well Field For The SunRidge Specific Plan Area

Contact: John Coppola, Principal Civil Engineer, 874-8936

Overview
Conditions of the SunRidge Specific Plan Zoning Agreement approved on July 17, 2002, require the Sacramento County Water Agency Board of Directors to make certain findings regarding water supply and to enter into an agreement with SunRidge owners for a well insurance program prior to approval of tentative maps.

Recommendations
That your Board:

1) Approve the North Vineyard Well Protection Agreement 4 and adopt the attached Resolution authorizing the Board Chair to execute the Agreement on behalf of the Water Agency.
2) Allocate 463.18 acre-feet average annual production capacity from the North Vineyard Well Field for the Montelena development project.

Measures/Evaluation
Measures/Evaluation are not applicable to this agenda item.

Fiscal Impact
Special development fees fund the Well Protection Program, which is administered by the Water Agency. Zone 40 water development fees fund the construction of facilities required to deliver water allocated from the North Vineyard Well Field.

BACKGROUND

The Sacramento County Board of Supervisors approved a rezone of the SunRidge Specific Plan Area ("SSPA") by adoption of Ordinance SZC-2002-0014 on July 17, 2002. The Sacramento County Water Agency ("SCWA") will provide water supply to the SSPA and conditions of the rezone require that the SCWA Board of Directors make certain findings regarding the availability of water prior to the approval of any given tentative map.

Tentative map approval is also conditioned on approval of an agreement between SCWA and SSPA owners regarding a well insurance program to assure that land owners who own and operate wells in the vicinity of the North Vineyard Well Field are not financially impacted by its operation.

SSPA owners have submitted tentative map applications to the City of Rancho Cordova for the Montelena development project.

DISCUSSION

North Vineyard Well Protection Agreements
As a result of groundwater contamination in the vicinity of the SSPA, drinking water for the SSPA will be supplied from a well field located near Excelsior Road between Florin and Elder Creek Roads; conditions of approval limit average long-term groundwater production from the well field to 10,000 acre-feet per year (afy). Analysis performed for the SSPA EIR predicts that long-term pumping of 10,000 afy at the well field will cause the local groundwater table to drop an estimated 10 feet more than the long-term drop predicted to occur absent construction of the well field. SSPA owners volunteered to fund with development fees a North Vineyard Well Insurance Program to be administered by SCWA; program funds will be used to offset the cost of private well rehabilitation or replacement in the area potentially affected by NVWF operation. As a condition of tentative map approval, owners are required to enter into an agreement with SCWA regarding the terms and conditions of the program, including the following:

1. Parcels within a two mile radius of the NVWF can be eligible for the program.
2. Property owners may receive up to $13,600 per well for repair or replacement costs.
3. The initial development fee for the program is $400 per equivalent dwelling unit.
4. Reimbursement and fees will be indexed to the annual Construction Cost Index.
5. Owners have provided SCWA with $400,000 for initial program funding.

Submitted for your Board's approval is a North Vineyard Well Protection Agreement 4 with the owners of the Montelena development. This Agreement is identical to the Amended and Restated North Vineyard Well Protection Agreement and the North Vineyard Well Protection Agreement 3 approved by your Board on September 6, 2005.

The Well Protection Program became effective when on July 27, 2005 SCWA began operation of the Anatolia Water Treatment Facility; **Attachment A** provides information about the status of the Program.

North Vineyard Well Field Water Allocations
SSPA tentative maps cannot be approved until the SCWA Board of Directors determines that groundwater production from the NVWF to meet water demand will not cause:

1. annual average production from the NVWF to exceed 10,000 acre-feet;
2. local groundwater elevations to fall more than ten feet as a result of long-term NVWF operation;
3. a significant effect on groundwater contaminant movement.

The Board must then determine that sufficient water is available from the NVWF to supply a given tentative map development.

Facilities required to meet SSPA build-out water demand include seven wells (one of which is an emergency/standby well), six groundwater treatment filters, and two 2-million gallon storage tanks. These facilities will have the capacity to meet a maximum day demand of 9,000 gallons per minute (equal to an average annual supply of 7,250 acre-feet) and are being constructed in two phases. The recently completed first phase includes both storage tanks, groundwater filters, and three wells, with a maximum day production capacity of 3,000 gallons per minute (approximately 2,418 acre-feet average annual yield). In previous actions, your Board has approved the allocation of this entire first phase project capacity to SSPA projects (see **Attachment B**).

On September 13 your Board approved a Mitigated Negative Declaration of Environmental Impact for the 6th well in the NVWF. Owners of the Montelena project (see **Attachment C**) have submitted applications for tentative map approval to the City of Rancho Cordova and are requesting allocations of water capacity of 463.18 acre-feet from this 6th well.

Granting the requested allocation would bring the total NVWF allocation to 5,124 acre-feet, slightly more than 1/2 the 10,000 acre-foot ceiling recommended in the SSPA conditions of approval. NVWF production has just begun, so it is not possible to determine whether there are any local impacts on groundwater elevations or on contaminant movement, but given that the hydrologic analysis predicted a ten foot incremental drop in the groundwater table as a long-term effect of pumping the full 10,000 acre-feet from the well field, it is reasonable to conclude that production of 5,124 acre-feet will not result in a long-term effect greater than 10 feet. A similar conclusion could be reached regarding the effect on contaminant plume movement; contaminant movement is also closely monitored under existing regulatory programs and there has been no report of movement in the direction of the well field.

Your Board has also discussed production from the NVWF in the context of replacement water supply for contaminated municipal wells in the Rancho Cordova area and considered the "reservation" of some portion of production from the well field for this purpose. Permanent replacement supply is provided for in SCWA's *Eastern Sacramento County Replacement Water Supply Project*. The Environmental Impact Report for this project is scheduled for completion in April 2006, and project design and construction will take an estimated 2 to 3 years. Delivery of replacement water for municipal use will also require construction of the Freeport Regional Water Project and Central Surface Water Treatment Plant, estimated to begin operation in 2011.

Municipal wells in the area continue to be at risk: in August of last year, the California-American Water Company shut down its 1,000 gpm Chettenham Drive Well (near Mather Field Road and Highway 50) as a result of perchlorate contamination, and other wells are considered vulnerable. SCWA has been asked to provide temporary replacement water from its Mather-Sunrise system.

At the projected rate of actual development, approximately one well per year in the NVWF will be required to meet SSPA water demand, a total of six wells at 2011 build-out (see **Attachment D**). Based on the projections of water demand and production capacity shown on **Attachment D**, SCWA should be able to provide interim replacement supply from at least one well in the NVWF until the estimated date of delivery of water from the replacement project. Allocation of SSPA build-out demand will also leave 2,700 afy (two additional wells) available under the 10,000 acre-foot NVWF cap; a new treatment-storage facility would be required to make this water available for municipal use.

In light of this discussion, staff has concluded that it is appropriate to allocate the 463.18 afy production capacity from the NVWF for the Montelena development project. The status of the replacement project, the Freeport/Central Surface Water Treatment projects, and local well contamination will continue to be factors that affect future considerations of NVWF water allocation for new development.

Respectfully submitted,

_____
Keith DeVore, Director
Department of Water Resources

APPROVED:

Terry Schutten
County Executive

By: _____
Cheryl Creson, Administrator
Municipal Services Agency

Attachments: Attachment A, North Vineyard Well Protection Program
Attachment B, North Vineyard Well Field Water Allocations to SunRidge SPA
Attachment C, Map of Sunridge Property Owners
Attachment D, North Vineyard Well Field Production
North Vineyard Well Protection Agreement 4
Resolution

cc: Jack Hood, Centex Homes
Cyrus Abhar, William Campbell/ City of Rancho Cordova
Ray Thompson/ County Counsel
Darrell Eck/ DWR

Attachment A

North Vineyard Well Protection Program

Letters Mailed

- 1st mailing 249 parcels
- 2nd mailing 149 parcels
- 3rd mailing 17 parcels
- 4th mailing 33 parcels

Responses

- 132 responses to all mailers (includes parcels with 0 wells)
- 11 non-responses to 3rd mailer
- 14 non- responses to 4th mailer

Site Visits

- 93 site visits (as of 8/16/05; includes visits to owners with multiple parcels)
- 113 working wells
- 9 non-working wells (4 to be repaired: will call back)

Attachment B

North Vineyard Well Field Water Allocations to SunRidge SPA

Project Name	Owner/Developer	AFY	Date of Request	Date of Board Approval	Total Allocation	
Backup/Emergency Well						Well #1
Anatolia I	AKT	544	11/19/2002	01/07/2003	544	Well #2
Anatolia II	AKT	722	11/19/2002	01/07/2003	1,266	
Anatolia III	AKT	574	11/19/2002	01/07/2003	1,840	Well #3
Sunridge Park	River West	451	04/07/2003	06/17/2003	2,291	
Mather East	Orin Bennett	90[1]	04/21/2003	06/17/2003	2,381	
Anatolia I, II Comm/MF	AKT	202.7	06/15/2003	06/08/2004	2,584	Well #4
North Douglas #1	Lennar	248.3	07/29/2003	06/08/2004	2,832	
North Douglas #2	Lennar	113.6	07/29/2003	06/08/2004	2,946	
Anatolia IV	AKT	65.5[2]	10/29/2003	07/26/2005	3,012	
Grantline 208	River West	394.9[3]	12/12/2003	07/26/2005	3,407	
Sunridge Park Phase II	River West	112.3[4]	12/15/2003	07/26/2005	3,519	
Douglas 98	Woodside Homes	307	01/22/2004	9/6/2005	3,826	Well #5
Cresleigh Sunridge (Lot J)	Cresleigh Homes	225.8	07/15/2004	9/6/2005	4,052	
Douglas 103	Woodside Homes	181.4	09/28/2004	9/6/2005	4,233	
Arista Del Sol	Pappas	428.3[5]	09/29/2004	9/6/2005	4,661	
Montelena (a.k.a. Sunridge 250)	Centex Homes	463.18	02/10/2005		5,124	Well #6
						Well #7

Each well/filter produces c.1,500 gpm MDD = 750 gpm ADD = 1,209 afy:

- Well #1 = backup/emergency well
- Well #2 = 1,209 afy
- Well #3 = 2,418 afy
- Well #4 = 3,627 afy
- Well #5 = 4,836 afy
- Well #6 = 6,045 afy
- Well #7 = 7,254 afy

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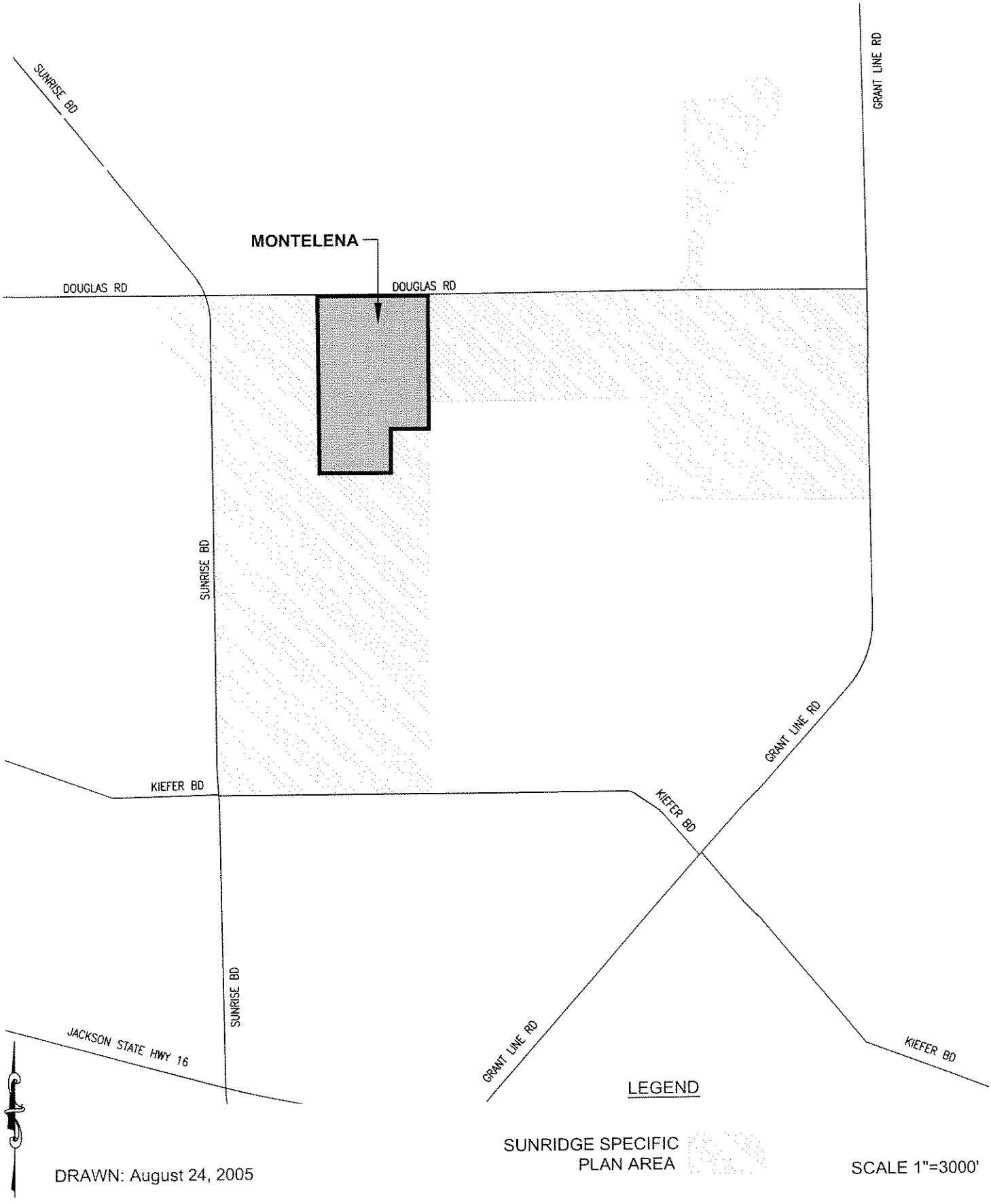
[1] Initial request for 116.7 afy; reduced to 90 based on 2030 Z40 WSMP unit water demands.
[2] Initial request for 64.7 afy; increased to 65.5 per revised request of 09/29/2004.
[3] Initial request of 480.6; reduced to 394.9 per revised request of 06/25/2005 due to wetlands/land use revisions.
[4] Initial request for 190.9 afy; reduced to 100.7 per revised request of 10/25/2004 due to wetlands, detention basin, SMUD substation; increased to 112.3 per revised request of 06/25/2005 due to wetlands/land use revisions.
[5] Initial request for 471.46 afy reduced to 428.3 per revised request of 06/09/2005 from Pappas Investments due to wetlands/land use revisions.

ATTACHMENT C

Sunridge Property Owners

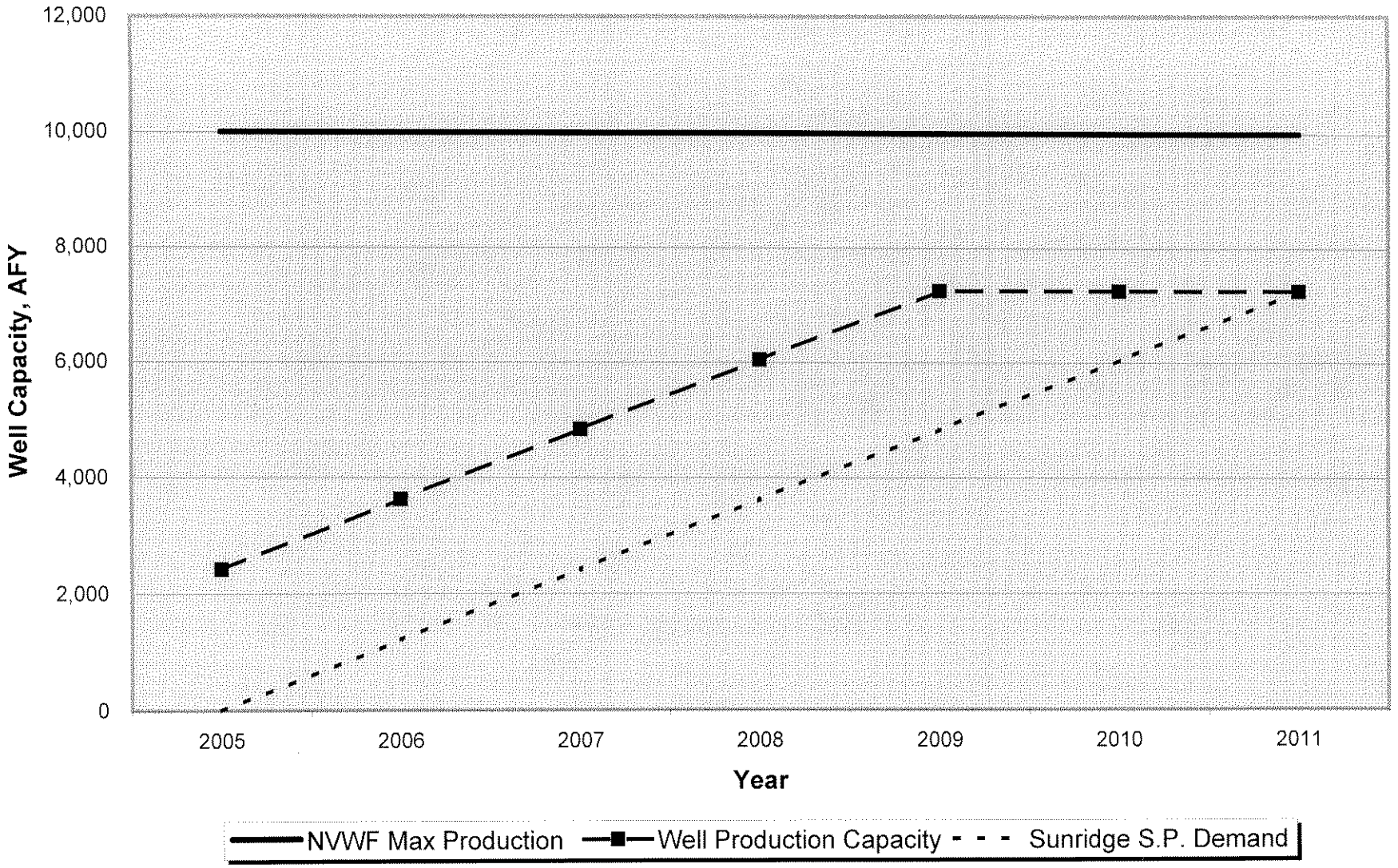


DRAWN: August 24, 2005

SCALE 1"=3000'

Attachment D

North Vineyard Well Field Production



SACRAMENTO COUNTY WATER AGENCY
RESOLUTION AUTHORIZING THE
NORTH VINEYARD WELL PROTECTION AGREEMENT 4

RESOLUTION NO. WA-2622

BE IT RESOLVED AND ORDERED that the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act, approve the North Vineyard Well Protection Agreement 4 and authorize the Chair of the Board of Directors to execute the Agreement on behalf of the SACRAMENTO COUNTY WATER AGENCY.

ON A MOTION by Director Collin, and seconded by Director Peters, the foregoing Resolution was passed and adopted by the Board of Directors of the SACRAMENTO COUNTY WATER AGENCY, State of California, this 18th day of October, 2005, by the following vote, to wit:

AYES: Directors, Collin, MacGlashan, Nottoli, Peters, Dickinson

NOES: Directors, None

ABSENT: Directors, None

ABSTAIN: Directors, None

Roger Dickinson

Chairman of the Board of Directors of the
Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on OCT 18 2005

By: Yvonne Dawkins
Deputy Clerk, Board of Directors

(SEAL)

ATTEST: Cindy H. Turner
Clerk of the Board of Supervisors of Sacramento County, California, and ex officio Secretary of the Board of Directors of Sacramento County Water Agency

FILED

OCT 18 2005

BOARD OF DIRECTORS

By Cindy H. Turner
Clerk of the Board

COUNTY OF SACRAMENTO
INTER-DEPARTMENT CORRESPONDENCE
DEPARTMENT OF WATER RESOURCES

MEMORANDUM

DATE: Tuesday, October 11, 2005

TO: Cindy Turner
Clerk of the Board

FROM: Darrell Eck
Senior Civil Engineer – Sacramento County Water Agency

SUBJECT: **North Vineyard Well Protection Agreement #4**
BOS Hearing - Tuesday, October 18, 2005

Attached you will find (1) original agreement entitled 'North Vineyard Well Protection Agreement #4.' The document has been signed by a designated representative for Centex Homes in regard to the Montelena Subdivision. Additionally, the document has been reviewed and signed by Deputy County Counsel, Ray Thompson.

This item is currently scheduled for a BOS hearing on Tuesday, October 18, 2005 as a consent item. The item was previously scheduled for on October 4, 2005 (Item #41) but was continued due to issues with the well protection agreement.

If you have further questions feel free to contact me at 874-5039 or Bob Gardner (Associate Civil Engineer) at 874-8433.

NORTH VINEYARD WELL PROTECTION AGREEMENT 4

This North Vineyard Well Protection Agreement 4 ("Agreement") is entered into this _____ day of _____, 2005, by and between CP SUNRIDGE, LLC, a Delaware Corporation; (hereinafter, "OWNERS") and the Sacramento County Water Agency, a statutorily created district operating under the authority of and pursuant to the provisions of the Sacramento County Water Agency Act (California Water Code-Appendix, Chapter 66, commencing at Section 66-1 et seq.) (hereinafter "SCWA").

RECITALS

1. OWNERS own a portion of the real property within the boundaries of the SunRidge Specific Plan (the "Specific Plan", as depicted on attached **Exhibit A**), which specific plan was approved by the Sacramento County Board of Supervisors on July 17, 2002, by Resolution No. 2002-0901. The real property within the Specific Plan is herein referred to as the "Specific Plan Area." OWNERS' lands within the Specific Plan Area are commonly known as the Montelena project and are more particularly described and depicted on **Exhibit B**, which is attached hereto and made a part hereof (hereinafter "the Projects").

2. The SCWA water supply project that will serve the Specific Plan Area is known as the North Vineyard Well Field ("NVWF"), which is located in the vicinity of the intersection of Florin Road and Excelsior Road in Sacramento County.

3. In order to assure that landowners who own and operate private wells in the vicinity of the NVWF are not adversely financially impacted by its operation, the Owners of land within the Specific Plan Area (the "SPA Owners") volunteered to establish a fund (the "Well Protection Fund" or "Fund") to offset costs of well rehabilitation or replacement in the vicinity of the NVWF.

4. OWNERS and SCWA now desire to enter into this Agreement in order to define the obligations of OWNERS with respect to the Well Protection Fund, and to set forth the terms and conditions pursuant to which the Fund will be administered.

NOW THEREFORE, OWNERS and SCWA agree as follows:

1. ESTABLISHMENT OF THE FEE

a. OWNERS agree that SCWA shall collect a fee ("the Fee") from the permitee at the time a water connection permit is issued for any residential or non-residential use within the Specific Plan Area. The amount of the Fee set forth herein shall be determined on the basis of the number of private wells eligible for the program, as determined pursuant to Paragraphs 2a, 2b and 2c below, multiplied by $13,600 (the agreed replacement cost of a typical residential well) and divided by the total number of equivalent dwelling units ("EDU's") in the Specific Plan Area, wherein one EDU shall be as defined in SCWA Ordinance No. 18. The Fee shall equal this amount (estimated at $380 per EDU, assuming 300 eligible wells and 10,100 EDU's at build-out of the Specific Plan Area) plus $20.00 per EDU for any and all program administrative costs incurred by SCWA.

b. When collected, the Fee shall be deposited in a specific account of the SCWA established for this purpose (the "Well Protection Fund" or "Fund").

c. In the event that the Fund experiences a shortfall so that SCWA is not able to pay benefits as hereinafter described, SCWA shall provide SPA Owners with written notice of said shortfall. If SPA Owners have not provided sufficient funds to make up such shortfall within thirty (30) days of the date of said written notice, SCWA shall withhold the issuance of water connection permits until sufficient funds have been advanced to cover anticipated costs and expenses from the Fund. The person(s) or entity making such advance shall receive Fee credit for such advance(s). Fee credits shall be the property of the person or entity making the advance and Fee credits shall be freely transferable within the Specific Plan Area. The owner of the Fee credits shall give prior written notice to SCWA of any transfer of credits in order for such transfer to be effective. SCWA shall be under no obligation to recognize such transfer unless and until such written notice is received by SCWA.

d. SCWA shall, from time to time, review the projected number of EDU's at build-out of the Specific Plan Area and adjust the Fee accordingly to account for any change in the number of EDU's. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

e. SCWA shall keep an accurate accounting of all costs incurred in administering this program. SCWA may, at its discretion, increase the Fee as needed to pay for said administrative costs. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment.

f. SCWA may from time to time adjust the Fee pursuant to Paragraphs 1d, 1e, 3a and 3b. SCWA shall give SPA Owners reasonable notice of any such intended Fee adjustment made pursuant to Paragraphs 1d and 1e.

2. ELIGIBILITY AND BENEFITS

a. During the term of the NVWF Well Protection Program established under this Agreement, any owner of land who owns and operates a well on a legal parcel which lies in whole or in part within the area (hereinafter, "the Covered Area") shown on the map attached hereto as **Exhibit C** and made a part hereof, shall be eligible for benefits under the NVWF Well Protection Program, provided such owner registers such well pursuant to Paragraphs 2b and 2c below.

b. SCWA shall provide timely written notice of the NVWF Well Protection Program to all owners of land within the Covered Area and of the requirement to register his/her well with the SCWA in order to qualify for the payment of benefits hereunder. SCWA shall determine the manner of registration, which shall provide a reasonable and fair opportunity for each such owner to register his/her well. Each such owner shall be required to request registration of his/her well not later than ninety (90) days after the date of the first written notice provided by SCWA; failure to request registration of a well with SCWA within said time period shall disqualify any owner from receiving benefits hereunder without exception.

c. Upon receipt of written request for registration of one or more wells from an owner according to Paragraphs 2a and 2b, SCWA shall inspect each well to verify its existence and operating condition. Only an owner of land who has requested registration of his/her well, as herein provided, and whose well has been inspected as provided in this paragraph (hereinafter, "Eligible Well") shall be eligible for the payment of benefits under the program.

d. From and after the date upon which the SCWA accepts the NVWF for operation and maintenance, and continuing until (i) the Specific Plan Area has been built out, and there are no funds remaining in the Fund, or (ii) the SPA Owners fail to perform any of their obligations under this Agreement, or (iii) July 01, 2020, whichever shall first occur, SCWA shall pay benefits from the Fund to the owner of an Eligible Well as follows:

1) If an Eligible Well fails for any reason, other than mechanical or electrical failure of the pump and/or motor, to provide sufficient water capacity for its intended purpose, as determined by a qualified inspector, SCWA shall authorize payment from the Fund to reimburse the owner of such Eligible Well an amount sufficient to restore said sufficient water capacity, but in no event more than $13,600 (as adjusted annually per Paragraph 3a) for each such failed Eligible Well. SCWA has no additional obligation to pay for well failure other than under the terms of this Agreement.

2) SCWA shall take reasonable actions to verify the loss of capacity of any Eligible Well; the cost of any such verification shall be included in the administrative costs for this program as described elsewhere in this Agreement. To be eligible for the benefit hereunder, the owner of an Eligible Well must submit a written claim to the SCWA for such benefit not later than sixty (60) days after the cost of restoration is incurred. Verification of the cost of restoration may be evidenced by an affidavit of the well driller/repair company which serviced the well.

3) Under this program, SCWA shall pay not more than $13,600 in benefits (as adjusted annually per Paragraph 3a) for any one Eligible Well. By administering the Fund in accordance with the terms of this Agreement, SCWA does not assume any liability and does not acknowledge that any well failure is caused in any manner or to any extent by operation of the NVWF.

e. Any amount remaining in the Fund at the expiration of the NVWF Well Protection Program, as defined above, shall be transferred without restriction to SCWA.

3. GENERAL PROVISIONS

a. The Fee and the maximum reimbursement amount per Eligible Well shall be indexed to the SCWA Ordinance No. 18 annual inflation index.

b. SPA Owners shall defend, indemnify and hold harmless the County of Sacramento, SCWA, their governing boards, officers, directors, agents, employees and volunteers from and against any and all demands, claims, actions, losses, liabilities, damages, and costs, including reasonable attorneys' fees, arising out of or resulting from the performance of this Agreement, except and in proportion to the extent caused by the negligence of County, SCWA, their governing boards, officers, directors, agents, employees and volunteers. SPA Owners shall provide insurance coverage in the type and amount indicated in **Exhibit D** of this Agreement in order to address SPA Owners' responsibilities under this indemnity. The insurance coverage described in **Exhibit D** may be provided by any one owner or combination of owners, so long as the coverage set forth in **Exhibit D** is provided. SCWA shall have the right but shall be under no obligation to purchase insurance or self-insure against SPA Owners' failure to perform their obligations under this indemnity and may adjust the Fee accordingly to pay for such coverage. The insurance coverage may be of the type and amount indicated in **Exhibit D** of this Agreement.

c. The terms and conditions of this Agreement shall inure to the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand on the date first above written.

CP SUNRIDGE, LLC
a Delaware Corporation

By: Centex Real Estate Corporation
a Nevada corporation
its Managing General Partner

By: _____
Name: ~~Jack Hood~~ Douglas A. Pautsch
Its: ~~Division President~~ Division CFO

Date: Sept. 27, 2005

Address: Centex Homes –
Sacramento Division
3700 Douglas Blvd, Ste. 250
Roseville, CA 95661

Sacramento County Water Agency ("SCWA")

BY: _____
Chair of the Board of Directors,
Sacramento County Water Agency

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on OCT 18 2005

By: Gwayne Dowlewis
Deputy Clerk, Board of Directors

ATTEST:

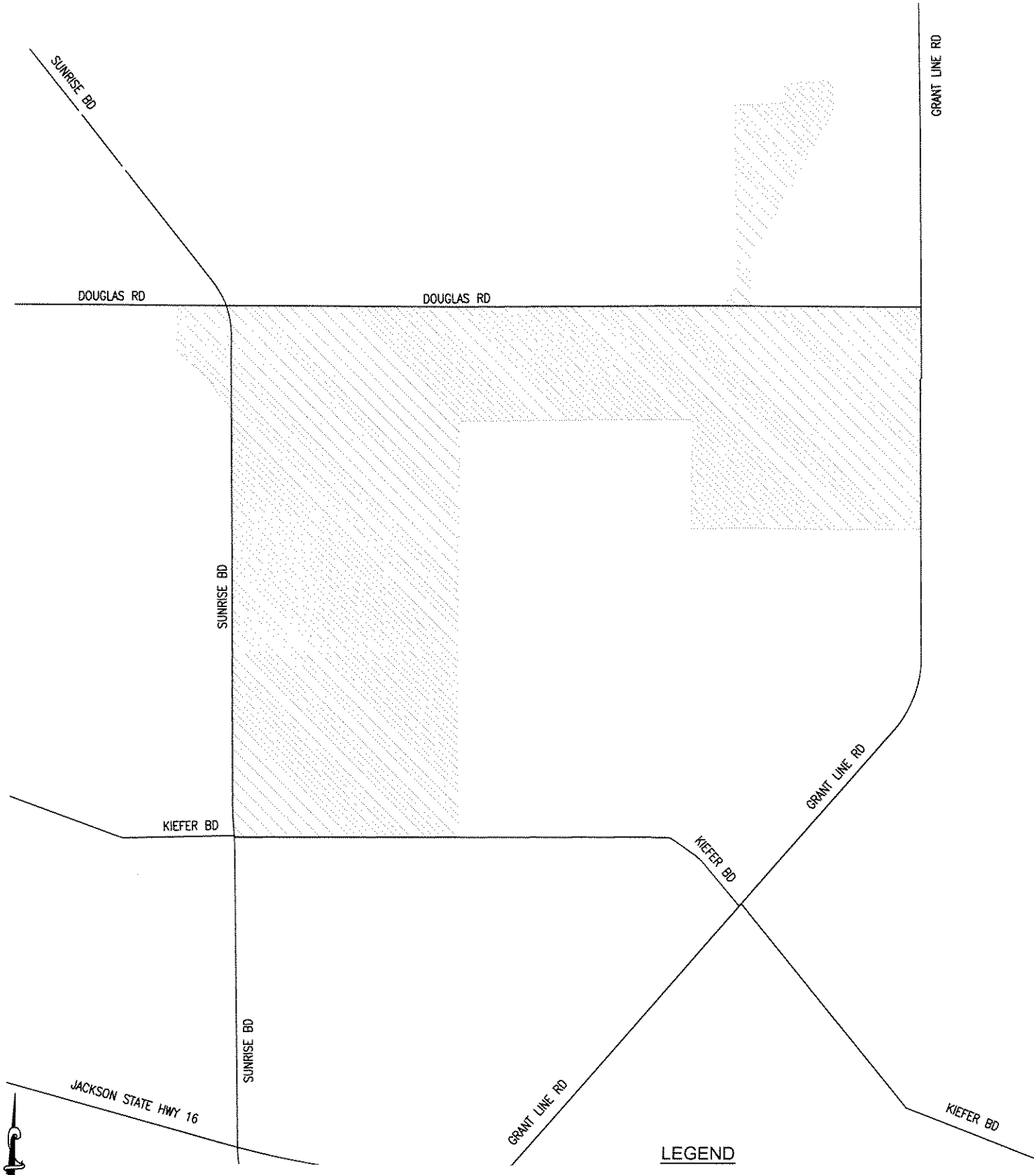
_____
Clerk of the Board of Directors

Approved as to Form:

_____
Deputy County Counsel

EXHIBIT A

Sunridge Specific Plan

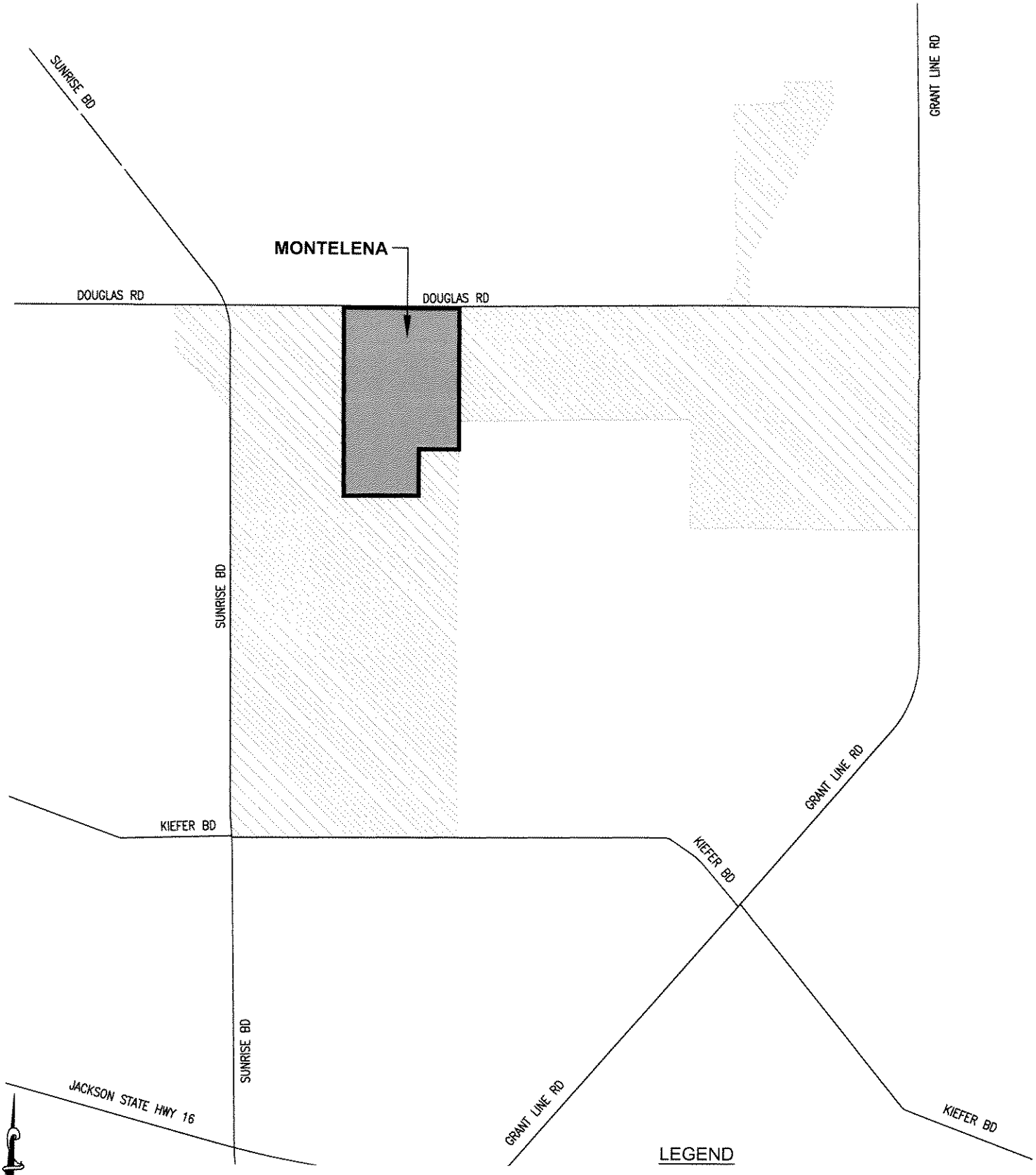


DRAWN: JULY 19, 2005

SCALE 1"=3000'

EXHIBIT B

Sunridge Property Owners

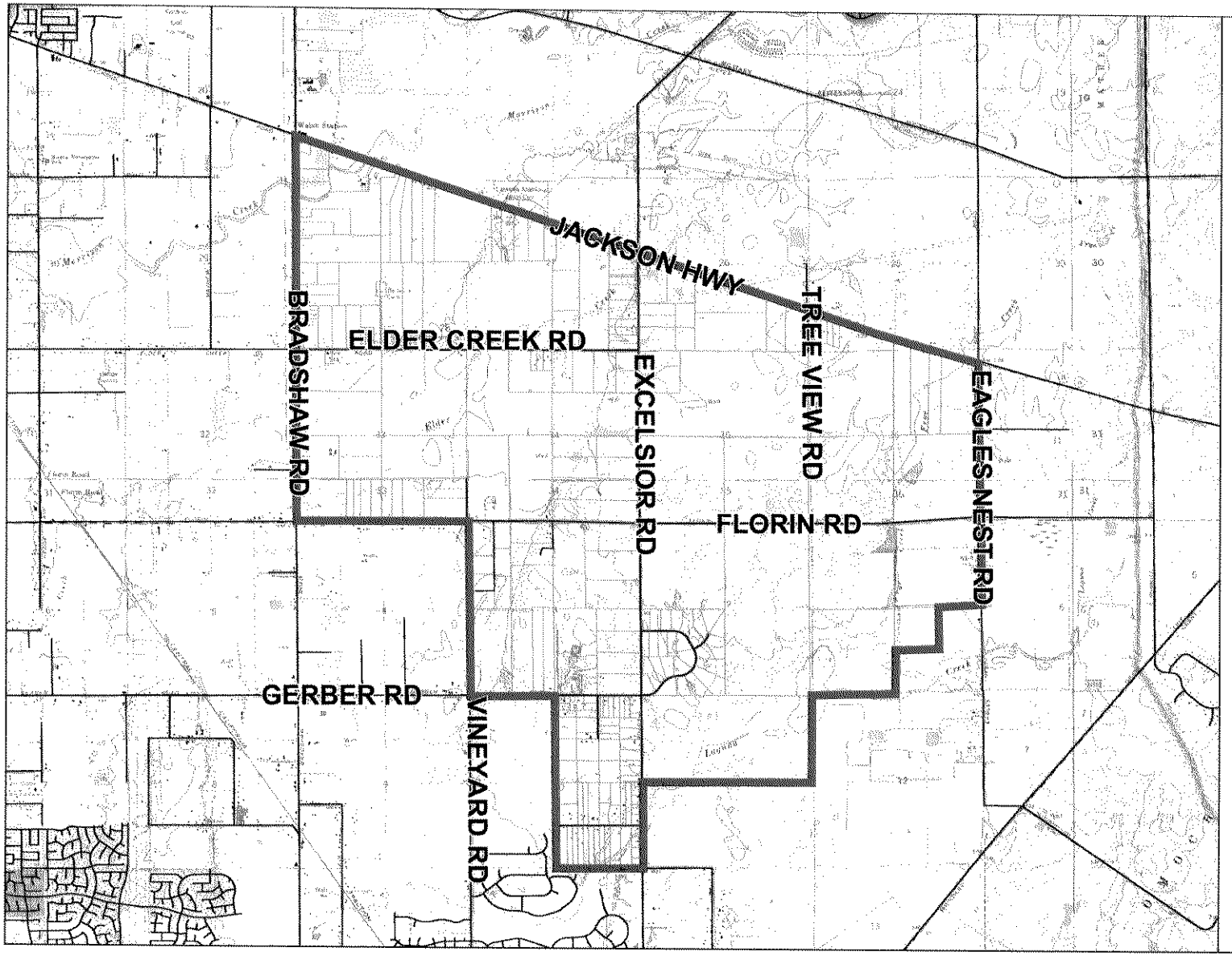


LEGEND

SUNRIDGE SPECIFIC PLAN AREA

DRAWN: August 24, 2005

SCALE 1"=3000'



Sunrise Douglas Community Plan
Sunridge Specific Plan

Exhibit C
Area Covered by
Well Insurance Program

Boundary

Sacramento County Parcel

Within Boundary

Outside Boundary

Scale 1:36,000 (1 inch represents 3,000 ft @ 11"x17")
Coverage presented in State Plane 2 NAD83
Parcel information from Sacramento Tax Assessor's Rolls (data date December 2000)
Base data from USGS 7.5 minute topo quad sheets
Map Prepared: April 2001

0 0.5 1 Mile

N

MWH
Prepared by Sacramento GIS Lab

U:\Sunrise Douglas_MAP DOCS\Inter_Hydrogeo\Parcels_April01_Large_Roads.mxd

EXHIBIT D

INSURANCE REQUIREMENTS

Without limiting Owners' indemnification, Owners shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Owners, their agents, representatives or employees. SCWA shall retain the right at any time to review the coverage, form, and amount of the insurance required hereby. If in the opinion of the Sacramento County Risk Manager, insurance provisions in these requirements do not provide adequate protection for SCWA, County and for members of the public, SCWA may require Owners to obtain insurance sufficient in coverage, form and amount to provide adequate protection. SCWA's requirements shall be reasonable but shall be imposed to assure protection from and against the kind and extent of risks that exist at the time a change in insurance is required.

Verification of Coverage

Owners shall furnish the SCWA with certificates evidencing coverage required below. **Copies of required endorsements must be attached to provided certificates.** The Sacramento County Risk Manager may approve self-insurance programs in lieu of required policies of insurance if, in the opinion of the Risk Manager, the interests of the SCWA, County and the general public are adequately protected. All certificates, evidences of self-insurance, and additional insured endorsements are to be received and approved by the County before performance commences. The SCWA reserves the right to require that Owners provide complete, certified copies of any policy of insurance including endorsements offered in compliance with these specifications.

Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. GENERAL LIABILITY: Insurance Services Office's Commercial General Liability occurrence coverage form CG 0001. Including, but not limited to Premises/Operations, Products/Completed Operations, Contractual, and Personal & Advertising Injury, without additional exclusions or limitations, unless approved by the County Risk Manager.

Minimum Limits of Insurance

Owners shall maintain limits no less than:

1. General Liability shall be on an Occurrence basis (as opposed to Claims Made basis). Minimum limits and structure shall be:

   General Aggregate: $5,000,000

Deductibles and Self-Insured Retention

Any deductibles or self-insured retention that apply to any insurance required by this Agreement must be declared and approved by the SCWA.

Claims Made Professional Liability Insurance

If professional liability coverage is written on a Claims Made form:

1. The "Retro Date" must be shown, and must be on or before the date of the Agreement or the beginning of Agreement performance by Owners.

2. Insurance must be maintained and evidence of insurance must be provided for at least one (1) year after completion of the Agreement.

3. If coverage is cancelled or non-renewed, and not replaced with another claims made policy form with a "Retro Date" prior to the contract effective date, the Owners must purchase "extended reporting" coverage for a minimum of one (1) year after completion of the Agreement.

Other Insurance Provisions

The insurance policies required in this Agreement are to contain, or be endorsed to contain, as applicable, the following provisions:

All Policies:

1. ACCEPTABILITY OF INSURERS: Insurance is to be placed with insurers with a current A.M. Best's rating of no less than **A-:VII**. The Sacramento County Risk Manager may waive or alter this requirement, or accept self-insurance in lieu of any required policy of insurance if, in the opinion of the Risk Manager, the interests of the County and the general public are adequately protected.

2. MAINTENANCE OF INSURANCE COVERAGE: Owners shall maintain all insurance coverages in place at all times and provide the SCWA with evidence of each policy's renewal ten (10) days in advance of its anniversary date. Each insurance policy required by this Agreement shall be endorsed to state that coverage shall not be canceled by either party except after thirty (30) days' written notice for cancellation or sixty (60) days' written notice for non-renewal has been given to the SCWA. For non-payment of premium 10 days prior written notice of cancellation is required.

Commercial General Liability and/or Commercial Automobile Liability:

1. ADDITIONAL INSURED STATUS: The SCWA, the County, its officers, directors, officials, employees, and volunteers are to be endorsed as additional insureds as respects: liability arising out of activities performed by or on behalf of the Owners; products and completed operations of the Owners; premises owned, occupied or used by the Owners; or automobiles owned, leased, hired or borrowed by the Owners. The coverage shall contain no endorsed limitations on the scope of protection afforded to the County, its officers, directors, officials, employees, or volunteers.

2. CIVIL CODE PROVISION: Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured would be invalid under Subdivision (b) of Section 2782 of the Civil Code.

3. PRIMARY INSURANCE: For any claims related to this agreement, the Owners' insurance coverage shall be endorsed to be primary insurance as respects the SCWA, the County, their officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the SCWA, the County, their officers, directors, officials, employees, or volunteers shall be excess of the Owners' insurance and shall not contribute with it.

4. SEVERABILITY OF INTEREST: The Owners' insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. SUBOWNERSS: Owners shall be responsible for the acts and omissions of all their subcontractors and additional insured endorsements as provided by Owners' subcontractors.

Notification of Claim

If any claim for damages is filed with Owners or if any lawsuit is instituted against Owners, that arise out of or are in any way connected with Owners' performance under this Agreement and that in any way, directly or indirectly, contingently or otherwise, affect or might reasonably affect County, Owners shall give prompt and timely notice thereof to County. Notice shall be prompt and timely if given within thirty (30) days following the date of receipt of a claim or ten (10) days following the date of service of process of a lawsuit.

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AGENDA ITEM CONTINUATION MEMO

MEETING DATE: OCTOBER 4, 2005

TITLE: NORTH VINEYARD WELL PROTECTION AGREEMENT AND ALLOCATION FROM NORTH VINEYARD WELL FIELD FOR THE SUNRIDGE SPECIFIC PLAN AREA

FROM WATER RESOURCES

BOARD ACTION: CONTINUED TO OCTOBER 18, 2005

MATERIAL INCLUDED

4.10 – Biology Appendix: Biological Resources Report

City of Rancho Cordova
Biological Resources Report

Prepared for:

The City of Rancho Cordova,
Sacramento County, California

Prepared by:

Ecosystem Sciences
ecosystemsciences.com

March 2005

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1.0 Introduction

This Biological Resources Report describes the plant communities, wildlife habitats, and special status species that occur within the Rancho Cordova plan area.

Biological resources in the Rancho Cordova plan area comprise a living system of native plant communities, the habitats they provide, and the native wildlife inhabiting them. Though robust under natural conditions, these plant and wildlife populations are easily damaged, often irreversibly, by human activities. Adverse impacts to habitats and wildlife can be difficult to recognize, partly because they can occur over time as a cumulative effect of many, seemingly innocuous actions. Long-lasting impacts can also result from activities that may not appear directly related to biological resources but have profound effects on the living system, like the diversion of water from natural channels or introduction of barriers to wildlife movement. General Plan policies must therefore recognize the potential effects they may have on these resources, the interdependence of the system's functional parts, and its dependence on other resources.

This planning level report on natural resources will serve as a baseline from which potential impacts can be evaluated and sensitive planning and management efforts for these resources can be established.

2.0 Environmental Setting

The environmental setting includes biological resources that may be affected by the proposed Rancho Cordova City General Plan. The affected environment is described in terms of plant communities (including sensitive plant communities), wildlife habitat, vernal pool resources and other wetland resources, as well as associated special status plant and animal species.

The Rancho Cordova plan area encompasses a total of 61,295 acres located in the southeastern portion of Sacramento County. The plan area lies south of the American River to just south of the Jackson Highway (State Route 16), and from Watt Avenue in the west to Prairie City Road in the east (Figure 2.1 Rancho Cordova plan area map).

The topography of the Rancho Cordova Plan area is dominated by the gently rolling terrain of the eastern Great Central Valley; with elevations ranging from 36 ft. to 358 ft. above mean sea level. The rolling terrain is bisected by numerous creeks and streams, most notably Morrison, Laguna, Deer, Buffalo, and Carson Creeks. These creeks are ephemeral and intermittent, experiencing dry periods during the summer. Ephemeral and intermittent streams are typical of the Mediterranean-type climate of the area, which is characterized by the predictable cool wet winters and warm, extremely dry summers.

With the exception of vernal pools, the wetland resources of the Rancho Cordova plan area are primarily associated with the American River, Mather Lake, Blodgett Reservoir, numerous canals and stockwater ponds, and the aforementioned creeks and tributaries. Vernal pools are a type of seasonal wetland characterized by a specific set of physical parameters and a unique assemblage of endemic plants and animals. The draft South Sacramento Habitat Conservation Plan (SSHCP) being prepared by Sacramento County is currently mapping and cataloging the wetland resources of south Sacramento County, in which Rancho Cordova is located. The preliminary mapping conducted by Sacramento County has identified numerous vernal pools (625 acres), fresh water marshes (212 acres) and other wetland habitats within the Rancho Cordova plan area.

A mosaic of land cover-types is found within the Rancho Cordova plan area. The plan area is primarily dominated by Vernal Pool Grassland (20,728 acres), High Density Development (11,270 acres) and Mine Tailings (10,275 acres) (Figure 3.1)(County of Sacramento 2004). Descriptions of each land cover-type and their associated wildlife habitats are described within this report.

Of the major land cover-types located within the Rancho Cordova plan area *vernal pool grasslands and vernal pools* are the most critical and endangered. The vernal pool grasslands and associated vernal pools dominate the south and east portions of the plan area. These two land cover-types harbor an abundance of plant and animal species, of which a number are special status (Table 4.1 Special Status Species).

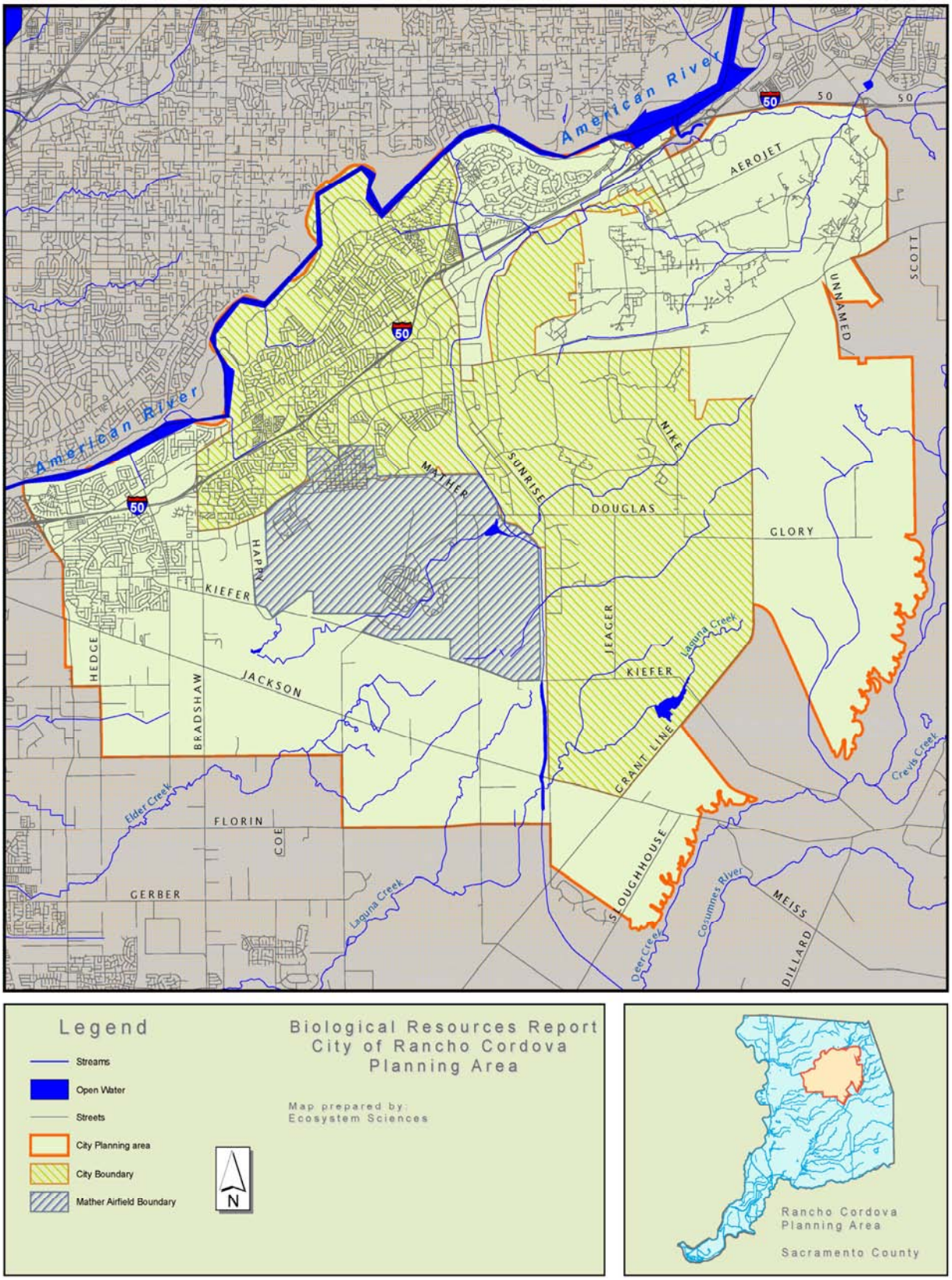
The vitality and long-term viability of these resources are also dependent on several critical conditions that reflect historic land use patterns and are subject to the influences of policy. Native habitats, and the animals that live in them, benefit from the fact that the area contains contiguous blocks of intact habitat. These areas of intact habitat serve as important refuges for the plants and animals that live in them. They also act as reservoirs for populations of many species that persist elsewhere in the county. These habitat areas are, in fact, part of a larger, countywide system comprised of high quality habitat. Each of these areas contains wildlife and vegetative communities in and of itself; but in concert with other areas, each plays a key role in supporting the long-term viability of regional plant and animal populations.

Resources Evaluated in Other Sections of the General Plan

The following items are related to the Biological Resources section, but are evaluated in other sections of the *Rancho Cordova General Plan*:

1. Agriculture and Open Space: Impacts involving agriculture and open space are covered in the Land Use Section of the General Plan.
2. Hydrology and Water: Impacts dealing with hydrologic conditions and surface and subsurface waters are covered in Hydrology Section of the General Plan.

Figure 2.1. Rancho Cordova plan area map.



3.0 Plant Communities and Wildlife Habitats

This document recognizes the categorization of land-cover and land-uses of the Rancho Cordova planning area into twenty-five cover-types as defined by the draft South Sacramento Habitat Conservation Plan (SSHCP 2004). This section describes the biological resources of each cover-type, which are displayed in Figure 3.1. Each community or cover-type description is organized into two parts. The first description is the plant community and the second is a wildlife habitat description associated with that plant community.

Plant Communities

Plant communities are assemblages of plant species occurring together in the same area, and are defined by species composition and relative abundance. Most plant community descriptions and nomenclature used in this analysis are based on Holland (1986) and Sawyer & Keeler-Wolf (1995). A "cropland" classification, which is not used by Holland, is included to describe the cropland vegetation type occurring in the plan area. The descriptions that follow include a sample of the species often associated with the community or land cover class.

There are several plant communities and habitat types in the Rancho Cordova area, of which some are described as sensitive by the California Department of Fish and Game (CDFG). The northern hardpan vernal pool, in this document called "*vernal pool*" is considered "rare or uncommon but not imperiled;" and the Great Valley Oak Riparian Forest, which corresponds closely to *valley oak riparian woodland* in this document, is considered "critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction" (CDFG 2004). Table 3.1 depicts major plant communities and land cover-types within the city planning boundaries. Table 3.7 lists the common and scientific names for each plant species referenced in the community type descriptions that follow.

Wildlife Habitats

Wildlife habitat provides cover, food, and water necessary to meet the biological requirements of one or more individuals of an animal species. Changes in habitats (e.g., change in seral stage within a particular habitat type or change from one habitat type to another) and changes in essential habitat elements which relate to reproduction, foraging, and cover requirements may impact abundance, distribution, diversity, and interactions between wildlife species. The vegetative components of each wildlife habitat type generally correlate with the plant communities described below. The wildlife habitats in the plan area are described in terms of the general assemblages of wildlife species that they typically support. Table 3.6 crosswalks the draft SSHCP plant communities of Rancho Cordova with the California Wildlife Relationships System (CWHR) habitats. Not all SSHCP plant communities correspond to CWHR habitats.

Therefore, where applicable the SSHCP plant community has been crosswalked to CWHR habitat. Table 3.8 lists the common and scientific names for each animal species referenced in the wildlife habitat descriptions that follow.

Table 3.1. Major plant communities and land cover-types/habitats occurring within the Rancho Cordova plan area.

Cover-type	Acres	Hectares	% Total
Aqueduct	206.9	83.7	0.34%
Cropland	3407.7	1379.0	5.56%
Cottonwood	131.6	53.3	0.21%
Pasture Grassland	1359.0	550.0	2.22%
Fresh Water Marsh	211.5	85.6	0.35%
Grassland	637.5	258.0	1.04%
Streams	1986.0	803.7	3.24%
High Density Development	11269.6	4560.7	18.39%
Low Density Development	435.7	176.3	0.71%
Mine Tailings	10275.0	4158.2	16.76%
Mixed Riparian Scrub	21.0	8.5	0.03%
Mixed Riparian Woodland	583.3	236.1	0.95%
Open Water	460.9	186.5	0.75%
Valley Oak Riparian Woodland	50.2	20.3	0.08%
Blue Oak Savannah	80.5	32.6	0.13%
Blue Oak Woodland	247.7	100.2	0.40%
Recreation	341.7	138.3	0.56%
Roads	8234.7	3332.5	13.43%
Upland	1.8	0.7	0.00%
Vernal Pool	624.8	252.8	1.02%
Vernal Pool Grassland	20727.8	8388.3	33.82%
Total	**61,294.9**	**24,805.2**	**100.00%**

Note: This acreage table is generated from GIS data from the draft 'Land Cover-type' shapefile obtained from Sacramento County draft SSHCP, and is illustrated in Figure 3.1. The cover-type classifications for Streams and Roads are slightly exaggerated in the current shapefiles and, therefore, result in a larger overall area for those classifications.

Table 3.2. Special status species occurring within land cover-type/habitat types within the Rancho Cordova plan area.

Type	Common	Scientific Name	Associated Cover-types
Plants	Dwarf Downingia	*Downingia pusilla*	Vernal pools, Vernal pool grassland.
	Boggs Lake hedge-hyssop	*Gratiola heterosepala*	Fresh water marsh, Vernal pools.
	Ahart's dwarf rush	*Juncus leiospermus*	Grassland, Vernal pool grassland, Vernal pools.
	Legenere	*Legenere limosa*	Vernal pools.
	Pincushion navarretia	*Narvarretia myersii ssp. myersi*	Vernal pools.

Type	Common	Scientific Name	Associated Cover-types
	Slender orcutt grass	*Orcuttia tenuis*	Vernal pools.
	Sacramento Orcutt grass	*Orcuttia viscida*	Vernal pools.
	Sanford's arrowhead	*Sagittaria sanfordii*	Fresh water marsh, vernal pools.
Amphibians	Western spadefoot	*Spea (=Scaphiopus) hammondii*	Vernal pool and vernal pool grassland, Grassland, Cottonwood woodland, Upland
Birds	Cooper's hawk	*Accipiter cooperii*	Blue oak savanna, Grassland, Blue oak woodland, High density development, Mixed riparian woodland, Mine tailings (in cottonwood trees).
	Tricolored blackbird	*Agelaius tricolor*	Grassland, Fresh water marsh.
	Great egret	*Ardea alba*	Fresh water marsh, Cropland, Pasture grassland, Mixed riparian scrub, Mixed riparian woodland, Valley oak riparian woodland
	Great blue heron	*Ardea herodias*	Fresh water marsh, Cropland, Pasture grassland, Mixed riparian scrub, Mixed riparian woodland, Valley oak riparian woodland
	Burrowing owl	*Athene cunicularia*	Grassland, Vernal pool grassland, Pasture grassland
	Swainson's hawk	*Buteo swainsoni*	Blue oak woodland and savanna, Mixed riparian woodland, Valley oak riparian woodland, Cottonwood woodland, Vernal pool grassland, Grassland, pasture grassland, Cropland
	White-tailed kite	*Elanus leucurus*	Fresh water marsh, Cottonwood woodland, grassland, Pasture grassland, Cropland
	Bank swallow	*Riparia riparia*	Mixed riparian shrub, Mixed riparian woodland, Valley oak riparian woodland, Open water
Invertebrates	Vernal pool fairy shrimp	*Branchinecta lynchi*	Vernal Pool
	Midvalley fairy shrimp	*Branchinecta mesovallensis*	Vernal Pool
	Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Grassland, Vernal pool grassland, Blue oak woodland savanna, Mixed riparian shrub
	Vernal pool tadpole shrimp	*Lepidurus packardi*	Vernal Pool
	California linderiella (fairy shrimp)	*Linderiella occidentalis*	Vernal Pool
Mammals	American badger	*Taxidea taxus*	Pasture grassland, Grassland, Vernal pool grassland, Cottonwood woodland, Blue oak woodland and savanna

Type	Common	Scientific Name	Associated Cover-types
Reptiles	Northwestern pond turtle	*Emys (=Clemmys) marmorata marmorata*	Fresh water marsh, Streams, Open water
	Giant garter snake	*Thamnophis gigas*	Aqueduct, Fresh water marsh, Streams, Open water

Figure 3.1. Cover-types of the Rancho Cordova plan area.

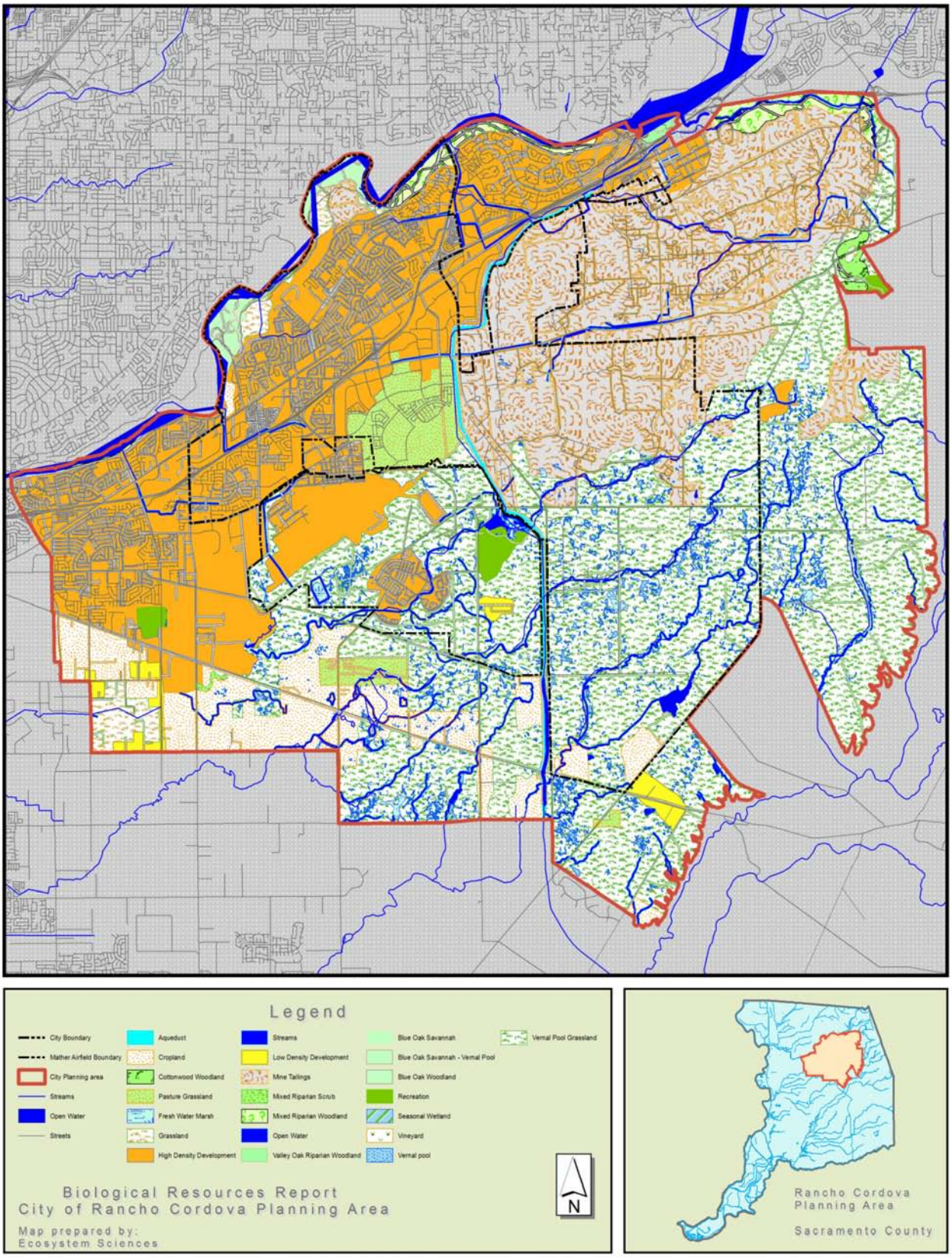
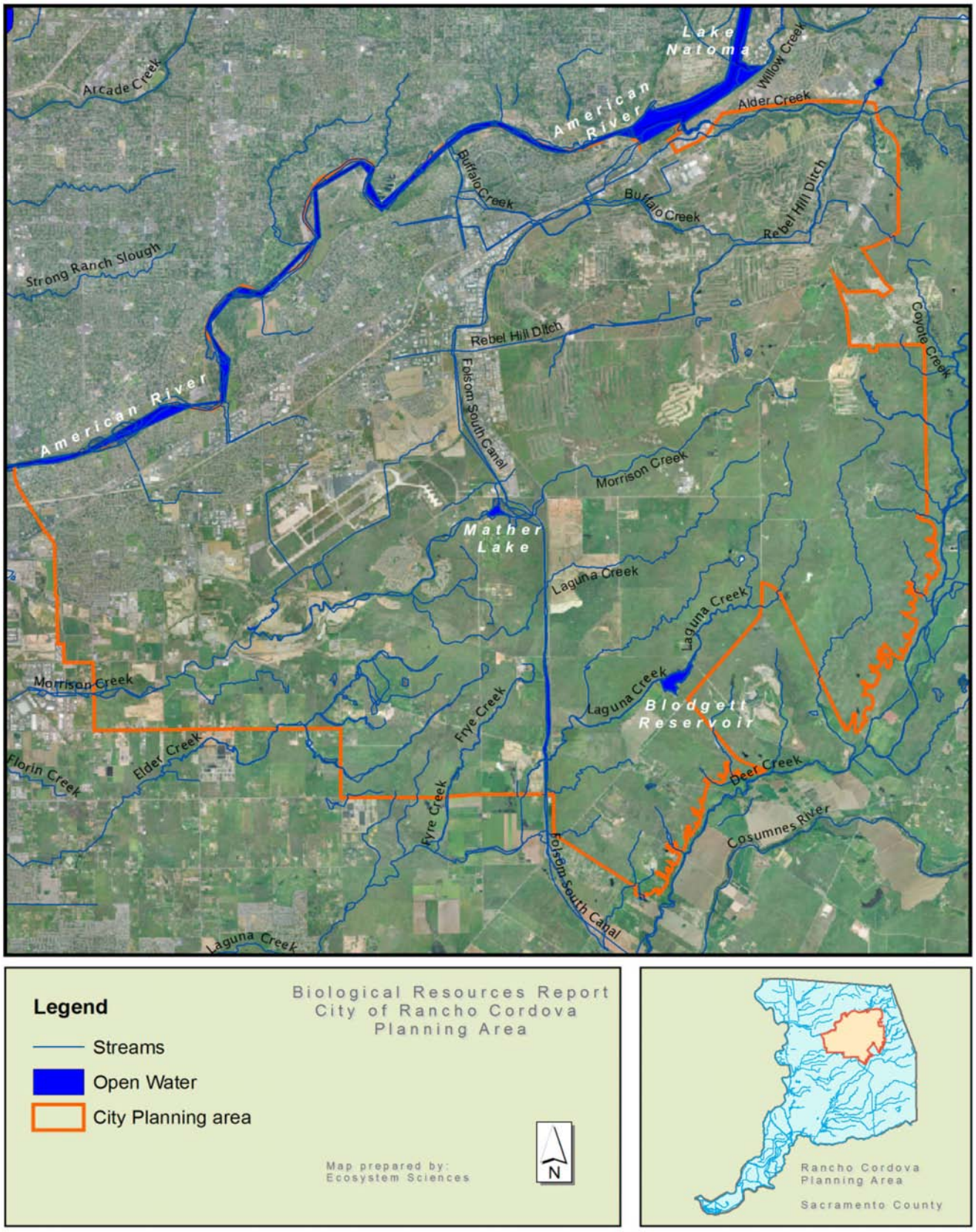


Figure 3.2. Streams and creeks of the Rancho Cordova plan area.



3.1 Valley Oak Riparian Woodland

The *valley oak riparian woodland* cover-type occurs in the northern portion of the Rancho Cordova planning area along the American River. The *valley oak riparian woodland* covers approximately 50 acres of land concentrated in an area just above Nimbus Dam and adjacent to Lake Natoma.

*Valley oak riparian woodland*s are characterized by a closed canopy of winter deciduous, broadleaved trees less than 100 feet tall dominated by the valley oak. Other species include blue oak, black oak, California sycamore, coast live oak, box elder and Oregon ash. Common understory species are poison oak and California wild grape, as well as a groundcover of mixed grasses. In some areas, perennial grasslands may appear along the edges of these habitats.

*Valley oak riparian woodland*s occupy high floodplain surfaces that are sheltered from active river channels but remain connected to the riverine-associated water table. Because these habitats have been severely impacted in California over the past century, the California Natural Diversity Database (CNDDB) classifies Great Valley Oak Riparian Forest as state listed 1.1, which indicates that this community type is "critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction" (CDFG 2004).

Valley Oak Riparian Woodland Habitat

The small patch of *valley oak riparian woodland* in Rancho Cordova is adjacent to Nimbus Lake and the American River Corridor, thereby enriching the managed natural area and the ecological overlap with surrounding urbanized areas. Many species of birds and mammals have been documented using *valley oak riparian woodland* for forage (acorns and browse) and cover in the Central Valley. An average of 24 breeding bird species including red-shouldered hawk and acorn woodpecker were recorded at similar habitat along the American River downstream near Carmichael, California (Gaines 1977). Fox and western gray squirrels can be expected to use *valley oak riparian woodland* habitat (Ritter 1988) as well as animals from adjacent habitats. More information regarding oak woodland habitats and wildlife relationships is presented in the next section.

Special status animal species known to occur in the *valley oak riparian woodland habitat* in the Rancho Cordova area include great egret (CNDDB G5, S4), great blue heron (CNDDB G5, S4), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), yellow-breasted chat (CNDDB rank G5S3), loggerhead shrike (CNDDB rank G4, S4), bank swallow (CNDDB rank G5, S2S3; Threatened in the State of California), ringtail (CNDDB rank G5), fringed myotis (CNDDB rank G4T3T4, S2S3), long-legged myotis (CNDDB rank G5), and the Yuma myotis (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.2 Blue Oak Woodland and Blue Oak Savanna

Because the *blue oak woodland* and the *blue oak savanna* cover-types are so closely related and they occur adjacent to each other within the landscape, they are described together within this section. The *blue oak woodland* and the *blue oak savanna* cover-types within the Rancho Cordova planning area are found in Goethe Park along the American River. A complex of *blue oak woodland* and the *blue oak savanna* extends from Highway 50 south along the eastern edge of the planning boundary to Rancho Murieta and beyond. Approximately 328 acres of land within the Rancho Cordova planning area boundaries are categorized as *blue oak woodland* and *savanna* cover-type.

Blue oak woodland is a highly variable woodland community dominated by blue oak, but interspersed with several other oaks, including coast live oak, valley oak, and interior live oak. Foothill pine may also be part of the tree canopy, which generally is below 60 feet tall (Sawyer-Keeler Wolf 1995). These woodlands often have an understory of shrubs including gooseberry and California lilac. The *blue oak savanna* cover-type lacks the shrub understory of the *blue oak woodland* cover-type and is dominated by grasses and forbs like ripgut brome and filaree.

There are three primary classes of oak woodlands in the area, *blue oak woodland*, *blue oak savanna* (some associated with vernal pools), and *valley oak riparian woodland*. Often these oak forest types integrate with each other, but as a general rule blue oaks are found on drier sites, and valley oaks occupy gently sloping hills and valleys with deep, well developed soils. Both the *blue oak woodland* and the *blue oak savanna* cover-types require well drained soils with extensive rock 'fragments' or outcrops. Several oak species found in these cover-types have been known to hybridize. Frequent fire favors blue oak over foothill pine, as the blue oak is a long-lived stump sprouter (Sawyer-Keeler Wolf 1995).

Blue oak woodland and *blue oa*k *savanna* occur in shallow, rocky, infertile, and well-drained soils where the water table is usually unavailable. Blue oaks have been reported to possess a high tolerance for severe drought, at times shedding leaves to reduce moisture loss, and for this reason compete successfully with other tree species on dry sites (Griffen 1973). Blue oaks are relatively slow-growing and long-lived trees. Recruitment of blue oaks is rare and few areas of California have successfully reseeded since the beginning of the 20th Century (Holland 1976). Areas where blue oaks die will probably persist only as grasslands (Ritter 1988). More research is needed on *blue oak woodland* and *blue oak savanna* successional stages and wildlife use in order to properly prescribe management strategies (Ritter 1988).

Blue Oak Woodland and Blue Oak Savanna Habitat

A significant data gap exists regarding oak-wildlife relationships, and more information is needed if efficient management is to occur (Ritter 1988). It is known that acorns are often buried by animals such as California ground squirrels, western gray squirrels, yellow-billed magpies, and scrub jays, and this greatly improves the chances of successful germination and survival (Griffen 1971). Mature *blue oak woodland* and *blue oak savanna* provide breeding habitat for 29 species of amphibians and reptiles, 57 species of birds, and 10 species of mammals (Verner and Boss 1980).

Oak woodlands throughout California are at risk. Large oak savannas have been converted to agriculture and housing over the past 200 years. Since the 1940s, California has lost over one million acres of oak woodland as a result of rangeland clearing and agriculture. The California Oak Foundation estimates that nearly one quarter million acres may be lost over the next ten years. It is generally understood that oaks are failing to regenerate. However, little is known of the climatic regimes and favorable conditions that trigger mass regeneration of oaks. Blue oaks throughout the area are mostly of the same age class. Climatic change, intensive over grazing, and conversion of the savanna ecosystem to annual grasses are a few reasons for their failure to reproduce. Young trees are vulnerable to livestock grazing and predation from wild hogs.

Oaks provide copious amounts of leaves, twigs, bark, and sap, as well as acorns that provide a complex habitat and food supply. Many insects, snakes, birds, and mammals rely on this food supply including deer, band-tailed pigeons, gray squirrels, woodrats, jays, and woodpeckers. While food is especially important to birds and mammals, the structure of the oak habitat also provides shelter and perches where these animals live, breed, and rest.

Special status animal species known to occur in the *blue oak woodland and blue oak savanna habitat* in the Rancho Cordova area include Cooper's hawk (CNDDB rank G5, S3), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), valley elderberry longhorn beetle (G3T2, S2; Federally Threatened), western small-footed myotis (CNDDB rank G5), long-eared myotis (CNDDB rank G5, S4), and the American badger (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.3 Cottonwood Woodlands

Only a small part of the Rancho Cordova planning area is classified as the *cottonwood woodland* cover-type. It consists of 131 acres in the northeastern portion of the Rancho Cordova planning area, just north of the Prairie City State Vehicular Recreation Area (SVRA). The *cottonwood woodland* cover-type is surrounded by *vernal pool grassland* and *grassland* cover-types.

Fremont cottonwood is the dominant tree in the broadleaved, winter-deciduous canopy of the *cottonwood woodland* cover-type. It is either the sole canopy tree, or occasionally mixed with black willow, narrow-leaf willow, box elder, California sycamore, Northern California black walnut, and Oregon ash. California wild grape is the most conspicuous liana found growing in the understory. Exotic grasses like those found in the *grassland* and *vernal pool grassland* cover-types often dominate the groundcover.

The *cottonwood woodland* cover-type is usually found on alluvial or disturbed surfaces that are seasonally or intermittently flooded and receive some sort of subsurface irrigation when the surface is dry. Many areas within the Rancho Cordova area that have been disturbed by mining activities have cottonwood stands associated with them (see *mine tailings* cover-type description), and some of the areas of *cottonwood woodland* cover-type have experienced soil disruption in the past. Cottonwood recruitment requires not only seasonal flooding and proper connection to the water table but also bare substrate (Auble and Scott 1998, Scott et al. 1996). Many cottonwood stands, both within the *cottonwood woodland* cover-type and within the *mine tailings* cover-type, may be remnants of past disturbance events (e.g. mining) and, therefore, will only persist if proper hydrologic and geomorphic conditions are maintained.

Cottonwood Woodland Habitat

Cottonwood woodland habitat in the Rancho Cordova planning area resembles Valley Foothill Riparian habitat-type described by the CWHR (Grenfell 1988), except that a less diverse species assemblage is present. Like the nearby *mine tailings* cover-type, *cottonwood woodland* could provide escape, movement corridors, nesting, and thermal cover habitat to raptors and migratory songbirds, as well as other species associated with adjacent habitats.

Special status animal species known to occur in the *cottonwood woodland habitat* in the Rancho Cordova area include western spadefoot (CNDDB rank G3, S3), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), white-tailed kite (CNDDB rank G5, S3), loggerhead shrike (CNDDB rank G4, S4), western small-footed myotis (CNDDB rank G5), long-eared myotis (CNDDB rank G5, S4), fringed myotis (CNDDB rank G4T3T4, S2S3), long-legged myotis (CNDDB rank G5), Yuma myotis (CNDDB rank G5, S4), and the American badger (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.4 Mixed Riparian Woodland

Approximately 583 acres of land within the Rancho Cordova planning area boundaries are categorized as *mixed riparian woodland* cover-type. This cover-type occurs in two main areas, along the American River and along Alder Creek in the northeast portion of the planning area. Although it comprises a relatively small percentage of the overall planning area, *mixed riparian woodlands* play an important ecological role in the Rancho Cordova planning area.

Riparian woodlands were formerly widespread in the Sacramento and northern San Joaquin valleys, but have subsequently been cleared for agriculture, flood control, and urban expansion (Holland 1986). This cover-type is characterized by tall, dense, winter-deciduous, mixed broadleaf riparian forest. A variety of tree species including Fremont cottonwood, California sycamore, valley oak, shining, black and red willows, northern California black walnut, red alder, as well as several other oak species, form the canopy. The understory is a mix of these species and shade tolerant shrubs such as wild grape, wild rose, California blackberry, blue elderberry, poison oak, and buttonbrush, along with several lianas. The herbaceous layer includes sedges, rushes, grasses, poison hemlock, and hoary nettle.

Riparian areas are some of the most diverse, dynamic, critical, and complex terrestrial biophysical habitats on earth (Naiman and Decamps 1997). Riparian vegetation provides an important linkage between aquatic and terrestrial systems (Gregory et al. 1991). However, these areas are some of the most threatened areas in the American west (National Research Defense Council 1992). Riparian ecosystems are integral to ecological conservation. Although riparian zones comprise less than one percent of North American landscapes, 80% of North America's threatened and endangered species are riparian species (Kie at al. 1994).

Mixed Riparian Woodland Habitat

The *mixed riparian woodland* cover-type closely corresponds to the CWHR category Valley Foothill Riparian habitat, which can provide food, water, migration, dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife (Greenfell 1988). At least fifty resident, temporal visitors or transient species of amphibians and reptiles can be found in such lowland riparian systems (Brode and Bury 1984) in California's Central Valley. Almost 150 nesters or winter visitant species of birds have been documented using Sacramento River riparian habitat (Laymon 1985), and more than 50 species of mammals are known to use Central Valley *mixed riparian woodland* (Trapp et al. 1985).

Special status animal species known to occur in the *mixed riparian woodland habitat* in the Rancho Cordova area include Cooper's hawk (CNDDB rank G5, S3), great egret (CNDDB rank G5, S4), great blue heron (CNDDB rank G5, S4), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), yellow-breasted chat (CNDDB rank G5S3), bank swallow (CNDDB rank G5, S2S3; Threatened in the State of California), ringtail (CNDDB rank G5), western small-footed myotis (CNDDB rank G5), long-eared myotis (CNDDB rank G5, S4), long-legged myotis (CNDDB rank G5), and the Yuma myotis (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.5 Mixed Riparian Scrub

Only one small patch of the *mixed riparian scrub* cover-type occurs in the Rancho Cordova planning area boundary. It is an approximately 21 acre patch running between Bradshaw road and Highway 16 southwest of Mather Airfield. It occupies a small drainage within a parcel of *cropland.*

The *mixed riparian scrub* cover-type is a mixed species, winter-deciduous, streamside thicket of shrubs, small trees, and herbaceous cover. Common shrubs are willows (e.g. sandbar willow), oaks (e.g. valley oak), coyote brush, and poison oak. California wild grape is a common liana. Sedges and rushes are commonly found along drainages with more saturated soils.

Mixed Riparian Scrub Habitat

Like other riparian habitats, mixed riparian scrub is an important component of the landscape, providing migration corridors, water, and forage opportunities to a variety of wildlife. While some animals live strictly within the *mixed riparian scrub* corridor, many others visit it temporarily from some adjacent habitat. Some aquatic invertebrates as well as reptiles and amphibians are supported by *mixed riparian scrub* since water is present in this riparian area during at least most of the year. The small patch of mixed riparian scrub is dissected by *roads* and surrounded by *cropland* and *high-density development*, so few species other than those from these adjacent habitats should be expected to be present.

Special status animal species known to occur in the *mixed riparian scrub habitat* in the Rancho Cordova area include great egret (CNDDB rank G5, S4), great blue heron (CNDDB rank G5, S4), northern harrier (CNDDB rank G5, S3), yellow-breasted chat (CNDDB rank G5S3), loggerhead shrike (CNDDB rank G4, S4), bank swallow (CNDDB rank G5, S2S3; Threatened in the State of California), valley elderberry longhorn beetle (G3T2, S2; Federally Threatened), ringtail (CNDDB rank G5), western small-footed myotis (CNDDB rank G5), long-eared myotis (CNDDB rank G5, S4), and the fringed myotis (CNDDB rank G4T3T4, S2S3) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.6 Grassland

Approximately 637 acres of land within the Rancho Cordova planning area boundaries are categorized as *grassland* cover-type. Most of this area is in the southwest corner of the planning area, but there are also patches along the American River Corridor and an area just north of the Prairie City SVRA. The *grassland* cover-type is similar to the *vernal-pool grassland* cover-type in many ways (e.g. they share many of the same species). However, they differ in hydrogeomorphic terms; *grassland* areas lack the hardpan soil layer inclusions which define the hydrologic characteristics *vernal pool grasslands*.

The *grassland* category occupies what was once native grassland but is now dominated by introduced annual grasses (generally <1m tall) such as foxtail fescue, wild barley, red brome, ripgut brome, and wild oats. Common forbs include filarees, doveweed, true clovers, bur clover, and popcorn flower. The California State Flower, California poppy, is often found in annual grassland. There are no perennial grass species of special concern in the Rancho Cordova plan area and perennial grasses are found only in moist and lightly grazed locations (Nichols 2004). The non-native annuals that make up much *grassland* are considered naturalized species which prevent any reestablishment of native perennials. Many *grassland* species also occur as understory plants in oak woodland and other communities.

The structure of *grassland* vegetation greatly depends upon weather patterns and livestock grazing. Autumn rains initiate germination of annual plant seeds, and the plants grow slowly throughout the winter months. As temperature increases with the onset of spring, plants undergo rapid growth (Heady 1977). Differences in shading, litter build up, soils and microtopography affect stand composition (Evans and Young 1989). Heavy spring grazing tends to favor growth of low-stature, spring maturing herbs such as filaree as well as summer-annual forbs such as tarweed and turkey mullein, and it also reduces the amount of standing dead material which can be significant with high precipitation and under light grazing pressure (Garrison et al. 1977). In the absence of livestock, *grassland* often is dominated by tall, dense stands of grasses such as ripgut brome and wild oats (Freckman et al. 1979).

Grassland Habitat

Grassland provides important food plants for many wildlife species, although many animals also require additional habitat features such as cliffs, ponds, or woody plants for breeding, resting, and escape cover. Mammals typically found in *grassland* habitat include coyote, badger, Swainson's hawk, California vole, western harvest mouse, Botta's pocket gopher, California ground squirrel, and black-tailed jackrabbit (White et al. 1980). The burrowing owl and short-eared owl, which are special status species, use *grassland* as breeding grounds as do the horned lark and western meadowlark. *Grassland* is important foraging habitat for the prairie falcon, white-tailed kite, turkey vulture, northern harrier, and American kestrel. Reptiles that rely upon *grassland* for breeding include western rattlesnake, common garter snake, and western fence lizard (Basey and Sinclear 1980).

Special status animal species known to occur in the *grassland habitat* in the Rancho Cordova area include western spadefoot (CNDDB rank G3, S3), Cooper's hawk (CNDDB rank G5, S3), tricolored blackbird (CNDDB rank G2G3, S2), short eared owl (CNDDB rank G5, S3), burrowing owl (CNDDB rank G4, S2), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), northern harrier (CNDDB rank G5, S3), white-tailed kite (CNDDB rank G5, S3), California horned lark (CNDDB rank G5T3, S3), greater sandhill crane (CNDDB rank G5T4, S2; Threatened in the state of California), loggerhead shrike (CNDDB rank G4, S4), valley elderberry longhorn beetle (G3T2, S2; Federally Threatened), Pallid bat (CNDDB rank G5, S3), long-eared myotis (CNDDB rank G5, S4), long-

legged myotis (CNDDB rank G5), and the American badger (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.7 Pasture Grassland

Two large parcels of the *pasture grassland* cover-type occur in the Rancho Cordova plan area. One large parcel located north of Mather Lake, west of Folsom South Canal, and south of White Rock Road appears to be abandoned *pasture grassland*, parts of which are now being developed. The other large parcel is located in the southern part of the planning area, between Highway 16 and Kiefer Boulevard. The approximate acreage of *pasture grassland* cover-type within the planning boundary is 1,359 acres.

The *pasture grassland* cover-type is irrigated seasonally, and is generally a mix of perennial grasses and legumes. The composition and structure of these communities is largely determined by management practices, seed mixture, fertilization, weed control, irrigation regime, and the timing, intensity, and type of livestock used on the pasture. If irrigated pastures are removed from use and left unmanaged, exotic weeds often invade (e.g. Russian thistle).

Irrigated pastures are planted on flat to generally rolling terrain, and occur throughout California, but are most widespread within the Central Valley.

Pasture Grassland Habitat

Vegetation composition and irrigation strategies, which vary from year to year, determine the quality and type of habitat offered by pasture grassland, but adjacent habitat types is also an important determinant factor. When residual vegetation is present during nesting season, *pasture grassland* is often occupied by ground-nesting birds such as waterfowl, pheasant, and sandhill crane (Zeiner 1988). Flood irrigation of *pasture grassland* provides feeding and roosting opportunities for many wetland-associated birds (see fresh water marsh description). Deer also graze *pasture grassland* in the Rancho Cordova area.

Special status animal species known to occur in the *pasture grassland habitat* the Rancho Cordova area include great egret (CNDDB rank G5, S4), great blue heron (CNDDB rank G5, S4), burrowing owl (CNDDB rank G4, S2), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), northern harrier (CNDDB rank G5, S3), white-tailed kite (CNDDB rank G5, S3), California horned lark (CNDDB rank G5T3, S3), loggerhead shrike (CNDDB rank G4, S4), white-faced ibis (CNDDB rank G5, S1), pallid bat (CNDDB rank G5, S3), and the American badger (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.8 Vernal Pool and Vernal Pool Grassland

The v*ernal pool* cover-type makes up approximately 625 acres and *vernal pool grassland* constitutes more than 20,728 acres of the Rancho Cordova planning

area. Together, these cover-types occupy over one-third of the Rancho Cordova planning area, and are located south and east of the existing developed areas. Because vernal pools exist only within the matrix of vernal pool grasslands, they are addressed together in this section. Vernal pools are a type of seasonal wetland habitat that is characterized by a specific set of physical parameters and a unique assemblage of endemic plants and animals. These communities are shaped in part by their four stage annual hydrologic cycle: (1) wetting phase (2) aquatic or inundation phase (3) water logged-terrestrial phase and (4) drought phase (Zedler 1987, Keeley and Zedler 1998).

Vernal pool ecosystems of the Rancho Cordova planning area developed as a result of the complex interactions between the area's climate, geology, soils, hydrologic cycle, and biological, chemical and evolutionary processes (Keeley and Zedler 1998, Stone 1990, Holland and Dains 1990). The vernal pools of the planning area are classified as North Hardpan Vernal Pools (CDFG 2004, Holland 1986). These pools provide a range of conditions that vary along gradients of inundation and dry-down severity. They range from, "flashy, shallow, small" pools with shallow soils to "stable, deep, large" pools with deep soils. These two ends of the vernal pool spectrum integrate with different cover-types. At the higher and drier side of the "flashy/small" pools the vernal pool species integrate with less specialized non-native wetland and *grassland* species. The more stable vernal pools integrate with the seasonal *freshwater marsh* cover-type vegetation (Dittes and Guardino 2004).

Vernal pool grassland cover-type is similar to the *grassland* cover-type in that it shares many of the same species, several of which are native to the Mediterranean Climate of the region. Common plants include bromes, oats, and many other species found in grasslands throughout California, most of which are annuals. Table 3.3 is a list of native and introduced California vascular plant genera typical of upland sites in grasslands and freshwater wetland habitats in close juxtaposition with vernal pools.

Table 3.3. Native and introduced California vascular plant genera typical of upland sites in grasslands and freshwater wetland habitats in close juxtaposition with vernal pools (Keeley and Zedler 1998, Zedler 1987, Mason 1957).

Upland Taxa	**Wetland Taxa**
Erodium	*Anemposis*
Filago	*Ceratophyllum*
Hemizonia	*Ludwigia*
Medicago	*Myriophyllum*
Microseris	*Polygonum*
Malvastrum	*Alisma*
Agrostis	*Echinodorus*
Avena	*Elodea*
Bromus	*Glyceria*
Lolium	*Potamogeton*
Vulpia	*Sagittaria*
	Typha

There are more than 100 plant species that are almost exclusively restricted to the vernal pool ecosystems (Keeler-Wolf et al 1998, Keeley and Zedler 1998), 90% of those species are native, and 55% are entirely restricted to California (Holland 1976, Keeler-Wolf et al. 1998). Because vernal pool habitats are so unique, a limited number of genera are found within these areas. Common vernal pool species include coyote thistle, downingia, and meadowfoam. Table 3.4 is a list of vernal pool plant genera with one or more species in vernal pools.

Table 3.4. California vernal pool plant genera with one or more species in vernal pools (Keeley and Zedler 1998).

Cosmopolitan Aquatics	**Vernal Pool Specialists**
Isotes	*Blennosperma*
Marsilea	*Chamaesyce*
Pilularia	*Downingia*
Callithriche	*Eryngium*
Crassula	*Gratiola*
Elatine	*Lasthenia*
Myosurus	*Legenere*
Ranunculus	*Limnathes*
Eleocharis	*Navarretia*
Lilaea	*Pogogyne*
Vulpia	*Plagiobothys*
	Psilocarphus
	Neostapfia
	Orcuttia
	Tuctoria

Due to the high incidence of endemism of vernal pool plant taxa, and the loss of vernal pool habitat over the last 100 years, many of the vernal pool obligates are special status species (see Section 4.0). Plant special status species known to occur in vernal pool habitats in the Rancho Cordova area include dwarf downingia (CNDDB rank G3, S3.1; CNPS 2), Boggs Lake hedge-hyssop (CNDDB rank G2T1, S1.2; CNPS 1B, Endangered in State of California), Ahart's dwarf rush (CNDDB rank G3, S3.1;CNPS 1B), legenere (CNDDB rank G2,S2.2; CNPS 1B), pincushion navarretia (CNDDB rank G1T1, S1.1; CNPS 1B), slender orcutt grass (CNDDB rank G3, S3.1; CNPS 1B; Endangered in the State of California; Federally Threatened) Sacramento orcutt grass (CNDDB rank G1, S1.1; CNPS 1B; Endangered in the State of California; Federally Endangered) and Sanford's arrowhead (CNDDB rank G3, S3.2; CNPS 1B) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

Vernal Pool and Vernal Pool Grassland Habitat

Vernal pool grassland habitat possesses many of the same attributes as *grassland* and they share many animal species dependent upon the shared features. As well, a number of species have adapted to the extreme ecological conditions that exist in the complexes of *vernal pool and vernal pool grassland*. Some species utilize these habitats temporarily only when environmental

conditions are favorable, while other, year-round residents have adapted to the inundation of *vernal pools* during the winter and the hot, arid environment during the summer.

The unique hydrology of *vernal pool* ecosystems accommodates a group of aquatic crustaceans known as branchiopods. Within the Rancho Cordova planning area, four species of branchiopods are known to exist: California linderiella (fairy shrimp), mid-valley fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. These invertebrates survive the dry periods in cyst banks buried in the mud (Belk 1988). Dispersal between vernal pools by crustaceans is mostly accomplished by birds such as ducks and killdeer that eat crustacean disseminules (Simovich 1998). Inundation period and the size of *vernal pools* are significant factors in the diversity of crustacean species present (Dittes and Guardino 2004). *Vernal pools* are home to two species of snails that also migrate into the sediments and aestivate at the end of the wet season, reappearing immediately when the pool begins filling during the following season (Gallagher 1993).

Some 58 winged insects have been recorded visiting *vernal pools* in Folsom, California (Rogers 1998), which is northeast of Rancho Cordova planning area. These insects include 16 species of flies and 26 beetles, as well as springtail, mayfly, dragonflies, true bugs, and stonefly. Insects are an important component of *vernal pool* ecology as a food source of predators, pollinators, and mosquito control (Dittes and Guardino 2004). Certain insects are dependent upon the *vernal pool* and *vernal pool grassland* matrix. Oligolectic bees construct nests in upland areas near vernal pools and are responsible for visiting only a few closely related plants (*Limnanthes, Blennosperma*), yet are only able to fly distances less than a half-mile (Leong et al. 1995).

Amphibians could inhabit *vernal pools* in the Rancho Cordova area, including western toad and western spadefoot toad. Most amphibians utilize *vernal pools* for reproduction and for tadpole habitat, and also utilize *vernal pool grasslands* post-metamorphosis (Kucera 2004, Morey 2004a, Morey 2004b). Adult salamanders spend most of the year underground in self-made or mammal burrows. Migration (up to 0.6 mile for some species) between *vernal pools*, which encourages genetic diversity and is integral to the *vernal pool* and *vernal pool grassland* matrix ecology, is accomplished during sustained precipitation events and usually at night. Permanent ponds and other water bodies are occasionally used by the amphibians, but larvae survive best in vernal pools, which do not support predatory fish populations.

The *vernal pool and vernal pool grassland* ecosystem is important to and dependent upon a wide variety of birds. A study of 8 such ecosystems in the Sacramento Valley and 2 in northeastern California found 44 species of waterbirds and 42 species of terrestrial birds using the variety of different microhabitats at different times throughout the sites (Silveira 1998). Birds feed, rest and occasionally nest in the *vernal pool* and *vernal pool grassland* complex. Birds feed on invertebrates in the pool, along the pool margins, and on vegetation adjacent to pools. Migratory birds such as Canada Geese flying the Pacific Flyway visit vernal pools throughout the Central Valley, feeding on the

high protein sources which are critical to building flight muscles and reproductive organs (Dittes and Guardino 2004).

Birds are responsible for maintaining the ecological integrity of *vernal pool* and *vernal pool grassland* complexes. Birds feed on the invertebrates and vegetation in and around *vernal pools*, and in doing so spread plant seeds and invertebrate eggs and cysts from complex to complex. This dispersal of seeds, eggs, and cysts is important to maintaining and strengthening ecological integrity because it limits genetic isolation and reduces chances of local extirpation (Dittes and Guardino 2004).

There is a lack of published research regarding the potential for interdependence between mammals and the *vernal pool* and *vernal pool grassland* complex. Some evidence suggests that bats feed on *vernal pool* and *vernal pool grassland* insects and also consume *vernal pool* water (Vollmar 2002). A study in San Diego found that rabbit pellets contained viable seeds from *vernal pool* plant species (Zedler and Black 1992), therefore rabbits may be responsible for seed dispersal much like some birds. California tiger salamanders, which do inhabit *vernal pool* and *vernal pool grasslands*, and burrowing owls, a California Species of Special Concern, are known to occupy mammal burrows, such as those dug by Botta's pocket gopher and California ground squirrels (Dittes and Guardino 2004). These two mammals feed on herbaceous vegetation and dig their burrows in meadows and grasslands with friable soils including *vernal pool grasslands.*

Special status animal species known to occur in the *vernal pool and vernal pool grassland* habitat in the Rancho Cordova area include western spadefoot (CNDDB rank G3, S3), tricolored blackbird (CNDDB rank G2G3, S2), great blue heron (CNDDB rank G5, S4), short eared owl (CNDDB rank G5, S3), burrowing owl (CNDDB rank G4, S2), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), northern harrier (CNDDB rank G5, S3), white-tailed kite (CNDDB rank G5, S3), California horned lark (CNDDB rank G5T3, S3), greater sandhill crane (CNDDB rank G5T4, S2; Threatened in the state of California), loggerhead shrike (CNDDB rank G4, S4), white-faced ibis (CNDDB rank G5, S1), vernal pool fairy shrimp (CNDDB rank G3, S2S3; Federally Threatened), midvalley fairy shrimp (CNDDB rank G2, S2), vernal pool tadpole shrimp (CNDDB rank G3, S2S3; Federally Endangered), California fairy shrimp (CNDDB rank G3,S2S3; Federally Endangered), Pallid bat (CNDDB rank G5, S3), fringed myotis (CNDDB rank G4T3T4, S2S3), long-eared myotis (CNDDB rank G5, S4), long-legged myotis (CNDDB rank G5), and the American badger (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

Vernal Pool Habitat Classification

Vernal pools are small, isolated wetlands that hold water on a temporary basis, most often during winter and spring. They are very important to the life cycle of many amphibians, as they are too shallow to support fish that would eat the amphibian eggs or larvae. Vernal pools and their adjacent upland habitats

increase biodiversity by supporting an abundance of plants, invertebrates and vertebrates not found in other areas.

Vernal pools are commonly documented as a category of wetland ecosystems. Descriptions of vernal pool composition differ due to regional and local conditions. California vernal pools are a distinct ecosystem type as they are affected by the Mediterranean-type climate, the principal hydrological input is from rainfall, and they support highly endemic flora and fauna (SSHCP, Draft) (Keeley and Zedler 1998, Sawyer and Keeler-Wolf 1995, Stone 1990, Thorne 1984, Stebbins 1976).

The importance and value of vernal pool habitat in this region has led to a needed classification system of vernal pools and vernal pool complexes from which management decisions can be made. The complexity and subtle differences that make up any one or combination of vernal pools causes the assessment of these habitats to vary from researcher to researcher. The description or classification can change depending upon the methodology used and the parameters that are evaluated.

In an effort to comprehensively classify the vernal pool complexes in this area the South Sacrament Habitat Conservation Plan (SSHCP) is currently developing a system. At the time of this report the SSHCP Vernal Pool Classification is still being researched and is only in a draft stage.

From SSHCP it is intended that the classification system will be variously based on landforms, geologic formations, soils, hydro-geomorphology, composition of vegetation, or combinations of these in the context of geographic setting. The classification will be based on several factors including:

1. *Classification of vernal pools by geological formation*
2. *Classification of vernal pools according to ecological functions:*
    a. *Relationships between vernal pool dimension and hydrology*
    b. *Relationships between vernal pool density and habitat interconnectivity*
3. *Value of vernal pool dimension as an indicator of ecological function*
4. *Vernal pool density and interconnectivity as a classification parameter*

The SSHCP is intended to include GIS mapping that classifies vernal pools and complexes within the Rancho Cordova Planning area. A classification and GIS database of the vernal pools within the plan area will be useful in the planning effort.

3.9 Fresh Water Marsh

The *fresh water marsh* cover-type covers a relatively small portion of the planning area, covering only 211 acres of land. The significant *fresh water marsh* patches occur just south of Mather airstrip, adjacent to Mather Lake, and

are dispersed throughout the complex of *vernal pool-vernal pool grassland* that comprises the majority of the southeastern portion of the planning area. The patches found outside the *vernal pool-vernal pool grassland* complex are easily distinguished from the surrounding habitats by their distinctive hydrophytic vegetation. In contrast, the *fresh water marsh* patches within the *vernal pool-vernal pool grassland* complex closely resemble *vernal pool* habitats, as they have similar biota and hydrogeomorphology.

Due to the diversity of environmental conditions under which the *fresh water marsh* cover-type is found (adjacent to Mather Lake to embedded in the *vernal pool-vernal pool grassland* complex) a wide array of flora is found within these habitats. In areas with a more stable hydrology (e.g. adjacent to Mather Lake) the *fresh water marsh* cover-type is characterized by tall reeds, bulrushes, and cattails up to 16 feet tall, but also includes sedges, umbrella sedges, spikerushes, and broad leaved monocots such as smartweed. In those patches embedded in the *vernal pool-vernal pool grassland* complex, the hydrology is more seasonal and ephemeral, and therefore lack the plants more adapted to stable hydrology (reeds, bulrushes, cattails, etc.) and is dominated by sedges, umbrella sedges, docks, rushes, and species commonly found in *vernal pools*. Special status species such as Boggs Lake hedge-hyssop (CNDDB rank G3, S3.1; CNPS 1B, Endangered in State of California) and Sanford's arrowhead (CNDDB rank G3, S3.2; CNPS 1B) are sometimes found in *fresh water marsh* habitats.

As with many Central Valley habitats, *fresh water marshes* once covered a large portion of the landscape, but most have been urbanized or filled for agricultural use (Mitsch, W.J. and J.G. Gosselink 2000).

Fresh Water Marsh Habitat

Fresh water marsh is among the most productive wildlife habitats in California providing water, food, and cover for more than 160 species of birds, as well as a variety of mammals, amphibians, and reptiles (Kramer 1988). Other species require *fresh water marsh* for specific stages such as reproduction or temporary refuge: bald eagles and peregrine falcons use *fresh water marshes* for feeding and roosting (Pratt and Polite 1990). The diverse array of species which utilize *fresh water marshes* for some part of their life cycles is due to the fact that they are relative islands of wet habitat among the fairly dry Central Valley grassland and farmland landscape. *Fresh water marsh* has high primary productivity, and therefore produces large amounts of plant material for invertebrate shredders and detritivores (Weller 1994), which are in turn an important food source for many bird species. Because of this abundant food source, and the diversity of habitats for nesting and resting, waterfowl are abundant in fresh water marshes, and often partition marsh habitats in competition for resources (Weller and Spatcher, 1965). Other bird species, such as wrens, rails, soras, swamp sparrows, swallows and the conspicuous blackbird are supported by *fresh water marsh* habitat.

Special status animal species known to occur in the *fresh water marsh habitat* in the Rancho Cordova area include tricolored blackbird (CNDDB rank G2G3, S2), great egret (CNDDB rank G5, S4), great blue heron (CNDDB rank G5, S4), short

eared owl (CNDDB rank G5, S3), northern harrier (CNDDB rank G5, S3), white-tailed kite (CNDDB rank G5, S3), greater sandhill crane (CNDDB rank G5T4, S2; Threatened in the state of California), white-faced ibis (CNDDB rank G5, S1), north-western pond turtle (CNDDB rank G3G4T3, S3), and the giant garter snake (CNDDB rank G2G3, S2S3; Threatened in the State of California; Federally Threatened) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.10 Open Water and Rivers

The *open water* cover-type is used as a general category for large zones of permanently flooded area (Figure 3.2). Both lentic and lotic water bodies are included in this cover–type, as *open water* patches range from the moving water of the American River to the more lacustrine habitats at Mather Lake and Blodgett Reservoir. Several other small patches of the *open water* cover-type are embedded in the matrix of *vernal pool-vernal pool grassland* that dominates the southeastern portion of the planning area. Approximately 461 acres of this cover-type occur within the planning boundaries.

Areas of permanently flooded open water support aquatic plants that float on the surface like pondweeds, but also contain aquatic macrophytes that serve as habitat and is an important food source for many insects and wildlife. Water moss and long, filamentous algae grow in streams with strong current while smooth, gelatinous surfaced algae in cushion-like colonies float on slower water (Grenfell 1988). *Open water* often has emergent vegetation along its edges. Duckweed floats on the surface of slow and non-moving waters.

The American River is a significant component of open water cover-type in Rancho Cordova, and it is the northern boundary of the planning area. The American River is the subject of management by various public and private organizations such as American River Natural History Association, American River Conservancy, the United States Bureau of Reclamation (USBR), and the Sacramento Area Flood Control Agency. Management of the American River flows is done by USBR, which controls upstream dams impounding Folsom Lake and Late Natoma.

Open Water and Rivers Habitat

Aquatic insects find habitat in all types of water bodies. Nymphs of mayflies, caddisflies, alderflies, stoneflies, and the larva and pupae of true flies inhabit fast moving waters while burrowing mayfly nymphs, dragonflies, damselfies, and water striders occur in slow moving water. Backwater and stagnant waters can be home to backswimmers, water boatmen, and diving beetles. Streams that are slowed by dams generally have higher temperatures, more accumulation of sediment, and favors occupation by mollusks and crustaceans rather than insect larvae which require coarse gravel and cobble (Grenfell 1988). Decaying matter underwater promotes the growth of plankton populations, which are the food source of other microorganisms and fish.

More than 100 species of birds have been counted during American River Parkway Wildlife Count as well as 13 mammal species including river otter and beaver (ARNHA 2002). Birds such as gulls, osprey, and eagles feed on fish and other organisms that live in *open water* habitat as do insectivorous birds such as swallows, swifts, and flycatchers. The American River contains resident and migratory fish such as Chinook salmon, steelhead, splittail, hardhead, Sacramento sucker, American shad, and striped bass (LARTF 2002).

Special status animal species known to occur in the *open water and rivers habitat* in the Rancho Cordova area include bank swallow (CNDDB rank G5, S2S3; Threatened in the State of California), north-western pond turtle (CNDDB rank G3G4T3, S3), and the giant garter snake (CNDDB rank G2G3, S2S3; Threatened in the State of California; Federally Threatened) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.11 Streams

The *streams* cover-type is an important component of the Rancho Cordova planning area covering 1,986 acres. The *streams* cover-type includes areas influenced by ephemeral, intermittent and perennial streams. The major streams include Alder, Buffalo, Morrison, Laguna, Frye and Elder Creeks, and many unnamed tributaries are also included in this cover-type (See Table 3.5 for approximate stream lengths).

Much of the *streams* cover-type appears as dry drainages for much of the year, only containing water for a short portion of the year, but some, such as Alder Creek contain water year-round. Because of this broad range of conditions the *streams* cover-type intergrades with several other cover-types. For example, along Alder Creek, the *streams* cover-type intergrades with *mixed riparian forest,* while along Laguna Creek it flows first through *vernal pool grassland* then into the *open water* of Blodgett reservoir. The dominant plant species found in these areas can range from oak, willow and alder along Alder Creek, to non-native grasses and coyote thistle along unnamed tributaries that run through *vernal pool grassland.* These areas provide habitat for special status species, as Legenere has been documented along a tributary of Morrison creek, where it crosses Eagle's Nest road, just north of Kiefer Boulevard (CDFG 2004).

The area classified as *streams* cover-type plays a vital role in ecosystem function in the Rancho Cordova planning area. These drainages convey water to habitats like *fresh water marshes* and other areas that rely on *streams* to maintain hydrologic function. The vegetation within these drainages serves to attenuate flow and produce forage and habitat for insects and wildlife. *Streams* have been heavily altered and impacted over the past 150 years by mining operations, farming, and industrial practices, and today vary in ecological integrity from healthy riparian zone to drain or ditch that simply conveys surface water.

Streams Habitat

Streams cover-type shares many habitat characteristics as *open water* and its associated cover-types. Unlike *open water*, though, most *streams* in the Rancho Cordova area are intermittent, which means they are not flooded year-round. Streams are usually dry through the summer months except immediately after precipitation events; for this reason, the *streams* cover-type is not associated with fish species. Like *open water*, *streams* are habitat for moss, algae, and many types of aquatic invertebrates, and many other species utilize streams for water and refuge provided by the associated riparian vegetation (Grenfell 1988). Streams with associated riparian vegetation provide habitat for nesting, mating, and migrating birds as well as mammals that also occupy the surrounding cover-types. See the section on *mixed riparian forest* for more information about animals dependent upon *streams* and their associated cover-types. *Streams* and their surrounding corridors are often used by animals for migration and general movement, and are therefore important linkages between other cover-types. *Streams* in the United States are highly regulated entities because of the vital role they have in the ecosystem. Water quality of *streams* is regulated by state and federal agencies, and alterations to stream bed or bank is regulated by CDFG.

Special status animal species known to occur in the *streams habitat* in the Rancho Cordova area include north-western pond turtle (CNDDB rank G3G4T3, S3), and the giant garter snake (CNDDB rank G2G3, S2S3; Threatened in the State of California; Federally Threatened) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.12 Aqueduct

The Folsom South Canal, classified as *aqueduct* cover-type, originates at Nimbus Dam and roughly follows Sunrise Boulevard south, approximately bisecting the Rancho Cordova planning area north to south (see Table 3.5 for approximate lengths of canals and ditches in the Rancho Cordova area). The Folsom South Canal is a component of the Auburn-Folsom South Unit of the American River Division of the United States Bureau of Reclamation. The canal is 26.7 miles long, and there are dormant plans to lengthen it to almost 70 miles (USBR 2004). *Aqueduct* as a cover-type takes up 207 acres within the Rancho Cordova planning area. A trail alongside the canal is a recreational resource for horseback riding, bicycling, and hiking.

The Folsom South Canal is concrete-lined and has a capacity of 3500 cubic feet per second. The canal has a bottom width of 34 feet, and the maximum water depth is almost 18 feet (USBR 2004). The canal was originally planned to provide water to irrigate forage and field crops, but also provides water to Rancho Seco Nuclear Powerplant and for municipal and industrial use in Sacramento and San Joaquin Counties (USBR 2004).

Although artificial waterways, canals often have hydrophytic vegetation growing alongside or near them due to their hydrologic influence on the surrounding landscape. These species often include rushes, cattails, sedges, and other riparian and wetland species frequently found in areas of *fresh water marsh* or *streams* cover-types. The California Natural Diversity Database (CNDDB) has documented Sanford's arrowhead, a special status species (see section 5.0 and Appendix C), along Folsom South canal just north of Mather Lake. The Sanford's arrowhead population was documented in 1993 in a drainage channel along the east side of the canal levee (CDFG 2004) along with cattails and other wetland species.

Aqueduct Habitat

Humans who utilize the water and recreational resources provided by the canal are the main beneficiaries of *aqueduct* habitat, but incidental wildlife associations also occur. Some birds and insects make some use of *aqueduct* habitat despite frequent human presence, lack of access due to fencing, lack of riparian vegetation, and concrete-lined channels. Insects such as black flies and mayflies are known to inhabit aqueducts (Hill 2004, personal communication) and insectivorous birds such as swallows, swifts, and flycatchers as well. In general, aqueducts do not provide quality habitat for native species unless intentionally managed for such.

Only one special status animal species is known to occur in the *aqueduct habitat* of the Rancho Cordova area and that is the giant garter snake (CNDDB rank G2G3, S2S3; Threatened in the State of California; Federally Threatened).

Table 3.5. Rancho Cordova water features (rivers, creeks, canals, and ditches) approximate length – linear feet and miles.

Linear Water Feature Name	Linear Feet	Miles
American River	78455.8	14.9
Morrison Creek and Tributaries	153861.5	29.1
Laguna Creek and Tributaries	84462.0	16.0
Unnamed Tributaries of Deer Creek	49919.4	9.5
Unnamed Tributaries of Coyote Creek	11461.6	2.2
Unnamed Tributaries of Carson Creek	8778.4	1.7
Elder Creek and Tributaries	45311.1	8.6
Frye Creek	16849.0	3.2
Buffalo Creek	36303.7	6.9
Alder Creek	29617.7	5.6
Rebel Hill Ditch (Aqueduct)	49287.9	9.3
Folsom South Canal (Aqueduct)	63527.8	12.0
Additional Canals (Aqueduct)	94726.3	17.9
Additional Unnamed Creeks	28688.6	5.4
Total	**751250.7**	**142.3**

3.13 Cropland

A large percentage of the 3,408 acres of the *cropland* cover-type in the Rancho Cordova plan area is concentrated in the southern portion of the planning area along Highway 16. This land cover category covers both vegetable crops and grain and seed crops, as well as both with and without irrigation.

Cropland can be broadly defined as cultivated land used primarily for production of food and fiber. In the Central Valley of California many crops grow well, and with crop rotation and market pressures, these portions of the landscape are constantly changing. Common vegetable crops include asparagus, broccoli, carrots, cauliflower, celery, cucumbers, lettuce, melons, onions, tomatoes, strawberries. Common grain and seed crops include corn, safflower, dry beans, barley, alfalfa, wheat and sorghum.

Cropland Habitat

The type of crop, historical cropping practices, adjacent habitat-types, and water regime applied to cropland determines whether it is suitability for any particular wildlife. Dryland grain crops will not attract the same wildlife as vineyard nor irrigated hayfield. *Cropland* adjacent to *cottonwood woodland* is likely to share wildlife from that habitat than cropland adjacent to another habitat-type. Irrigated *croplands* possess many of the same habitat characteristics as *pasture grassland*. Waste grain and other crops left in *cropland* fields after harvest attract waterfowl species. The most fertile soils usually support grain and seed crops, hayfields, and row and field crops. Historically, lands now occupied by *croplands* supported a profusion of wildlife not equaled by any other habitat types (Zeiner 1988). The conversion to croplands has significantly lowered both the richness and diversity of wildlife in the Central Valley (Schultze 1988). Many rodents and birds, though, have adapted to the new habitat, and in turn attract predators such as the CDFG designated 'Fully Protected' white-tailed kite and other raptors to *croplands*.

Special status animal species known to occur in the *cropland habitat* in the Rancho Cordova area include great egret (CNDDB G5, S4), great blue heron (CNDDB G5, S4), short eared owl (CNDDB rank G5, S3), Swainson's hawk (CNDDB rank G5, S2; Threatened in the State of California), northern harrier (CNDDB rank G5, S3), white-tailed kite (CNDDB rank G5, S3), loggerhead shrike (CNDDB rank G4, S4), and the white-faced ibis (CNDDB rank G5, S1) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.14 Mine Tailings

Approximately, 10,275 acres of land within the Rancho Cordova planning boundaries are categorized as *mine tailings*, most of which occur in the Northeastern quadrant of the site. These lands are the alluvial deposit results of large-scale dredge gold mining operations undertaken from the late 1800s to the mid-1900s, and are now characterized as long rows of 13 to 35 feet tall

cobble piles with linear, low-lying areas between the piles (Lower American River Task Force 2002).

The surfaces of the dredge piles are composed of exposed cobbles, remnant soils, and sparse, non-native annual plants such as yellow star-thistle and ripgut brome. The low-lying areas between the piles are characterized by slickens soils, which are accumulations of fine-textured material, such as separated in placer mining and in ore mill operations, and often support wetland shrub and tree species such as willow and Fremont cottonwood. The wetland species, in general, are deep-rooted remnants of riparian communities that existed between tailings piles when the area received diverted water from the original dredging operations or more recent hydrologic manipulations. Some of the low-lying areas, though, are very dry and dominated by herbaceous species such as yellow star-thistle, Italian thistle, ripgut brome, and soft chess. Some of the dredge piles have been excavated in more recent years for the purpose of extracting gravels and cobbles for use in aggregate. These areas are now characterized by long rows of nearly barren, flat surfaces divided by the same low-lying areas with slickens soils and composed of remnant wetland vegetation.

Much of the *mine tailings* lands are owned and managed by GenCorp, which has used the lands for the development and testing of rocket fuels. Some of these lands are the subject of environmental remediation including perchlorate contamination, and are being managed by GenCorp and pertinent agencies for such. As well, some of the *mine tailings* lands are within the proposed Rio del Oro development and their landcover status may change to *high* or *low density development* as the tailings piles are excavated and graded prior to construction. A wetland delineation effort of the proposed Rio del Oro lands finalized July 2004 concluded that approximately 15 acres of wetlands exist on-site, thereby officially excluding the bulk of the low-lying areas between dredge piles from wetland status (ECORP 2004). The wetland delineation covered 3,893 acres, of which approximately two-thirds (2,569 acres) were classified as mine tailings (ECORP 2004). The proposed Rio Del Oro development is located east of Sunrise Boulevard, north of Douglas Road and south of White Rock Road (ECORP 2004).

Mine Tailings Habitat

This habitat type is disturbed and non-native, but does posses some characteristics valuable to wildlife. Since perturbation slowed or ceased in the 1950's, ecological succession has occurred, and animals have adapted to available habitat. Very little research on this subject specific to the Rancho Cordova planning area has been undertaken, and a data gap exists regarding *mine tailings* habitat associations. The lowland areas are often dominated by cottonwood trees and other riparian vegetation, making it similar to mixed riparian woodland, although clearly not as complex. It can be expected that raptors and migratory songbirds such as red-winged blackbirds benefit from the cottonwood trees, blackberry bushes, and cattail and bullrush vegetation in the lowland areas of mine tailings. As well, more investigation is warranted to determine if tricolored blackbirds, a sensitive species, utilize these areas since the vegetation is suitable (Granholm 1990).

Special status animal species known to occur in the *mine tailings habitat* in the Rancho Cordova area include Cooper's hawk (CNDDB rank G5, S3), ringtail (CNDDB rank G5), western small-footed myotis (CNDDB rank G5), fringed myotis (CNDDB rank G4T3T4, S2S3), long-legged myotis (CNDDB rank G5), and the Yuma myotis (CNDDB rank G5, S4) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

3.15 High-Density Development and Low-Density Development

Because the *high-density development* and the *low-density development* cover-types are similar in many ways from a biological standpoint, and they occupy adjacent areas within the landscape, they are addressed together in this section. These two urban cover-types occupy a large portion of the Rancho Cordova planning area, covering approximately 11,705 acres. *High-density and low-density development* includes the previously developed lands south of the American River, including Mather Airfield, and the recently developed urban areas of Rancho Cordova extending south to the *vernal pool-vernal pool grassland* complex in the south, and east to the Folsom South canal.

These areas are highly constructed, intensely managed, and comprised of mainly ornamental exotic plants. Some ornamentals can spread from landscaped areas into adjacent wildlands, making them a vector for plant invasions. However, as with many other developed lands, some special status species manage to colonize and survive in these habitats. For example, Sanford's Arrowhead (listed on CNPS:1B [see Table 4.1 for complete list and abbreviations]) has been documented within the *high-density development* cover-type (CDFG 2004). Populations of all special status species should be managed (see section 4.0) to protect the integrity of all biological resources in the Rancho Cordova planning area.

High-Density Development and *Low-Density Development Habitat*

The arrangement of *high* and *low-density development* vegetation types produces a rich mosaic with substantial edge areas (McBride and Reid 1988). The mix of native and exotic plant species distinguishes *high* and *low-density development* from all other habitat types, exotic species providing additional forage for wildlife adapted to such conditions. *High-density development* generally provides habitat for fewer species than low-density development. Only a few bird species including rock pigeon, house sparrow, and starling dominate the densest urban areas. Scrub jay, mockingbird, and house finch as well as raccoon, opossum, and striped skunk live in slightly less dense urban areas of Rancho Cordova. *Low-density development* supports habitat for wrentits, bushtits, plain titmouse, chestnut-backed chickadee, and California quail as well as black-tailed deer, ringtail, black-tailed jackrabbit, gopher snake, and western fence lizard (McBride and Reid 1988).

Only one special status animal species is known to occur in the *high-density development* and *low-density development habitats* of the Rancho Cordova area

and that is the Cooper's hawk (CNDDB rank G5, S3) (CDFG 2004; see Table 4.1 for complete lists and abbreviations).

Table 3.6. Plant communities crosswalked with CWHR Wildlife Habitats.

Plant Community	**CWHR**
Valley Oak Riparian Woodland	Valley Foothill Riparian
Blue Oak Woodland and Blue Oak Savanna	Blue Oak Woodland
Cottonwood Woodland	Valley Foothill Riparian
Mixed Riparian Woodland	Valley Foothill Riparian
Mixed Riparian Scrub	Valley Foothill Riparian
Grassland	Annual Grass, Perennial Grass
Pasture Grassland	Pasture
Vernal Pool and Vernal Pool Grassland	Annual Grassland
Fresh Water Marsh	Fresh Emergent Wetland
Open Water and Rivers	Lacustrine and Riverine
Streams	Riverine
Aqueduct	**N/A**
Cropland*	Deciduous Orchard, Dryland Grain Crops, Irrigated Grain Crops, Irrigated Hayfield, Irrigated Row and Field Crops, Rice, Vineyard.
Mine Tailings	**N/A** - Possible Valley Foothill Riparian and Barren
High Density and Low Density Development	Urban
Recreation	**N/A**

**SSHCP draft GIS data did not identify the type of crops located within the cropland polygons. Therefore, all CWHR crop related habitats are listed.*
***Crosswalk data derived from the Wildlife Habitat—California Wildlife Habitat Relationships System; www.dfg.ca.gov/whdab/html/wildlife_habitats.html*

3.16 Recreation

The *recreation* cover-type within the Rancho Cordova planning area consists of mainly of two parcels. The first parcel is Rancho Cordova Recreational Golf Course and is located north of Highway 16 and west of Mayhew Road. The second parcel is located off of Eagle's Rest Road, south of Mather Lake, west of Folsom South Canal, and north of Kiefer Boulevard. It consists of Mather Regional Park and Mather Golf Course. Although mostly outside the planning area, Prairie City SVRA in the northeast part of the planning area should be considered when making management decisions in that area.

Although golf courses consist primarily of non-native species under intense chemical and physical management, native species can establish themselves along golf courses. For example, Sanford's arrowhead, a special status species (see section 5.0), is known to exist in and around two ponds on the Rancho Cordova Recreational Golf Course (CDFG 2004).

Recreation Habitat

Recreation cover-type is similar to *high* and *low-density development* in species composition and structure, and is in most cases adjacent to these cover-types. Where *recreation* is bordered by *vernal pool grassland*, one could expect some nominal crossover by species, including the introduction of some exotic species to the vernal pool grassland.

Table 3.7. Plant species referenced in plant community descriptions.

	Scientific Name	Common name
Herbaceous	*Vulpia myuros*	foxtail fescue
	Hordeum murinum	wild barley
	Bromus rubens	red brome
	Bromus diandrus	ripgut brome
	Avena spp.	wild oat
	Erodium botrys	filaree
	Eremocarpus setigerus	turkey mullein, dove weed
	Trifolium spp.	true clover
	Medicago polymorpha	bur clover
	Plagiobothrys spp.	popcorn flower
	Eschscholzia californica	California poppy
	Toxicodendron diversilobum	poison oak
	Vitis californica	California wild grape
	Centaurea solstitialis	yellow star-thistle
	Bromus hordeaceus	soft chess
	Cardus pycnocephalus	Italian thistle
	Holocarpha virgata	tarweed
	Urtica dioica ssp. holosericea	hoary nettle
	Conium maculatum	poison hemlock
	Typha spp.	cattail
	Carex spp.	sedge
	Juncus spp.	rush
	Cyperus spp.	umbrella sedge
	Eleocharis spp.	spikerush
	Polygonum spp.	smartweed
	Scirpus spp.	bullrush
Trees	*Salix lucida*	shining wilow
	Salix goodingii	black willow
	Salix laevigata	red willow
	Junglans hindsii	Norther California Black Walnut
	Alnus rubra	red alder
	Quercus spp.	oak
	Platanus racemosa	California sycamore
	Populus fremontii	Freemont cottonwood
	Quercus agrifolia	coast live oak
	Salix spp.	willows
	Quercus lobata	valley oak

	Scientific Name	Common name
	Quercus kelloggii	black oak
	Quercus wislizenii	interior live oak
	Fraxinus latifolia	Oregon Ash
	Quercus douglasii	blue oak
	Pinus sabiniana	Foothill pine
Shrubs	*Cephalanthus occidentallis*	buttonbush
	Toxicodendron diversilobum	poison oak
	Sambucus nigra	blue elderberry
	Rubus ursinus	California blackberry
	Rosa spp.	wild rose
	Conium maculatum	poison hemlock
	Baccharis salicifolia	coyote brush
	Salix exigua	sandbar willow
	Ribes spp.	gooseberry
	Ceanothus spp.	California lilac

Table 3.8. Animal species referenced in wildlife habitat descriptions.

	Scientific Name	Common name
Invertebrates	*Branchinecta lynchi*	vernal pool fairy shrimp
	Branchinecta mesovallensis	midvalley fairy shrimp
	Desmocerus californicus dimorphus	valley elderberry longhorn beetle
	Lepidurus packardi	vernal pool tadpole shrimp
	Linderiella occidentalis	California linderiella (fairy shrimp)
	Diptera	fly
	Coleoptera	beetle
	Trichoptera	stonefly
	Hemiptera	true bug
	Odonata	dragonfly
	Ephemeroptera	mayfly
	Collembola	springtail
	Simuliidae family	black fly
Amphibians	*Ambystoma californiense*	California tiger salamander
	Bufo boreas	western toad
	Scaphiopus hammondii	western spadefoot
Reptiles	*Thamnophis gigas*	giant garter snake
	Emys (=Clemmys) marmorata marmorata	(north)western pond turtle
	Sceloporus occidentalis	western fence lizard
	Pituophis melanoleucus	gopher snake
Fish	*Oncorhynchus tshawytscha*	chinook salmon
	Oncorhynchus mykiss	steelhead
	Pogonichthys macrolepidotus	splittail
	Alosa sapidissima	American shad
	Morone saxatilis	striped bass
	Hysterocarpus traski	tule perch
Birds	*Pica nuttalli*	yellow-billed magpie

	Scientific Name	Common name
	Aphelocoma californica	scrub jay
	Larus spp.	gulls
	Pandion haliaetus	osprey
	Progne subis	purple martin
	Agelaius tricolor	tricolored blackbird
	Accipiter cooperii	Cooper's hawk
	Branta canadensis	Canada Goose
	Branta canadensis leucopareia	Aleutian Canada goose
	Athene cunicularia	burrowing owl
	Riparia riparia	bank swallow
	Buteo swainsonii	Swainson's hawk
	Elanus leucurus	white-tailed kite
	Ardea herodias	great blue heron
	Ardea alba	great egret
	Haliaeetus leucocephalus	bald eagle
	Falco peregrinus	peregrine falcon
	Troglodytidae	wren
	Rallidae	rail
	Porzana carolina	sora
	Emberizidae	sparrow
	Hirundinidae	swallow
	Turdus spp.	blackbird
	Phasianus colchicus	ring-necked pheasant
	Grus canadensis	sandhill crane
	Columba livia	rock pigeon
	Sturnus vulgaris	starling
	Passer domesticus	house sparrow
	Callipepla californica	California quail
	Poecile rufescens	chestnut-backed chickadee
	Baeolophus inornatus	titmouse
	Psaltriparus minimus	bushtits
	Chamaea fasciata	wrentits
	Buteo lineatus	red-shouldered hawk
	Melanerpes formicivorus	acorn woodpecker
Mammals	*Spermophilus beecheyi*	California ground squirrel
	Sciurus griseus	western gray squirrel
	Thomomys bottae	Botta's pocket gopher
	Taxidea taxus	American badger
	Odocoileus hemionus	black-tailed deer
	Lepus californicus	black-tailed jackrabbit
	Bassariscus astutus	ringtail
	Procyon lotor	raccoon
	Didelphis virginiana	opossum
	Mephitis mephitis	striped skunk
	Vulpes vulpes	red fox
	Urocyon cinereoargenteus	common gray fox
	Lynx rufus	bobcat

4.0 Special Status Species

Many plant and animal species warrant special attention because they are rare, endangered, threatened, or depleted and declining in number. Others are considered significant because they are endemic to Sacramento County or of limited or unique distribution. Some of these high interest species are assigned official, endangered, or threatened status by U.S. Fish and Wildlife Service (USFWS) and/or the California Department of Fish & Game (CDFG), two agencies that have regulatory authority over these public resources. Special regulatory status is also applied to marine species by the National Marine Fisheries Service.

The term "special status" refers to those species which are:

1. legally protected or proposed for protection under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA);
2. defined as endangered or rare under the California Environmental Quality Act (CEQA);
3. designated as species of special concern by the U.S. Fish and Wildlife Service or California Department of Fish and Game;
4. animals listed as "fully protected" in the Fish and Game Code of California (Sections 3511, 4700, 5050 and 5515) ; and
5. plants listed in the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* (2001).

Information on occurrences of special status species in the vicinity of Rancho Cordova was gathered from the California Department of Fish and Game's (CDFG) *Natural Diversity Data Base* (CNDDB) (CDFG 2004) and the California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2004). The CNDDB and CNPS *Electronic Inventory* are collections of historical observation records and do not constitute an extensive inventory of every resource.

Additional background on biological resources within the study area was derived from the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), the *California Native Plant Society's Inventory of Rare and Endangered Plants of California* (Tibor 2001), *The Jepson Manual – Higher Plants of California* (Hickman 1993), as well as various other published and unpublished site specific investigations.

Table 4.1 lists special status plant and animal species, some of which have been identified by the USFWS, CNDDB, and CNPS *Electronic Inventory* as occurring within the plan area or vicinity. Those species determined by project biologists as being out of geographic or elevation range, or to have extremely low potential for occurrence within the area of potential project effects, are not included. Results of CNDDB query for all pertinent USGS quads (Buffalo Creek, Carmichael, Elk Grove, Folsom, and Sloughhouse) is included in Appendix C (CDFG 2004).

The most common cause of decline among high interest species is the diminishment of their habitat through removal, degradation, or fragmentation. A second major cause is isolation of plant and animal populations. Consequently, for purposes of long-term conservation, it is not only the species themselves that are of interest, but the specific habitats that support them. The *vernal pool* and *vernal pool grassland* cover-types are habitat for the majority of special status species in the Rancho Cordova planning area. See section *vernal pool* and *vernal pool grassland* for more information on biological resources and special status species associated with this habitat.

Table 4.1. Special status species occurring within the Rancho Cordova plan area.

Type	Scientific name	Common Name	CNDDB Ranks*	Other Lists*	State Listing Status*	Federal Listing Status*	Associated Cover-types
Plants	*Downingia pusilla*	Dwarf downingia	G3, S3.1	CNPS:2, R-E-D: 1-2-1	None	None	Vernal pools, Vernal pool grassland.
	Gratiola heterosepala	Boggs Lake hedge-hyssop	G3, S3.1	CNPS:1B, R-E-D: 1-2-2.	Endangered	None	Fresh water marsh, Vernal pools.
	Juncus leiospermus	Ahart's dwarf rush	G2T1, S1.2	CNPS: 1B, R-E-D:3-2-3.	None	None	Grassland, Vernal pool grassland, Vernal pools.
	Legenere limosa	Legenere	G2, S2.2	CNPS: 1B, R-E-D:2-3-3.	None	None	Vernal pools.
	Narvarretia myersii ssp. myersi	Pincushion navarretia	G1T1, S1.1	CNPS: 1B, R-E-D: 3-3-3.	None	None	Vernal pools.
	Orcuttia tenuis	Slender orcutt grass	G3, S3.1	CNPS: 1B, R-E-D: 2-3-3.	Endangered	Threatened	Vernal pools.
	Orcuttia viscida	Sacramento orcutt grass	G1, S1.1	CNPS: 1B, R-E-D:3-3-3.	Endangered	Endangered	Vernal pools.
	Sagittaria sanfordii	Sanford's arrowhead	G3, S3.2	CNPS: 1B, R-E-D: 2-2-3.	None	None	Fresh water marsh, vernal pools.
Amphibians	*Spea (Scaphiopus) hammondii*	Western spadefoot	G3, S3	CDFG: CSC, BLM: Sensitive	None	None	Vernal pool and vernal pool grassland, Grassland, Cottonwood woodland, Upland

Type	Scientific name	Common Name	CNDDB Ranks*	Other Lists*	State Listing Status*	Federal Listing Status*	Associated Cover-types
Birds	*Accipiter cooperii*	Cooper's hawk	G5, S3	CDFG: CSC	None	None	Blue oak savanna, Grassland, Blue oak woodland, High density development, Mixed riparian woodland, Mine tailings (cottonwood trees).
	Agelaius tricolor	Tricolored blackbird	G2G3, S2	CDFG: CSC	None	None	Grassland, Vernal pool grassland, Fresh water marsh.
	Ardea alba	Great egret	G5, S4	CDF: Sensitive	None	None	Fresh water marsh, Cropland, Pasture grassland, Mixed riparian scrub, Mixed riparian woodland, Valley oak riparian woodland
	Ardea herodias	Great blue heron	G5, S4	CDF: Sensitive	None	None	Fresh water marsh, Cropland, Vernal pool grassland, Pasture grassland, Mixed riparian scrub, Mixed riparian woodland, Valley oak riparian woodland
	Asio flammeus (nesting)	Short-eared Owl	G5, S3	CDFG: CSC, USBC: Watch list, Audubon: Watch list	None	None	Grassland, Vernal pool grassland, Cropland, Fresh water marsh
	Athene cunicularia (burrow sites)	Burrowing owl	G4, S2	CDFG: CSC, FWS: BCC, BLM: Sensitive	None	None	Grassland, Vernal pool grassland, Pasture grassland
	Buteo swainsoni	Swainson's hawk	G5, S2	Audubon: Watch list, FWS: BCC, FS: Sensitive, USBC: Watch list	Threatened	None	Blue oak woodland and savanna, Mixed riparian woodland, Valley oak riparian woodland, Cottonwood woodland, Vernal pool grassland, Grassland, pasture grassland, Cropland

Type	Scientific name	Common Name	CNDDB Ranks*	Other Lists*	State Listing Status*	Federal Listing Status*	Associated Cover-types
	Circus cyaneus (nesting)	Nothern harrier	G5, S3	CDFG: CSC	None	None	Fresh water marsh, Grassland, Vernal pool grassland Mixed riparian shrub, Pasture grassland, Cropland
	Elanus leucurus	White-tailed kite	G5, S3	FWS: MNBMC, CDFG: Fully Protected	None	None	Fresh water marsh, Cottonwood woodland, Grassland, Vernal pool grassland, Pasture grassland, Cropland
	Eremophila alpestris actia	California horned lark	G5T3, S3	CDFG: CSC	None	None	Grassland, Vernal pool grassland, Pasture grassland
	Grus canadensis tabida (nesting & wintering)	Greater sandhill crane	G5T4, S2	CDFG: Fully Protected, FS: Sensitive	Threatened	None	Grassland, Vernal pool grassland, Fresh water marsh
	Icteria virens (nesting)	Yellow-breasted chat	G5S3	CDFG: CSC	None	None	Mixed riparian scrub, mixed riparian woodland, valley oak riparian woodland
	Lanius ludovicianus (nesting)	Loggerhead shrike	G4, S4	CDFG: CSC, FWS: BCC	None	None	Grassland, Vernal pool grassland, Mixed riparian shrub, Valley oak riparian woodland, Cottonwood woodland, Cropland, Pasture grassland
	Plegadis chihi (rookery site)	White-faced ibis	G5, S1	CDFG: CSC	None	None	Fresh water marsh, Vernal pool grassland, Pasture grassland, Cropland
	Riparia riparia	Bank swallow	G5, S2S3		Threatened	None	Mixed riparian shrub, Mixed riparian woodland, Valley oak riparian woodland, Open water
Invertebrates	*Branchinecta lynchi*	Vernal pool fairy shrimp	G3, S2S3	IUCN: VU/A2c	None	Threatened	Vernal Pool
	Branchinecta mesovallensis	Midvalley fairy shrimp	G2, S2		None	None	Vernal Pool

Type	Scientific name	Common Name	CNDDB Ranks*	Other Lists*	State Listing Status*	Federal Listing Status*	Associated Cover-types
	Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	G3T2, S2		None	Threatened	Grassland, Vernal pool grassland, Blue oak woodland savanna, Mixed riparian shrub
	Lepidurus packardi	Vernal pool tadpole shrimp	G3, S2S3	IUCN: VU/A2c	None	Endangered	Vernal Pool
	Linderiella occidentalis	California linderiella (fairy shrimp)	G3, S2S3	IUCN: LRnt	None	Endangered	Vernal Pool
Mammals	*Antrozous pallidus*	Pallid bat	G5, S3	CDFG: CSC, FS: Sensitive, BLM: Sensitive, WBWG: High priority	None	None	Grassland, Vernal pool grassland, Pasture grassland
	Bassariscus astutus	Ringtail	G5		None	None	Mine tailings, Valley oak riparian woodland, Mixed riparian shrub & woodland
	Myotis ciliolabrum	Western small-footed myotis	G5	BLM: Sensitive	None	None	Cottonwood woodland, Mine tailings, Mixed riparian shrub & woodland, Blue oak woodland & savanna
	Myotis evotis	Long-eared myotis	G5, S4	BLM: Sensitive	None	None	Cottonwood woodland, Mixed riparian shrub & woodland, Blue oak woodland & savanna, Grassland, Vernal pool grassland
	Myotis thysanodes	Fringed myotis	G4T3T4, S2S3	BLLM: Sensitive, WBWG: High priority	None	None	Grassland, Vernal pool grassland, Valley oak riparian woodland, Mixed riparian shrub, Cotonwood woodland, Mine tailings
	Myotis volans	Long-legged myotis	G5		None	None	Cottonwood woodland, Mine tailings, Mixed riparian woodland, Valley oak riparian woodland, Grassland, Vernal pool grassland

Type	Scientific name	Common Name	CNDDB Ranks*	Other Lists*	State Listing Status*	Federal Listing Status*	Associated Cover-types
	Myotis yumaensis	Yuma myotis	G5, S4	BLM: Sensitive	None	None	Cottonwood woodland, Mine tailings, Mixed riparian woodland, Valley oak riparian woodland
	Taxidea taxus	American badger	G5, S4	CDFG: CSC	None	None	Pasture grassland, Grassland, Vernal pool grassland, Cottonwood woodland, Blue oak woodland & savanna
Reptiles	*Emys (=Clemmys) marmorata marmorata*	North-western pond turtle	G3G4T3, S3	CDFG: CSC, FS: Sensitive	None	None	Fresh water marsh, Streams, Open water
	Thamnophis gigas	Giant garter snake	G2G3, S2S3	IUCN: VU/A1cde+2cde	Threatened	Threatened	Aqueduct, Fresh water marsh, Streams, Open water

* = citation: California Department of Fish and Game (CDFG). 2004. California Natural Diversity Database. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game (Version: 09 September 2004).

Key:

CNDDB Ranks:

G: Global rank indicator; denotes rank based on rangewide status.

T: Trinomial rank indicator; denotes global status of infraspecific taxa.

S: State rank indicator; denotes rank based on status

1 = Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences).
2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences).
3 = Rare or uncommon but not imperiled (typically 21 to 100 occurrences).
4 = Not rare and apparently secure, but with cause for long-term concern (usually more than 100 occurrences).
5 = Demonstrably widespread, abundant, and secure.
U = Unrankable.
H = Historical occurrence (formerly part of the native biota; implied expectation that it might be rediscovered or possibly extinct).
X = Presumed extinct or extirpated.
Q = Indicates uncertainty about taxonomic status.
? = Uncertainty exists about the stated rank.
NR = Not ranked.
NA = Conservation status rank is not applicable.

State Ranks Specific to Long Distance Migrants (Bats and Birds):

A = Accidental (occurring only once or a few times) or casual (occurring more regularly although not every year); a few of these species might have bred on one or more of the occasions when they were recorded.

B = Breeding population.

M = Only applies when migrant occurs in an irregular, transitory, and dispersed manner. Occurrences cannot be defined from year-to-year.
N = Nonbreeding population.

CNPS Lists:

List 1A: Plants Presumed Extinct in California

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
List 3: Plants About Which We Need More Information - A Review List
List 4: Plants of Limited Distribution - A Watch List

CNPS R-E-D Code:

R - Rarity

1 - Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time
2 - Distributed in a limited number of occurrences, occasionally more if each occurrence is small
3 - Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported

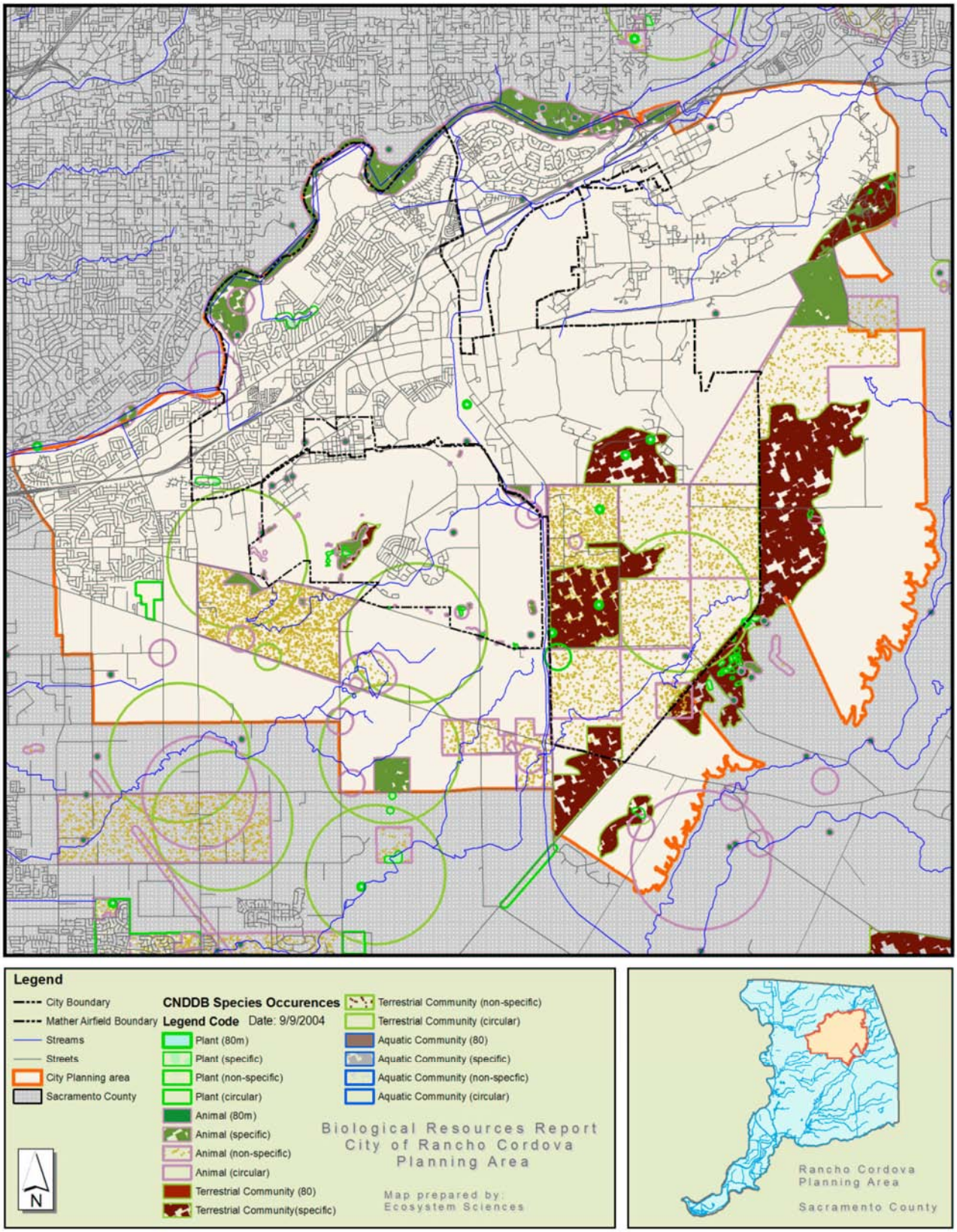
E - Endangerment

1 - Not endangered
2 - Endangered in a portion of its range
3 - Endangered throughout its range

D - Distribution

1 - More or less widespread outside California
2 - Rare outside California
3 - Endemic to California

Figure 4.1. Special status species occurrences within the Rancho Cordova plan area.



4.1 Distribution and Life History of State and Federally Listed Species

This section provides a brief overview of the distribution and life history of those special status species that are listed with either the state of California or the federal government. Related technical documents were consulted (County of Sacramento 2004, PLSWG 2005). Within the species distribution sections, "document occurrences" refers to CNDDB occurrences for the entire state, and occurrences within the "Rancho Cordova area" refers to the results of a CNDDB query for all pertinent USGS quads (Buffalo Creek, Carmichael, Elk Grove, Folsom, and Sloughhouse).

4.2 Plants

Bogg's Lake Hedge-Hyssop *(Gratiola heterosepala)*

Status: Federal: None
State: Endangered

Distribution: Bogg's lake hedge-hyssop is found in California and Lake County, Oregon. The first specimens were collected in Lake County, California, in 1923 (Mason and Bacigalupi 1954). There are currently 86 documented occurrences of the species in California, 10 of which are in the Rancho Cordova area (CDFG 2004).

Life History: Bogg's lake hedge-hyssop is a small, semi-aquatic, herbaceous annual that grows approximately 2-10 cm (0.8-3.9 inches) tall (Wetherwax 1993). Each plant generally produces only one or two flowers. The tubular bilateral corolla has two yellow upper lobes and three white lower lobes. The flowers appear yellow from a distance. The blooming period for Bogg's lake hedge-hyssop is between April and June, while vernal pools are still inundated with less than 5 cm (2 inches) of water (CNPS 2001).

Slender Orcutt Grass *(Orcuttia tenuis)*

Status: Federal: Threatened
State: Endangered

Distribution: Slender orcutt grass was known to exist in the mid-1980's in Lake, Sacramento, Shasta, and Tehama counties in only 18 localities (Reeder 1982, Stone et al. 1988). There are currently 81 documented occurrences in California, including two in the Rancho Cordova area (CDFG 2004).

Life History: Many life history characteristics for slender orcutt grass are common to the entire tribe (Orcuttieae), while certain aspects are shared only by *Orcuttia* and *Tuctoria* species. Among these is the pattern of flowering; the first two flowers on a given plant open simultaneously and do not produce pollen until the ovaries are no longer receptive. Thus, if they are fertilized it

must be with pollen from another plant (Griggs 1980). Those specific to the genus *Orcuttia* include the underwater germination of seeds in January and February (Griggs 1980, Griggs and Jain 1983, Keely and Zedler 1998). *Orcuttia* plants grow underwater for 3 months or more and have evolved specific adaptations to aquatic growth (Keely and Zedler 1998). Among these adaptations is the formation of three different leaf types (USFWS 2004). June and July are the peak months of flower production for most species, although flowering may continue into August and September in years of above-normal precipitation (Griggs 1980, Griggs 1981).

Sacramento Orcutt Grass *(Orcuttia viscida)*

Status: Federal: Endangered
State: Endangered

Distribution: Sacramento orcutt grass is endemic to the Southeastern Sacramento Vernal Pool Region (Keeler-Wolf et al. 1998) and has always been restricted to Sacramento County (USFWS 2004). The CNDDB reports that 8 of the 9 documented occurrences (CDFG 2004) and 70 percent of the occupied habitat (USFWS 2004) are in the Rancho Cordova area.

Life History: Basic life history and habitat requirements of this plant are likely similar to those described above for slender orcutt grass (USFWS 2004). Sacramento Orcutt Grass flowers in May and June (Griggs 1977, Skinner and Pavlik 1994) and sets seed in June and July (Holland 1987). It has been found in Northern Hardpan and Northern Volcanic Mudflow vernal pools (Sawyer and Keeler-Wolf 1995).

4.3 Birds

Swainson's Hawk *(Buteo swainsoni)*

Status: Federal: None
State: Threatened

Distribution: Swainson's hawk inhabits grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season and winters in grassland and agricultural regions from Central Mexico to Southern South America (Woodbridge et al. 1995, England et al. 1997). Of the 1,270 documented occurrences in California, 29 occur in the Rancho Cordova area (CDFG 2004).

Life History: Swainson's hawks usually nest in large, native trees such as valley oaks (*Quercus lobata*), cottonwoods (*Populus fremontia*), and willows (*Salix spp.*), although nonnative trees such as eucalyptus (*Eucalyptus spp.*) are also used. Nests occur in a variety of environments, including riparian woodlands, roadside trees, trees along field borders, small groves, trees in windbreaks, and on the edges of remnant oak woodlands. In some Central Valley locales, urban nest sites have also been recorded (England et al. 1995). Acres of remnant

riparian forest along drainages contain the majority (87%) of known nests in the Central Valley (England et al. 1995, Schlorff and Bloom 1984). Nests are constructed using materials from the nest tree or nearby trees and are up to 60 centimeters (24 inches) in diameter. Nests are usually constructed as high as possible in the tree, providing optimal protection and visibility from the nest (England et al. 1997).

Greater Sandhill Crane (*Grus Canadensis ssp. tabida*)

Status: Federal: None
State: Threatened

Distribution: The Greater Sandhill Crane nests in open mountain meadows, coniferous forests, freshwater marshes, and sagebrush areas (Snyder 1992) in much of western North America, from Manitoba to Mexico, including Northern California (Terres 1980). None of the 599 occurrences documented by the California Department of Fish and Game were located in the Rancho Cordova area (CDFG 2004). Nesting Greater Sandhill Cranes are known to occur in Lassen, Modoc, Plumas, Shasta, and Siskiyou Counties (Littlefield 1989, CDFG 1997).

Life History: Sandhill Cranes need swampy, marshy wetlands for breeding and wintering (Terres 1980). They need adequate emergent vegetation to build their 4 to 5 foot diameter nests on mounds that rise above the water (Melvin et al. 1990). Clutch size is typically two (CDFG 1997). Sandhill Cranes forage on a variety of food items by probing with their bills and gleaning food on the ground surface. They are considered omnivorous and have been reported to feed on cultivated grains, berries, small mammals, insects, snails, reptiles, amphibians, nestling birds, and seeds (County of Sacramento 2004). Because they utilize agricultural lands for much of their food sources, pastures and croplands interspersed with wetlands provide ideal habitat (Garrison et al. 1987, Nesbit et al. 1990, Ivey and Herzinger 2003).

Bank Swallow (*Riparia riparia*)

Status: Federal: None
State: Threatened

Distribution: Bank Swallows occur throughout the northern two-thirds of the U.S., through much of Canada, and into Alaska (Garrison 1999). Bank Swallows historically occupied riparian areas along large California rivers in the central and northern parts of the state, as well as along the coast (Grinnell and Miller 1944, Humphrey and Garrison 1987, PLSWG 2005). Current breeding range is restricted to the Sacramento Valley, northeast California, and the along the central and northern coast (CDFG 1995,2000, PLSWG 2005). Of the California Department of Fish and Game's 176 recorded occurrences in the state, 5 were in the Rancho Cordova area (CDFG 2004).

Life History: Bank swallows dig nests in cliffs and banks comprised of soft soils like fine sandy loam, loam, silt loam, and sand (Garrison et al. 1987). They forage on insects in flight, and are therefore found in a wide variety of habitats. Suitable nest sites are located at least 1m above ground or water (Garrison et al. 1987) and remaining sites are mostly along coastal river mouths, large rivers in the Sacramento valley and northeastern California (PLSWG 2005). They may sometimes find appropriate sites in gravel and sand mines (Grinnell and Miller 1944, CDFG 1995). Breeding season is initiated in April, and clutches of 1-9 are hatched and fledged by June (Garrison 1999).

4.4 Invertebrates

Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*

Status: Federal: Threatened
State: None

Distribution: Endemic to California, vernal pool fairy shrimp historically ranged throughout the grasslands of the central valley (Eng et al. 1990). Populations have been documented in Northwest Sacramento Valley, Northeast Sacramento Valley, Southeast Sacramento Valley, Solano- Colusa, Livermore, Central Coast, Carrizo, San Joaquin Valley, South Sierra Foothills, and Western Riverside County vernal pool regions (PLSWG 2005). 30 of the 342 occurrences documented by the California Department of Fish and Game were located in the Rancho Cordova area (CDFG 2004).

Life History: Vernal pool fairy shrimp inhabit rain-filled ephemeral pools (i.e., vernal pools) that form in depressions, usually in grassland habitats (Eng et al. 1990). The vernal pool fairy shrimp lifecycle takes place completely within vernal pools. Pools occupied by vernal pool fairy shrimp often have grass or mud bottoms and clear to tea-colored water; they are often in basalt flow depression pools in unplowed grasslands (Eriksen and Belk 1999, PLSWG 2005). Vernal pool fairy shrimp inhabit alkaline pools, ephemeral drainages, rock outcrop pools, ditches, stream oxbows, stockponds, vernal pools, vernal swales, and other seasonal wetlands. Occupied habitats range in size from rock outcrop pools as small as 0.8 square meters (1 square yard), to large vernal pools up to 4.5 hectares (11 acres). The maximum potential water depth of occupied habitat ranges from 3 to 122 centimeters (1.2 to 48 inches) (Helm 1998, Eriksen and Belk 1999, PLSWG 2005).

Valley Elderberry Longhorn Beetle *(Desmocerus californicus ssp. dimorphus)*

Status: Federal: Threatened
State: None

Distribution: The valley elderberry longhorn beetle (VELB) is endemic to Central Valley (Linsley and Chemsak 1972). The U.S. Fish and Wildlife Service (USFWS) recognize the range of VELB to include the watersheds of the American, San Joaquin, and Sacramento rivers and tributaries to these watersheds at elevations

below about 900 meters (PLSWG 2005). VELB primarily occurs in the greater Sacramento and northern San Joaquin Valleys. Barr (1991) reported the range of VELB to include all of the Central Valley from Shasta County in the north to Kern County in the south. Of the California Department of Fish and Game's 190 recorded occurrences in the state, 17 were in the Rancho Cordova area (CDFG 2004).

Life History: VELB utilizes two species of elderberry plants: blue elderberry (*Sambucus mexicana Presl: Caprifoliaceaea*) and red elderberry (*Sambucus racemosa L. var. microbotrys [Rydb.] Kearney and Peebles: Caprifoliaceaea*) with a basal diameter greater than 2.54 cm (1 inch) occurring in riparian forests or elderberry savannas adjacent to riparian vegetation (PLSWG 2005). VELB does not seem to select one species over the other, but colonizes whichever elderberry species is available (Barr 1991). Collinge et al. (2001) found that isolated elderberry plants and isolated drainages are less likely to support VELB populations than plants with connectivity to other habitat. Adult VELBs are active during the flowering period of the elderberry plant, usually from mid-March to mid-May (USFS 1984). The adults feed on the plants' leaves and flowers, and the females lay hundreds of eggs on the plant stems and leaves. Larvae emerge within a few days and burrow into the plant stem. The larva feeds downward through the stem pith, excavating a distinct feeding chamber filled with frass and shredded wood (Barr 1991). After 1–2 years, the larva chews a hole to the stem surface and returns to the chamber to pupate (Halstead and Oldham 1990). When the host plant begins to flower, the pupa emerges as an adult and exits the chamber through a characteristic exit hole 0.4 to 1.0 centimeter (0.15–0.4 inch) in diameter (Barr 1991).

Vernal Pool Tadpole Shrimp *(Lepidurus packardi)*

Status: Federal: Endangered
State: None

Distribution: Vernal pool tadpole shrimp is reported as endemic to the Central Valley of California (Helm 1998, Rogers 2001). The historical range of vernal pool tadpole shrimp includes annual grasslands of the Great Central Valley. Today the species ranges from Shasta County in the north to Merced County in the south, with one population occurring in western Alameda County (Rogers 2001). Of the California Department of Fish and Game's 172 recorded occurrences in the state, 33 were in the Rancho Cordova area (CDFG 2004).

Life History: Vernal pool tadpole shrimp occur in a variety of natural and artificial seasonally inundated habitats. They require seasonally aquatic habitats that are wet for at least 7 weeks and dry in summer (Gallagher 1996). Helm (1998) observed vernal pool tadpole shrimp occurring in vernal pools (natural, artificial, and constructed), seasonal wetlands (natural and artificial), alkaline pools, clay flats, vernal swales, stockponds, railroad right-of-way pools, roadside ditches, and road rut pools resulting from vehicular activity (PLSWG 2005).

California Lindriella *(Lindriella occidentalis)*

Status: Federal: Endangered
State: None

Distribution: California linderiella is a fairy shrimp species endemic to California. In the Central Valley, it ranges from near Redding in the north to as far south as Fresno County, with populations more concentrated east of the Sacramento and San Joaquin Rivers. More scattered populations occur through the coastal region from Mendocino to Ventura Counties. (Eriksen and Belk 1999, PLSWG 2005). None of the 218 occurrences documented by the California Department of Fish and Game were located in the Rancho Cordova area (CDFG 2004).

Life History: California linderiella have similar habitat requirements to the vernal pool fairy shrimp described above. Of the endemic central valley fairy shrimp, California linderiella have the highest tolerance for warm water and low dissolved oxygen concentrations (Helm 1998). Most pools occupied by California linderiella contain vegetation and have clear water (PLSWG 2005). Fertilized eggs develop into embryos and cyst development begins. The embryo enters a dormant stage and the cyst (embryo and shell) are dropped in the pool bottom by the female. Cysts remain in the pool until it fills again in the same or following seasons. When conditions are right, some or all of the cysts may hatch. Egg banks and cohorts are generally comprised of cysts resulting from several different years of breeding (Eriksen and Belk 1999).

4.5 Reptiles

Giant Garter Snake (*Thamnophis gigas)*

Status: Federal: Threatened
State: Threatened

Distribution: The giant garter snake is endemic to the Sacramento and San Jaquin valleys (Fitch 1941, Hansen and Brode 1980, Rossman and Stewart 1987, USFWS 1999). Historical distributions are thought to have extended throughout the large floodplain basins, freshwater marshes, and tributary stream of the Central Valley (Hansen and Brode 1980). Current range is confined to portions of the Sacramento and San Joaquin valleys (USFWS 1999). Of the California Department of Fish and Game's 166 recorded occurrences in the state, only one was in the Rancho Cordova area (CDFG 2004).

Life History: The giant garter snake inhabits agricultural wetlands and associated waterways. It may be found in irrigation and drainage canals, rice fields, marshes, sloughs, small lakes and ponds, low gradient streams and adjacent uplands (USFWS 1999). They require sufficient water during their active season (early spring to mid-fall) to supply sufficient prey base, emergent vegetation such as cattails) for escape cover and foraging habitat, upland habitat and grassy banks for basking, and adjacent uplands for refuge from floodwaters during the inactive season (Hansen and Brode 1980, Hansen and

Brode 1988, Brode and Hansen 1992, Hansen and Brode 1993). Breeding season is from March to May, and resumes briefly in September (USFWS 1999). Clutch sizes are usually between 10-46 young hatching between July and September (Hansen and Hansen 1990).

5.0 Invasive Species

5.1 Background

In native habitats, plant and animal populations are kept in check by natural controls, like predators and food supply. However, when a species is introduced, accidentally or intentionally, into a new landscape—one not adapted to its presence—the consequences can be devastating. "Invasive" plants and animals sometimes spread unchecked, disrupting natural cycles, crowding out native species and are costly in property damage and lost economic productivity. Development of the landscape can be a major cause of invasive species introduction and spreading. When land is cleared, developed and landscaped there is sufficient opportunity for invasives to become established. Management plans to control the spread of invasive species can work to eliminate potential harmful impacts.

Identifying and tracking exotic pest plants is an important component of managing any biological resource. Many California habitats have been invaded by exotic plants for over a century. In fact, 1,025 species (17.5%) of California flora is now exotic (Rejmanek and Randall 1994). The California Native Plant Society policy on invasive exotic plants states:

> "The homogenization--blurring of distinctions--of the earth's flora and fauna and subsequent loss of biological diversity, is a problem of global significance which threatens livelihoods and engenders catastrophic ecological change. The threat posed to natural ecosystems by biological pollution--the introduction of non-native plants, animals and other organisms--is rivaled only by that of development. The most aggressive exotic plants are unacceptable in natural areas because they can exclude native plants, degrade, alter or displace natural plant communities, promote faunal change, reduce biological diversity, disrupt ecosystem processes, alter fire frequencies, restrict economic return, reduce recreational values, threaten endangered species and fundamentally alter the unique character and physiognomy of California." (CNPS 1996).

5.2 Exotic Pest Plant List

The California Exotic Pest Plant Control Council (CalEPPC) is a California non-profit, public benefit corporation organized to provide a focus for issues and concerns regarding exotic pest plants in California. CalEPPC produces a list of Exotic Pest Plants of Greatest Concern in California (CalEPPC 1999). By cross-

reverencing this list with the geography and habitats within the Rancho Cordova planning area, a revised list of pertinent exotic plants was generated (Table 5.1). This list is not meant be exhaustive, but rather to identify the exotic pest plants that are well documented threats to the biological resources of Rancho Cordova. The list was generated for wildlands only (natural areas that support native ecosystems, including national, state and local parks, ecological preserves, wildlife areas, national forests, BLM lands, etc). Those plants found only on roadsides and waste areas are not included on the list. Other exotic pest species, like yellow star-thistle, are known roadside weeds that currently have projects in place to control them (Sacramento County Yellow Starthistle Biological Control Project).

5.3 Exotic Plant Effects

Exotic pest plants can have significant impacts on natural systems. Exotic plants can trap much of the energy flowing through a system and can displace native plants completely. Land dominated by exotic weeds is generally of low biological value and of diminished value and use to human society. Indeed, an informal analysis by the California Department of Fish and Game found that 23% of California's 280 plant communities are heavily impacted by non-native plants, and another 28% are moderately threatened by them (Keeler-Wolf 1993).

5.4 Effects on Fire

Fire frequencies can be altered by exotic plants, reducing the ability of native plants to survive and flourish. Effects of a change in fire regime can result in a vegetation community-type shift (e.g. from native bunchgrass dominated grassland to an annual grassland dominated my exotics) (CNPS 1995). Cheat grass has had a similar effect in the rangelands of the intermountain west (D'Antonio and Vitousek 1992).

5.5 Effects on Riparian Areas

Riparian areas are a critically threatened part of the California landscape. Often areas of high diversity, these areas are also highly threatened by exotic pest plant invasions (Table 5.1). Riparian areas are crucial breeding and foraging habitat for many bird species (see cover-type descriptions, Section 3.0). Tamarix and giant reed have invaded many California riparian areas, decreasing their habitat value for native bird species. Many species don't use these exotic stands because they do not support the insect populations of native stands and therefore food supply for insectivorous birds is low (CNPS 1996). Other species (e.g. Eucalyptus globalus, Lepidium latifolium) known to occur in the Rancho Cordova planning area have been shown to degrade riparian habitats (Table 5.1). For example, studies have shown that native birds prefer native woodlands dominated by oak rather than groves of introduced trees such as Tasmanian blue gum (Morrison and Keane 1988).

5.6 Effects on Grasslands

California's native grasslands are highly threatened environments. Most grasslands that have not been converted to agriculture or other land uses have been overtaken by annual exotic grasses, including those in the Rancho Cordova planning area. As a result, the California Native Plant Society classifies many native grassland series as threatened (Sawyer and Keeler-Wolf, 1995). Several exotic grasses have been documented to occur in Rancho Cordova including the exotic pest species ripgut brome, wild oat, and medusa head (ECORP Consulting 2004).

5.7 Effects on Special Status Species

Exotic pest plants can threaten rare and endangered plants by displacement of habitat and alteration of ecosystem processes. At least 91 of the plants in *CNPS' Inventory of Rare and Endangered Vascular Plants of California* are threatened by exotics (CNPS 1994). Two plants listed on Table 5.1 are known to invade vernal pool habitats (italian ryegrass and pennyroyal) and therefore pose a threat to many species of special concern (Section 4.0). However, many other exotic plants exist in and invade vernal pool habitats and the species and number of non-natives is unsystematic. Therefore, each subtle vernal pool habitat needs to be evaluated in more finite detail than is explored in this report.

Table 5.1. Exotic pest plant of concern to the Rancho Cordova plan area.

Scientific Name	Common Name	Listing	Habitats of concern and comments
Cytisus scoparius	Scotch broom	A, c	Horticultural, oak woodlands. Highly flammable and common at wildland-urban interfaces.
Eucalyptus globulus	Tasmania blue gum	A	Riparian areas, grasslands.
Foenicum vulgare	Wild fennel	A	Grasslands. Cultivated garden herb is not invasive.
Lepidium latifolium	Perennial pepperweed, tall whitetop	A	Riparian areas, grasslands.
Taeniatherum caput-medusae	Medusa-head	A,c	Grasslands, particularly alkaline and poorly drained areas.
Rubus discolor	Himalayan blackberry	A	Riparian areas, marshes, woodlands.
Tamarix spp.	Tamarix, salt cedar	A	Riparian areas.
Ailanthus altissima	Tree of heaven	A	Riparian areas, grasslands, oak woodlands.
Bromus madritensis ssp. Rubens	Red brome	A	Widespread. Increases fire frequency.
Eichhornia crassipes	Water hyacinth	A	Horticultural, established in natural waterways, esp. troublesome in Sacramento-San Joaquin Delta.
Ficus carica	Edible fig	A	Horticultural, riparian woodlands.
Mentha pulegium	Pennyroyal	A	Central valley vernal pools.
Cardaria pycnocephalus	Italian thistle	B,b	Wetlands of the central valley.
Centaurea calcitrapa	Purple star thistle	B	Grasslands.
Cirsium arvense	Canada thistle	B,b	Especially troublesome in riparian areas.

Scientific Name	Common Name	Listing	Habitats of concern and comments
Cirsium vulgare	Bull thistle	B	Riparian areas, marshes, meadows.
Conium maculatum	Poison hemlock	B	Mainly in disturbed areas but may invade wildlands; known to poison wildlife. Early expanding stage in many areas.
Hedera helix	English Ivy	B	Horticultural, riparian areas.
Hypericum perforatum	Klamath weed, St John's wort	B	Woodlands.
Potamogeton crispus	Curlyleaf pondweed	B	Scattered distribution in ponds, lakes, streams.
Robinia pseudocacia	Black locust	B	Horticultural, riparian areas.
Spartium junceum	Spanish broom	B	Grassland, wetlands, oak woodland.
Alhagi pseudalhagi	Camel thorn	R,a	Noxious weed of arid areas; most infestations in California have been eradicated.
Centaurea maculosa	Spotted knapweed	R,a	Riparian areas, grassland.
Lythrum salicaria	Purple loostrife	R,b	Horticultural, noxious weed of wetlands, riparian areas.
Sesbania punicea	Scarlet wisteria tree	R	Horticultural, riparian areas, known to exist along the American River Parkway.
Avena barbata	Slender wild oat	G	Grasslands, low elevations in central valley, disturbed sites.
Avena fatua	Wild oat	G	Grasslands, low elevations in central valley, disturbed sites.
Brachypodium distachyon	False brome	G	Grasslands.
Bromus diandrus	Ripgut brome	G	Grasslands.
Lolium multiflorum	Italian ryegrass	G	Wetland areas, esp. vernal pools in San Diego Co.; common in disturbed sites.

Key:

A
Most Invasive Wildland Plants; documented as aggressive invaders that displace natives and disrupt natural habitats.

B
Wildland Pest Plants of Lesser Invasiveness; invasive pest plants that spread less rapidly and cause a lesser degree of habitat disruption; may be widespread or regional.

R
Red Alert; Pest plants with potential to spread explosively; infestations currently small or localized. If found alert CalEPPC, County Agricultural Commissioner or California Department of Food and Agriculture.

G
Annual Grasses; a preliminary list of annual grasses, abundant and widespread in California, that pose significant threats to wildlands.

a
CA Dept. of Food &Agriculture, on "A" list of Noxious Weeds; agency policies call for eradication, containment, or entry refusal.

b
CA Dept. of Food &Agriculture, on "B" list of Noxious Weeds; includes species that are more widespread, and therefore more difficult to contain; agency allows county Agricultural Commissioners to decide if local eradication containment is warranted.

c
CA Dept. of Food &Agriculture, on "C" list of Noxious Weeds; includes weeds that are so widespread that the agency does not endorse state or county funded eradication or containment efforts except in nurseries or seed lots.

6.0 Landscape Ecology and Diversity

The combined characteristics of a landscape (i.e. topography, climate, soils, aspect etc.) create distinct habitats that promote a diversity of organisms. Often, the more diverse a landscape is, the more habitats and species are found within it. Grasslands, for example, which at first glance can seem monotonous and appear lacking in diversity, can harbor a great number of species. Streams running through the grassland, seasonal swales where water collects, and changes in soil types, all provide areas within the grassland that promote diversity.

6.1 Biodiversity

California is one of the most biologically diverse areas in the world and within its borders, harbors more unique species than any other state (Resources Agency 1998). California's varying topography and climate has created a diversity of habitats that are now occupied by nearly 30,000 species of insects, 63 freshwater fishes, 46 amphibians, 96 reptiles, 563 birds, 190 mammals, and about 8,000 plants (Resources Agency 1998).

The Sacramento Valley of California, in which Rancho Cordova is located, harbors an abundance of the above species. Its oak woodlands, riparian forests, vernal pools, freshwater marshes, and grasslands create a landscape mosaic rife with biodiversity, many of which are found no where else in the world. One habitat type in particular, the vernal pool, supports a uniquely adapted, mostly native, and highly endemic assemblage of species. For example, within vernal pool ecosystems there are more than 100 native plant species, and many of these (55%) are found only in California (Holland 1978, Keeler-Wolf et al. 1998). The presence of such a high degree of endemic plants within one habitat type requires that conservation measures to be taken to promote not only the preservation, but the proper functioning of that ecosystem for future generations.

6.2 Connectivity and Conservation

Preserving ecosystems for future generations does not mean fencing off interesting landscape elements, such as a vernal pool. The interesting landscape element that now resides within a fence is a result of landscape processes occurring outside of the fence. The vernal pool is a good example, as the pool itself is a result of water draining the uplands that surround it. Therefore, a better approach to conserving a vernal pool would be to make sure that the pool is connected to its drainage area. This is called preserving the connectivity of a landscape.

It is important to have connectivity in a landscape. One result of connectivity is functioning metapopulations. A metapopulation is a large group of organisms made up of smaller groups that interact with each other but are not necessarily

in the same place at the same time. In other words, a metapopulation is a population that consists of several subpopulations linked together by immigration and emigration (corridors across multiple habitats). This means that individuals are moving between groups and interacting, and that connectivity makes them more likely to survive and reproduce. If habitat types are connected, then when one group suffers or a local loss occurs, those areas can be repopulated by other groups via the connectivity in the landscape. This makes multiple reserves and conservation areas more viable and more valuable. It also helps to strengthen species populations to resist outside pressures from development and encroachment. Multiple, connected habitat types offers a sustainable solution to conservation of wildlife and plant resources.

7.0 Regional Resource Planning Efforts and Studies

Several existing local and regional planning efforts address the protection of biological resources in and around the Rancho Cordova planning area. These efforts are listed here because they relate to the management of biological resources from a regional perspective and relate to the landscapes described in this document. Biological resources rarely correspond to political boundaries, and it is necessary to manage resources from a regional perspective and in collaboration with public and private agencies. The Rancho Cordova planning area falls geographically within the County of Sacramento as well as the State of California, and the biological resources are the subject of management by those entities. Table 7.1 presents other planning efforts in the region.

Table 7.1. Summary of regional resource planning efforts.

Jurisdiction	Program Name	Public/Private	Resource Protection Guidelines
Southern portion of Sacramento County south of Hwy. 50	**South Sacramento Habitat Conservation Plan (SSHCP)**	Public	Regional approach to addressing issues related to urban development, habitat conservation, and agricultural protection. The HCP should provide for the long-term management of plant, fish and wildlife species, especially those that are currently listed, or may be listed in the future, under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA).
California Bay Delta Counties and the State of California	**Cal/Fed Bay Delta Program: Ecosystem Restoration Program**	Public	Improve and increase the quantity, diversity and quality of aquatic habitats and improve ecological functions in the Bay-Delta system to support increased and sustainable populations of diverse and valuable plant and animal species.

Jurisdiction	Program Name	Public/Private	Resource Protection Guidelines
Central Valley counties and the State of California	**Central Valley Joint Habitat Venture (CVJHV)**	Private/Public	Protect, maintain and restore habitat to increase waterfowl populations to desired levels in the Central Valley of California consistent with other objectives of the North American Waterfowl Management Plan. Lead agency for CVJHV is USFWS, but CVJHV is comprised of representatives from the California Waterfowl Association, Ducks Unlimited, National Audubon Society, The Nature Conservancy, The Trust for Public Land, and American Farmland Trust.
American River Corridor between Lake Natomas near Folsom and its confluence with the Sacramento River at Discovery Park	**Lower American River Corridor Management Plan**	Public/Private	Comprehensive approach to sustain and enhance environmental vitality and recreational uses of the American River, without compromising efforts to provide reliable flood protection and water supply. This effort is designed to fall within the framework of the **American River Parkway Plan.**
American River	**American River Parkway Plan**	Public	Provide a guide to land use decisions affecting the Parkway; specifically addressing its preservation, use, development and administration. Ensure preservation of the naturalistic environment while providing limited developments to facilitate human enjoyment of the Parkway.

8.0 Regulatory Framework

8.1 Wetlands and Vernal Pools

Wetland resources include both wetlands, as defined below, and perennial and seasonal streams. This is because wetlands and streams are often hydrologically interrelated, and because the U.S. Army Corps of Engineers (USACE) has jurisdiction under the Clean Water Act to regulate activities within waters of the U.S. Therefore, the actions and alternatives being considered for implementation at Rancho Cordova have potential to impact not only natural resources, but natural resources that are regulated by law. It is therefore necessary to provide a short introduction to the regulatory framework under which these resources are being described and the actions are being evaluated. In the Code of Federal Regulations (CFR), jurisdictional waters of the U.S. are defined as:

> (1) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters

> that are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; and the use, degradation or destruction of which could affect interstate or foreign commerce, including any such waters i) that are or could be used by interstate or foreign travelers for recreational or other purposes; or ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or iii) that are used or could be used for industrial purposes by industries in interstate commerce; (4) all impoundments of waters otherwise defined as waters of the United States under the definition; (5) tributaries of waters as described above; (6) the territorial seas; (7) wetlands adjacent to waters (other than waters that are themselves wetlands) as described above; and (8) not prior converted cropland. [33 CFR §328.3(a)]

Wetlands are defined as a subset of jurisdictional waters of the U.S. in Part 3 of the above definition. The USACE also provides a more specific definition of wetlands:

> [Wetlands are] those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

In most cases, the development or disruption of wetlands and other waters of the U.S. requires a permit from the USACE. There are two types of Section 404 permits: individual permits and general permits. Individual permits are generally used for larger projects that would result in substantive impacts (i.e., greater than 1/3 acre) to wetland area and/or function. General permits include a variety of nationwide permits that were designed to streamline the wetlands permitting process for actions (e.g., utility line crossings, transportation projects) having minimal impacts on jurisdictional wetlands.

8.2 National Environmental Policy Act (NEPA)

The declared purpose of NEPA is:

> *To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.* NEPA Sect. 2

The core policy established by NEPA is to:

> *Use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the*

> *general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans*
> NEPA Sec. 101(a)

NEPA requires review of the effects of all Federal, federally assisted, and federally licensed actions, not just of those defined as "major" or as having "significant" impacts. The level of review given different kinds of projects varies with the likelihood of serious impact, however.

Regulations for implementing NEPA have been issued by the Council on Environmental Quality (CEQ), in the Executive Office of the President. CEQ is a three-member council of Presidential appointees, served by a small staff. The regulations are 40 CFR 1500-1508 -- that is, Title 40 of the Code of Federal Regulations, Parts 1500 through 1508. The regulations apply to all Federal agencies, and all agency actions. The basic requirement is to analyze the effects of the action, and consider these effects in decision making.

CEQ provides the following guidelines for agency planning efforts:

(a) Integrate the NEPA process into early planning to insure appropriate consideration of NEPA's policies and to eliminate delay.
(b) Emphasize cooperative consultation among agencies before the environmental impact statement is prepared rather than submission of adversary comments on a completed document.
(c) Provide for the swift and fair resolution of lead agency disputes.
(d) Identify at an early stage the significant environmental issues deserving of study and deemphasizing insignificant issues, narrowing the scope of the environmental impact statement accordingly.
(e) Provide a mechanism for putting appropriate time limits on the environmental impact statement process.

8.3 Federal Endangered Species Act

The Federal Endangered Species Act of 1973 (FESA) recognized that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in FESA as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species. FESA also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of FESA if listed species or critical habitat may be present in the area affected by any major federal construction activity as defined in Part 404.02. Under Section 7(a)(3) every

federal agency is required to consult with the USFWS or National Marine Fisheries Service on a proposed action if the agency has reason to believe that an endangered or threatened species may be present in an area affected by the proposed action and that implementation of the action will likely affect the species.

8.4 California Environmental Quality Act (CEQA)

The basic purposes of CEQA are to:

(1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify the ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

CEQA Guidelines requires that a lead agency make mandatory findings of significance in if:

> "The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory."

Rare or endangered species are defined in the CEQA Guidelines as follows:

> (A) "Species" as used in this section means a species or subspecies of animal or plant or variety of plant.
> (B) A species of animal or plant is:
>> (1) "Endangered" when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or
>> (2) "Rare" when either:
>>> (a) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or
>>> (b) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

Appendix G of the CEQA Guidelines lists criteria for determining whether impacts are considered significant. Impacts on biological resources are potentially significant if the project would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, wetlands, etc.) through direct removal, filling, hydrological interruption, or other means;
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

8.5 California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code) establishes a State policy to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The Fish and Game Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with the Department of Fish and Game to determine if a proposed project is likely to jeopardize the continued existence of any state-listed endangered or threatened species.

The Fish and Game Code allows the "take" of a species listed as threatened or endangered under CESA. Take is defined as any act that involves direct mortality or other actions that may result in adverse impacts when attempting to take individuals of a listed species. Under the Code, the state Department of Fish and Game may issue a memorandum of understanding to authorize take for scientific, educational or management purposes only. Private development that may adversely affect a listed species is prohibited from any take of a species unless the sponsor obtains a memorandum of understanding for the development project pursuant to the Code. The applicant must agree to strict measures and standards for the management of the species and sign a Memorandum of Understanding to carry out these measures.

8.6 California Fish and Game Code - Native Plant Protection Policy

The goals of the California Native Plant Protection Policy are as follows:

The intent of the Legislature and the purpose is to preserve, protect, and enhance endangered or rare plants of the state. A 'native plant' means a plant that grows in a wild uncultivated state which is normally found native to the plant life of the state.

The commission may adopt regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants. Such regulations may include, but shall not be limited to, requirements for persons who perform any of the foregoing activities to maintain written records and to obtain permits which may be issued by the department.

No person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or a rare native plant, except as otherwise provided.

All state departments and agencies shall, in consultation with the department, utilize their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation, and protection of habitat critical to the continued survival of endangered or rare native plants.

9.0 Methodology

The preliminary investigation into the biological resources of the Rancho Cordova planning area began with a literature review and information gathering phase. Pertinent documents were assembled and consulted to determine the extent of biological resources inventoried prior to field investigations. The initial literature and GIS database review identified data gaps. The technical documents used as initial primary sources are listed in Appendix A. The assembled documents, digital shapefiles, and aerial photos (see Appendix B for GIS metadata) were examined and interpreted. Inferences on site conditions were obtained from study of aerial photographs (See Appendix B). Federal, state and local agencies were consulted (see Section 10.1) and pertinent regulatory guidelines reviewed (see Section 8.0).

The categorization of cover-types was drawn from draft efforts by South Sacramento Habitat Conservation Plan (SSHCP). Use of pre-defined cover-type categories ensures the compatibility of land-use management strategies. Further refinement of SSHCP cover-type assignments may warrant revisions of this document as well.

Ecosystem Sciences conducted reconnaissance-level biological surveys in the planning area from October 4-8, 2004. The purpose of the survey was to characterize existing baseline conditions and to determine the presence or potential presence of special-status plants, wildlife, and plant communities. Prior to the survey all biological resources that could be potentially impacted by the project were identified through computer searches of California Natural Diversity Database (CNDDB) *Rarefind*, the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California, and through consultations. CNDDB and CNPS record searches were conducted for the USGS 7.5 minute quadrangles that overlay the project planning area (see Appendix B) as well as adjacent quadrangles.

10.0 Literature Review and Sources

ARNHA. 2002. American River Parkway Wildlife Count. American River Natural History Association.

Ahlborn, G. 1990. Ringtail. In Zeiner, D. C., Laudenslayer, W. F. Jr., Mayer, K. E., and M. White, Editors. California's Wildlife, Volume III: Mammals. California Department of Fish and Game, Sacramento.

Auble, G.T., and M.L. Scott. 1998. Fluvial disturbance patches and cottonwood recruitment along the upper Missouri river, Montana. Wetlands. 18(4):546-556.

Barr, C. B. 1991. The distribution, habitat, and status of the valley elderberry longhorn beetle Desmocerus californicus dimorphus Fisher (Insecta: coleoptera: cerambycidae). U.S. Fish and Wildlife Service. Sacramento, CA.

Basey H. E., and D. A. Sinclear. 1980. Amphibians and reptiles. Pages 13-74 in J. Verner and A. S. Boss, technical coordinators. California wildlife and their habitats: western Sierra Nevada. USDA Forest Service (Berkeley, CA), General Technical Report. PSW-37.

Belk, D. 1998. Global status and trends in ephemeral pool invertebrate conservation: implications for California fairy shrimp. Pages 147-150 in C. W. Witham, E. T. Bauder, D. Belk, W. R. Ferren Jr. and R. Ornduff, Editors. Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. California Native Plant Society, Sacramento.

Bittman, R. 2001. The California Natural Diversity Database: a natural heritage program for rare species and vegetation. Fremontia 29:3-4.

Brode, J., and R. B. Bury. 1984. The importance of riparian systems to amphibians and reptiles. Pages 30-36 in R. E. Warner and K. Hendrix, eds. California riparian systems: ecology, conservation and productive management. University of California Press, Berkeley.

Brode, J., and G. Hansen. 1992. Status and future management of the giant garter snake (Thamnophis gigas) within the southern American Basin, Sacramento and Sutter Counties, California. California Department of Fish and Game Inland Fisheries Division

California Department of Fish and Game. 1995. Five-year status review: bank swallow (Riparia riparia). Sacramento, CA: Wildlife Management Division.

California Department of Fish and Game. 1997. Annual report on the status of California state listed threatened and endangered plants and animals. Sacramento, CA.

California Department of Fish and Game. 2000. Bank swallow species account Available at: http://www.dfg.ca.gov/hcpb/species/jsp/more_info.jsp?specy=birds&idNum=81

California Department of Fish and Game (CDFG). 2004. California natural diversity database. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game (Version: 09 September 2004).

California Exotic Pest Plant Council (CalEPPC). 1999. The CalEPPC List: Exotic Pest Plants of Greatest Ecological Concern in California. San Juan Capistrano, CA.

California Native Plant Society (CNPS). 2001. Inventory of rare and endangered vascular plants of California, 6th Edition. California Native Plant Society, Sacramento.

California Native Plant Society (CNPS). 2004. Electronic inventory of rare and endangered vascular plants of California. California Native Plant Society (Version **6-04c** - 7-06-04).

California Native Plant Society. 1994. Inventory of rare and endangered vascular plants. Sacramento, CA.

California Native Plant Society. 1995. Statement of policy – seeding after a wildfire. Sacramento. CA.

California Native Plant Society. 1996. Policy on invasive exotic plants. Sacramento, CA.

Collinge, S. K., M. Holyoak, C. B. Barr, and J. T. Marty. 2001. Riparian habitat fragmentation and population persistence of the threatened valley elderberry longhorn beetle in Central California. Biological Conservation. 100: 103-1.

D'Antonio, C. and P.M. Vitousek. 1992. Biological invasions by exotic grasses, the grass/fire cycle, and global change. Annual review of ecology and systematics, Vol. 3, pp. 63-87.

Dittes and Guardino Consulting. 2004. (DRAFT) Vernal pool habitat account and conservation goals for the south Sacramento habitat conservation plan (SSHCP). 2nd Draft, August, 2004.

Eng, L. L, D. Belk, and C. H. Eriksen. 1990. Californian anostraca: distribution,habitat, and status. Journal of Crustacean Biology 10(2):247-277.

England, A. S., J. A. Estep, and W. R. Holt. 1995. Nest-site selection and reproductive performance of urban-nesting Swainson's hawks in the Central Valley of California. Journal of Raptor Research 19:179-186.

England, A. S., M. J. Bechard, and C. S. Houston. 1997. Swainson's hawk (Buteo swainsoni). In A. Poole and F. Gill (eds.), The birds of North America. No. 265. Philadelphia, PA: Academy of Natural Sciences and Washington, DC: American Ornithologists' Union.

Eriksen, C. H., and D. Belk. 1999. Fairy shrimps of California's puddles, pools, and playas. Eureka, CA: Mad River Press.

ECORP Consulting, Inc. 2004. Wetland Delineation for Rio del Oro, Sacramento, California.

Evans, R.A. and J.A. Young. 1989. Characterization and analysis of abiotic factors and their influences on vegetation. Pages 13-28 in L.F Huenneke and H.A. Mooney, editors. Grassland structure and function: California Annual Grassland. Kluwer Academic Publishers, Boston, MA.

Fitch, H. S. 1941. The feeding habits of California garter snakes. California Department of Fish and Game 27:2–32.

Freckman, D. W., D. A. Duncan, and J. R. Larson. 1979. Nematode density and biomass in and annual grassland ecosystem. Journal of Range Management. 32:418-422.

Gaines, D. A. 1977. The valley riparian forests in California: their importance to bird populations. Pages 57-85 in A. Sands, Editor, Riparian forests in California: thier ecology and conservation. University of California, Davis, Institute of Ecology, Publication 15.

Gallagher, S. P. 1993. Life history variation in the temporary pool snail, *Fossaria sonomaensis*, in the Northern Sacramento Valley. American Midland Naturalist 130:372-385.

Gallagher, S. P. 1996. Seasonal occurrence and habitat characteristics of some vernal pool branchiopoda in northern California, USA. Journal of Crustacean Biology 16(2):323–329.

Garrison, G. A., A. J. Bjugstad, D. A. Duncan, M. E. Lewis and D. R. Smith. 1977. Vegetation and environmental features of forest and range ecosystems. USDA Forest Service, Handbook #475.

Garrison, B. A. 1999. Bank swallow (Riparia riparia). In A. Poole and F. Gill (eds.), The birds of North America, No. 414. Philadelphia, PA: The Academy of Natural Sciences and Washington, DC: The American Ornithologists' Union.

Garrison, B. A., J. M. Humphrey, and S. A. Laymon. 1987. Bank swallow distribution and nesting ecology on the Sacramento River, California. Western Birds 18(1):71–76.

Gibson and Skordal. 1996. Delineation of waters of the United States: Douglas Road 103 property. Sacramento, California.

Granholm, S. 1990. Tricolored blackbird. In Zeiner, D. C., Laudenslayer, W. F. Jr., Mayer, K. E., and M. White, editors. California's Wildlife, Volume II: Birds. California Department of Fish and Game, Sacramento.

Gregory, S.V., F. J. Swanson, W.A. McKee, and K.W. Cummins. 1991. An ecosystem perspective of riparian zones. Bioscience. Vol. 41, 8:540-550.

Greenfell, W. E. Jr. 1988. Valley roothill riparian. In Mayer, K. E., and W. F. Laudenslayer, Jr. A guide to wildlife habitats of California. State of California Department of Fish and Game, Sacramento.

Griffen, J. R. 1971. Oak regeneration in the upper Carmel Valley, California. Ecology 52:862-868.

Griffen, J. R. 1973. Oak regeneration in the upper Carmel Valley, California. Ecology 52:862-868.

Griggs, F. T. 1977. Rare plant status report: *Orcuttia californica* Vasey var. *inaequalis* (Hoover) Hoover. California Native Plant Society, Sacramento, 3 pages.

Griggs, F. T. 1980. Population studies in the genus *Orcuttia* (Poaceae). Ph.D. dissertation, University of California, Davis, California. 98 pages.

Griggs, F. T. 1981. Life histories of vernal pool annual grasses. Fremontia 9(1):14-17.

Griggs, F. T., and S. K. Jain. 1983. Conservation of vernal pool plants in California. II. Population biology of a rare and unique grass genus *Orcuttia*. Biological Conservation 27:171-193.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Berkeley, CA: Cooper Ornithological Club, Pacific Coast Avifauna. Number 27. Reprinted 1986. Lee Vining, CA: Artemisia Press.

Halstead, J. A., and J. A. Oldham. 2000. New distributional records for the valley elderberry longhorn beetle Desmocerus californicus Horn (Coleoptera:Cerambycidae). Pan-Pacific Entomologist 76(1):74–76.

Hansen, G. E., and J. M. Brode. 1980. Status of the giant garter snake, Thamnophis couchi gigas (Fitch). Inland Fisheries Endangered Species Program Special Publication Report No. 80-5. California Department of Fish and Game.

Hansen, G. E., and J. M. Brode. 1988. Review of the status of the giant garter snake (Thamnophis couchi gigas) and its supporting habitat during 1986–

1987. Final report for California Department of Fish and Game, Contract C-2060. Unpublished.

Hansen, G. E., and J. M. Brode. 1993. Results of relocating canal habitat of the giant garter snake (Thamnophis gigas) during widening of State Route 99/70 in Sacramento and Sutter Counties, California. Final report for Caltrans Interagency Agreement 03E325 (FG7550)(FY87/88-91-92). Unpublished.

Hansen, R. W., and G. E. Hansen. 1990. Thamnophis gigas. Reproduction. Herpetological Review 21(4):93–94.

Heady, H. F. 1977. Valley grassland. Pages 491-514 in M. G. Barbour and J. Major, eds. Terrestrial vegetation of California. John Wiley and Sons, New York.

Helm, B. 1998. The biogeography of eight large branchiopods endemic to California. Pages 124–139 in C. W. Witham, E. Bauder, D. Belk, W. Ferren, and R. Ornduff (eds.), Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. Sacramento, CA: California Native Plant Society.

Helm, B. 1998. The biogeography of eight large branchiopods endemic to California. Pages 124–139 in C. W. Witham, E. Bauder, D. Belk, W. Ferren, and R. Ornduff (eds.), Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. Sacramento, CA: California Native Plant Society.

Hickman, J. C., Ed. 1993. The Jepson manual – higher plants of California. University of California Press.

Hickman, J.C. ed. 1996. The Jepson manual: Higher plants of California. University of California Press. Berkley, CA.

Hill, M.A. 2004. Personal communication.

Holland, V. L. 1976. In defense of blue oaks. Fremontia 4:3-8.

Holland, R.F. 1978. The geographic and edaphic distribution of vernal pools in the Great Central Valley, California. (Special Publication No. 3) California Native Plant Society. Berkeley, CA

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Nongame Heritage Program, Dept. Fish & Game, Sacramento 156 pp.

Holland, R.F., and V.I. Dains. 1990. The edaphic factor in vernal poll vegetation. Pp. 31-48, *In* Ikeda. D.H. and R.A. Schlising, eds. Vernal pool plants- their habitat and biology. Studies from the herbarium, California State University, Chico, CA.

Humphrey, J. M., and B. A. Garrison. 1987. The status of bank swallow populations on the Sacramento River. Wildlife Management Division Contract Final Report. Sacramento, CA: California Department of Fish and Game.

Ivey, G.L., C.P. Herziger. 2003. Sandhill Crane monitoring at Staten Island, San Joaquin County, California, 2002-03. A survey for The Nature Conservancy, Galt, CA.

Keeler-Wolf, Todd. 1993. Memo to M. Hoshovsky, 5 October 1993.

Keeler-Wolf, T., D.R. Elam, and S.A. Flint. 1998. California vernal pool assembly report. The Resources Agency, Department of Fish and Game, Sacramento, CA.

Keeley, J.E and P.H. Zedler. 1998. Characterization and global distribution of vernal pools. Pp 1-14 in: C. Witham, E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff, eds. Ecology, conservation, and management of vernal pool ecosystems. Procedings from a 1996 conference. California Native Plant Society, Sacramento, CA.

Kie, J. G., V.C. Bleich, A.L. Medina, J.D. Yoakum, and J.W. Thomas. 1994. Managing rangelands for wildlife. Pages 663-688 in T.A. Bookhout, ed. Research and management techniques for wildlife habitats. The Wildlife Society, Bethesda, Maryland.

Kramer, G. 1988. Fresh emergent wetland. In Mayer, K. E., and W. F. Laudenslayer, Jr. A guide to wildlife habitats of California. State of California Department of Fish and Game, Sacramento.

Kucera, T. 2004. California tiger salamander. Species account in California Wildlife Habitat Relationships Program, Editors. California's Wildlife. California Department of Fish and Game.

LARTF. 2002. Lower American River corridor management plan. Lower American River Task Force.

Laymon, S. A. 1984. Riparian bird community structure and dynamics: Dog Island, Red Bluff, California, Pages 587-597 in R. E. Warner and K. Hendrix, eds. California riparian systems: ecology, conservation and productive management. University of California Press, Berkeley.

Leong, J.M., R. P. Randolph and R. W. Thorp. 1995. Observations of the foraging patterns of Andrena (Diandrena) blennospermatis Thorp (Hymanoptera: Andrendidae). Pan-Pacific Entomologist 71:68-71.

Linsley, E. G., and J. A. Chemsak. 1972. Cerambycidae of North America, Part VI, No. 1. Taxonomy and classification of the subfamily Lepturinae. University of California Publications in Entomology 69:1–13.

Littlefield, C. D. 1989. Status of sandhill crane breeding populations in California, 1988. California Department of Fish and Game Nongame Bird and Mammal Section Rept. Sacramento, CA.

Lower American River Task Force. 2002. River Corridor Management Plan. Jones & Stokes, Sacramento, CA.

Maddox, D.M. and A. Mayfield. 1985. Yellow starthistle infestations on the increase, California Agriculture Vol. 39 nos. 11-12, pp. 10-12.

Mason, H.L. 1957. A flora of the marshes of California. University of California Press, Los Angeles, CA.

Mason, H. L., and R. Bacigalupi. 1954. A new Gratiola from Bogg's Lake, Lake County, California. Madroño 12:150–152.

Mayer, K. E., and W. F. Laudenslayer, Jr. 1988. A guide to wildlife habitats of California. State of Cal., Dept. Fish and Game, Sacramento, CA.

McBride, J. R. and C. Reid. 1988. Urban. In Mayer, K. E., and W. F. Laudenslayer, Jr. A guide to wildlife habitats of California. State of California Department of Fish and Game, Sacramento.

Melvin, Scott M.; Stephen, W. J. Douglas; Temple, Stanley A. 1990. Population estimates, nesting biology, and habitat preferences of Interlake, Manitoba sandhill cranes, Grus canadensis. Canadian Field-Naturalist. 104(3): 354-361.

Mitsch, W.J. and J.G. Gosselink. 2000. Wetlands. John Wiley &Sons, Inc. New York.

Morey, S. 2004a. Western spadefoot. In Zeiner, D. C., Laudenslayer, W. F. Jr., Mayer, K. E., and M. White, Editors. California's Wildlife, Volume II: Birds. California Department of Fish and Game, Sacramento.

Morey, S. 2004b. Western toad. In Zeiner, D. C., Laudenslayer, W. F. Jr., Mayer, K. E., and M. White, Editors. California's Wildlife, Volume II: Birds. California Department of Fish and Game, Sacramento.

Morrison, Mike, and John Keane, 1988. Focused Environmental Study; Restoration of Angel Island natural areas affected by eucalyptus.

Naiman, R.J. and Henri Decamps. 1997. The ecology of interfaces: riparian zones. Annual review of ecology and systematics. 28:621-58.

National Research Defense Council. 1992. (U.S.) Committee on restoration of aquatic systems – science, technology and public policy. Restoration of aquatic ecosystems. National Academy Press, Washington, D.C.

Nesbitt, Stephen A.; Williams, Kathleen S. 1990. Home range and habitat use of Florida sandhill cranes. Journal of Wildland Management. 54: 92-96.

Nichols, R. 2004. Personal communication via email and telephone. October, 2004.

Placer Legacy Scientific Working Group (PLSWG) 2005. Phase I Habitat Conservation Plan/Natural Community Conservation Plan Species Accounts. Available online: http://www.placerdata.org. Accessed 2/5/2005-2/10/2005.

Pratt, J. and C. Polite. 1990. Bald eagle. In Zeiner, D. C., Laudenslayer, W. F. Jr., Mayer, K. E., and M. White, Editors. California's Wildlife, Volume II: Birds. California Department of Fish and Game, Sacramento.

Pratt, J. and C. Polite. 1990. Peregrine falcon. In Zeiner, D. C., Laudenslayer, W. F. Jr., Mayer, K. E., and M. White, Editors. California's Wildlife, Volume II: Birds. California Department of Fish and Game, Sacramento.

Reeder, J. R. 1982. Systematics of the tribe Orcuttieae (Gramineae) and the description of a new segregate genus, *Tuctoria*. American Journal of Botany 69:1082-1095.

Rejmanek, M. and J.R. Randall. 1994. Invasive alien plants in California: 1993 summary and comparison with other areas in North America, Madrono 41 #3, pp. 161-177.

Resources Agency of California. 1998. Preserving California's Natural Heritage: A bioregionl guide to land and water conservation. Online Edition: http://ceres.ca.gov/planning/conservation_guidebook/index.html

Ritter, L. V. 1988. Blue oak woodland, Valley oak woodland. In Mayer, K. E., and W. F. Laudenslayer, Jr. A guide to wildlife habitats of California. State of California Department of Fish and Game, Sacramento.

Rogers, D. C. 1998. Aquatic macroinvertebrate occurrences and population trends in constructed and natural vernal pools in Folsom, California. Pages 224-235 in C. W. Witham, E. T. Bauder, D. Belk, W. R. Ferren Jr. and R. Ornduff, Editors. Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. California Native Plant Society, Sacramento.

Rogers, D.C. 2001. Revision of the neartic Lepidurus (Notostraca). Journal of Crustacean Biology 21(4): 991–1006.

Rossman, D., and G. Stewart. 1987. Taxonomic reevaluation of Thamnophis couchii (Serpentes: Colubridae). Occasional Papers of the Museum of Zoology, Louisiana State University, No. 63Baton Rouge, LA.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation.

California Native Plant Society. Sacramento, CA

Scott, W.L., J.M. Friedman, G.T. Auble. 1996. Fluvial process and the establishment of bottomland trees. Geomorphology. 14:327-339.

Schlorff, R., and P. H. Bloom. 1984. Importance of riparian systems to nesting Swainson's hawks in the Central Valley of California. Pages 612-618 in R. E. Warner and K.M. Hendrix (eds.), California riparian systems: ecology, conservation, and productive management. Berkeley, CA: University of California Press.

Schultze, R. F. 1988. Irrigated grain crops. In Mayer, K. E., and W. F. Laudenslayer, Jr. A guide to wildlife habitats of California. State of California Department of Fish and Game, Sacramento.

Silveira, J. G. 1998. Avian uses of vernal pools and implications for conservation practice. Pages 92-106 in C. W. Witham, E. T. Bauder, D. Belk, W. R. Ferren Jr. and R. Ornduff, Editors. Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. California Native Plant Society, Sacramento.

Simovich, M. A. 1998. Crustacean biodiversity and endemism in California's ephemeral wetlands. Pages 107-118 in C. W. Witham, E. T. Bauder, D. Belk, W. R. Ferren Jr. and R. Ornduff, Editors. Ecology, conservation, and management of vernal pool ecosystems – proceedings from a 1996 conference. California Native Plant Society, Sacramento.

Skinner, M. W., and B. M. Pavlik. 1994. Inventory of rare and endangered vascular plants of California. Fifth edition. Special Publication No. 1, California Native Plant Society, Sacramento, California. 338 pages.

Snyder, S. A. 1992. Grus canadensis. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2005, February 9].

Stone, R. D., W. B. Davilla, D. W. Taylor, G. L. Clifton, and J. C. Stebbins. 1988. Status survey of the grass tribe Orcuttieae and *Chamaesyce hooveri* (Euphorbiaceae) in the Central Valley of California. 2 volumes. U.S. Fish and Wildlife Service Technical Report, Sacramento, California. 124 pages.

Stone. 1990. California endemic vernal pool plants: some factors influencing their rarity and endangerment, *In* Ikeda. D.H. and R.A. Schlising, eds. Vernal pool plants- their habitat and biology. Studies from the herbarium, California State University, Chico, CA.

Terres, John K. 1980. The Audubon Society encyclopedia of North American birds. New York: Alfred A. Knopf. 1109 pp.

Thorne, R.F. 1984. Are California's vernal pools unique? Pages 1-8 *in:* S. Jain and P. Moyle (Editors). Vernal pools and intermittent streams. Institute of Ecology, University of California, Davis, CA.

Tibor, D. P., Ed. 2001. California Native Plant Society's inventory of rare and endangered plants of California.

Trapp, G. R., G. L. Linck, and E. D. Whisler. 1985. The status of ecological research on the mammal fauna of California's Central valley riparian communities. Pages 942-949 in R. E. Warner and K. Hendrix, eds. California riparian systems: ecology, conservation and productive management. University of California Press, Berkeley.

USBR. 2004. CVP – American River Division website. United States Bureau of Reclamation, www.usbr.gov/dataweb/html/auburn.html.
U.S. Fish and Wildlife Service. 1984. Recovery plan for the valley elderberry longhorn beetle. Portland, OR.

U. S. Fish and Wildlife Service. 1999. Draft recovery plan for the giant garter snake (Thamnophis gigas). Portland, OR.

U.S. Fish and Wildlife Service. 2004. Draft Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxii + 574 pp.

Verner, J., and A. S. Boss tech. coords. 1980. California wildlife and their habitats: western Sierra Nevada. USDA Forest Service (Berkeley, California), General Technical Report PSW-37.

Vollmar, J. E. (Editor) 2002. Wildlife and rare plant ecology of Eastern Merced County's vernal pool grasslands. Vollmar Consulting. Berkeley, CA.

Weller, M.W. 1994. Freshwater marshes, 3rd. ed. University of Minnesota Press, Minneapolis, MI.

Weller, M.W. and C.S. Spatcher. 1965. Role of habitat in the distribution and abundance of marsh birds. Special report 43, Agriculture and Home Economics Experimental Station, Iowa State University, Ames, Iowa.

Wetherwax, M. 1993. Gratiola. Pages 1032–1033 in J. C. Hickman (ed.), The Jepson manual: higher plants of California. Berkeley, CA: University of California Press.

White, M., R. H. Barrett, A. S. Boss, T. F. Newman, T. J. Rahn, and D. F. Williams. 1980. Mammals. Pages 321-424 in J. Verner and A. S. Boss, technical coordinators. California wildlife and their habitats: western Sierra Nevada. USDA Forest Service (Berkeley, CA), General Technical Report. PSW-37.

Woodbridge, B., K. K. Finley, and S. T. Seager. 1995. An investigation of the Swainson's hawk in Argentina. Journal of Raptor Research 29(3):202-204.

Zedler, P.H. 1987. The ecology of southern California vernal pools: a community profile. U.S. Fist and Wildlife Service, Biological Report 85(7.11), U.S. Department of the Interior, Washington, D.C.

Zedler, P. H. and C. Black. 1992. Seed dispersal by a generalized herbivore: rabbits as dispersal vectors in a semiarid California vernal pool landscape. American Midland Naturalist. 128:1-9.

Zeiner, D. C. 1988. Pasture. In Mayer, K. E., and W. F. Laudenslayer, Jr. A guide to wildlife habitats of California. State of California Department of Fish and Game, Sacramento.

10.1 Acknowledgements – Personal Communication and Consultations

As the list of references cited indicates, many sources of information were consulted to develop this document. The City of Rancho Cordova is grateful for the efforts of all those involved in providing information regarding the biological resources in Rancho Cordova. Specifically, we appreciate the personal efforts of Sacramento County and the group of participants in the HCP steering committee and biological subcommittee, Michael Jewell and Justin Cutler of Sacramento District Army Corps of Engineers, Bjorn Gregorson and Peter Balfour of ECORP Consulting, Dawn Lawson and Judy and George Waegell, Andrea Erichsen of City of Rancho Cordova, and Richard Nichols of EDAW and the California Native Grass Society. Lastly, City of Rancho Cordova is indebted to the efforts of all the people who have worked in the Rancho Cordova area to produce all of the technical documents listed in Appendix A.

Appendix A

Technical Documents Consulted for Field Survey; Methodology

A Conceptual-Level Strategy for Avoiding, Minimizing, and Preserving Aquatic Resource Habitat in the Sunrise-Douglas Community Plan Area. 2004.

California Department of Fish and Game (CDFG). 2004. California Natural Diversity Database. Wildlife & Habitat Data Analysis Branch, Department of Fish and Game (Version: 09 September 2004).

California Native Plant Society (CNPS). 2001. Inventory of rare and endangered vascular plants of California, 6th Edition. California Native Plant Society, Sacramento.

County of Sacramento. 2004. South Sacramento Habitat Conservation Plan (Draft).

Dittes and Guardino 2004. Vernal pool habitat account and conservation goals for the south Sacramento habitat conservation plan (SSHCP).

De Weese, J. M. Vernal Pool Construction Monitoring Protocol and Habitat Replacement Evaluation Pacific Region [Web Page]. Accessed 2004. Available at: http://pacific.fws.gov/ecoservices/endangered/consultation/vpfinal.html.

ECORP Consulting, Inc. 2004. Wetland Delineation for Rio del Oro. Sacramento, CA.

Environmental Council of Sacramento. Environmental Council of Sacramento (ECOS) [Web Page]. Accessed 2004. Available at: http://www.ecosacramento.net/index.htm.

Fiedler, P. L. Vernal Pools and Related Wetland Ecosystems of California, South Western Oregon, and Northern Baja California, Mexico. California: San Francisco State University; 2001.

Foothills Associates Environmental Consultants. 2001. Public Notice #200100252: Ronnenberg Project Site and Vicinity.

Francisco, R.; Heisinger, C., and Stanich, S. Technological Advances in Vernal Pool Design and Construction Techniques [Web Page]. Accessed 2004. Available at: http://www.wes.army.mil/el/workshop/RE8-1.html.

Gibson and Skordal. Delineation of Waters of the United States for Douglas Road 103 Property. 1996.
Notes: 2 copies

Goettle, B. A "Living Fossil" in the San Francisco Bay Area? [Web Page]. 1997; Accessed 2004. Available at: http://desfbay.fws.gov/Archives/Tadpole/tadpole.htm.

Graham, T. B. Climate change and ephemeral pool ecosystems: Potholes and vernal pools as potential indicator systems [Web Page]. Accessed 2004. Available at: http://geochange.er.usgs.gov/sw/impacts/biology/vernal/.

Holland, R. F. Changes in Great Valley Vernal Pool Distribution from 1989-1997 [Web Page]. 1998; Accessed 2004. Available at: http://maphost.dfg.ca.gov/wetlands/vp_holland/report_index.htm.

Keeler-Wolf, T.; Elam, D. R.; Lewis, K., and Flint, S. A. California Vernal Pool Assessment Preliminary Report [Web Page]. 1998; Accessed 2004. Available at: http://maphost.dfg.ca.gov/wetlands/vp_asses_rept/index.htm.

Pacific Analytics. Literature Synthesis and Recommendations for the Categorization and Monitoring of Special Aquatic Habitats in the Sierra Nevada, California. Albany, Oregon: Pacific Analytics; 2001.

Poulson Arborist, Inc. Arborist Report for Sunrise Douglas Specific Plan. 1997.

Placer Legacy Scientific Working Group (PLSWG) 2005. Phase I Habitat Conservation Plan/Natural Community Conservation Plan Species Accounts. Available online: http://www.placerdata.org. Accessed 2/5/2005-2/10/2005.

Sacramento County Department of Environmental Review and Assessment. Sunrise Douglas Community Plan/Sunrise Specific Plan. Sacramento, CA: Sacramento County Department of Environmental Review and Assessment; 2001.

Sugnet and Associates. "60-Day" Report of Findings Regarding Federally-Listed Crustacea at the Sammis Sunrise Douglas Project Site. 1995.

---. Biological Assessment for Sares Sunrise Douglas. 1995.

---. Sares-Regis Project Wetland Monitoring Plan. 1996.

---. Special Status Species Determination. 1993.

---. Technical Assessment of Vernal Pools at Sares Sunrise Douglas Site. 1994.

US Fish and Wildlife Services. Don Edwards San Francisco Bay National Wildlife Refuge. California: US Fish and Wildlife Services.

Whitney, K. D. Rapid Assessment of Vernal Pool Floristics [Web Page]. Accessed 2004. Available at: http://www.wes.army.mil/el/workshop/FA2-3.html.

Appendix B

GIS Metadata

The GIS used in the creation of the Biological Resources report are presented below (Table B.1 GIS data). The GIS data were collected from various sources, most notably the California Natural Diversity Database (CNDDB), California Spatial Information Library (CASIL), South Sacramento Habitat Conservation Plan (SSHCP) – preliminary results, United States Department of Agriculture's Soil Survey Geographic Data Base (SSURGO), and the Pacific Municipal Consultants (PMC).

Table B.1. Pertinent GIS data – Rancho Cordova plan area.

		GIS data		
Shapefile Name	**Projection**	**Shapefile Description**	**Type**	**Origin**
RC_Plan_Area	NAD83_SP_2	Rancho Cordova Planning Boundary	Polygon	PMC
RC_Plan_Area_update	NAD83_SP_2	Rancho Cor. Updated Planning Area 9/27/04	Polygon	PMC
RC_city_Bound	NAD83_SP_2	Rancho Cordova Municipal Boundary	Polygon	PMC
RC_city_Bound_update	NAD83_SP_2	Rancho Cordova updated Boundary 9/27/04	Polygon	PMC
RC_10_mile_buff	NAD83_SP_2	10 mile buffer around Rancho Cordova	Polygon	PMC
RC_5_mile_buff	NAD83_SP_2	5 mile buffer around Rancho Cordova	Polygon	PMC
RC_habitat	NAD83_SP_2	Land-use/Vegetation	Polygon	HCP
RC_hab_10mi_clip	NAD83_SP_2	Land-use 10 mile clip around Rancho Cor.	Polygon	HCP
RC_habitat_plan_area	NAD83_SP_2	Plan area habitat with acreage	Polygon	HCP
RC_SE_Projects	NAD83_SP_2	SE Projects (development areas) of RC	Polygon	PMC
USB_bound	NAD83_SP_2	Urban Service Boundary	Polygon	PMC
CNDDB_10mi_clip	NAD83_SP_2	T&E locales habitats/flora/fauna (w/in 10 mi	Point	PMC
Sac_water_poly	NAD83_SP_2	Sac. water (lakes/canals/river/reservoirs)	Polygon	PMC
Sac_streams	NAD83_SP_2	Sacramento county hydrology	Line	PMC
Sac_streets	NAD83_SP_2	Sacramento county Street/Highways	Line	PMC
Parkland_owner	NAD83_SP_2	State/Local/Municipal Park Boundaries	Polygon	CASIL
Govt_owner	NAD83_SP_2	Government Land Ownership	Polygon	CASIL
CNDDB_planarea_nad83	NAD83_SP_2	CNDDB polygons in Plan area (8/11/04)	Polygons	CNDDB
CNDDB_claypan	NAD83_SP_2	CNDDB Claypan Vernal Pool Complexes	Polygon	CNDDB
CNDDB_cotton	NAD83_SP_2	CNDDB Cottonwood Forest Locations	Polygon	CNDDB
CNDDB_elderber	NAD83_SP_2	CNDDB Elderberry Savana Locations	Polygon	CNDDB
CNDDB_hardpan	NAD83_SP_2	CNDDB Hardpan Vernal Pool Complexes	Polygon	CNDDB
CNDDB_needle	NAD83_SP_2	CNDDB Valley Needlegrass Locations	Polygon	CNDDB
CNDDB_val_oak	NAD83_SP_2	CNDDB Valley Oak Forest Locations	Polygon	CNDDB
CNDDB_volcanic	NAD83_SP_2	CNDDB Volcanic Mudflow Vernal Pools	Polygon	CNDDB
Holland_LC	NAD83_SP_2	Holland Landcover Codes for R-Cordova	Polygon	CASIL
Sac_24K_maps	NAD83_SP_2	Index of 24k maps for Sac. County	Polygon	SSURGO
Sac_outline	NAD83_SP_2	Outline of Sacramento County	Polygon	SSURGO
Sac_soil	NAD83_SP_2	Soils	Polygon	SSURGO
Sac_soil_pts	NAD83_SP_2	Sacramento county soil feature pts.	Point	SSURGO
Sun_doug_mit	NAD83_SP_2	Sunrise/Douglas Mitigation Areas	Polygon	HCP
Mather_Bound	NAD83_SP_2	Mather Field Boundary	Line	PMC
HCP_prop_preserves	NAD83_SP_2	SSHCP proposed VP preserves	Polygon	HCP
Vision_Blobs	NAD83_SP_2	Vision Map Blobs in a shapefile	Polygon	PMC
SOI_bound	NAD83_SP_2	Sphere of Influence boundary (annex)	Line	PMC

Pacific Municipal Consultants provided Ecosystem Sciences with two aerial images (Table B2. Aerial Images). The RanchoCordova_new image encompasses the Rancho Cordova plan area and has a pixel size of 24m x 24m. The RanchoCordova image encompasses the city of Rancho Cordova and has a pixel size of 2m x 2m.

Table B2. Aerial Photography – Rancho Cordova plan area Biological Resources Report.

		Aerial Photography		
Image Name	**Projection**	**Image Description**	**Type**	**Origin**
RanchoCordova_new	NAD83_SP_2	2004 Aerial Image of Rancho Cordova	GeoTIF	PMC
RanchoCordova	NAD83_SP_2	Aerial Image of Rancho Cordova	GeoTIF	PMC

Projection Information – Spatial Metadata

All data, Shapefiles and Images (Aerial Photography) are projected in the following projection system:

Horizontal coordinate system

Projected coordinate system name:

NAD_1983_StatePlane_California_II_FIPS_0402_Feet

Geographic coordinate system name: GCS_North_American_1983

Details

Map Projection Name: Lambert Conformal Conic

Standard Parallel: 38.333333

Standard Parallel: 39.833333

Longitude of Central Meridian: -122.000000

Latitude of Projection Origin: 37.666667

False Easting: 6561666.666667

False Northing: 1640416.666667

Planar Coordinate Information

Planar Distance Units: survey feet

Coordinate Encoding Method: coordinate pair

Coordinate Representation

Abscissa Resolution: 0.000128

Ordinate Resolution: 0.000128

Geodetic Model

Horizontal Datum Name: North American Datum of 1983

Ellipsoid Name: Geodetic Reference System 80

Semi-major Axis: 6378137.000000

Denominator of Flattening Ratio: 298.257222

Appendix C

California Natural Diversity Database Query Results

California Department of Fish and Game (CDFG) developed the California Natural Diversity Database (CNDDB), which identifies all special status plant and animal species and natural communities in the state (Bittman 2001). Special status is defined as species or communities considered rare or endangered and deemed important enough by CDFG to track related occurrences. All federally or State of California designated "Endangered" and "Threatened" species are included as are many others included by CDFG.

A query of the CNDDB was conducted November 2003 for all special status species occurring on the following USGS quads: Buffalo Creek, Carmichael, Citrus Heights, Elk Grove, Folsom, Sacramento East, and Sloughhouse. Results are displayed in the format, "Full Condensed Report for Selected Elements." Results are contained in this appendix and are current with the latest version of CNDDB, which is 09 September 2004 (CDFG 2004). Results coincide with the USGS quads queried and do not necessarily fall completely within Rancho Cordova planning boundaries (the USGS quads overlap the boundaries). Discretion of the project biologists and ecologists was used to limit the occurrences pertinent to the Rancho Cordova planning area.

These occurrences correspond with Figure 4.1 in Section 4.0, Special Status Species. This map depicts the occurrences of special status species within the Rancho Cordova planning area boundaries.

Special Status Species Notes

Elderberry Savanna and Valley Needlegrass Grassland habitats listed as Special Status do not occur within the planning area, but are included on the list because they occur within quads that comprise only a small part of the planning area. The nearest elderberry savanna occurs approximately 2.5 miles west of the planning area, along the American River. The nearest valley needlegrass grassland occurs approximately 1.5 miles northeast of the planning area, south of the American River on the Folsom quad (CDFG 2004).

Several occurrences of purple martin, a CDFG designated Species of Special Concern, are included in the results from the CNDDB query of intersected quads. All of the occurrences of purple martin are from the Sacramento East USGS quad. The Rancho Cordova planning area only intersects a small portion of the Sacramento East quad and the nearest occurrence of purple martin is approximately 2.3 miles from the planning area boundary. All of the locations of purple martin occurrences from the Sacramento East quad are described as, "BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO

RELIEVE AIR PRESSURE & DRAIN CONDENSATION" (CDFG 2004). At the discretion of project biologists, purple martins are not considered relevant to Rancho Cordova planning area biological resources.

Occurrences of tricolored blackbird are considered sensitive information by CDFG therefore precise location information is suppressed and not available. Tricolored blackbirds have occurred in the Rancho Cordova planning area, though, on numerous USGS quads (CDFG 2004).

Accipiter cooperii

Cooper's hawk

Element Code: ABNKC12040

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) WOODLAND, CHIEFLY OF OPEN, INTERRUPTED OR MARGINAL TYPE.
Micro: NEST SITES MAINLY IN RIPARIAN GROWTHS OF DECIDUOUS TREES, AS IN CANYON BOTTOMS ON RIVER FLOOD-PLAINS; ALSO, LIVE OAKS.

Occurrence No. 33 **Map Index:** 11618 **EO Index:** 27345

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing
Main Source: JOHNSON, D. 1988 (OBS)

Dates Last Seen
Element: 1988-04-23
Site: 1988-04-23
Record Last Updated: 1995-11-02

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.59796º / -121.32301º
UTM: Zone-10 N4273497 E646036
Radius: 1/5 mile
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: E SIDE OF GOETHE PARK IN ARP, RANCHO CORDOVA.
General: FEMALE OBSERVED ON NEST WITH MALE IN CLOSE PROXIMITY. NEST LATER VACATED DUE TO MAN-CAUSED WILDFIRE.
Owner/Manager: SAC COUNTY

Occurrence No. 53 **Map Index:** 17186 **EO Index:** 12046

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-05-14
Site: 1990-05-14
Record Last Updated: 1990-11-27

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.59458º / -121.19843º
UTM: Zone-10 N4273327 E656893
Radius: 80 meters
Elevation: 200 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH SIDE OF WHITE ROCK ROAD, APPROXIMATELY 1 MI WEST OF GRANT LINE ROAD, EAST OF SACRAMENTO.
Location Detail: ADULT OBSERVED SEVERAL TIMES IN THIS VICINITY; ONE TIME, CARRYING FOOD INTO COTTONWOOD TREES, ALTHOUGH NO NEST COULD BE OBSERVED.
Ecological: HABITAT IS DISTURBED AREA, CONSISTING OF GRAVEL PILES, COYOTE BUSH, AND SCATTERED COTTONWOOD TREES.
Owner/Manager: PVT-AEROJET GENERAL CORP

Occurrence No. 54 **Map Index:** 17187 **EO Index:** 12153

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-06-30
Site: 1990-06-30
Record Last Updated: 1990-11-27

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.64610º / -121.19863º
UTM: Zone-10 N4279044 E656763
Radius: 80 meters
Elevation: 150 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: MISSISSIPPI BAR, ON THE WEST SIDE OF LAKE NATOMA NEAR THE BIKE TRAIL, ORANGEVALE.
Ecological: 3 JUVENILES OBSERVED IN AN AREA OF LIVE OAKS, COTTONWOODS, FOOTHILL PINE AND POISON OAK.
Threat: AREA IS A NATURE/RECREATION AREA, ALTHOUGH DISTURBANCE MAY EXIST FROM A GRAVEL COMPANY JUST WEST OF THE SITE.
Owner/Manager: DPR-FOLSOM LAKE SRA

Accipiter cooperii

Cooper's hawk

Element Code: ABNKC12040

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) WOODLAND, CHIEFLY OF OPEN, INTERRUPTED OR MARGINAL TYPE.
Micro: NEST SITES MAINLY IN RIPARIAN GROWTHS OF DECIDUOUS TREES, AS IN CANYON BOTTOMS ON RIVER FLOOD-PLAINS; ALSO, LIVE OAKS.

Occurrence No. 61 **Map Index:** 33435 **EO Index:** 29285
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WALKER, R. 1996 (OBS)

Dates Last Seen
Element: 1996-07-17
Site: 1996-07-17
Record Last Updated: 1996-09-04

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.60450º / -121.47256º
UTM: Zone-10 N4273995 E633000
Radius: 80 meters
Elevation: 25 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: 01 **Qtr:** NW
Meridian: M

Location: NATOMAS EAST MAIN DRAINAGE CANAL, SOUTH OF EAST LEVEE ROAD AND 0.2 MILE EAST OF NORTHGATE BLVD, SACRAMENTO.

Ecological: NEST TREE IS A VALLEY OAK; NEST IS 1/3 OF THE WAY DOWN FROM THE CANOPY TOP. HABITAT CONSISTS OF VALLEY OAK/COTTONWOOD RIPARIAN, INCLUDING AN UNDERSTORY OF GRAPES, WILLOWS, BUTTONWILLOW, AND BLACKBERRY; SURROUNDED BY URBAN DEVELOPMENT.

Threat: MAIN THREAT IS HUMAN DISTURBANCE FROM TRANSIENTS/HOMELESS PEOPLE THAT USE THE AREA.

General: 1 ADULT AND 3 YOUNG NEAR FLEDGING ("BRANCHERS") OBSERVED ON 17 JULY 1996.

Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 66 **Map Index:** 36011 **EO Index:** 31009
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CURLETTE, J. & R. WALKER 1997 (OBS)

Dates Last Seen
Element: 1997-05-28
Site: 1997-05-28
Record Last Updated: 1997-07-07

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46360º / -121.33042º
UTM: Zone-10 N4258575 E645661
Radius: 80 meters
Elevation: 65 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 16 **Qtr:** NW
Meridian: M

Location: SW OF THE INTERSECTION OF CARMENCITA ROAD AND LAGUNA CREEK, 4 MILES NNE OF ELK GROVE.

Location Detail: NEST TREE IS LOCATED APPROXIMATELY 50 FEET WEST OF CARMENCITA ROAD.

Ecological: NEST TREE IS LOCATED IN A BAND OF VALLEY OAK WOODLAND ADJACENT TO LAGUNA CREEK, WITH AN UNDERSTORY OF ELYTRIGIA AND ANNUAL GRASSES. ADJACENT RIPARIAN WOODLAND FORMS A COMPLETE CANOPY, EXTENDING TO ABOUT 100 FEET FROM THE CHANNEL EDGE.

General: 2 ADULTS AND AT LEAST 1 JUVENILE OBSERVED AT NEST ON 28 MAY 1997.

Owner/Manager: PVT

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 4 **Map Index:** 11994 **EO Index:** 14208

Dates Last Seen
Element: 1994-XX-XX
Site: 1997-XX-XX
Record Last Updated: 1998-09-08

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: HOSEA, R. 1986 (LIT)

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES, SURROUNDED BY GRASSLAND.
Threat: THREATENED BY ENCROACHING DEVELOPMENT. NESTING HABITAT PRESERVED, BUT SITE NO LONGER ATTRACTIVE TO BREEDING TRICOLOREDS.
Owner/Manager:

Occurrence No. 5 **Map Index:** 11867 **EO Index:** 24796

Dates Last Seen
Element: 2000-04-22
Site: 2000-04-22
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOSEA, R. 1986 (LIT)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING IN BLACKBERRY
Owner/Manager:

Occurrence No. 6 **Map Index:** 11515 **EO Index:** 7319

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1997-10-27

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: HOSEA, R. 1986 (LIT)

Quad Summary: ELK GROVE (3812143/496A), FLORIN (3812144/496B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES, ADJACENT TO GRASSLAND.
Threat: THREATENED BY ENCROACHING DEVELOPMENT. REALIGNMENT OF STRAWBERRY CREEK DAMAGED THIS SITE.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 13 **Map Index:** 11708 **EO Index:** 24789

Dates Last Seen
Element: 1981-XX-XX
Site: 1992-06-16
Record Last Updated: 1992-07-02

*** SENSITIVE ***

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: HOSEA, R. 1986 (LIT)

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.

Owner/Manager:

Occurrence No. 15 **Map Index:** 11715 **EO Index:** 24785

Dates Last Seen
Element: 1982-06-05
Site: 1982-06-05
Record Last Updated: 1989-08-10

*** SENSITIVE ***

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown
Main Source: HOSEA, R. 1986 (LIT)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Threat: COLONY HAD BEEN AT THIS SITE FOR MANY YEARS BUT AREA WAS LEVELED & DISCED FOR DEVELOPMENT INTO A BUSINESS PARK.
Owner/Manager:

Occurrence No. 156 **Map Index:** 11521 **EO Index:** 24687

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 1989-08-10

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEHAVEN, R. (OBS)

Quad Summary: GALT (3812133/496D), BRUCEVILLE (3812134/496C), ELK GROVE (3812143/496A), FLORIN (3812144/496B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF CATTAILS AND BULRUSH.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 157 **Map Index:** 11747 **EO Index:** 4369

Dates Last Seen
Element: 1972-05-XX
Site: 1972-05-XX
Record Last Updated: 1994-12-12

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEHAVEN, R. (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Meridian:
Qtr:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE IS CATTAILS.
Owner/Manager:

Occurrence No. 158 **Map Index:** 11720 **EO Index:** 24681

Dates Last Seen
Element: 1972-XX-XX
Site: 1972-XX-XX
Record Last Updated: 2002-08-09

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEHAVEN, R. (OBS)

Quad Summary: ELK GROVE (3812143/496A), BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Meridian:
Qtr:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING IN CATTAILS AND TULES.
Owner/Manager:

Occurrence No. 177 **Map Index:** 17176 **EO Index:** 12053

Dates Last Seen
Element: 2000-04-22
Site: 2000-04-22
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: JOHNSON, D. 1990 (OBS)

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Meridian:
Qtr:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES ALONG A RESIDENTIAL ROAD; SURROUNDED BY PASTURELAND.
Threat: POSSIBLY THREATENED BY DEVELOPMENT OF THE SURROUNDING AREA.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 178 **Map Index:** 17177 **EO Index:** 12052

Dates Last Seen
Element: 1994-04-23
Site: 1994-04-23
Record Last Updated: 1994-12-13

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B), BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRY, WITH WILLOWS AND EUCALYPTUS ADJACENT, LOCATED AT THE BOTTOM OF A SWALE. FORAGING HABITAT CONSISTS OF OPEN FIELDS USED FOR GRAZING.
Owner/Manager:

Occurrence No. 181 **Map Index:** 17306 **EO Index:** 17188

Dates Last Seen
Element: 1999-04-24
Site: 1999-04-24
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MOHR, B. 1990 (OBS)

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF TULES AND CATTAILS, IN A FRESHWATER MARSH. COLONY SUCCESS IS ALWAYS POOR DUE TO PREDATION.
Threat: THREATS INCLUDE PREDATION AND CONVERSION OF SURROUNDING FORAGING HABITAT TO VINEYARDS.
Owner/Manager:

Occurrence No. 182 **Map Index:** 17307 **EO Index:** 12246

Dates Last Seen
Element: 1989-06-04
Site: 1989-06-04
Record Last Updated: 1991-01-15

*** SENSITIVE ***

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1989 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: HABITAT IS COTTONWOOD-RIPARIAN, ENCLOSED WITHIN LEVEES.
Threat: SITE IS UNDER AN IMMEDIATE THREAT DUE TO GRAVEL COMPANY ACTIVITY.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 201 **Map Index:** 21581 **EO Index:** 12713

Dates Last Seen
Element: 1992-06-12
Site: 1992-06-12
Record Last Updated: 1992-07-01

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SCHNEIDER, T. 1992 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING OCCURS IN A LARGE CLUSTER OF BLACKBERRY BUSHES AND WILLOW TREES, SURROUNDED BY CATTAILS AND TULES. PONDS LOCATED NEARBY, TO THE WEST AND TO THE SOUTH.
Owner/Manager:

Occurrence No. 232 **Map Index:** 21808 **EO Index:** 4365

Dates Last Seen
Element: 1995-04-22
Site: 1995-04-22
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1992 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES, AND SOME WILD ROSE, ALONG LAGUNA CREEK.
Threat: FORAGING HABITAT THREATENED BY RESIDENTIAL DEVELOPMENT.
Owner/Manager:

Occurrence No. 297 **Map Index:** 30644 **EO Index:** 4363

Dates Last Seen
Element: 1994-04-23
Site: 1994-04-23
Record Last Updated: 1994-12-12

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BURKE, C. 1994 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRY, OCCUPYING ~1 ACRE.
Threat: POSSIBLE THREATS INCLUDE PROXIMITY TO ROAD/HOUSES AND FERAL CATS.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 298 **Map Index:** 30620 **EO Index:** 4368

Dates Last Seen
Element: 1996-05-19
Site: 1996-05-19
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BURKE, C. 1994 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES AND WILLOWS; SURROUNDED BY GRASSLAND AND MOIST FIELDS PROVIDING FACULTATIVE WETLAND VEGETATION.
Owner/Manager:

Occurrence No. 299 **Map Index:** 30621 **EO Index:** 3755

Dates Last Seen
Element: 1999-05-11
Site: 1999-05-11
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: BURKE, C. 1994 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRY THICKETS; SURROUNDED BY CATTLE PASTURE ASSOCIATED WITH A DAIRY OPERATION.
Threat: PROXIMITY OF THIS SITE TO AN ACTIVE DAIRY OPERATION MAY BE A POSSIBLE THREAT.
Owner/Manager:

Occurrence No. 300 **Map Index:** 30623 **EO Index:** 4367

Dates Last Seen
Element: 1996-05-19
Site: 1996-05-19
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANOLIS, T. 1994 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; SURROUNDED BY LIGHTLY GRAZED GRASSLAND.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 301 **Map Index:** 33742 **EO Index:** 30616

Dates Last Seen
Element: 1994-05-XX
Site: 1994-05-XX
Record Last Updated: 1997-10-23

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANOLIS, T. 1994 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES IN AN AREA COVERING ~50 ACRES; SURROUNDED BY GRAZED GRASSLAND.
Owner/Manager:

Occurrence No. 304 **Map Index:** 30625 **EO Index:** 4283

Dates Last Seen
Element: 1994-04-23
Site: 1994-04-23
Record Last Updated: 1994-12-19

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANOLIS, T. & C. BURKE 1994 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES.
Owner/Manager:

Occurrence No. 305 **Map Index:** 30626 **EO Index:** 4282

Dates Last Seen
Element: 2000-04-22
Site: 2000-04-22
Record Last Updated: 2004-05-12

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANOLIS, T. 1994 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; COLONY OCCUPIES ~5 ACRES.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 306 **Map Index:** 30627 **EO Index:** 4280

Dates Last Seen
Element: 2000-04-22
Site: 2000-04-22
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANOLIS, T. 1994 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF MAINLY BLACKBERRIES; SURROUNDED BY HORSE PASTURE AND FALLOW FIELDS.
Owner/Manager:

Occurrence No. 307 **Map Index:** 30628 **EO Index:** 4281

Dates Last Seen
Element: 1994-06-XX
Site: 1997-XX-XX
Record Last Updated: 1997-10-27

*** SENSITIVE ***

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANOLIS, T. 1994 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES SURROUNDED BY GRASSLAND.
Owner/Manager:

Occurrence No. 319 **Map Index:** 33417 **EO Index:** 29209

Dates Last Seen
Element: 1996-06-03
Site: 1996-06-03
Record Last Updated: 1996-06-10

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1996 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE IS BLACKBERRIES; SURROUNDING HABITAT CONSISTS OF AGRICULTURE, GRAZED PASTURE, AND RURAL
Threat: THREATENED BY DEVELOPMENT.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 321 **Map Index:** 33423 **EO Index:** 11900

Dates Last Seen
Element: 1996-06-10
Site: 1996-06-10
Record Last Updated: 1996-06-19

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1996 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: HABITAT CONSISTS OF BLACKBERRY BRAMBLES GROWING ALONG A ROADSIDE DITCH; SURROUNDING AREA CONSISTS OF RURAL RESIDENTIAL/AGRICULTURE.
Threat: THREATENED BY DEVELOPMENT.
Owner/Manager:

Occurrence No. 330 **Map Index:** 36574 **EO Index:** 31571

Dates Last Seen
Element: 1997-04-20
Site: 1997-04-20
Record Last Updated: 2003-08-21

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WARENYCIA, D. 1997 (OBS)

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF CATTAILS, IN FRESHWATER MARSH HABITAT. SITE APPEARS TO BE A WETLAND IN "RECOVERY," DUE TO SURROUNDING DEVELOPMENT.
Threat: POSSIBLY THREATENED BY HUMAN DISTURBANCE FROM SURROUNDING RESIDENTIAL DEVELOPMENT.
Owner/Manager:

Occurrence No. 342 **Map Index:** 37299 **EO Index:** 32301

Dates Last Seen
Element: 1992-05-XX
Site: 1992-05-XX
Record Last Updated: 1997-10-22

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1992 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF CATTAILS; SURROUNDED BY LIGHT RESIDENTIAL HOUSING AND GRASSLAND.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 343 **Map Index:** 37312 **EO Index:** 32314

Dates Last Seen
Element: 1991-06-XX
Site: 1991-06-XX
Record Last Updated: 1997-10-22

*** SENSITIVE ***

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1991 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Meridian:
Qtr:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; SURROUNDED BY GRASSLAND TO THE NORTH, EAST, AND WEST.
Threat: POSSIBLE THREAT OF HUMAN DISTURBANCE; OWNER IS CONCERNED ABOUT BIRDS DAMAGING TREES (CHRISTMAS TREE FARM).
Owner/Manager:

Occurrence No. 344 **Map Index:** 37313 **EO Index:** 32315

Dates Last Seen
Element: 1991-06-XX
Site: 1991-06-XX
Record Last Updated: 1997-10-22

*** SENSITIVE ***

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1991 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Meridian:
Qtr:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; SURROUNDED BY GRAZED GRASSLAND.
Threat: POSSIBLE THREAT FROM HUMAN DISTURBANCE; OWNER IS CONCERNED ABOUT BIRDS DAMAGING TREES (CHRISTMAS TREE FARM).
Owner/Manager:

Occurrence No. 345 **Map Index:** 37314 **EO Index:** 32316

Dates Last Seen
Element: 1997-XX-XX
Site: 1997-XX-XX
Record Last Updated: 1997-10-22

*** SENSITIVE ***

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1997 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Meridian:
Qtr:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF A SMALL, ISOLATED BLACKBERRY THICKET; SURROUNDED BY GRAZED GRASSLAND.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 346 **Map Index:** 37315 **EO Index:** 32317

Dates Last Seen
Element: 1992-05-XX
Site: 1992-05-XX
Record Last Updated: 2002-04-05

*** SENSITIVE ***

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1992 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES ALONG A FARM ROAD; SURROUNDED BY AGRICULTURAL FIELDS (PEPPER, BARLEY, AND FALLOW).
Threat: POSS THREAT FROM DISTURBANCE (COLONY ADJACENT ACTIVE FARMING). FORAGING HABITAT TO NORTH (100'S OF ACRES) NOW VINEYARDS
Owner/Manager:

Occurrence No. 347 **Map Index:** 37329 **EO Index:** 32331

Dates Last Seen
Element: 1999-05-11
Site: 1999-05-11
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1993 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; SURROUNDED BY GRASSLAND, TO THE SOUTH AND EAST.
Owner/Manager:

Occurrence No. 348 **Map Index:** 37456 **EO Index:** 32458

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-04-29

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1994 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; SURROUNDED BY LIGHT RESIDENTIAL HOUSING, FALLOW FIELDS AND LIGHTLY GRAZED GRASSLAND.
Owner/Manager:

Agelaius tricolor

tricolored blackbird

Element Code: ABPBXB0020

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2G3
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING COLONY) HIGHLY COLONIAL SPECIES, MOST NUMBEROUS IN CENTRAL VALLEY & VICINITY. LARGELY ENDEMIC TO CALIFORNIA.
Micro: REQUIRES OPEN WATER, PROTECTED NESTING SUBSTRATE, & FORAGING AREA WITH INSECT PREY WITHIN A FEW KM OF THE COLONY.

Occurrence No. 349 **Map Index:** 37499 **EO Index:** 32501

Dates Last Seen
Element: 1994-06-XX
Site: 1994-06-XX
Record Last Updated: 1997-11-03

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1994 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES SURROUNDED BY LIGHTLY-GRAZED GRASSLAND.
Owner/Manager:

Occurrence No. 351 **Map Index:** 37738 **EO Index:** 32746

Dates Last Seen
Element: 1996-05-19
Site: 1996-05-19
Record Last Updated: 2004-05-13

*** SENSITIVE ***

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COOK, L. 1992 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: NESTING SUBSTRATE CONSISTS OF BLACKBERRIES; SURROUNDED BY PASTURE.
Owner/Manager:

Occurrence No. 390 **Map Index:** 32459 **EO Index:** 52985

Dates Last Seen
Element: 1991-06-10
Site: 1991-06-10
Record Last Updated: 2003-10-21

*** SENSITIVE ***

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ADAMS, B. 1991 (OBS)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

*** SENSITIVE ***

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: *SENSITIVE* Location information suppressed.
Location Detail: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: HABITAT CONSISTS OF A CATTAIL MARSH ALONG MATHER DRAIN; SURROUNDED BY GRAZED ANNUAL GRASSLAND.
Threat: THREATENED BY AGGREGATE MINING.
Owner/Manager:

Ardea alba

great egret

Element Code: ABNGA05010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S4

Other Lists
CDFG Status:

Habitat Associations
General: (ROOKERY) COLONIAL NESTER IN LARGE TREES.
Micro: ROOKERY SITES LOCATED NEAR MARSHES, TIDE-FLATS, IRRIGATED PASTURES, AND MARGINS OF RIVERS AND LAKES.

Occurrence No. 2 **Map Index:** 11602 **EO Index:** 25946

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1988 (OBS)

Dates Last Seen
Element: 1988-06-24
Site: 1988-06-24
Record Last Updated: 1992-08-05

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.58211º / -121.32996º
UTM: Zone-10 N4271727 E645462
Radius: 2/5 mile
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 04 **Qtr:** XX
Meridian: M

Location: ALONG AMERICAN RIVER, 0.5 MI SSW OF GOETHE PARK, CARMICHAEL.
General: 2 NESTS LOCATED, ONLY ONE WITH YOUNG, AS PART OF A BREEDING BIRD ATLAS PROJECT.
Owner/Manager: PVT

Occurrence No. 15 **Map Index:** 17072 **EO Index:** 12096

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: JOHNSON, D. 1989 (OBS)

Dates Last Seen
Element: 1989-05-09
Site: 1990- -
Record Last Updated: 1990-11-07

Quad Summary: CLARKSVILLE (3812161/511A), FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.67918º / -121.12308º
UTM: Zone-10 N4282847 E663263
Radius: 1/5 mile
Elevation: 350 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 08E
Section: 32 **Qtr:** NE
Meridian: M

Location: JUST SOUTH OF THE INTERSECTION OF BLUE RAVINE RD AND THE RD CONNECTING BLUE RAVINE AND GREEN VALLEY RDS, S OF FOLSOM LK.
Location Detail: ROOKERY IS LOCATED IN SOME COTTONWOODS BORDERING DREDGER TAILINGS.
Threat: THE PROXIMITY OF A NEW SUBDIVISION MAY HAVE ALREADY CREATED CONDITIONS TOO ADVERSE FOR CONTINUED NESTING BY EGRETS.
General: 4 ADULTS OBSERVED NESTING IN 1989; NONE IN 1990. GREAT BLUE HERONS ALSO NEST AT THIS LOCATION.
Owner/Manager: PVT

Ardea herodias

great blue heron

Element Code: ABNGA04010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S4

Other Lists
CDFG Status:

Habitat Associations
General: (ROOKERY) COLONIAL NESTER IN TALL TREES, CLIFFSIDES, AND SEQUESTERED SPOTS ON MARSHES.
Micro: ROOKERY SITES IN CLOSE PROXIMITY TO FORAGING AREAS: MARSHES, LAKE MARGINS, TIDE-FLATS, RIVERS AND STREAMS, WET MEADOWS.

Occurrence No. 2 **Map Index:** 11602 **EO Index:** 25978

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SOGGE, M. 1990 (OBS)

Dates Last Seen
Element: 1990-01-26
Site: 1990-01-26
Record Last Updated: 1992-08-05

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.58211º / -121.32996º
UTM: Zone-10 N4271727 E645462
Radius: 2/5 mile
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 04
Meridian: M
Qtr: XX

Location: ALONG AMERICAN RIVER, 0.5 MI SSW OF GOETHE PARK, CARMICHAEL.
Location Detail: IN 1988, 38-48 BIRDS AND 24 NESTS LOCATED IN 5 TREES, 3 OF WHICH ARE LOCATED IN BACKYARDS. IN 1990 12 NESTS AND 20 ADULTS FOUND IN 1 TREE IN BACKYARD.
Ecological: RESIDENTIAL AREA ALONG THE BLUFS OVERLOOKING THE AMERICAN RIVER.
Threat: MAIN THREAT IS DISTURBANCE.
Owner/Manager: PVT

Occurrence No. 30 **Map Index:** 17072 **EO Index:** 12140

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: JOHNSON, D. 1989 (OBS)

Dates Last Seen
Element: 1989-06-05
Site: 1990- -
Record Last Updated: 1990-11-07

Quad Summary: CLARKSVILLE (3812161/511A), FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.67918º / -121.12308º
UTM: Zone-10 N4282847 E663263
Radius: 1/5 mile
Elevation: 350 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 08E
Section: 32
Meridian: M
Qtr: NE

Location: JUST SOUTH OF THE INTERSECTION OF BLUE RAVINE RD AND THE RD CONNECTING BLUE RAVINE AND GREEN VALLEY RDS, S OF FOLSOM LK.
Location Detail: ROOKERY IS LOCATED IN SOME COTTONWOODS BORDERING DREDGER TAILINGS.
Threat: THE PROXIMITY OF A NEW SUBDIVISION MAY HAVE ALREADY CREATED CONDITIONS TOO ADVERSE FOR CONTINUED NESTING BY HERONS.
General: 14 ADULTS AND 2 JUVENILES OBSERVED IN 1989; NONE IN 1990. GREAT EGRETS ALSO NEST HERE.
Owner/Manager: PVT

Occurrence No. 32 **Map Index:** 17120 **EO Index:** 12168

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-03-18
Site: 1990-03-18
Record Last Updated: 1991-04-09

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.69921º / -121.16554º
UTM: Zone-10 N4284995 E659525
Radius: 1/5 mile
Elevation: 200 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 07E
Section: 25
Meridian: M
Qtr: XX

Location: AMERICAN RIVER CANYON, ADJACENT TO FOLSOM STATE PRISON, ON THE EAST SIDE OF THE AMERICAN RIVER, 0.6 MI BELOW FOLSOM DAM.
Location Detail: 22 ADULTS OBSERVED NESTING IN COTTONWOOD TREES.
Ecological: HABITAT IS A COTTONWOOD RIPARIAN WOODLAND. NO VISIBLE DISTURBANCES, DESPITE ITS PROXIMITY TO THE STATE PRISON BUILDINGS.
General: NESTS WERE ALREADY BUILT IN THE COTTONWOOD TREES; MOST ADULTS WERE STANDING IN PAIRS ON THE NESTS, ALTHOUGH ONE NEST HAD AN ADULT SITTING ON THE NEST.
Owner/Manager: DOC-FOLSOM STATE PRISON

Ardea herodias

great blue heron

Element Code: ABNGA04010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: None	**State:** S4	

Habitat Associations

General: (ROOKERY) COLONIAL NESTER IN TALL TREES, CLIFFSIDES, AND SEQUESTERED SPOTS ON MARSHES.

Micro: ROOKERY SITES IN CLOSE PROXIMITY TO FORAGING AREAS: MARSHES, LAKE MARGINS, TIDE-FLATS, RIVERS AND STREAMS, WET MEADOWS.

Occurrence No. 33 **Map Index:** 17121 **EO Index:** 12156

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-03-18
Site: 1990-03-18
Record Last Updated: 1991-04-09

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.70602º / -121.16197º
UTM: Zone-10 N4285757 E659820
Radius: 1/5 mile
Elevation: 200 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 07E
Section: 24 **Qtr:** SW
Meridian: M

Location: 0.25 MI SOUTH OF THE BASE OF FOLSOM DAM, ON THE WEST SIDE OF THE AMERICAN RIVER CANYON.

Location Detail: 32 ADULTS OBSERVED NESTING IN COTTONWOOD TREES.

Ecological: HABITAT IS COTTONWOOD RIPARIAN WOODLAND.

General: APPROXIMATELY 20 NESTS WERE OBSERVED IN JANUARY BY SOGGE WITH 10 UNPAIRED, STANDING ADULTS; MOST ADULTS WERE STANDING IN PAIRS ON THE NESTS BY MARCH WHEN OBSERVED BY JOHNSON , ALTHOUGH 2 NESTS HAD ADULTS SITTING ON NESTS, AS WELL.

Owner/Manager: BOR

Occurrence No. 34 **Map Index:** 17123 **EO Index:** 12165

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: KOCH, G. 1989 (OBS)

Dates Last Seen
Element: 1989-05-10
Site: 1989-05-10
Record Last Updated: 1995-08-21

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.64966º / -121.19564º
UTM: Zone-10 N4279444 E657016
Radius: 1/5 mile
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: MISSISSIPPI BAR, ON THE WEST SIDE OF LAKE NATOMA, ACROSS FROM THE WILLOW CREEK ACCESS, FOLSOM LAKE STATE RECREATION AREA

Location Detail: UNKNOWN NUMBER OF NESTS LOCATED IN THE TOPS OF SOME FOOTHILL PINES.

Owner/Manager: DPR-FOLSOM LAKE SRA

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (BURROW SITES) OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 59 **Map Index:** 11348 **EO Index:** 25458

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: VINCENTY, J. 1974 (PERS)

Dates Last Seen
Element: 1974-02-XX
Site: 1974-02-XX
Record Last Updated: 1989-08-10

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.57712º / -121.46245º
UTM: Zone-10 N4270972 E633931
Radius: 1/5 mile
Elevation: 25 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 08N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: VICINITY OF MCKINLEY PARK, SW OF CALIFORNIA STATE EXPOSITION, SACRAMENTO.
General: SEVERAL COLONIES OBSERVED IN GROUND BURROWS IN 1974; NESTING WAS SUCCESSFUL.
Owner/Manager: UNKNOWN

Occurrence No. 60 **Map Index:** 11437 **EO Index:** 25460

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Decreasing
Main Source: VINCENTY, J. 1974 (LIT)

Dates Last Seen
Element: 1974-02-XX
Site: 2000-10-19
Record Last Updated: 2003-05-07

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.57270º / -121.41573º
UTM: Zone-10 N4270550 E638009
Radius: 1/10 mile
Elevation: 25 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 08N
Range: 05E
Section: 03 **Qtr:** XX
Meridian: M

Location: IMMEDIATELY SW OF THE JUNCTION OF HOWE AVE AND FAIR OAKS BLVD, SACRAMENTO.
Ecological: THE SITE IS NOW COMPLETELY DEVELOPED WITH OFFICE BUILDINGS, LANDSCAPING AND MANICURED LAWNS. THERE IS NO REMAINING HABITAT FOR BURROWING OWLS.
General: SEVERAL COLONIES OBSERVED IN GROUND BURROWS DURING 1974; NESTING WAS SUCCESSFUL.
Owner/Manager: UNKNOWN

Occurrence No. 61 **Map Index:** 11424 **EO Index:** 25459

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: VINCENTY, J. 1974 (LIT)

Dates Last Seen
Element: 1974-02-XX
Site: 1974-02-XX
Record Last Updated: 2003-05-07

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.55960º / -121.42387º
UTM: Zone-10 N4269084 E637326
Area: 343.4 ac
Elevation: 20 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 08N
Range: 05E
Section: 10 **Qtr:** XX
Meridian: M

Location: SACRAMENTO STATE COLLEGE AND ADJACENT LEVEE AREAS ALONG THE AMERICAN RIVER, SACRAMENTO.
Location Detail: LEVEE BURROWS WERE ON THE WEST SIDE OF THE LEVEE ON THE WEST BANK OF THE AMERICAN RIVER.
General: "LARGE NUMBERS" OBSERVED ALONG THE LEVEE IN LATE 1960'S & EARLY 1970'S. 14 NESTING COLONIES OBSERVED IN GROUND BURROWS ON THE UNIVERSITY IN 1974; MOST NESTING WAS UNSUCCESSFUL.
Owner/Manager: CSU-SACRAMENTO (PART)

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (BURROW SITES) OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 91 **Map Index:** 17158 **EO Index:** 5049

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: JOHNSON, D. 1989 (OBS)

Dates Last Seen
Element: 1989-06-14
Site: 1989-06-14
Record Last Updated: 1994-08-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.55170º / -121.17270º
UTM: Zone-10 N4268613 E659228
Area: 10.5 ac
Elevation: 250 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 08N
Range: 07E
Section: 14 **Qtr:** NE
Meridian: M

Location: 200 YDS SOUTH OF GLORY LANE, 0.75 MI EAST OF GRANT LINE ROAD, ENE OF MATHER AFB, RANCHO CORDOVA.
Location Detail: TWO BURROWS OCCUPIED BY TWO PAIRS OF OWLS.
Ecological: HABITAT IS ROLLING GRASSLANDS WITH VERNAL POOLS.
Threat: THE ONLY OBVIOUS THREAT IS ONGOING GRAZING.
General: THE WESTERN-MOST PAIR HAD 3 YOUNG AT THE BURROW IN THE EVENING.
Owner/Manager: PVT

Occurrence No. 92 **Map Index:** 17159 **EO Index:** 12231

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: JOHNSON, D. 1989 (OBS)

Dates Last Seen
Element: 1989-07-15
Site: 1989-07-15
Record Last Updated: 1990-11-19

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56867º / -121.30639º
UTM: Zone-10 N4270273 E647543
Radius: 80 meters
Elevation: 80 ft

Mapping PrecisionSPECIFIC
Symbol Type:POINT

Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: ADJACENT TO WEST GATE, MATHER AFB, RANCHO CORDOVA.
Location Detail: 1 ADULT WITH FOUR YOUNG OBSERVED AT MID-DAY IN A VACANT LOT.
Ecological: HABITAT IS CLOSE-CROPPED, UNWATERED TURF.
Threat: NO OBVIOUS THREATS, UNLESS USE OF LOT AREA CHANGES.
Owner/Manager: DOD-MATHER AFB

Occurrence No. 93 **Map Index:** 17160 **EO Index:** 12236

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: HARRIS, S. 1989 (OBS)

Dates Last Seen
Element: 1989-04-28
Site: 1989-04-28
Record Last Updated: 1991-04-04

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55968º / -121.31513º
UTM: Zone-10 N4269261 E646800
Radius: 80 meters
Elevation: 75 ft

Mapping PrecisionSPECIFIC
Symbol Type:POINT

Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: BLDG 7001, MATHER AFB, RANCHO CORDOVA.
Location Detail: BURROW IS LOCATED INSIDE A TRANSFORMER FENCE, UNDER A CONCRETE SLAB, ON THE NE SIDE.
Threat: FENCE OFFERS PROTECTION TO THE BURROW SITE; ANY CHANGE IN LAND USE WOULD DISTURB THE BURROW.
General: ONLY ONE ADULT OBSERVED.
Owner/Manager: DOD-MATHER AFB

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (BURROW SITES) OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 94 **Map Index:** 17161 **EO Index:** 12057

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: HARRIS, S. 1989 (OBS)

Dates Last Seen
Element: 1989-04-28
Site: 1989-04-28
Record Last Updated: 1990-11-19

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56159º / -121.30982º
UTM: Zone-10 N4269481 E647259
Radius: 80 meters
Elevation: 80 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: FLIGHT-LINE SIDE OF BLDG 7014, MATHER AFB, RANCHO CORDOVA.
Location Detail: BURROW LOCATED AT 940TH CURB, ON FIRST STREET, BETWEEN TELEPHONE POLES #7108 AND 7109, IN AN OPEN FIELD BETWEEN FIRST STREET AND THE FLIGHT LINE.
Threat: CONSTRUCTION GOING ON NEARBY; NEW DEVELOPMENT COULD DISPLACE THE OWL.
General: ONLY ONE ADULT OBSERVED AT BURROW.
Owner/Manager: DOD-MATHER AFB

Occurrence No. 95 **Map Index:** 17162 **EO Index:** 12226

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: HARRIS, S. 1989 (OBS)

Dates Last Seen
Element: 1989-04-28
Site: 1989-04-28
Record Last Updated: 1991-04-04

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56110º / -121.31120º
UTM: Zone-10 N4269425 E647139
Radius: 80 meters
Elevation: 80 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: BLDG 7014, ON NEELY WAY, MATHER AFB, RANCHO CORDOVA.
Location Detail: BURROW IS LOCATED SOUTH OF TELEPHONE POLE #7028, NEAR A PINE TREE AND ACROSS FROM A STORM DRAIN, NEAR THE STREET IN AN INDUSTRIAL AREA.
Threat: POSSIBLE THREATS FROM SURROUNDING INDUSTRIAL AREA ACTIVITIES.
General: 2 ADULTS OBSERVED; A FAMILY OF BURROWING OWLS HAS BEEN OBSERVED HERE IN THE PAST.
Owner/Manager: DOD-MATHER AFB

Occurrence No. 96 **Map Index:** 17163 **EO Index:** 12239

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: HARRIS, S. 1989 (OBS)

Dates Last Seen
Element: 1989-04-28
Site: 1989-04-28
Record Last Updated: 1991-04-04

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56874º / -121.29583º
UTM: Zone-10 N4270298 E648463
Radius: 80 meters
Elevation: 90 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: BX PARKING LOT, AT "B" AVE AND FRANCIS ST, MATHER AFB, RANCHO CORDOVA.
Location Detail: OWLS UTILIZE THE CEMENT STORM DRAIN AT THE NORTH END OF THE BX PARKING LOT AS A BURROW.
Threat: MAIN THREAT AT THIS LOCATION IS DISTURBANCE FROM TOO MUCH TRAFFIC; OWLS USUALLY MIGRATE TO OTHER AREAS LATER IN SPRING.
General: THERE IS ADJACENT OPEN SPACE WHICH PROVIDES FOOD AT THIS TIME.
Owner/Manager: DOD-MATHER AFB

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (BURROW SITES) OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 127 **Map Index:** 20688 **EO Index:** 9327
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1990 (OBS)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2003-12-03

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51679º / -121.40308º
UTM: Zone-10 N4264365 E639219
Area: 163.9 ac
Elevation: 40 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 05E
Section: 26 **Qtr:** XX
Meridian: M

Location: VICINITY OF THE B. T. COLLINS USAR CENTER, JUST SE OF THE JUNCTION OF FRUITRIDGE ROAD AND POWER INN ROAD, SACRAMENTO
Location Detail: MOST BURROWS ARE LOCATED ALONG BERMS EDGING THE PERIPHERY OF THE ARMY DEPOT.
Ecological: HABITAT CONSISTS OF ARTIFICIAL BERMS AND LEVEES PLANTED IN INTRODUCED GRASSLAND.
Threat: THREATENED BY POTENTIAL CLOSURE OF ARMY DEPOT AND CONVERSION TO DEVELOPMENT.
General: 1990: AT LEAST 6 NESTING BURROWS SCATTERED OVER THIS SITE, WITH AT LEAST 14 INDIVIDUAL BIRDS PRESENT. 4 ADULTS OBSERVED AT A BURROW SITE ON 7 MAR 2003. 11 ACTIVE BURROWS OBSERVED DURING A 2003 STUDY. BOTH ADULTS AND JUVENILES OBSERVED.
Owner/Manager: PVT, DOD-SACRAMENTO ARMY DEPOT

Occurrence No. 307 **Map Index:** 40373 **EO Index:** 35380
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53037º / -121.18579º
UTM: Zone-10 N4266223 E658134
Radius: 80 meters
Elevation: 190 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 08N
Range: 07E
Section: 23 **Qtr:** XX
Meridian: M

Location: 1.1 MILES NNW OF THE INTERSECTION OF KIEFER BLVD AND GRANT LINE RD.
Location Detail: JUST NORTH OF THE KIEFER LANDFILL EXPANSION FOOTPRINT.
Ecological: BURROW FOUND IN ANNUAL GRASSLANDS WITH VERNAL POOLS.
Threat: PROPOSED LANDFILL EXPANSION
General: ONE BURROW SHOWING SIGN OF RECENT OCCUPATION.
Owner/Manager: SAC COUNTY

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (BURROW SITES) OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 308 **Map Index:** 40374 **EO Index:** 35381

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52053º / -121.19245º
UTM: Zone-10 N4265120 E657575
Radius: 80 meters
Elevation:
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 27 **Qtr:** XX
Meridian: M

Location: KIEFER LANDFILL SITE. 0.5 MI EAST OF INTERSECTION OF KIEFER BLVD AND GRANT LINE RD.
Location Detail: JUST OUTSIDE THE KIEFER LANDFILL EXPANSION FOOTPRINT.
Ecological: BURROWS IN ANNUAL GRASSLANDS WITH VERNAL POOLS.
Threat: PROPOSED LANDFILL EXPANSION
General: THREE BURROWS WITH SIGNS OF RECENT OCCUPATION OBSERVED.
Owner/Manager: SAC COUNTY

Occurrence No. 467 **Map Index:** 48312 **EO Index:** 48312

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: STACKHOUSE, E. 2002 (OBS)

Dates Last Seen
Element: 2002-06-28
Site: 2002-06-28
Record Last Updated: 2002-07-18

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51921º / -121.49841º
UTM: Zone-10 N4264493 E630903
Radius: 80 meters
Elevation: 15 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 04E
Section: 25 **Qtr:** NW
Meridian: M

Location: SACRAMENTO; NORTHWEST CORNER OF SACRAMENTO EXECUTIVE AIRPORT.
Location Detail: 60 FT NORTH OF CDF&G HANGER.
Ecological: HABITAT CONSISTS OF FIELD WITH AVENA FATUA, LOLIUM MULTIFLORUM AND YELLOW STAR THISTLE. SUBSTRATE: SAN JOAQUIN SILT LOAM. 0% SLOPE. SURROUNDING LAND CONSISTS OF AN AIRPORT.
Threat: FREQUENTLY MOWED FIELD. PROPOSED FOR DEVELOPMENT IN 2002.
General: 5 ADULTS OBSERVED USING AREA FOR BREEDING ON 28 JUN 2002.
Owner/Manager: SAC COUNTY, CITY OF SACRAMENTO

Athene cunicularia

burrowing owl

Element Code: ABNSB10010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (BURROW SITES) OPEN, DRY ANNUAL OR PERENIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.
Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.

Occurrence No. 487 **Map Index:** 32459 **EO Index:** 48663

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: VANBELCHER, E. 1991 (OBS)

Dates Last Seen
Element: 1991-02-13
Site: 1991-02-13
Record Last Updated: 2002-08-23

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

Location: SW OF FORMER MATHER AFB; BETWEEN KIEFER BLVD, BRADSHAW ROAD, JACKSON ROAD, AND EXCELSIOR ROAD.
Location Detail: SECTIONS 21 AND 22
Ecological: HABITAT CONSISTS OF GRAZED ANNUAL GRASSLAND.
Threat: THREAT CONSISTS OF PROPOSED AGGREGATE MINING.
General: 1 INDIVIDUAL OBSERVED ON 8 JAN 1991. 2 INDIVIDUALS OBSERVED ON 28 JAN 1991. 1 INDIVIDUAL OBSERVED ON 13 FEB. 16 ACTIVE BURROWS OBSERVED ON ALL THREE DATES.
Owner/Manager: PVT

Occurrence No. 488 **Map Index:** 48664 **EO Index:** 48664

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: VICENTY, J. 1974 (LIT)

Dates Last Seen
Element: 1974-02-XX
Site: 1974-02-XX
Record Last Updated: 2003-05-07

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.57733º / -121.43523º
UTM: Zone-10 N4271035 E636302
Area: 25.6 ac
Elevation: 25 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 04
Qtr: XX
Meridian: M

Location: VICINITY OF ELVAS AND 51ST STREET, SACRAMENTO.
General: 2 BURROWS OBSERVED IN AREA DURING 1974 NEST SURVEY.
Owner/Manager: UNKNOWN

Occurrence No. 569 **Map Index:** 51256 **EO Index:** 51256

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MVZ 2003 (MUS)

Dates Last Seen
Element: 1901-05-08
Site: 1901-05-08
Record Last Updated: 2004-02-17

Quad Summary: SACRAMENTO EAST (3812154/512C), RIO LINDA (3812164/512B)
County Summary: SACRAMENTO

Lat/Long: 38.62254º / -121.42968º
UTM: Zone-10 N4276060 E636699
Radius: 1 mile
Elevation: 45 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: 21
Qtr: XX
Meridian: M

Location: HAGGINWOOD. VICINITY OF ARCADE CREEK, BUSINESS I-80 AND HAGGIN OAKS GOLF COURSE.
Location Detail: COLLECTION FROM "HAGGIN'S RANCH, 5 MILES NORTH OF SACRAMENTO". THIS IS NOW THE HAGGINWOOD NEIGHBORHOOD OF SACRAMENTO.
General: MVZ EGG SET #893 COLLECTED 8 MAY 1901 BY R. H. ELLIOTT
Owner/Manager: UNKNOWN

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 13 **Map Index:** 33179 **EO Index:** 2804
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FIELDS, W. 1995 (OBS)

Dates Last Seen
Element: 1995-04-03
Site: 1995-04-03
Record Last Updated: 1996-07-08

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56852º / -121.26395º
UTM: Zone-10 N4270325 E651241
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 12 **Qtr:** NE
Meridian: M

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

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.

Threat: 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.

Owner/Manager: PVT-RMC LONESTAR

Occurrence No. 31 **Map Index:** 33262 **EO Index:** 2583
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTINI, J. & D. MARTIN 1995 (OBS)

Dates Last Seen
Element: 1995-03-24
Site: 1995-03-24
Record Last Updated: 1995-08-30

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.61182º / -121.13272º
UTM: Zone-10 N4275355 E662577
Radius: 80 meters
Elevation: 350 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 08E
Section: 30 **Qtr:** NE
Meridian: M

Location: 1 MILE EAST OF THE INTERSECTION OF PRAIRIE CITY ROAD AND WHITE ROCK ROAD, SACRAMENTO COUNTY.

Ecological: HABITAT CONSISTS OF NORTHERN HARDPAN AND NORTHERN VOLCANIC MUDFLOW VERNAL POOLS IN NON-NATIVE GRASSLAND; POOL WATER FAIRLY TURBID. DOMINANT PLANTS INCLUDE CALITRICHE SP., RANUNCULUS SP., AND ERYNGIUM SP.

Threat: POSSIBLE THREAT FROM OVERGRAZING (POOL SHOWS EVIDENCE OF USE BY CATTLE).

General: 1 FEMALE COLLECTED FROM WETLAND NUMBER 24 ON 24 MARCH 1995 (IDENTIFIED BY D. BELK); DEPOSITED AT CAS.

Owner/Manager: PVT-CAVITT RANCH

Occurrence No. 32 **Map Index:** 31558 **EO Index:** 6893
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FOSTER WHEELER ENVIRON. CORP. 1995 (LIT)

Dates Last Seen
Element: 1995-02-08
Site: 1995-04-21
Record Last Updated: 1995-08-25

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51137º / -121.39697º
UTM: Zone-10 N4263773 E639762
Area: 5.3 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 26 **Qtr:** SE
Meridian: M

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

Location Detail: 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.

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.

Owner/Manager: DOD-BT COLLINS RESERVE TR CNTR

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 33 **Map Index:** 32441 **EO Index:** 2104
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-02-01
Site: 1995-02-01
Record Last Updated: 1995-09-22

Quad Summary: SLOUGHHOUSE (3812142/495B), BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50257º / -121.24805º
UTM: Zone-10 N4263033 E652766
Radius: 1/5 mile
Elevation: 120 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 31 **Qtr:** SE
Meridian: M

Location: ADJACENT TO MATHER AIR FORCE BASE; APPROX. 0.6 KM SOUTHWEST OF THE INTERSECTION BETWEEN SUNRISE BLVD AND JACKSON ROAD.
Location Detail: GRECH PROPERTY (SURVEYED FOR SACRAMENTO AGGREGATES).
Ecological: HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.
Threat: RURAL AGRICULTURAL USES.
General: POOLS #41 & 42: <50 ADULTS OBSERVED; POOLS #47 & 48: 50+ ADULTS OBSERVED; 11 ADULTS COLLECTED AND DEPOSITED IN CAS.
Owner/Manager: PVT

Occurrence No. 35 **Map Index:** 32443 **EO Index:** 637
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-01-05
Site: 1995-01-05
Record Last Updated: 1996-03-11

Quad Summary: CARMICHAEL (3812153/512D), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.50564º / -121.37821º
UTM: Zone-10 N4263165 E641409
Area: 15.7 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 36 **Qtr:** NE
Meridian: M

Location: 1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.
Location Detail: ELDER CREEK PROPERTY. BRANCHINECTA LYNCHI WERE FOUND IN TWO OF 90 SAMPLED WETLANDS.
Ecological: HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.
Threat: 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.
Owner/Manager: PVT-PIPE TRADES TRUST FUND

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 39 **Map Index:** 32447 **EO Index:** 1012
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-02-05
Site: 1995-02-05
Record Last Updated: 1997-03-27

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53565º / -121.30751º
UTM: Zone-10 N4266606 E647513
Area: 4.9 ac
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 22 **Qtr:** NE
Meridian: M

Location: 1.3 KM W OF KIEFER BLVD & MATHER PARK WAY; S OF FORMER MATHER AFB.
Location Detail: GRANITE-TEICHERT PILOT PROJECT SITE (PART).
Ecological: BOTH CONSTRUCTED & HISTORIC HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND; WETLAND COMPENSATION/MITIGATION PRESERVE.
General: POOLS #1,2,4,5,6,&7: 50+ OBSERVED IN EACH POOL; 11 COLLECTED AND DEPOSITED IN CAS.
Owner/Manager: PVT-GRANITE CONSTRUCTION

Occurrence No. 40 **Map Index:** 32448 **EO Index:** 1013
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-02-01
Site: 1995-02-01
Record Last Updated: 1996-01-12

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50522º / -121.25287º
UTM: Zone-10 N4263319 E652340
Area: 9.0 ac
Elevation: 120 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 31 **Qtr:** NW
Meridian: M

Location: 0.9 KM ESE OF EAGLES NEST ROAD X JACKSON ROAD; S OF FORMER MATHER AFB.
Location Detail: GRECH PROPERTY.
Ecological: HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.
Threat: AGRICULTURE.
General: POOLS #6, 55, 63 & 64: 50+ ADULTS OBSERVED; POOL #21-1000+ ADULTS OBSERVED; 8 ADULTS COLLECTED AND DEPOSITED IN CAS.
Owner/Manager: PVT-SACRAMENTO AGGREGATES

Occurrence No. 43 **Map Index:** 28976 **EO Index:** 30715
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-02-06
Site: 1996-03-22
Record Last Updated: 1997-03-10

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.54240º / -121.23355º
UTM: Zone-10 N4267477 E653945
Area: 1,492.9 ac
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: BETWEEN DOUGLAS BLVD AND KEIFER BLVD; BETWEEN SUNRISE BLVD AND JAEGER ROAD; EAST OF MATHER AFB.
Location Detail: SAMMIS DOUGLAS SUNRISE SITE. 1995: 386 WATERBODIES SAMPLED IN T08N, R07E, SEC 8, 17 & 20. 1996: 33 WATERBODIES SAMPLED IN PILOT WETLANDS IN T08N, R07E, SEC 20. 1993: 56 NATURAL SEASONAL WETLANDS & 27 MANMADE VERNAL POOLS INSPECTED IN SEC 20
Ecological: HARDPAN VERNAL POOL IN ANNUAL GRASSLAND. ALSO, NATURAL SEASONAL WETLANDS & MANMADE VERNAL POOLS.
Threat: AGRICULTURAL.
General: 1995: DATA SUMMARIZED, ~60 POOLS HAD B. LYNCHI, NUMBERS VARIED FROM <10 TO 1000+, SAMPLES DEPOSITED IN CAS. 1996: 50+ OBS IN 3 POOLS (SB4, SB6 & SB11) IN SEC 20. 1993: OBS IN 4 OF 56 SEASONAL WETLANDS & 3 OF 27 MANMADE POOLS IN SEC 20.
Owner/Manager: PVT-SARES REGIS GROUP

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 47 **Map Index:** 32459 **EO Index:** 1745
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HUBER, A. 1991 (OBS)

Dates Last Seen
Element: 1999-02-23
Site: 1999-02-23
Record Last Updated: 1999-12-21

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

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

Location Detail: 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.

Threat: 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

Owner/Manager: PVT

Occurrence No. 100 **Map Index:** 32550 **EO Index:** 1418
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GIBSON, J. & T. SKORDAL 1996 (LIT)

Dates Last Seen
Element: 1997-02-11
Site: 1997-03-14
Record Last Updated: 1997-08-27

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.44658º / -121.35553º
UTM: Zone-10 N4256646 E643504
Area: 29.1 ac
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 19
Qtr: NE
Meridian: M

Location: 0.5 MILE SOUTH OF CALVINE ROAD AND IMMEDIATELY WEST OF WATERMAN ROAD, 2 MILES NORTH OF ELK GROVE.

Location Detail: PERRY RANCH MITIGATION AREA IS A 37-ACRE PRESERVE, CONSISTING OF NORTHERN HARDPAN VERNAL POOLS (NATURAL AND CREATED), SEASONAL WETLANDS, WET SWALES, AND NON-NATIVE ANNUAL GRASSLANDS.

Ecological: NORTHERN HARDPAN VERNAL POOL HABITAT WITH CONSTRUCTED AND NATURAL POOLS; DOMINANT UPLAND CONSISTING OF NON-NATIVE ANNUAL GRASSLAND. SOIL TYPES: CORNING-REDDING COMPLEX (8-30% SLOPES) AND REDDING GRAVELLY LOAM (0-8% SLOPES).

Threat: WETLAND PRESERVE IS PROTECTED BY EXISTING PERIMETER FENCE AND NO DISTURBANCES NOTED.

General: 1995: 12/28-OBS IN 25 OF 26 CONSTRUCTED POOLS, 7 OF 10 REFERENCE POOLS. 2/2-OBS IN 2 OF 26 CONSTRUCTED POOLS, 1 OF 10 REFERENCE POOLS. 1996: OBS IN 25 OF 26 CONSTRUCTED POOLS, 3 OF 10 REFERENCE POOLS. 1997: UNKNOWN NUMBER OBS ON 1/8 & 2/11.

Owner/Manager: PVT-WINNCREST HOMES

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 122 **Map Index:** 33380 **EO Index:** 28755
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. 1996 (OBS)

Dates Last Seen
Element: 1996-03-10
Site: 1996-03-10
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.53209º / -121.39920º
UTM: Zone-10 N4266068 E639528
Area: 6.3 ac
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 23 **Qtr:** XX
Meridian: M

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

Location Detail: 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.

Threat: CONSTANT DISTURBANCE BY RAILROAD TRUCKS & OTHERS DRIVING THROUGH POOLED AREAS. ALSO TIRES & DEBRIS IN POOLED AREAS.

General: >50 INDIVIDUALS OBSERVED IN FIVE OF THE DEPRESSIONS DURING SURVEYS CONDUCTED FROM 6 FEBRUARY TO 10 MARCH 1996.

Owner/Manager: PVT

Occurrence No. 131 **Map Index:** 34791 **EO Index:** 12989
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-03
Site: 1992-04-03
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51058º / -121.40219º
UTM: Zone-10 N4263677 E639309
Radius: 80 meters
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 26 **Qtr:** SW
Meridian: M

Location: RAILROAD DITCH AT 47TH AVENUE (ELDER CREEK RD) AND SPTRR, NEAR POWER INN ROAD; NEAR SW CORNER OF SACRAMENTO ARMY DEPOT.

Location Detail: SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH ST & HWY 50.

Ecological: RAILROAD DITCH.

General: KOFORD OBSERVED B. LYNCHI IN DITCH DURING SURVEY IN SPRING OF 1992; LINDERIELLA OCCIDENTALIS AND LEPIDURUS PACKARDI ALSO OBSERVED.

Owner/Manager: PVT-SOUTHERN PACIFIC RR

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 134 **Map Index:** 34807 **EO Index:** 1765
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. 1996 (OBS)

Dates Last Seen
Element: 1996-03-08
Site: 1996-03-08
Record Last Updated: 1996-09-09

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.59987º / -121.17173º
UTM: Zone-10 N4273960 E659206
Area: 423.6 ac
Elevation: 280 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: 35
Qtr: NE
Meridian: M

Location: SOUTHEAST OF WHITE ROCK ROAD X GRANT LINE ROAD; SOUTH OF FOLSOM.
Location Detail: GENCORP AEROJET OFFSITE GET B SITE; POOL #71, WATER DEPTH APPROX. 25 CM, TURBIDITY LIKE STRONG TEA.
Ecological: OLD DREDGE PIT IN NON-NATIVE GRASSLAND.
Threat: ADJACENT LAND USE: GRAZING PASTURELAND, STATE RECREATIONAL VEHICLE AREA.
General: 1 BRANCHINECTA LYNCHI COLLECTED AND DEPOSITED IN CAS; LINDERIELLA OCCIDENTALIS ALSO PRESENT.
Owner/Manager: PVT-GENCORP AEROJET

Occurrence No. 135 **Map Index:** 34808 **EO Index:** 12630
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. 1996 (OBS)

Dates Last Seen
Element: 1996-01-30
Site: 1996-01-30
Record Last Updated: 1996-08-08

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.63534º / -121.23497º
UTM: Zone-10 N4277789 E653623
Radius: 80 meters
Elevation: 105 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX
Qtr: XX
Meridian: M

Location: EAST END OF SAILOR BAR; 100 METERS NORTH OF AMERICAN RIVER; 0.9 KM WEST OF HAZEL AVENUE BRIDGE.
Location Detail: SOUTHEAST OF PARKING LOT AT FIRST FISHING ACCESS ROAD; ADJACENT LAND USE: PUBLIC PARKWAY, GRAVEL STORAGE AREA FOR COUNTY.
Ecological: VERNAL POOL IN DREDGE TAILINGS; GRAVEL AND COBBLED SOIL; SCATTERED LIVE OAKS AND COTTONWOOD TREES BORDERING RIPARIAN AREA.
Threat: POSSIBLE THREAT: PUBLIC PARKWAY, RECREATIONAL AND FISHING ACCESS AREA.
General: >50 ADULTS OBSERVED IN POOL; UNKNOWN NUMBER COLLECTED AND DEPOSITED IN CAS; LINDERIELLA OCCIDENTALIS ALSO PRESENT.
Owner/Manager: SAC COUNTY

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 160 **Map Index:** 30622 **EO Index:** 30615
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1993-03-02
Site: 1993-03-02
Record Last Updated: 1997-03-20

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38950º / -121.34574º
UTM: Zone-10 N4250327 E644472
Radius: 3/5 mile
Elevation: 50 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: 08 **Qtr:** XX
Meridian: M

Location: VICINITY OF GRANT LINE ROAD. ABOUT 1.5 MILES SE OF ELK GROVE.
Location Detail: SEASONAL WETLANDS LOCATED SOMEWHERE IN SECTION 8.
Ecological: NATURAL SEASONAL WETLANDS.
General: B. LYNCHI OBSERVED IN 1 OF 8 FEATURES INSPECTED ON 2/2/93 AND 3/2/93. SUGNET RECORD #'S 46 & 47.
Owner/Manager: UNKNOWN

Occurrence No. 162 **Map Index:** 33686 **EO Index:** 30621
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1993-02-16
Site: 1993-02-16
Record Last Updated: 1997-03-20

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.48894º / -121.34410º
UTM: Zone-10 N4261365 E644417
Area: 1,920.3 ac
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH OF GERBER ROAD, SOUTH OF FLORIN ROAD, EAST OF ELK GROVE-FLORIN ROAD. ABOUT 5 MILES NORTH OF ELK GROVE.
Location Detail: SEASONAL WETLANDS, VERNAL POOLS, AND ROADSIDE DITCHES SOMEWHERE IN SECTIONS 4, 5 & 6.
Ecological: NATURAL SEASONAL WETLANDS, NATURAL VERNAL POOLS, MANMADE ROADSIDE DITCHES AND MANMADE "OTHER".
General: B. LYNCHI OBSERVED IN 1 OF 3 SEASONAL WETLANDS & 1 OF 48 VERNAL POOLS INSPECTED IN SECTION 4. THEY WERE ALSO OBSERVED IN AN UNDESCRIBED MADMADE FEATURE IN SECTION 5. SUGNET RECORD #'S 58, 59 & 60.
Owner/Manager: UNKNOWN

Occurrence No. 163 **Map Index:** 33687 **EO Index:** 30619
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1993-03-02
Site: 1993-03-02
Record Last Updated: 1997-03-20

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45287º / -121.33463º
UTM: Zone-10 N4257377 E645315
Area: 2,537.5 ac
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: EAST OF ELK GROVE-FLORIN RD, WEST OF EXCELSIOR RD, & NORTH OF SHELDON RD. NNE OF ELK GROVE.
Location Detail: VERNAL POOLS LOCATED SOMEWHERE IN SECTIONS 15, 16, 17 & 19.
Ecological: NATURAL VERNAL POOLS.
General: B. LYNCHI OBSERVED IN 4 OF 49 FEATURES INSPECTED IN SEC 15 ON 3/2/93, IN 1 FEATURE INSPECTED IN SEC 17 ON 1/23/93, AND IN 1 FEATURE INSPECTED IN SEC 19 ON 2/6/93. SUGNET RECORD #'S 61, 62 & 64.
Owner/Manager: UNKNOWN

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 164 **Map Index:** 33688 **EO Index:** 30617

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1993-03-02
Site: 1993-03-02
Record Last Updated: 1997-03-07

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41635º / -121.34397º
UTM: Zone-10 N4253310 E644573
Radius: 3/5 mile
Elevation: 50 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 32 **Qtr:** XX
Meridian: M

Location: NORTH OF ELK GROVE BLVD, SOUTH OF BOND RD, EAST OF WATERMAN RD, & WEST OF BRADSHAW RD. EAST OF ELK GROVE.
Location Detail: VERNAL POOLS AND SEASONAL WETLANDS LOCATED SOMEWHERE IN SECTION 32.
Ecological: NATURAL VERNAL POOLS AND NATURAL SEASONAL WETLANDS.
General: B. LYNCHI OBSERVED IN 19 OF 24 INSPECTED VERNAL POOLS AND 2 OF 13 INSPECTED SEASONAL WETLANDS ON 2/2/93, AND IN 1 OF 23 INSPECTED VERNAL POOLS ON 3/2/93. SUGNET RECORD #'S 65, 66, & 67.
Owner/Manager: UNKNOWN

Occurrence No. 166 **Map Index:** 33692 **EO Index:** 30609

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1992-04-03
Site: 1992-04-03
Record Last Updated: 1998-08-10

Quad Summary: FLORIN (3812144/496B), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51048º / -121.39984º
UTM: Zone-10 N4263669 E639514
Area: 1,513.2 ac
Elevation: 35 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 35 **Qtr:** XX
Meridian: M

Location: SOUTH OF FRUITRIDGE RD, NORTH OF FLORIN RD, EAST OF POWER INN RD, & WEST OF FLORIN PERKINS RD.
Location Detail: ROADSIDE DITCHES LOCATED SOMEWHERE IN SECTIONS 26 AND 35.
Ecological: MOST OF SECTION 26 IS URBANIZED.
General: A MANMADE ROADSIDE DITCH IN SECTION 35 CONTAINED B. LYNCHI AND LEPIDURUS PACKARDI.
Owner/Manager: UNKNOWN

Occurrence No. 185 **Map Index:** 36806 **EO Index:** 31803

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BELK, D. 1994 (PERS)

Dates Last Seen
Element: 1991-04-06
Site: 1991-04-06
Record Last Updated: 1997-09-22

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.51852º / -121.29357º
UTM: Zone-10 N4264728 E648763
Radius: 1/10 mile
Elevation: 115 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 26 **Qtr:** XX
Meridian: M

Location: 0.25 MILE EAST OF THE INTERSECTION OF EXCELSIOR ROAD AND JACKSON HWY, SOUTH OF (OLD) MATHER AIR FORCE BASE.
Location Detail: LOCATED ON THE NORTH SIDE OF JACKSON HWY.
Ecological: HABITAT CONSISTS OF VERNAL POOLS.
General: UNKNOWN NUMBER COLLECTED BY CHRIS NAGANO AND JAMIE KING; SENT TO DENTON BELK (DB #990) FOR IDENTIFICATION.
Owner/Manager: PVT

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 186 **Map Index:** 36807 **EO Index:** 31804
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BELK, D. 1991 (PERS)

Dates Last Seen
Element: 1991-04-06
Site: 1991-04-06
Record Last Updated: 1997-09-22

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.48521º / -121.28388º
UTM: Zone-10 N4261047 E649677
Area: 158.8 ac
Elevation: 100 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 02
Meridian: M
Qtr: SE

Location: "MULTI-CULTURE PARK" (FORMERLY, FLORIN PARK), SOUTH OF (OLD) MATHER AIR FORCE BASE.

General: AN UNKNOWN NUMBER COLLECTED BY CHRIS NAGANO AND JAMIE KING ON 6 APRIL 1991; IDENTIFIED BY DENTON BELK (DB #991).

Owner/Manager: UNKNOWN

Occurrence No. 190 **Map Index:** 36874 **EO Index:** 31871
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MUTH, D. 1996 (OBS)

Dates Last Seen
Element: 2000-03-15
Site: 2000-03-15
Record Last Updated: 2000-08-10

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A), BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50388º / -121.25393º
UTM: Zone-10 N4263168 E652250
Area: 587.8 ac
Elevation: 125 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 31
Meridian: M
Qtr: XX

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

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

Threat: 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.

Owner/Manager: PVT

Occurrence No. 192 **Map Index:** 37098 **EO Index:** 32095
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1994-05-11
Site: 1994-05-11
Record Last Updated: 1997-10-07

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.51464º / -121.21016º
UTM: Zone-10 N4264436 E656044
Area: 159.9 ac
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 28
Meridian: M
Qtr: SE

Location: SOUTH OF BLODGETT RESERVOIR (LAGUNA CREEK), NE OF THE INTERSECTION OF HWY 16 AND GRANT LINE ROAD, SE OF SACRAMENTO.

Ecological: HABITAT CONSISTS OF NORTHERN HARDPAN VERNAL POOLS.

General: "DUTRA" SITE. BRANCHINECTA LYNCHI, LEPIDURUS PACKARDI, LINDERIELLA OCCIDENTALIS, AND AN UNKNOWN BRANCHINECTA SPECIES WERE OBSERVED ON 11 MAY 1994.

Owner/Manager: UNKNOWN

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 199 **Map Index:** 40261 **EO Index:** 35263
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-11-30

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52143º / -121.18916º
UTM: Zone-10 N4265225 E657860
Area: 17.1 ac
Elevation: 220 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 27 **Qtr:** XX
Meridian: M

Location: KIEFER LANDFILL, 0.7 MI E JCT OF GRANT LINE RD & KIEFER BLVD, 1.7 MILES NNE OF DEER CREEK CROSSING AT JACKSON HWY (16).
Location Detail: INSIDE KIEFER LANDFILL EXPANSION FOOTPRINT REDUCTION AREA.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION.
General: B. LUNCHI FOUND IN 6 POOLS. LEPIDURUS PACKARDI ALSO FOUND HERE.
Owner/Manager: SAC COUNTY

Occurrence No. 200 **Map Index:** 40263 **EO Index:** 35265
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-11-30

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53093º / -121.18642º
UTM: Zone-10 N4266284 E658078
Radius: 80 meters
Elevation: 230 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 23 **Qtr:** SW
Meridian: M

Location: KIEFER LANDFILL, 1.1 MILES NE JCT OF GRANT LINE RD & KIEFER BLVD, 0.2 MILE S OF GRANT LINE RD AT BM 216.
Location Detail: KIEFER LANDFILL EXPANSION FOOTPRINT AREA.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION
General: OBSERVED IN VERNAL POOL IN THE NORTHERN CORNER OF THE PROPERTY WITHIN THE PROPOSED LANDFILL FOOTPRINT. LEPIDURUS PACKARDI ALSO FOUND HERE.
Owner/Manager: SAC COUNTY

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 228 **Map Index:** 33693 **EO Index:** 42057
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WHITNEY, K. 1998 (OBS)

Dates Last Seen
Element: 1998-01-28
Site: 1998-01-28
Record Last Updated: 1999-12-27

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.49943º / -121.28461º
UTM: Zone-10 N4262624 E649584
Area: 161.9 ac
Elevation: 115 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 35 **Qtr:** SE
Meridian: M

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.
Location Detail: ARROYO SECO MITIGATION BANK SITE (PREVIOUSLY DESCRIBED AS: VERNAL POOLS SOMEWHERE IN SECTION 35).
Ecological: NATURAL VERNAL POOLS IN A VERNAL POOL COMMUNITY
General: 100'S OBSERVED IN MITIGATION BANK, SURVEYED 28 JAN 1998.
Owner/Manager: PVT

Occurrence No. 321 **Map Index:** 48381 **EO Index:** 48381
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2002 (LIT)

Dates Last Seen
Element: 2002-01-12
Site: 2002-01-31
Record Last Updated: 2002-07-29

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55732º / -121.25130º
UTM: Zone-10 N4269103 E652367
Area: 15.5 ac
Elevation: 135 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 07 **Qtr:** XX
Meridian: M

Location: MATHER LAKE REGIONAL PARK, NE SIDE OF MATHER LAKE, SOUTH OF DOUGLAS ROAD AND WEST OF SUNRISE BLVD.
Location Detail: 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.
General: INDIVIDUALS OBSERVED ON 12 JAN 2002. VOUCHER SPECIMENS TO BE COLLECTED ON 31 JAN 2002, HOWEVER NO INDIVIDULAS WERE OBSERVED.
Owner/Manager: SAC COUNTY-PARKS & REC

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 343 **Map Index:** 46127 **EO Index:** 48530

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2002 (LIT)

Dates Last Seen
Element: 2002-01-21
Site: 2004-XX-XX
Record Last Updated: 2004-08-19

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46329º / -121.33734º
UTM: Zone-10 N4258529 E645058
Area: 93.8 ac
Elevation: 65 ft

Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON

Township: 07N
Range: 06E
Section: 17 **Qtr:** NE
Meridian: M

Location: CHURCHILL DOWNS WETLAND PRESERVE (PART); 4 MILES NNE OF ELK GROVE.

Location Detail: 1 MILE SOUTH GERBER RD, 0.5 MILE NORTH CALVINE RD & EXTENDING FROM 0.4 MILE WEST BRADSHAW RD. INDIVIDUALS DETECTED IN POOL NUMBERS 12 AND 15 (NE 1/4 OF THE NE 1/4, SECTION 17).

Ecological: HABITAT CONSISTS OF A VERNAL POOL IN A GRASSLAND. LINDERIELLA OCCIDENTALIS IN AND LEPIDURUS PACKARDI ALSO IN VICINITY.

General: 10'S OBSERVED IN POOL 12 AND 1000'S OBSERVED IN POOL 15 ON 21 JAN 2002. NONE OBSERVED IN JAN & MAR 2003 SURVEYS. SPECIES NOT OBS IN 2004.

Owner/Manager: PVT-ELLIOTT HOMES

Occurrence No. 344 **Map Index:** 48534 **EO Index:** 48536

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2002 (LIT)

Dates Last Seen
Element: 2004-03-04
Site: 2004-03-04
Record Last Updated: 2004-08-19

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47306º / -121.36003º
UTM: Zone-10 N4259578 E643059
Area: 55.4 ac
Elevation: 50 ft

Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON

Township: 07N
Range: 06E
Section: 07 **Qtr:** SE
Meridian: M

Location: CHURCHILL DOWNS WETLAND PRESERVE (PART); 4.5 MILES NORTH OF ELK GROVE.

Location Detail: 0.5 MILE SOUTH OF GERBER RD, 1.2 MILES NORTH OF CALVINE AND 0.5 MILE EAST OF ELK GROVE FLORIN RD. INDIVIDUALS OBSERVED IN POOL NUMBER 9 (NE 1/4 OF THE SE 1/4, SECTION 7).

Ecological: HABITAT CONSISTS OF A VERNAL POOL WITHIN A GRASSLAND. LINDERIELLA OCCIDENTALIS AND LEPIDURUS PACKARDI ALSO IN VICINITY.

General: 10'S OBSERVED IN POOL NUMBER 9 ON 21 JAN 2002. NONE OBSERVED IN JAN & MAR 2003 SURVEYS. 10'S OBS IN POOLS 4 AND 5 ON 4 MAR 2004.

Owner/Manager: PVT

Branchinecta lynchi

vernal pool fairy shrimp

Element Code: ICBRA03030

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

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

Occurrence No. 355 **Map Index:** 53920 **EO Index:** 53922

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FARMER, M. 2002 (OBS)

Dates Last Seen
Element: 2002-03-15
Site: 2002-03-15
Record Last Updated: 2004-01-13

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53993º / -121.32235º
UTM: Zone-10 N4267058 E646210
Area: 44.0 ac
Elevation: 65 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 08N
Range: 06E
Section: 16 **Qtr:** XX
Meridian: M

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

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

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

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.

Owner/Manager: PVT-GRANITE CONSTRUCTION CO

Branchinecta mesovallensis

midvalley fairy shrimp

Element Code: ICBRA03150

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: VERNAL POOLS IN THE CENTRAL VALLEY
Micro:

Occurrence No. 1 **Map Index:** 43418 **EO Index:** 43418

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MUTH, D. 2000 (OBS)

Dates Last Seen
Element: 2000-03-15
Site: 2000-03-15
Record Last Updated: 2000-08-10

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50728º / -121.26822º
UTM: Zone-10 N4263522 E650997
Area: 93.9 ac
Elevation: 125 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 36
Qtr: NE
Meridian: M

Location: 0.2 MILE WEST OF EAGLES NEST ROAD AND SOUTH OF JACKSON ROAD, ~1.2 MILES SOUTH OF MATHER REGIONAL PARK.

Location Detail: MAPPED TO COORDINATES GIVEN: T8N, R6E, W 1/2 OF NE 1/4 OF SECTION 36.

Ecological: NON-NATIVE GRASSLAND WITH VERNAL POOLS

General: SEVERAL ANIMALS FOUND IN A SHALLOW VERNAL POOL LOCATED ON THIS SECTION OF LAND DURING SURVEYS ON FEBRUARY 24 AND MARCH 15.

Owner/Manager: PVT

Occurrence No. 28 **Map Index:** 48317 **EO Index:** 48317

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BELK, D. & M. FUGATE 2002 (LIT)

Dates Last Seen
Element: 1991-03-28
Site: 1991-03-28
Record Last Updated: 2002-07-29

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52052º / -121.29081º
UTM: Zone-10 N4264954 E649000
Area: 234.0 ac
Elevation: 100 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 26
Qtr: XX
Meridian: M

Location: VERNAL POOL COMPLEX SOUTH OF MATHER REGIONAL PARK, NORTH OF JACKSON RD, & EAST OF EXCELSIOR RD.

Location Detail: SOME MAPPED LOCATION INFORMATION FROM D. ROGERS BASED ON VARIOUS SOURCES.

Ecological: VERNAL POOL COMPLEX IN GRASSLAND.

General: DENTON BELK COLLECTION # 895 COLLECTED APR 1989 BY WAYNE FIELDS, #1006 & 1010-1013 COLLECTED 27-28 MAR 1991 BY ANNE HUBER. UNKNOWN NUMBER OF INDIVIDUALS OBS/COLLECTED AT SITES #001, 002 & 027 ON UNKNOWN DATE (D. ROGERS).

Owner/Manager: UNKNOWN

Occurrence No. 29 **Map Index:** 48318 **EO Index:** 48318

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BELK, D. & M. FUGATE 2002 (LIT)

Dates Last Seen
Element: 1991-19-03
Site: 1991-19-03
Record Last Updated: 2002-07-25

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45341º / -121.33570º
UTM: Zone-10 N4257435 E645221
Radius: 1/10 mile
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 17
Qtr: SE
Meridian: M

Location: BELMONT ESTATES (OGDEN RANCH) NORTHWEST OF THE INTERSECTION OF BRADSHAW ROAD AND CALVINE ROAD.

Ecological: VERNAL POOLS.

General: DENTON BELK COLLECTION # 1014 COLLECTED 19 MAR 1991 BY BRENT HELM. UNKNOWN NUMBER OF INDIVIDUALS OBSERVED/COLLECTED AT SITE #003 (D. ROGERS) ON AN UNKNOWN DATE; ROGERS' LOCATION INFORMATION OBTAINED FROM VARIOUS SOURCES.

Owner/Manager: UNKNOWN

Branchinecta mesovallensis

midvalley fairy shrimp

Element Code: ICBRA03150

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: VERNAL POOLS IN THE CENTRAL VALLEY
Micro:

Occurrence No. 44 **Map Index:** 48367 **EO Index:** 48367

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROGERS, D. 2001 (MAP)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 2002-07-25

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.55351º / -121.24642º
UTM: Zone-10 N4268688 E652800
Radius: 1/10 mile
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 18 **Qtr:** NE
Meridian: M

Location: EAST OF MATHER REGIONAL PARK; 0.4 MILE SOUTH OF DOUGLAS BLVD AND 0.2 MILE WEST OF SUNRISE BLVD.

General: UNKNOWN NUMBER OF INDIVIDUALS OBSERVED/COLLECTED AT SITE #026 ON AN UNKNOWN DATE. LOCATION INFORMATION OBTAINED FROM VARIOUS SOURCES.

Owner/Manager: UNKNOWN

Occurrence No. 45 **Map Index:** 48362 **EO Index:** 48362

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROGERS, D. 2001 (MAP)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 2002-07-29

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53334º / -121.26570º
UTM: Zone-10 N4266418 E651162
Radius: 1/10 mile
Elevation: 140 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 24 **Qtr:** NE
Meridian: M

Location: SSE OF MATHER REGIONAL PARK; 0.3 MILE NORTH OF KIEFER BLVD AND 0.25 MILE WEST OF EAGLES NEST RD.

General: UNKNOWN NUMBER OF INDIVIDUALS OBSERVED/COLLECTED AT SITE #017. DATE OF OBSERVATION/COLLECTION UNKNOWN. LOCATION INFORMATION OBTAINED FROM VARIOUS SOURCES.

Owner/Manager: UNKNOWN

Occurrence No. 55 **Map Index:** 51354 **EO Index:** 51354

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-XX-XX
Site: 1995-XX-XX
Record Last Updated: 2003-05-21

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A), BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50163º / -121.24825º
UTM: Zone-10 N4262928 E652750
Area: 176.5 ac
Elevation: 110 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 31 **Qtr:** XX
Meridian: M

Location: SOUTH OF JACKSON ROAD, EAST OF EAGLES NEST ROAD AND NW OF LAGUNA CREEK; APPROX 3 MILES SE OF THE OLD MATHER AFB

Location Detail: GRECH PROPERTY

Ecological: HABITAT CONSISTS OF HARDPAN VERNAL POOLS AND SEASONAL WETLANDS WITHIN NON-NATIVE ANNUAL GRASSLAND.

General: SPECIES OBSERVED IN UNKOWN NUMBER OF 80 SAMPLED POOLS DURING FEB - MAY 1995.

Owner/Manager: PVT

Branchinecta mesovallensis

midvalley fairy shrimp

Element Code: ICBRA03150

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: VERNAL POOLS IN THE CENTRAL VALLEY
Micro:

Occurrence No. 56 **Map Index:** 32447 **EO Index:** 51363

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-02-XX
Site: 1995-02-XX
Record Last Updated: 2003-05-21

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53565º / -121.30751º
UTM: Zone-10 N4266606 E647513
Area: 4.9 ac
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 22
Qtr: NE
Meridian: M

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

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

Ecological: HABITAT CONSISTS OF HARDPAN VERNAL POOLS WITHIN A NON-NATIVE GRASSLAND.

General: SPECIES OBSERVED IN UNKNOWN NUMBER OF 10 SAMPLED POOLS BETWEEN THIS SITE AND A SITE TO THE NE (OCC #57). SAMPLING OCCURRED DURING FEB 1995.

Owner/Manager: PVT-GRANITE CONSTRUCTION

Occurrence No. 57 **Map Index:** 32455 **EO Index:** 51364

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-02-XX
Site: 1995-02-XX
Record Last Updated: 2003-05-21

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53832º / -121.30122º
UTM: Zone-10 N4266913 E648056
Area: 2.0 ac
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 22
Qtr: NE
Meridian: M

Location: ALONG NORTH EDGE OF KIEFER BLVD; 0.7 KM WNW OF KEIFER BLVD & MATHER PARK WAY.

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

Ecological: HABITAT CONSISTS OF HARDPAN VERNAL POOLS WITHIN A NON-NATIVE GRASSLAND.

General: SPECIES OBSERVED IN UNKNOWN NUMBER OF 10 SAMPLED POOLS BETWEEN THIS SITE AND A SITE TO THE SW (OCC #56). SAMPLING OCCURRED DURING FEB 1995.

Owner/Manager: PVT-GRANITE CONSTRUCTION

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 131 **Map Index:** 11672 **EO Index:** 2595
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: CDFG RAPTOR NEST FILES 1984 (PERS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-07-24

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.42027º / -121.28662º
UTM: Zone-10 N4253836 E649572
Radius: 80 meters
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: DEER CREEK, AT THE INTERSECTION OF WILTON ROAD, 0.5 MILE NW OF COSUMNES RIVER.
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.
Threat: POSSIBLE THREAT FROM SURROUNDING DEVELOPMENT OF SMALL RANCHETTES.
General: DFG SWHA #SA013. 2 ADULTS (1 LT, 1 DK) OBSERVED SOARING/ROOSTING HERE IN 1981 AND 1984. NEST OBSERVED DURING A SURVEY OF COSUMNES RIVER IN 1994.
Owner/Manager: PVT

Occurrence No. 183 **Map Index:** 11621 **EO Index:** 2586
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: CDFG RAPTOR NEST FILES 1984 (PERS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-07-24

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.37985º / -121.31790º
UTM: Zone-10 N4249300 E646923
Radius: 80 meters
Elevation: 45 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: 10 **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-13.4(R), 2 MILES EAST OF THE INTERSECTION OF GRANT LINE ROAD & HWY 99, COSUMNES RIVER PRESERVE.
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.
Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SMALL RANCHETTES IN THE AREA.
General: DFG SWHA #SA025. 1 ADULT OBSERVED DIVING ON TURKEY VULTURE (1982); NO NEST FOUND. IN SUMMER 1994, NEST OBSERVED DURING A SURVEY OF COSUMNES RIVER AREA.
Owner/Manager: TNC-COSUMNES RIVER PRESERVE

Occurrence No. 184 **Map Index:** 11655 **EO Index:** 2589
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: CDFG RAPTOR NEST FILES 1984 (PERS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1999-10-07

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38330º / -121.30892º
UTM: Zone-10 N4249698 E647701
Radius: 80 meters
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH BANK OF COSUMNES RIVER, AT RM-14.9, ESE OF ELK GROVE.
Location Detail: LOCATED ~0.25 MILE UPSTREAM FROM DFG COSUMNES RIVER CONSERVATION EASEMENT.
Ecological: NEST TREE IS A VALLEY OAK; HABITAT CONSISTS OF RIPARIAN SURROUNDED BY ROW CROPS.
General: DFG SWHA #SA038. 1 DARK, 1 MEDIUM PHASE OBSERVED SOARING IN 1984; NO NEST FOUND. 2 ADULTS/3 JUVENILES OBSERVED AT THE NEST IN 1987. 2 CHICKS OBSERVED IN THE NEST ON 13 JUNE 1995.
Owner/Manager: PVT

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 185 **Map Index:** 11725 **EO Index:** 27114
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT OF FISH & GAME 1984 (PERS)

Dates Last Seen
Element: 1984-05-22
Site: 1985-05-24
Record Last Updated: 1999-10-07

Quad Summary: GALT (3812133/496D), ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.37601º / -121.25829º
UTM: Zone-10 N4248971 E652138
Radius: 1/5 mile
Elevation: 70 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 07E
Section: 18 **Qtr:** NW
Meridian: M

Location: 0.25 MILE SE OF THE INTERSECTION OF DAVIS AND WALMORT ROADS
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL FIELDS.
General: DFG SWHA #SA036. 1 LIGHT AND 1 DARK PHASE OBSERVED SOARING; NO NEST FOUND, BUT NESTING PRESUMED. SITE CHECKED ON 24 MAY 1985, BUT NO NEST AND NO BIRDS WERE OBSERVED.
Owner/Manager: PVT

Occurrence No. 190 **Map Index:** 11652 **EO Index:** 27109
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT OF FISH & GAME 1984 (PERS)

Dates Last Seen
Element: 1984-05-17
Site: 1984-05-17
Record Last Updated: 1989-08-10

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41518º / -121.29438º
UTM: Zone-10 N4253259 E648905
Radius: 1/5 mile
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 35 **Qtr:** SW
Meridian: M

Location: DEER CREEK, AT WILTON ROAD.
Location Detail: AREA UNSURVEYED. SOURCE DOCUMENT SAYS SECTION 35.
Ecological: NEST TREE IS AN OAK.
General: DFG SWHA #SA024. 1 ADULT OBSERVED ON NEST.
Owner/Manager: PVT

Occurrence No. 191 **Map Index:** 11728 **EO Index:** 27111
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT OF FISH & GAME 1984 (PERS)

Dates Last Seen
Element: 1979-06-29
Site: 1982-06-28
Record Last Updated: 1989-08-10

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45768º / -121.25995º
UTM: Zone-10 N4258031 E651822
Radius: 1/5 mile
Elevation: 90 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: 18 **Qtr:** SW
Meridian: M

Location: 0.5 MILE EAST OF GRANT LINE ROAD, ELK GROVE
Location Detail: LOCATED ABOUT HALF-WAY BETWEEN CALVINE ROAD AND SLOUGHHOUSE ROAD.
General: DFG SWHA #SA002. 2 ADULTS AND YOUNG OBS 1979. NO ACTIVITY IN 1980 OR 1982.
Owner/Manager: PVT

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: Threatened	**State:** S2	

Habitat Associations

General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.

Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 193 **Map Index:** 11920 **EO Index:** 27107

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT OF FISH & GAME 1984 (PERS)

Dates Last Seen
Element: 1979-06-29
Site: 1982-06-28
Record Last Updated: 1989-08-10

Quad Summary: SLOUGHHOUSE (3812142/495B), BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.49768º / -121.17078º
UTM: Zone-10 N4262621 E659515
Radius: 1/5 mile
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 35 **Qtr:** XX
Meridian: M

Location: 1.5 MI EAST OF SLOUGHOUSE ON N SIDE OF HWY 16.

General: DFG SWHA #SA003. 1 ADULT OBS IN 1979 BUT NO NEST FOUND. NO ADULTS OR NEST FOUND IN 1982.

Owner/Manager: PVT

Occurrence No. 262 **Map Index:** 11626 **EO Index:** 27048

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT OF FISH & GAME 1984 (PERS)

Dates Last Seen
Element: 1987-XX-XX
Site: 1987-XX-XX
Record Last Updated: 1999-10-07

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.39740º / -121.31245º
UTM: Zone-10 N4251257 E647364
Radius: 1/5 mile
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: 03 **Qtr:** SW
Meridian: M

Location: DEER CREEK, 1 MILE SE OF GRANT LINE ROAD

General: DFG SWHA #SA037. 2 DARK PHASE ADULTS; NO NEST FOUND IN 1984. 2 ADULTS/1 JUVENILE OBSERVED AT NEST IN 1987.

Owner/Manager: PVT

Occurrence No. 317 **Map Index:** 21023 **EO Index:** 18419

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-05-31
Site: 1990-05-31
Record Last Updated: 1992-04-22

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.49449º / -121.19477º
UTM: Zone-10 N4262226 E657430
Radius: 1/5 mile
Elevation: 95 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: ALONG MEISS ROAD, 0.2 MI SOUTH OF SLOUGHHOUSE.

Location Detail: NEST IS LOCATED IN A VALLEY OAK SOUTH OF DEER CREEK.

Ecological: HABITAT SURROUNDING NEST TREE IS OAK/RIPARIAN WOODLAND ASSOCIATED WITH DEER CREEK.

General: NESTING PAIR OBSERVED FROM 31 MARCH THROUGH 31 MAY 1990; PAIR OBSERVED AROUND NEST AND ON NEST, BUT NO YOUNG WERE OBSERVED DURING THAT TIME.

Owner/Manager: UNKNOWN

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 659 **Map Index:** 26343 **EO Index:** 4374
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SCHMOLDT, D. 1993 (OBS)

Dates Last Seen
Element: 1993-06-17
Site: 1993-06-17
Record Last Updated: 1994-12-06

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.50592º / -121.15879º
UTM: Zone-10 N4263556 E660542
Radius: 80 meters
Elevation: 100 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 36 **Qtr:** NE
Meridian: M

Location: ALONG CREVIS CREEK, JUST EAST OF ITS CONFLUENCE WITH DEER CREEK, 0.5 MILE NE OF THE KIEFER BLVD CROSSING OVER DEER CREEK
Location Detail: NEST STRUCTURE IS VISIBLE FROM KIEFER BLVD.
Ecological: HABITAT CONSISTS OF VALLEY OAK RIPARIAN; ADJACENT HABITAT DOMINATED BY CULTIVATED FIELDS AND NON-NATIVE GRASSLAND.
General: PAIR WAS FIRST OBSERVED IN THE AREA ON 13 APRIL 1993; NEST SITE WAS REVISITED ON 17 JUNE 1993 AND NEST SITE WAS STILL ACTIVE AT THAT TIME.
Owner/Manager: PVT

Occurrence No. 660 **Map Index:** 26342 **EO Index:** 4377
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SCHMOLDT, D. 1993 (OBS)

Dates Last Seen
Element: 1993-06-17
Site: 1993-06-17
Record Last Updated: 1995-01-26

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53242º / -121.14261º
UTM: Zone-10 N4266526 E661894
Radius: 80 meters
Elevation: 130 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 08E
Section: 19 **Qtr:** XX
Meridian: M

Location: ALONG DEER CREEK, JUST SOUTH OF ITS CONFLUENCE WITH CARSON CREEK, 3.5 MILES ENE OF BLODGETT RESERVOIR.
Ecological: HABITAT CONSISTS OF VALLEY OAK RIPARIAN SURROUNDED BY NON-NATIVE GRASSLAND; GRASSLAND ON GENTLE TO MODERATELY SLOPING HILLS.
General: PAIR OBSERVED COURTING/NEST-BUILDING ON 16 AND 17 JUNE 1993.
Owner/Manager: PVT

Occurrence No. 662 **Map Index:** 33208 **EO Index:** 2590
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-06-16

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38737º / -121.29941º
UTM: Zone-10 N4250165 E648523
Radius: 80 meters
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-14.6(L), 2.5 MILES SW OF THE INTERSECTION OF WILTON ROAD AND DILLARD ROAD, EAST OF ELK GROVE.
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.
Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES.
General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA.
Owner/Manager: UNKNOWN

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 663 **Map Index:** 33209 **EO Index:** 2588
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-06-16

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38268º / -121.31456º
UTM: Zone-10 N4249620 E647209
Radius: 80 meters
Elevation: 45 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-13.6(R), 3 MILES SE OF ELK GROVE.
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.
Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES.
General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF THE COSUMNES RIVER AREA.
Owner/Manager: UNKNOWN

Occurrence No. 664 **Map Index:** 33210 **EO Index:** 2585
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-06-16

Quad Summary: GALT (3812133/496D), ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.37539º / -121.32147º
UTM: Zone-10 N4248800 E646620
Radius: 80 meters
Elevation: 45 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-13.0(L), 2.5 MILES SE OF ELK GROVE.
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.
Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES.
General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA.
Owner/Manager: UNKNOWN

Occurrence No. 665 **Map Index:** 33211 **EO Index:** 2592
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-06-16

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41651º / -121.27619º
UTM: Zone-10 N4253436 E650491
Radius: 80 meters
Elevation: 70 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-17.5(L), 0.5 MILE NW OF WILTON.
Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPLANDS AND GRAZING.
Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES.
General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA.
Owner/Manager: UNKNOWN

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: Threatened	**State:** S2	

Habitat Associations

General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.

Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 666 **Map Index:** 33212 **EO Index:** 2596

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-06-16

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.45570º / -121.20838º
UTM: Zone-10 N4257898 E656326
Radius: 80 meters
Elevation: 90 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-23.1(L), JUST NORTH OF THE CALIFORNIA AQUEDUCT, 2.75 MILES SOUTH OF SLOUGHHOUSE.

Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPLAND AND GRAZING.

Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES.

General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA.

Owner/Manager: UNKNOWN

Occurrence No. 667 **Map Index:** 33213 **EO Index:** 2598

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1995-07-24

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.46274º / -121.20371º
UTM: Zone-10 N4258687 E656719
Radius: 80 meters
Elevation: 100 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-23.7(L), 2.5 MILES SOUTH OF SLOUGHHOUSE.

Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND ORCHARDS.

Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES AND CONVERSION TO VINEYARDS.

General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA. ON 13 JUNE 1995, 1 FEMALE WAS OBSERVED PERCHED IN THE NEST TREE, WITH THE NEST NEARBY HOLDING 2 CHICKS (6-WEEK OLD).

Owner/Manager: PVT

Occurrence No. 668 **Map Index:** 33214 **EO Index:** 2599

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1995-06-22

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48418º / -121.19592º
UTM: Zone-10 N4261080 E657352
Radius: 80 meters
Elevation: 100 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER, RM-25.3(R), 0.8 MILE SOUTH OF SLOUGHHOUSE.

Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.

Threat: THREAT INCLUDE DEVELOPMENT INTO SMALL RANCHETTES AND CONVERSION TO VINEYARDS.

General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA. ON 13 JUNE 1995, 1 FEMALE OBSERVED NESTING.

Owner/Manager: UNKNOWN

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: Threatened	**State:** S2	

Habitat Associations

General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.

Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 669 **Map Index:** 33215 **EO Index:** 2600

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1994 (OBS)

Dates Last Seen
Element: 1994-XX-XX
Site: 1994-XX-XX
Record Last Updated: 1995-06-16

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48707º / -121.16974º
UTM: Zone-10 N4261445 E659629
Radius: 80 meters
Elevation: 155 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: 0.6 MILE SW OF THE INTERSECTION OF HWY 16 AND DILLARD ROAD, 2 MILES EAST OF SLOUGHHOUSE.

Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY AGRICULTURAL CROPS AND GRAZING.

Threat: POSSIBLE THREAT FROM DEVELOPMENT OF SURROUNDING AREA INTO SMALL RANCHETTES.

General: ACTIVE NEST OBSERVED DURING A SUMMER 1994 SURVEY OF COSUMNES RIVER AREA.

Owner/Manager: UNKNOWN

Occurrence No. 672 **Map Index:** 33224 **EO Index:** 2594

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1995 (OBS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1995-06-21

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.42279º / -121.25701º
UTM: Zone-10 N4254164 E652152
Radius: 80 meters
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH BANK OF COSUMNES RIVER, AT BEITZEL ROAD, ~5 MILES EAST OF ELK GROVE.

Ecological: HABITAT CONSISTS OF RIPARIAN SURROUNDED BY ROW CROPS.

Threat: POSSIBLE THREATS INCLUDE DEVELOPMENT AND CONVERSION TO VINEYARDS.

General: 2 ADULTS OBSERVED COPULATING ON 13 JUNE 1995.

Owner/Manager: PVT

Occurrence No. 673 **Map Index:** 33225 **EO Index:** 2593

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1995 (OBS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1995-06-21

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41817º / -121.27876º
UTM: Zone-10 N4253616 E650263
Radius: 80 meters
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH BANK OF COSUMNES RIVER, 0.1 MILE EAST OF WILTON ROAD, ~4 MILES EAST OF ELK GROVE.

Ecological: NEST TREE IS A COTTONWOOD SNAG; HABITAT CONSISTS OF RIPARIAN SURROUNDED BY ROW CROPS, SAND MINING, AND LOW-DENSITY RESIDENTIAL.

Threat: THREATENED BY DEVELOPMENT.

General: 1 CHICK OBSERVED IN THE NEST ON 13 JUNE 1995.

Owner/Manager: PVT

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 674 **Map Index:** 33226 **EO Index:** 2591
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1995 (OBS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1995-07-24

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.40494º / -121.28921º
UTM: Zone-10 N4252131 E649378
Radius: 80 meters
Elevation: 55 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH BANK OF COSUMNES RIVER, ~1 MILE DOWNSTREAM FROM WILTON ROAD, ~4 MILES EAST OF ELK GROVE.
Ecological: NEST TREE IS A VALLEY OAK; HABITAT CONSISTS OF RIPARIAN SURROUNDED BY ROW CROPS AND LOW-DENSITY HOUSING.
Threat: THREATS INCLUDE DEVELOPMENT AND CONVERSION TO VINEYARDS.
General: ON 13 JUNE 1995, 2 ADULTS WERE OBSERVED SOARING IN THE VICINITY OF THE NEST TREE, FROM WHICH AT LEAST 2 CHICKS COULD BE HEARD CALLING.
Owner/Manager: PVT

Occurrence No. 675 **Map Index:** 33227 **EO Index:** 2597
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ROSCOE, T. 1995 (OBS)

Dates Last Seen
Element: 1995-06-13
Site: 1995-06-13
Record Last Updated: 1995-06-22

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.45831º / -121.22182º
UTM: Zone-10 N4258165 E655148
Radius: 80 meters
Elevation: 80 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH BANK OF DEER CREEK, JUST SOUTH OF FOLSOM SOUTH CANAL, ~3 MILES SSW OF SLOUGHHOUSE.
Ecological: HABITAT CONSISTS RIPARIAN SURROUNDED BY ROW CROPS AND ALFALFA.
Threat: THREATS INCLUDE DEVELOPMENT AND CONVERSION TO VINEYARDS.
General: ON 13 JUNE 1995, 2 ADULTS OBSERVED (ONE SOARING, ONE PERCHED IN NEST TREE)) AND ONE CHICK HEARD CHIRPING FROM NEST.
Owner/Manager: PVT

Occurrence No. 704 **Map Index:** 39165 **EO Index:** 34167
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LINDSTRAND, L. 1998 (OBS)

Dates Last Seen
Element: 1998-07-01
Site: 1998-07-01
Record Last Updated: 1998-07-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.50281º / -121.17567º
UTM: Zone-10 N4263182 E659077
Radius: 80 meters
Elevation: 100 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 08N
Range: 07E
Section: 35 **Qtr:** XX
Meridian: M

Location: DEER CREEK, 0.7 MILE DOWNSTREAM FROM THE KIEFER BLVD CROSSING, NE OF SLOUGHHOUSE.
Ecological: NEST TREE (SUSPECTED) IS A LARGE VALLEY OAK ALONG DEER CREEK, ADJACENT TO GRASSLAND. HABITAT CONSISTS OF A DENSE STRINGER OF VALLEY/FOOTHILL RIPARIAN VEGETATION; BORDERED BY ANNUAL GRASSLAND AND AGRICULTURAL LANDS (PASTURE AND CROPLAND).
General: PAIR OF SWHA OBSERVED OCCUPYING/DEFENDING THE SITE ON 1 JUL 1998.
Owner/Manager: SAC COUNTY

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 760 **Map Index:** 41774 **EO Index:** 41774
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1994 (PERS)

Dates Last Seen
Element: 1987-XX-XX
Site: 1987-XX-XX
Record Last Updated: 1999-10-21

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38526º / -121.31804º
UTM: Zone-10 N4249901 E646900
Radius: 1/5 mile
Elevation: 35 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: 09 **Qtr:** SE
Meridian: M

Location: DEER CREEK, 2.5 MILES EAST OF HIGHWAY 99, SE OF ELK GROVE.
Ecological: NEST TREE IS AN OAK; SURROUNDED BY A MIX OF RIPARIAN, AGRICULTURAL FIELDS, AND PASTURE.
General: DFG SWHA #SA056. 2 ADULTS OBSERVED NESTING IN 1987.
Owner/Manager: PVT

Occurrence No. 761 **Map Index:** 41775 **EO Index:** 41775
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DEPT. OF FISH & GAME 1994 (PERS)

Dates Last Seen
Element: 1987-XX-XX
Site: 1987-XX-XX
Record Last Updated: 1999-10-21

Quad Summary: GALT (3812133/496D), ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.37285º / -121.32704º
UTM: Zone-10 N4248509 E646139
Radius: 1/5 mile
Elevation: 35 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: 16 **Qtr:** NW
Meridian: M

Location: DEER CREEK, 1.7 MILES EAST OF HIGHWAY 99, SE OF ELK GROVE.
Ecological: NEST TREE IS AN OAK; SURROUNDED BY A MIX OF RIPARIAN, AGRICULTURAL FIELDS, AND PASTURE.
General: DFG SWHA #SA057. 2 LIGHT-MORPH ADULTS OBSERVED NESTING IN 1987.
Owner/Manager: PVT

Occurrence No. 931 **Map Index:** 45347 **EO Index:** 45347
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ZETTLE, B. 2001 (OBS)

Dates Last Seen
Element: 2001-04-20
Site: 2001-04-20
Record Last Updated: 2001-05-15

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.61009º / -121.49006º
UTM: Zone-10 N4274590 E631466
Radius: 80 meters
Elevation: 20 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 04E
Section: 25 **Qtr:** XX
Meridian: M

Location: ALONG NATOMAS EAST MAIN DRAIN, JUST NORTH OF THE GARDEN HIGHWAY, 0.5 MILE EAST OF TRUXEL, SACRAMENTO
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.
Threat: 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.
Owner/Manager: UNKNOWN

Buteo swainsoni

Swainson's hawk

Element Code: ABNKC19070

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) BREEDS IN STANDS WITH FEW TREES IN JUNIPER-SAGE FLATS, RIPARIAN AREAS AND IN OAK SAVANNAH.
Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.

Occurrence No. 1056 **Map Index:** 50841 **EO Index:** 50841
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SWOLGAARD, C. 2001 (OBS)

Dates Last Seen
Element: 2001-06-25
Site: 2001-06-25
Record Last Updated: 2003-04-02

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.45117º / -121.18368º
UTM: Zone-10 N4257438 E658492
Radius: 80 meters
Elevation: 110 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 07N
Range: 07E
Section: 23 **Qtr:** XX
Meridian: M

Location: EAST SIDE OF DILLARD ROAD, JUST NORTH OF CHERRY ROAD, 8 MILES SE OF OLD MATHER AIR FORCE BASE
Location Detail: NEST TREE IS LOCATED IN THE FRONT YARD OF 8149 DILLARD ROAD.
Ecological: NEST TREE IS A DEODAR CEDAR; SURROUNDING FORAGING HABITAT CONSISTS OF PASTURE.
General: 1 ADULT OBSERVED AT THE NEST SITE ON 25 JUN 2001.
Owner/Manager: UNKNOWN

Occurrence No. 1057 **Map Index:** 50844 **EO Index:** 50844
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SWOLGAARD, C. 2001 (OBS)

Dates Last Seen
Element: 2001-04-12
Site: 2001-04-12
Record Last Updated: 2003-04-02

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41543º / -121.27902º
UTM: Zone-10 N4253311 E650246
Radius: 80 meters
Elevation: 80 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 07N
Range: 06E
Section: 36 **Qtr:** XX
Meridian: M

Location: SOUTH SIDE OF WILTON ROAD, 0.5 MILE NW OF WILTON
Location Detail: NEST TREE LOCATED AT 10928 WILTON ROAD.
Ecological: NEST TREE IS SURROUNDED BY PASTURE, RANCHETTES, HAYFIELDS AND ADJACENT RIPARIAN.
General: ON 12 APR 2001, 2 ADULTS OBSERVED NESTING. 1 ADULT OBSERVED BRINGING PREY TO THE NEST, THEN A SPRIG OF FRESH COTTONWOOD LEAVES.
Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 1 **Map Index:** 11640 **EO Index:** 14459
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ARNOLD, R. 1985 (PERS)

Dates Last Seen
Element: 1987-04-23
Site: 1987-04-23
Record Last Updated: 1998-08-10

Quad Summary: CARMICHAEL (3812153/512D), FOLSOM (3812162/511B), CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.61518º / -121.30359º
UTM: Zone-10 N4275439 E647692
Area: 1,403.9 ac
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: ALONG AMERICAN RIVER, NIMBUS FLAT AREA OF LAKE NATOMA SOUTH TO DOWNSTREAM END OF GOETHE PARK.

Location Detail: FOUND ALONG THE AMERICAN RIVER PARKWAY TO THE LOWER SOUTHEAST SHORE OF LAKE NATOMA; INCLUDES CRITICAL AND ESSENTIAL HABITAT AREAS.

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.

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

General: 1987 SURVEY OF NIMBUS FLATS FOUND BOTH OLD AND NEW EXIT HOLES.

Owner/Manager: SAC COUNTY, DPR

Occurrence No. 6 **Map Index:** 11337 **EO Index:** 22744
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing
Main Source: EYA, B. 1976 (LIT)

Dates Last Seen
Element: 1984-06-XX
Site: 1984-06-XX
Record Last Updated: 1998-09-08

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.59819º / -121.46807º
UTM: Zone-10 N4273301 E633403
Area: 27.2 ac
Elevation: 25 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 05E
Section: 30 **Qtr:** SE
Meridian: M

Location: JUST SOUTH OF HIGHWAY 160 AT DEL PASO BLVD, JOHNSON INDUSTRIAL PARK.

Location Detail: SACRAMENTO ZONE - JOHNSON INDUSTRIAL PARK CRITICAL HABITAT.

Ecological: LARVAE ARE BORERS; ADULTS FEED ON FOLIAGE.

General: ADULTS OBSERVED BY ARNOLD IN 1984.

Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 7 **Map Index:** 11410 **EO Index:** 22742
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ENG, L. 1983 (PERS)

Dates Last Seen
Element: 1984-06-XX
Site: 1984-06-XX
Record Last Updated: 1998-07-15

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.58184º / -121.42968º
UTM: Zone-10 N4271543 E636777
Radius: 1/5 mile
Elevation: 25 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH BANK AMERICAN RIVER WEST OF GLEN HALL PARK (ACROSS FROM CAL EXPO), RIVER MILE 5.
Ecological: HABITAT IS A NARROW RIPARIAN BAND.
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.
Owner/Manager: UNKNOWN

Occurrence No. 8 **Map Index:** 11398 **EO Index:** 22739
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: U.S. FISH & WILDLIFE SERVICE 1984 (LIT)

Dates Last Seen
Element: XXXX-XX-XX
Site: 1984-06-XX
Record Last Updated: 1998-07-15

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.58768º / -121.43495º
UTM: Zone-10 N4272184 E636307
Radius: 1/5 mile
Elevation: 20 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: BUSHY LAKE, NEAR CAL EXPO.
Ecological: LARVAE ARE ELDERBERRY STEM BORERS AND ADULTS FEED ON ELDERBERRY FOLIAGE.
General: COLLECTIONS KNOWN FROM THIS AREA. NO ADULTS OR FRESH EXIT HOLES OBSERVED IN 1984.
Owner/Manager: PVT

Occurrence No. 9 **Map Index:** 11343 **EO Index:** 22740
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ARNOLD, R. 1984 (LIT)

Dates Last Seen
Element: 1984-06-00
Site: 1984-06-00
Record Last Updated: 1998-07-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.58961º / -121.46495º
UTM: Zone-10 N4272354 E633690
Radius: 1/5 mile
Elevation: 10 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: AMERICAN RIVER FLOODPLAIN 22 ACRE PARCEL BETWEEN RAILROAD TRACK OVERPASSES (BTWN I-80 & HWY 160).
Location Detail: ADULTS OBSERVED ON "STRESSED" ELDERBERRIES IN RIPARIAN VEGETATION ALONG THE AMERICAN RIVER.
General: NORTH SACRAMENTO LAND COMPANY PROPERTY.
Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 10 **Map Index:** 11431 **EO Index:** 22741
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ARNOLD, R. 1984 (LIT)

Dates Last Seen
Element: 1984-06-00
Site: 1984-06-00
Record Last Updated: 1998-07-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.58101º / -121.41885º
UTM: Zone-10 N4271467 E637721
Radius: 1/5 mile
Elevation: 10 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: BETWEEN MILEAGE MARKERS 6 & 7 ON AMERICAN RIVER PARKWAY BIKE TRAIL.
Location Detail: ADULTS OBSERVED BY ARNOLD ON "STRESSED" ELDERBERRIES IN RIPARIAN VEGETATION ALONG THE AMERICAN RIVER.
Owner/Manager: UNKNOWN

Occurrence No. 11 **Map Index:** 11316 **EO Index:** 12887
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ARNOLD, R. 1984 (LIT)

Dates Last Seen
Element: 1984-06-00
Site: 1984-06-00
Record Last Updated: 1998-07-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.60461º / -121.47634º
UTM: Zone-10 N4274002 E632670
Radius: 1/5 mile
Elevation: 10 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: JUNCTION OF GARDEN HIGHWAY AND NORTHGATE BLVD.
Location Detail: 10 ACRE PARCEL, REFERRED TO AS THE NORTHGATE TRIANGLE.
Ecological: MOST BEETLES FOUND ON "STRESSED" ELDERBERRIES.
General: ADULTS OBSERVED BY ARNOLD.
Owner/Manager: UNKNOWN

Occurrence No. 16 **Map Index:** 11893 **EO Index:** 22735
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1987 (LIT)

Dates Last Seen
Element: 1987-04-23
Site: 1987-04-23
Record Last Updated: 1989-08-11

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48490º / -121.18801º
UTM: Zone-10 N4261173 E658040
Radius: 1/5 mile
Elevation: 100 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: 03 **Qtr:** XX
Meridian: M

Location: PIERSON AND ROONEY TRACT, ONE MI SW OF SLOUGHHOUSE, ALONG COSUMNES RIVER.
Threat: MANY PLANTS IN SITE #2310 WERE DEAD (HERBICIDE); MOST OTHERS SHOWED SIGNS OF CUTTING.
General: 3 STANDS OF ELDERBERRIES WERE SURVEYED: ONE STAND (#2310) CONTAINED 5 VELB EXIT HOLES FROM PREVIOUS YEARS; A SECOND STAND (#2312) CONTAINED A CURRENT VELB EXIT HOLE.
Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 17 **Map Index:** 11830 **EO Index:** 14456
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1987 (LIT)

Dates Last Seen
Element: 1987-04-22
Site: 1987-05-12
Record Last Updated: 1989-08-11

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.44666º / -121.22070º
UTM: Zone-10 N4256874 E655271
Area: 154.4 ac
Elevation: 85 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: BLODGETT AND RD 800 TRACT, APPROX 4 MI SSW OF SLOUGHHOUSE, ALONG 2 MI OF COSUMNES RIVER.

Location Detail: THE NORTH HALF CONSISTS OF A VARYING RANGE OF STAND/AGE TYPES; THE SOUTH HALF IS MAINLY UNIFORM REGROWTH.

Ecological: HABITAT IS A NEARLY-CONTINUOUS STAND OF ELDERBERRY, EXTENDING APPROXIMATELY 3.5 RIVER MILES, PARTICULARLY ON THE WEST BANK. THIS AREA HAS A DENSE UNDERGROWTH OF VITIS, ROSA, RUBUS, AND POISON OAK.

General: BOTH CURRENT AND OLD EXIT HOLES WERE OBSERVED.

Owner/Manager: PVT

Occurrence No. 46 **Map Index:** 11853 **EO Index:** 22719
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ENG, L. 1986 (PERS)

Dates Last Seen
Element: 1964-04-XX
Site: 1964-04-XX
Record Last Updated: 1998-07-15

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48156º / -121.20356º
UTM: Zone-10 N4260776 E656691
Radius: 1 mile
Elevation: 95 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: COSUMNES RIVER/DEER CREEK AREA, APPROX ONE MILE FROM SLOUGH HOUSE.

Location Detail: BETWEEN SLOUGH HOUSE AND DEER CREEK, ~ 1 MILE NNW OF PIERSON & ROONEY TRACT.

Ecological: ONE MALE COLLECTED APR-1964.

General: MALE SPECIMEN, WITH REDUCED DARK PIGMENTATION, COLLECTED FROM A MILKWEED PLANT. ID OF SPECIMEN CONFIRMED BY FRED ANDREWS (CDFA), JACK WILLIAMS (USFWS), AND LARRY ENG (CDFG) IN 1986. SPECIMEN HOUSED IN PVT COLLECTION AT SACTO AG COM OFFICE.

Owner/Manager: UNKNOWN

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 57 **Map Index:** 24044 **EO Index:** 14209
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (OBS)

Dates Last Seen
Element: 1992-01-14
Site: 1992-01-14
Record Last Updated: 1993-08-24

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER

Lat/Long: 38.74345º / -121.20825º
UTM: Zone-10 N4289831 E655714
Radius: 80 meters
Elevation: 260 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 07E
Section: 09 **Qtr:** NE
Meridian: M

Location: SOUTH OF DOUGLAS BLVD WHERE IT INTERSECTS WITH KINGSGATE, GRANITE BAY.
Location Detail: SITE INCLUDES TWO GROUPS OF ELDERBERRY SHRUBS: ONE IS 100 FEET EAST OF KINGSGATE INTERSECTION AND THE SECOND IS 200 FEET WEST OF THE KINGSGATE INTERSECTION.
Ecological: HABITAT CONSISTS OF TWO SMALL OUTCROPS OF ELDERBERRY SHRUBS; ONE GROUP OF 6 PLANTS WITH STEMS <1" AND THE OTHER GROUP OF 2 PLANTS WITH STEMS UP TO 4".
General: WEATHERED BOREHOLES FOUND IN BOTH PLANT GROUPINGS.
Owner/Manager: PVT

Occurrence No. 132 **Map Index:** 39257 **EO Index:** 34259
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOSEA, R. 1995 (OBS)

Dates Last Seen
Element: 1995-04-21
Site: 1995-04-21
Record Last Updated: 1998-07-29

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.62158º / -121.23644º
UTM: Zone-10 N4276259 E653525
Radius: 80 meters
Elevation: 130 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: 20 **Qtr:** XX
Meridian: M

Location: BETWEEN FOLSOM BLVD AND HIGHWAY 50, 1.25 ROAD MILES SW OF HAZEL AVE AND FOLSOM BLVD, RANCHO CORDOVA.
Location Detail: HIGHWAY FRONTAGE.
Ecological: INTRODUCED WEEDS (OAT & FOXTAIL), ELDERBERRY PLANT, BLACK WALNUT.
Threat: ROADSIDE MOWING, FIRE
General: 1 ADULT OBSERVED.
Owner/Manager: CALTRANS

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 163 **Map Index:** 39509 **EO Index:** 34511
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ARNOLD, R. 1984 (LIT)

Dates Last Seen
Element: 1984-XX-XX
Site: 1984-XX-XX
Record Last Updated: 1998-08-24

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41688º / -121.27246º
UTM: Zone-10 N4253483 E650815
Area: 403.6 ac
Elevation: 60 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 99X
Range: 99X
Section: XX **Qtr:** XX
Meridian: X

Location: ALONG COSUMNES RIVER, NEAR WILTON.
Location Detail: STREAM MAPPED, FOR ~4 RIVER MILES AROUND WILTON.
General: EXIT HOLES OBSERVED DURING MAY AND JUNE SURVEYS, 1984, NO ADULTS OBSERVED.
Owner/Manager: UNKNOWN

Occurrence No. 169 **Map Index:** 39545 **EO Index:** 34547
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ZENTNER & ZENTNER 1997 (LIT)

Dates Last Seen
Element: 1990-62-9
Site: 1990-62-9
Record Last Updated: 2000-05-03

Quad Summary: CLARKSVILLE (3812161/511A), FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.67053º / -121.12783º
UTM: Zone-10 N4281879 E662870
Area: 13.9 ac
Elevation: 340 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 09N
Range: 08E
Section: 05 **Qtr:** SW
Meridian: M

Location: WILLOW CREEK, 0.1 MILE WEST OF PREWETT DRIVE, FOLSOM.
Location Detail: FOUND IN AREA "E" AND JUST EAST OF AREA "H" IN THE LAKE NATOMA SHORES VELB MITIGATION MONITORING PROJECT AREA. ALSO THE LEXINGTON HILLS PRESERVE SITE.
Ecological: ELDERBERRY AND ASSOCIATED NATIVE HABITAT.
General: 1 EXIT HOLE OBSERVED IN 1994, NO CHANGE 1995. 2 PLANTS WITH NEW EXIT HOLES JUST OUTSIDE MONITORING AREA, 1996. 16 PLANTS WITH NEW EXIT HOLES & 1 ADULT, 1999.SAME AREA, 1997. EXIT HOLES IN PRESERVE, 1999.
Owner/Manager: UNKNOWN

Occurrence No. 170 **Map Index:** 39550 **EO Index:** 34552
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1994 (LIT)

Dates Last Seen
Element: 1992-XX-XX
Site: 1999-06-15
Record Last Updated: 2000-05-02

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER

Lat/Long: 38.72227º / -121.19342º
UTM: Zone-10 N4287506 E657050
Area: 32.8 ac
Elevation: 300 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 10N
Range: 07E
Section: 15 **Qtr:** XX
Meridian: M

Location: LINDA CREEK, GRANITE BAY GOLF CLUB, SOUTH OF EAST ROSEVILLE PARKWAY AND EAST OF BARTON ROAD.
Location Detail: SEVERAL PLANTS IN RIPARIAN CORRIDOR OF LINDA CREEK, OTHERS WERE MOVED TO ONSITE MITIGATION AREA ABOUT IN THE MIDDLE OF THE PROPERTY.
Ecological: RIPARIAN, OPEN OAK WOODLAND. SITE IS BEING DEVELOPED AS A GOLF COURSE. SOME AREAS WILL REMAIN IN OPEN SPACE AND A VELB COMPENSATION AREA IS BEING CREATED FOR MITIGATION. IN 1997 69 OF THE 86 PLANTED ELDERBERRIES HAD SURVIVED.
General: 20 ELDERBERRIES, 8 WITH EXIT HOLES OBSERVED IN 1991 & 1992. SOME BUSHES TRANSPLANTED TO COMPENSATION AREA & ADDITIONAL SEEDLINGS PLANTED. YEARLY SURVEYS CONDUCTED 1993-1999 BUT NO ADULTS OR NEW EXIT HOLES OBSERVED.
Owner/Manager: PVT

Desmocerus californicus dimorphus

valley elderberry longhorn beetle

Element Code: IICOL48011

Status
Federal: Threatened
State: None

NDDB Element Ranks
Global: G3T2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: OCCURS ONLY IN THE CENTRAL VALLEY OF CALIFORNIA, IN ASSOCIATION WITH BLUE ELDERBERRY (SAMBUCUS MEXICANA).
Micro: PREFERS TO LAY EGGS IN ELDERBERRRIES 2-8 INCHES IN DIAMETER; SOME PREFERENCE SHOWN FOR "STRESSED" ELDERBERRIES.

Occurrence No. 188 **Map Index:** 45079 **EO Index:** 45079
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: OKAMURA-JOHNSON, S. 2000 (OBS)

Dates Last Seen
Element: 2000-01-24
Site: 2000-01-24
Record Last Updated: 2001-03-13

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.61857º / -121.24886º
UTM: Zone-10 N4275904 E652450
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: 19 **Qtr:** SE
Meridian: M

Location: SOUTH SIDE OF BUFFALO CREEK DRAINAGE CANAL, ON THE NORTH SIDE OF HIGHWAY 50, EAST EDGE OF SACRAMENTO
Location Detail: FOUND ALONG THE WEST EDGE OF THE RIGHT-OF-WAY FENCE.
Ecological: HABITAT CONSISTS OF A RIPARIAN CORRIDOR ALONG BUFFALO CREEK. CREEK HAS A MUD SUBSTRATE, WITH EMERGENT VEGETATION AND SAND BAR WILLOW IN ISOLATED STANDS. SURROUNDING AREA HAS BEEN EXTENSIVELY MODIFIED BY HYDRAULIC MINING.
Threat: THREATENED BY A PROPOSED RESIDENTIAL DEVELOPMENT.
General: 3 OF 12 ELDERBERRY BUSHES FOUND TO CONTAIN EXIT HOLES ON 24 JAN 2000.
Owner/Manager: PVT

Occurrence No. 191 **Map Index:** 48761 **EO Index:** 48761
Occ Rank: Unknown
Origin: Transplant Outside of Native Hab./Range
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2001 (LIT)

Dates Last Seen
Element: 1996-XX-XX
Site: 1996-XX-XX
Record Last Updated: 2002-09-10

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65684º / -121.15625º
UTM: Zone-10 N4280309 E660428
Area: 321.7 ac
Elevation: 300 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: 01 **Qtr:** XX
Meridian: M

Location: PRAIRIE OAKS; SOUTH OF WILLOW CREEK, EAST OF PRAIRIE CITY ROAD AND 0.6 MILE NORTH OF HWY 50.
Location Detail: 3 MITIGATION AREAS (VILLAGES 5B, 2 AND 3) WITHIN PROJECT SITE
Ecological: HABITAT CONSISTS OF A PRESERVE (9.47 ACRES) WITH 27 TRANSPLANTED ELDERBERRY SHRUBS (SAMBUCUS MEXICANA), 1,155 ELDERBERRY SEEDLINGS AND 462 OTHER ASSOCIATED TREE AND SHRUB SPECIES (BOX ELDER, FREMONT COTTONWOOD, WILLOW SPECIES, ETC.).
General: 27 OF 29 EXISITNG ELDERBERRY SHRUBS (10 WITH EVIDENCE OF VELB) TRANSPLANTED TO MITIGATION AREAS. TRANSPLANTS DONE BETWEEN FALL OF 1995 & SPRING OF 1996. OF 730 ADDITIONAL ELDERBERRY MITIGATION PLANTINGS 94 ARE >5 FT IN HEIGHT, 231 2-5 FT.
Owner/Manager: UNKNOWN

Downingia pusilla

dwarf downingia

Element Code: PDCAM060C0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 2
State: None	**State:** S3.1	**R-E-D Code:** 1-2-1

Habitat Associations

General: VALLEY AND FOOTHILL GRASSLAND (MESIC SITES), VERNAL POOLS.

Micro: VERNAL LAKE AND POOL MARGINS WITH A VARIETY OF ASSOCIATES. IN SEVERAL TYPES OF VERNAL POOLS. 1-485M.

Occurrence No. 54 **Map Index:** 26056 **EO Index:** 5238

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WITHAM, C. 1991 (OBS)

Dates Last Seen
Element: 2002-04-02
Site: 2002-04-02
Record Last Updated: 2004-03-11

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.43306º / -121.35144º
UTM: Zone-10 N4255152 E643888
Radius: 80 meters
Elevation: 55 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 29 **Qtr:** NW
Meridian: M

Location: SOUTHEAST CORNER OF SHELDON AND WATERMAN ROADS, ELK GROVE.

Location Detail: TWO SMALL COLONIES MAPPED AS ONE POLYGON BETWEEN LAGUNA CREEK AND WATERMAN ROAD IN THE SW CORNER OF DAIRY PASTURE. WITHIN THE SW 1/4 OF THE NW 1/4 OF SECTION 29.

Ecological: VERNAL POOL DOMINATED BY ALLOCARYA STIPITATA MICRANTHA, RANUNCULUS BONARIENSIS TRISEPALUS, AND ERYNGIUM VASEYI VALLICOLA. LEGENERE LIMOSA GROWING IN NEARBY POOL AND SEASONAL WETLAND.

Threat: MOST POOLS HEAVILY DAMAGED BY EXHAUSTIVE DAIRY CATTLE GRAZING. THREATENED WITH DEVELOPMENT.

General: ABOUT 200 PLANTS OBSERVED IN 1991. APPROXIMATELY 52 INDIVIDUALS OBSERVED IN 2002.

Owner/Manager: PVT

Occurrence No. 55 **Map Index:** 26057 **EO Index:** 5237

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1991 (OBS)

Dates Last Seen
Element: 1991-04-XX
Site: 1991-04-XX
Record Last Updated: 1995-10-24

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.42712º / -121.35410º
UTM: Zone-10 N4254489 E643667
Area: 12.9 ac
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 30 **Qtr:** SE
Meridian: M

Location: NORTHWEST CORNER OF BOND ROAD AND WATERMAN ROAD, ELK GROVE.

Location Detail: TWO CONCENTRATIONS OF PLANTS MAPPED; ONE ALONG EAST SIDE OF WATERMAN ABOUT 0.2 MILE NORTH OF BOND. THE OTHER IS ABOUT 0.35 MILE WEST OF WATERMAN AND 0.1 MILE NORTH OF BOND.

Ecological: 6 POPULATIONS IN NATURAL POOLS; 2 POPULATIONS IN SCRAPED DEPRESSIONS. NATURAL POOLS HAVE A WELL DEVELOPED NATIVE FLORA. LEGENERE LIMOSA CO-OCCURS IN ONE POOL.

Threat: CURRENT USE IS GRAZING; DEVELOPMENT PLAN IS BEING PREPARED.

General: 300 PLANTS OBSERVED IN 1991. QUALITY OF NATURAL POOLS IS EXCELLENT, QUALITY OF SCRAPED DEPRESSIONS IS FAIR.

Owner/Manager: PVT

Elanus leucurus

white-tailed kite

Element Code: ABNKC06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) ROLLING FOOTHILLS/VALLEY MARGINS W/SCATTERED OAKS & RIVER BOTTOMLANDS OR MARSHES NEXT TO DECIDUOUS WOODLAND
Micro: OPEN GRASSLANDS, MEADOWS, OR MARSHES FOR FORAGING CLOSE TO ISOLATED, DENSE-TOPPED TREES FOR NESTING AND PERCHING.

Occurrence No. 20 **Map Index:** 24808 **EO Index:** 6352
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-06-02
Site: 1990-06-02
Record Last Updated: 1993-12-06

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48482º / -121.19448º
UTM: Zone-10 N4261153 E657476
Radius: 80 meters
Elevation: 100 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: ALONG COSUMNES RIVER, 0.8 MILE SOUTH OF SLOUGHHOUSE.
Location Detail: NEST SITE LOCATED ON THE SOUTH SIDE OF COSUMNES RIVER, APPROXIMATELY 1/3 MILE DOWNSTREAM FROM THE MEISS ROAD CROSSING.
Ecological: NEST TREE IS A VALLEY OAK LOCATED ON TOP OF THE LEVEE, SURROUNDED BY TYPICAL RIPARIAN/FLOODPLAIN ASSOCIATED SPECIES. LAND SOUTH OF LEVEE IS AGRICULTURAL; NORTH OF LEVEE IS FLOODPLAIN.
General: 2 ADULTS OBSERVED WITH 3 RECENTLY-FLEDGED YOUNG, WHICH KEPT RETURNING TO THE NEST.
Owner/Manager: UNKNOWN

Occurrence No. 21 **Map Index:** 24813 **EO Index:** 6398
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-04-22
Site: 1990-04-22
Record Last Updated: 1994-01-14

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50399º / -121.36149º
UTM: Zone-10 N4263008 E642871
Radius: 80 meters
Elevation: 45 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 31 **Qtr:** NE
Meridian: M

Location: EAST SIDE OF HEDGE AVENUE, 0.5 MILE SOUTH OF ELDER CREEK ROAD, EAST OF SACRAMENTO.
Ecological: NEST TREE IS AN OLIVE WITHIN AN OLD ORCHARD.
General: 2 ADULTS OBSERVED OCCUPYING NEST IN 1990.
Owner/Manager: UNKNOWN

Occurrence No. 22 **Map Index:** 24817 **EO Index:** 12178
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-06-23
Site: 1990-06-23
Record Last Updated: 1993-12-06

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55327º / -121.24791º
UTM: Zone-10 N4268659 E652671
Radius: 1/5 mile
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 18 **Qtr:** NE
Meridian: M

Location: SE CORNER OF MATHER LAKE, MATHER AIR FORCE BASE.
Location Detail: NEST IS LOCATED IN A TREE AT THE EDGE OF A FRESHWATER LAKE.
Threat: MAIN THREAT IS THE UNCERTAIN FUTURE OF MATHER AFB; IT IS UNKNOWN WHETHER MATHER LAKE WILL BE MAINTAINED.
General: 2 ADULTS AND 2 JUVENILES OBSERVED IN 1990.
Owner/Manager: DOD-MATHER AFB

Elanus leucurus

white-tailed kite

Element Code: ABNKC06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) ROLLING FOOTHILLS/VALLEY MARGINS W/SCATTERED OAKS & RIVER BOTTOMLANDS OR MARSHES NEXT TO DECIDUOUS WOODLAND
Micro: OPEN GRASSLANDS, MEADOWS, OR MARSHES FOR FORAGING CLOSE TO ISOLATED, DENSE-TOPPED TREES FOR NESTING AND PERCHING.

Occurrence No. 23 **Map Index:** 24818 **EO Index:** 12685
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-06-01
Site: 1990-06-01
Record Last Updated: 1994-02-03

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52377º / -121.20708º
UTM: Zone-10 N4265454 E656293
Radius: 80 meters
Elevation: 180 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 28 **Qtr:** NE
Meridian: M

Location: N SIDE OF BLODGETT RESERVOIR, AT THE UPSTREAM END, JUST SOUTH OF KIEFER BLVD, 2 MILES NW OF SLOUGHHOUSE.
Ecological: NEST TREE IS A LIVE OAK WITH ADJACENT EUCALYPTUS TREES.
General: BLODGETT RESERVOIR IS A PRIVATE GUN/FISHING CLUB. 2 ADULTS AND 4 JUVENILES WERE OBSERVED IN 1990.
Owner/Manager: PVT

Occurrence No. 24 **Map Index:** 24819 **EO Index:** 12136
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MOHR, B. & D. JOHNSON 1989 (OBS)

Dates Last Seen
Element: 1989-06-XX
Site: 1989-06-XX
Record Last Updated: 1993-12-06

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.60061º / -121.13253º
UTM: Zone-10 N4274111 E662619
Radius: 80 meters
Elevation: 290 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 08E
Section: 29 **Qtr:** SW
Meridian: M

Location: NORTH SIDE OF SCOTT ROAD, 0.5 MILE NORTH OF THE BRIDGE OVER COYOTE CREEK, 5 MILES SOUTH OF FOLSOM.
Location Detail: NEST APPEARED TO BE LOCATED IN A CLUMP OF MISTLETOE.
Ecological: NEST TREE IS A LIVE OAK; SURROUNDING FORAGING HABITAT CONSISTS OF OAK/GRASSLAND IN A ROLLING TERRAIN CONTAINING SMALL, SEASONAL CREEKS.
General: 2 ADULTS OBSERVED FROM FEBRUARY-JUNE 1989; NESTING SUCCESS UNKNOWN.
Owner/Manager: PVT

Occurrence No. 25 **Map Index:** 24816 **EO Index:** 6399
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DETWILER, W. 1988 (OBS)

Dates Last Seen
Element: 1988-03-13
Site: 1988-03-13
Record Last Updated: 1997-09-15

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.57423º / -121.35292º
UTM: Zone-10 N4270816 E643478
Area: 263.6 ac
Elevation: 30 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 06E
Section: 32 **Qtr:** XX
Meridian: M

Location: AMERICAN RIVER FLOODPLAIN, BEHIND RIO AMERICANO HIGH SCHOOL, SACRAMENTO.
Location Detail: 2 NESTS WERE BUILT, APPROXIMATELY 0.15 MILE APART - BOTH NESTS WERE ABANDONED.
Ecological: HABITAT CONSISTS OF RIPARIAN WOODLANDS, SCATTERED OAK TREES, AND GRASSLAND, MIXED WITH ISOLATED PONDS.
General: 2 ADULTS OBSERVED NESTING, BUT NESTING WAS UNSUCCESSFUL.
Owner/Manager: SAC COUNTY

Elanus leucurus

white-tailed kite

Element Code: ABNKC06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) ROLLING FOOTHILLS/VALLEY MARGINS W/SCATTERED OAKS & RIVER BOTTOMLANDS OR MARSHES NEXT TO DECIDUOUS WOODLAND
Micro: OPEN GRASSLANDS, MEADOWS, OR MARSHES FOR FORAGING CLOSE TO ISOLATED, DENSE-TOPPED TREES FOR NESTING AND PERCHING.

Occurrence No. 26 **Map Index:** 24815 **EO Index:** 6400
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1988 (OBS)

Dates Last Seen
Element: 1988-02-27
Site: 1988-02-27
Record Last Updated: 1995-11-02

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.59088º / -121.32389º
UTM: Zone-10 N4272710 E645974
Radius: 80 meters
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH END OF GOETHE PARK, RANCHO CORDOVA.
Location Detail: NEST LOCATED ON THE EAST SIDE OF THE ENTRANCE ROAD TO THE PARK.
General: 2 ADULTS OBSERVED NESTING IN 1988.
Owner/Manager: SAC COUNTY

Occurrence No. 27 **Map Index:** 24814 **EO Index:** 6397
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-02-18
Site: 1990-02-18
Record Last Updated: 1993-12-07

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50732º / -121.32363º
UTM: Zone-10 N4263437 E646165
Radius: 80 meters
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 33 **Qtr:** NE
Meridian: M

Location: 0.25 MILE SOUTH OF ELDER CREEK ROAD, 0.6 MILE EAST OF BRADSHAW ROAD, EAST OF SACRAMENTO.
Location Detail: NEST LOCATED IN A TREE LINE BETWEEN PASTURES AND AGRICULTURAL FIELDS.
General: 2 ADULTS OBSERVED NESTING IN 1990.
Owner/Manager: PVT

Occurrence No. 28 **Map Index:** 24807 **EO Index:** 6353
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-06-03
Site: 1990-06-03
Record Last Updated: 1994-02-04

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.48675º / -121.36528º
UTM: Zone-10 N4261089 E642574
Radius: 80 meters
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 06 **Qtr:** SW
Meridian: M

Location: SOUTH SIDE OF MCCOY AVENUE, 0.4 MILE EAST OF ELK GROVE-FLORIN ROAD, SOUTH OF SACRAMENTO.
Ecological: NEST TREE IS LOCATED ON RURAL RESIDENTIAL PROPERTY.
General: 2 ADULTS OBSERVED NESTING IN 1990.
Owner/Manager: PVT

Elanus leucurus

white-tailed kite

Element Code: ABNKC06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) ROLLING FOOTHILLS/VALLEY MARGINS W/SCATTERED OAKS & RIVER BOTTOMLANDS OR MARSHES NEXT TO DECIDUOUS WOODLAND
Micro: OPEN GRASSLANDS, MEADOWS, OR MARSHES FOR FORAGING CLOSE TO ISOLATED, DENSE-TOPPED TREES FOR NESTING AND PERCHING.

Occurrence No. 29 **Map Index:** 24812 **EO Index:** 6462
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BARBIERI, R. 1989 (OBS)

Dates Last Seen
Element: 1989-06-20
Site: 1989-06-20
Record Last Updated: 1993-12-07

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.66673º / -121.19425º
UTM: Zone-10 N4281341 E657099
Radius: 80 meters
Elevation: 200 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: SNIPES/PERSHING RAVINE, ON THE WEST SIDE OF LAKE NATOMA, ORANGEVALE.
Ecological: MIX OF BLUE OAK, FOOTHILL PINE, POISON OAK, AND BUCKEYE.
Threat: POSSIBILITY OF DEVELOPMENT - MANY LOTS ARE FOR SALE.
General: 2 ADULTS AND 3 JUVENILES OBSERVED IN 1989.
Owner/Manager: PVT

Occurrence No. 30 **Map Index:** 24811 **EO Index:** 6461
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MOHR, B. 1988 (OBS)

Dates Last Seen
Element: 1988-06-XX
Site: 1988-06-XX
Record Last Updated: 1995-11-02

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.63745º / -121.24341º
UTM: Zone-10 N4278009 E652884
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: SAILOR BAR, NEAR THE END OF KENNETH AVENUE, NORTH OF THE AMERICAN RIVER AND 1 MILE WEST OF HAZEL AVENUE, FAIR OAKS.
Location Detail: NEST IS LOCATED IN THE CENTER-TOP OF A LIVE OAK FOUND AMONG DREDGER TAILINGS, BETWEEN THE BLUFFS TO THE NORTH AND THE SERVICE ROAD FOLLOWING THE RIVER TO THE SOUTH.
Ecological: NEST TREE IS A LIVE OAK; SURROUNDING VEGETATION CONSISTS OF COTTONWOODS, WILLOWS, COYOTE BUSH, POISON OAK, WILD GRAPE, AND ELDERBERRY.
Threat: THREATS INCLUDE HUMAN DISTURBANCE AND UNLEASHED DOGS.
General: ONE BIRD OBSERVED ON NEST IN 1988.
Owner/Manager: SAC COUNTY

Elanus leucurus

white-tailed kite

Element Code: ABNKC06010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: None	**State:** S3	

Habitat Associations

General: (NESTING) ROLLING FOOTHILLS/VALLEY MARGINS W/SCATTERED OAKS & RIVER BOTTOMLANDS OR MARSHES NEXT TO DECIDUOUS WOODLAND

Micro: OPEN GRASSLANDS, MEADOWS, OR MARSHES FOR FORAGING CLOSE TO ISOLATED, DENSE-TOPPED TREES FOR NESTING AND PERCHING.

Occurrence No. 31 **Map Index:** 24810 **EO Index:** 6463

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1992 (OBS)

Dates Last Seen
Element: 1992-XX-XX
Site: 1992-XX-XX
Record Last Updated: 1993-12-07

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.71458º / -121.23824º
UTM: Zone-10 N4286577 E653169
Radius: 80 meters
Elevation: 200 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 07E
Section: 20 **Qtr:** NW
Meridian: M

Location: WOODBRIDGE PARK, EAST SIDE OF LINDA CREEK, 0.5 MILE SOUTH OF OLD AUBURN ROAD, ORANGEVALE.

Location Detail: NEST SITE LOCATED SOUTH OF POND AND EAST OF THE TENNIS COURTS, BORDERING THE FENCELINE; DEVELOPED PARK ON ONE SIDE AND LINDA CREEK RIPARIAN AREA ON THE OTHER.

Ecological: HABITAT CONSISTS OF OAK/RIPARIAN WOODLAND ALONG THE CREEKSIDE

General: NEST WITH 2 ADULTS OBSERVED ON 26 MAY 1992; 2 YOUNG OBSERVED IN NEST DURING A SUBSEQUENT VISIT.

Owner/Manager: UNKNOWN

Occurrence No. 32 **Map Index:** 24831 **EO Index:** 6464

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1990 (OBS)

Dates Last Seen
Element: 1990-05-05
Site: 1990-05-05
Record Last Updated: 1995-11-02

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.62909º / -121.28388º
UTM: Zone-10 N4277014 E649379
Radius: 80 meters
Elevation: 90 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: SACRAMENTO BAR, ON THE NORTH SIDE OF THE AMERICAN RIVER, NEAR THE END OF BANNISTER AVENUE, FAIR OAKS.

Ecological: HABITAT CONSISTS OF A DISTUBED RIPARIAN AREA CONTAINING GRAVEL DREDGE TAILINGS; VEGETATED BY LIVE OAK AND COTTONWOOD TREES.

General: ADULT WAS OBSERVED SETTLING DOWN ON THE NEST IN 1990.

Owner/Manager: SAC COUNTY

Occurrence No. 40 **Map Index:** 24987 **EO Index:** 22256

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOHNSON, D. 1991 (OBS)

Dates Last Seen
Element: 1991-03-10
Site: 1991-03-10
Record Last Updated: 1994-02-15

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.63314º / -121.19923º
UTM: Zone-10 N4277605 E656739
Radius: 80 meters
Elevation: 160 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: S OF FOLSOM BLVD, S OF PAC BELL BLDG, PRIOR TO ENTRANCE TO AEROJET, 1 MI E OF HAZEL AVE EXIT FROM HWY 50, RANCHO CORDOVA

Ecological: TRANSITIONAL PLANT COMMUNITIES, FOOTHILL PINE, TOYAN PRESENT.

General: 1 ADULT OBSERVED SITTING ON A NEST IN A TREE IN 1991.

Owner/Manager: UNKNOWN

Elderberry Savanna

Element Code: CTT63440CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2
State: S2.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 2 **Map Index:** 11371 **EO Index:** 15253

Dates Last Seen
Element: 1987-XX-XX
Site: 1987-XX-XX
Record Last Updated: 1998-07-23

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SAC. CO. PARKS & REC. DEPT. 1987 (LIT)

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.59206º / -121.44612º
UTM: Zone-10 N4272653 E635326
Area: 51.3 ac
Elevation: 25 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 05E
Section: 32 **Qtr:** XX
Meridian: M

Location: CAL EXPO, ON AMERICAN RIVER FLOODPLAIN FROM S.P. RR TRACKS EAST TO JUST BEYOND HWY 80.

Location Detail: BOUNDARY GENERALIZED FROM MANAGEMENT PLAN TO INCLUDE MOST ELDERBERRY BUSHES IN THIS PORTION OF CAL EXPO.

Ecological: SAMBUCUS MEXICANA, CENTAUREA SOLSTITIALIS, ELYMUS TRITICHOIDES, BROMUS DIANDRUS, FOENICULUM VULGARE.

General: LEASED BY SACRAMENTO COUNTY PARKS & RECREATION DEPT MANAGEMENT PLAN EMPHASIZES PRESERVATION & RESTORATION. THIS WAS OCC #002 OF CTT63440CCA.

Owner/Manager: STATE (SAC COUNTY LEASE)

Occurrence No. 3 **Map Index:** 11402 **EO Index:** 15252

Dates Last Seen
Element: 1987-XX-XX
Site: 1987-XX-XX
Record Last Updated: 1998-07-23

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SAC. CO. PARKS & REC. DEPT. 1987 (LIT)

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.58433º / -121.43294º
UTM: Zone-10 N4271815 E636488
Area: 79.9 ac
Elevation: 35 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 05E
Section: 33 **Qtr:** S
Meridian: M

Location: CAL EXPO, ON AMERICAN RIVER FLOODPLAIN, SOUTH & SOUTHEAST OF BUSHY LAKE.

Location Detail: BOUNDARY GENERALIZED FROM MANAGEMENT PLAN TO INCL MOST ELDERBERRY BUSHES IN THIS PORTION OF CAL EXPO.

Ecological: SAMBUCUS MEXICANA, CENTAUREA SOLSTITIALIS, ELYMUS TRITICOIDES, BROMUS DIANDRUS, FOENICULUM VULGARE.

General: LEASED FROM STATE BY SAC COUNTY PARKS & REC DEPT. MGMT PLAN EMPHASIZES PRESERVATION & RESTORATION. THIS WAS OCC #003 OF CTT63440CA.

Owner/Manager: STATE (SAC COUNTY LEASE)

Emys (=Clemmys) marmorata marmorata

northwestern pond turtle

Element Code: ARAAD02031

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3G4T3
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 33 **Map Index:** 32695 **EO Index:** 1330

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ADAMS, B. 1991 (OBS)

Dates Last Seen
Element: 1991-04-26
Site: 1991-04-26
Record Last Updated: 1995-12-12

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52815º / -121.32366º
UTM: Zone-10 N4265748 E646120
Radius: 1/5 mile
Elevation: 55 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 21 **Qtr:** S
Meridian: M

Location: SOUTH OF MATHER AIR FORCE BASE; MORRISON CREEK BELOW THE CONFLUENCE WITH MATHER AFB DRAIN.
Location Detail: SITE OWNED BY GRANITE CONSTRUCTION COMPANY AND TEICHERT MINING COMPANY.
Ecological: SLOW MOVING CREEK WITH ABUNDANT AQUATIC VEGETATION; SURROUNDING AREA IS ANNUAL GRASSLAND.
Threat: GRAZING; GRAVEL PITS IN NORTHERN EXTREME OF SITE VICINITY; PROPOSED AGGREGATE MINING.
General: 1 INDIVIDUAL OBSERVED.
Owner/Manager: PVT

Occurrence No. 34 **Map Index:** 32696 **EO Index:** 17556

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1992 (OBS)

Dates Last Seen
Element: 1992-08-XX
Site: 1992-08-XX
Record Last Updated: 1996-02-15

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.61353º / -121.30939º
UTM: Zone-10 N4275246 E647190
Radius: 80 meters
Elevation: 65 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: CARMICHAEL; ANCIL HOFFMAN PARK; IN SMALL POND 0.7 KM EAST OF END OF KENNETH DRIVE.
Location Detail: SITE COMPLETELY WITHIN NATURE STUDY AREA.
Ecological: SMALL POND SURROUNDED BY QUERCUS LOBATA, SAMBUCUS MEXICANA, TYPHA AND RUBUS.
Threat: VISITORS MAY ACCIDENTALLY TRAMPLE NESTING SITES.
General: 3 ADULTS OBSERVED BASKING ON PARTIALLY SUBMERGED LOG AND ON COLLAPSED SAMBUCUS MEXICANA BRANCHES, HATCHLING OBSERVED IN 1991 OR 1992; S. MEXICANA IS CRITICAL HABITAT FOR VALLEY ELDERBERRY LONGHORN BEETLE.
Owner/Manager: SAC COUNTY-PARKS & REC

Emys (=Clemmys) marmorata marmorata

northwestern pond turtle

Element Code: ARAAD02031

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3G4T3
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 35 **Map Index:** 32697 **EO Index:** 1201

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BRODE, J. 1991 (OBS)

Dates Last Seen
Element: 1991-03-07
Site: 1991-03-07
Record Last Updated: 1995-11-06

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.66115º / -121.13086º
UTM: Zone-10 N4280833 E662627
Radius: 80 meters
Elevation: 375 ft

Mapping PrecisionSPECIFIC
Symbol Type:POINT

Township: 09N
Range: 08E
Section: 05 **Qtr:** SW
Meridian: M

Location: NATOMAS DITCH; NORTHEAST SIDE OF PLACERVILLE ROAD; 0.1-0.2 MILES N OF NATOMAS DITCH X PLACERVILLE ROAD.

Ecological: OLD MAN-MADE DITCH; VERY LITTLE AQUATIC VEGETATION; SPIKE RUSH AND BLACKBERRIES DOMINANT; SOME WILLOWS AND A FEW ALDERS; SURROUNDING HABITAT IS GRAZED GRASSLAND.

Threat: DITCH THREATENED BY DEWATERING; GRAZING; PROPOSED DEVELOPMENT FOR COMMUNITY COLLEGE AND SHOPPING CENTER.

General: 2 ADULTS OBSERVED, 1 RETAINED BY DFG AS LIVE SPECIMEN; SITE IS UNDER LITIGATION; GOOD POND TURTLE HABITAT, NOT MUCH FOR FISH; NO FROGS OBSERVED.

Owner/Manager: PVT

Occurrence No. 36 **Map Index:** 32698 **EO Index:** 1156

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WARENYCIA, D. 1993 (OBS)

Dates Last Seen
Element: 1993-04-25
Site: 1993-04-25
Record Last Updated: 1995-11-06

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.66391º / -121.19198º
UTM: Zone-10 N4281032 E657303
Radius: 80 meters
Elevation: 80 ft

Mapping PrecisionSPECIFIC
Symbol Type:POINT

Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: POND AT SNIPES-PERSHING RAVINE; ADJACENT TO LAKE NATOMAS (WEST SIDE), AT NORTH END OF MISSISSIPPI BAR; ORANGEVALE.

Ecological: POND, MAY BE SOMEWHAT ARTIFICIAL; CULVERTS ON EAST END TO DELIVER EXCESS WATER TO RIVER SIDE OF BIKE TRAIL; MIXED VEGETATION, DOMINATED BY LIVE OAK AND FOOTHILL PINE SURROUNDING POND.

Threat: POTENTIAL THREAT INCLUDE: DEVELOPMENT OF PRIVATE PARCELS, RECREATIONAL DISTURBANCE-HIKING AND BIKING TRAILS.

General: 1 ADULT OBSERVED FORAGING; HIKING TRAIL ENCIRCLES HALF OF POND; BIKE TRAIL VISIBLE FROM POND.

Owner/Manager: DPR-FOLSOM LAKE SRA, PVT

Emys (=Clemmys) marmorata marmorata

northwestern pond turtle

Element Code: ARAAD02031

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3G4T3
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 46 **Map Index:** 32824 **EO Index:** 1472
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, D. 1988 (PERS)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 1996-01-18

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.63370º / -121.22737º
UTM: Zone-10 N4277619 E654288
Radius: 1/5 mile
Elevation: 105 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: 2.5 MILES EAST OF FAIR OAKS, IMMEDIATELY DOWNSTREAM FROM NIMBUS DAM AT NIMBUS FISH HATCHERY.
General: COLLECTION MADE BY DFG, DATE AND NUMBERS OF SPECIMENS UNKNOWN.
Owner/Manager: DFG-NIMBUS FH

Occurrence No. 96 **Map Index:** 37856 **EO Index:** 32863
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SANDERS, S. 1997 (OBS)

Dates Last Seen
Element: 1997-04-19
Site: 1997-04-19
Record Last Updated: 1998-01-08

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER, SACRAMENTO

Lat/Long: 38.71478º / -121.18053º
UTM: Zone-10 N4286697 E658187
Area: 26.8 ac
Elevation: 500 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 10N
Range: 07E
Section: 14 **Qtr:** XX
Meridian: M

Location: BALDWIN RESERVOIR WETLAND AND WILDLIFE PRESERVE, GRANITE BAY.
Ecological: HABITAT CONSISTS OF FRESHWATER MARSH, SURROUNDING AN ABANDONED WATER DISTRICT RESERVOIR. OPEN WATER IS SURROUNDED BY SCIRPUS & TYPHA. ISLANDS & ROCKY BASKING SITES PRESENT. ADJACENT UPLANDS SUPPORT MOSTLY RUDERAL SPECIES.
General: 2 ADULTS OBSERVED ON 19 APRIL 1997.
Owner/Manager: PVT-SAN JUAN WATER DIST

Occurrence No. 131 **Map Index:** 46092 **EO Index:** 46092
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES, M. 2001 (OBS)

Dates Last Seen
Element: 2001-09-26
Site: 2001-09-26
Record Last Updated: 2001-10-10

Quad Summary: FOLSOM SE (3812151/511D), BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53992º / -121.12767º
UTM: Zone-10 N4267384 E663179
Area: 37.0 ac
Elevation: 120 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 08E
Section: 17 **Qtr:** SW
Meridian: M

Location: DEER CREEK, 8 MILES SSE OF LAKE NATOMA
Ecological: HABITAT CONSISTS OF AN ISOLATED POOL IN DEER CREEK.
Threat: THREATENED BY PROPOSED RANCHETTE DEVELOPMENT.
General: 5 ADULTS OBSERVED BASKING ON A SUBMERGED LOG ON 26 SEP 2001.
Owner/Manager: UNKNOWN

Emys (=Clemmys) marmorata marmorata

northwestern pond turtle

Element Code: ARAAD02031

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3G4T3
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: ASSOCIATED WITH PERMANENT OR NEARLY PERMANENT WATER IN A WIDE VARIETY OF HABITATS.
Micro: REQUIRES BASKING SITES. NESTS SITES MAY BE FOUND UP TO 0.5 KM FROM WATER.

Occurrence No. 132 **Map Index:** 46135 **EO Index:** 46135
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FULLEN, K. 2001 (OBS)

Dates Last Seen
Element: 2001-07-11
Site: 2001-07-11
Record Last Updated: 2001-10-12

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.41897º / -121.36913º
UTM: Zone-10 N4253561 E642371
Radius: 80 meters
Elevation: 35 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 31 **Qtr:** NW
Meridian: M

Location: NE ELK GROVE. LAGUNA CK 0.3 MILES SOUTH INTERSECTION ELK GROVE FLORIN/ BOND RD & 0.2 MILES EAST OF ELK GROVE FLORIN RD
Location Detail: OBSERVED BASKING ON WOODY DEBRIS WITHIN CREEK.
Ecological: HABITAT CONSISTS OF VALLEY-FOOTHILL RIPARIAN PLANT COMMUNITY DOMINATED BY VALLEY OAK WITH UNDERSTORY OF HIMALAYAN BLACKBERRY. EMERGENT VEGETATION (CATTAILS, BULRUSH) AND LARGE AMOUNT OF ALGAE IN CREEK.
Threat: CREEK AND TRAILS EXPERIENCE HEAVY USE BY HUMANS.
General: 1 ADULT OBSERVED.
Owner/Manager: ELK GROVE COMMUNITY SERVICES D

Occurrence No. 209 **Map Index:** 56224 **EO Index:** 56240
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HENTZE, R. 2004 (OBS)

Dates Last Seen
Element: 2004-05-20
Site: 2004-05-20
Record Last Updated: 2004-07-27

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.40412º / -121.13379º
UTM: Zone-10 N4252303 E662950
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 08E
Section: 06 **Qtr:** NW
Meridian: M

Location: LAGUNA CREEK, 2 MILES EAST OF CLAY STATION ROAD, 9 MILES EAST OF SHELDON
Ecological: HABITAT CONSISTS OF A RIPARIAN CORRIDOR SURROUNDED BY GRAZED ANNUAL GRASSLAND.
General: 11 ADULTS OBSERVED BASKING IN THE CREEK ON 20 MAY 2004.
Owner/Manager: PVT

Gratiola heterosepala

Boggs Lake hedge-hyssop

Element Code: PDSCR0R060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: Endangered	**State:** S3.1	**R-E-D Code:** 1-2-2

Habitat Associations

General: MARSHES AND SWAMPS (FRESHWATER), VERNAL POOLS.

Micro: CLAY SOILS; USUALLY IN VERNAL POOLS, SOMETIMES ON LAKE MARGINS. 5-2400M.

Occurrence No. 18 **Map Index:** 12991 **EO Index:** 30956

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SACRAMENTO CO. 1998 (LIT)

Dates Last Seen
Element: 1991-04-XX
Site: 1991-04-XX
Record Last Updated: 1999-03-16

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52326º / -121.19422º
UTM: Zone-10 N4265419 E657415
Area: 9.7 ac
Elevation: 220 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 27 **Qtr:** N
Meridian: M

Location: NEAR KIEFER LANDFILL, ABOUT 0.2-0.5 MILE ENE OF KIEFER BLVD AT GRANT LINE ROAD, SOUTHEAST OF RANCHO CORDOVA.

Location Detail: PLANTS OBSERVED IN SEVEN POOLS. MAPPED AT CNDDB AS FIVE POLYGONS: SOUTHERN TWO POLYGONS WITH THREE POOLS IS LOCATED ABOUT 0.25 MI DUE EAST OF INTERSECTION OF ROADS; NORTHERN 3 POLYGONS W/4 POOLS IS LOCATED ABOUT 0.45 MI ENE OF INTERSECTION.

Ecological: VERNAL POOLS SURROUNDED BY ANNUAL GRASSLAND. ASSOCIATED VEGETATION INCLUDES PLAGIOBOTHRYS STIPITATUS, ERYNGIUM VASEYI, PSILOCARPHUS BREVISSIMUS, DOWNINGIA BICORNUTA, AND ORCUTTIA VISCIDA.

Threat: CATTLE GRAZING, BUT POPULATION APPEARS STABLE UNDER CURRENT REGIME. INDIRECT IMPACTS FROM PROPOSED LANDFILL EXPANSION.

General: 10,000+ PLANTS OBSERVED IN ONE POOL IN 1988 (D. STONE), UNKNOWN NUMBER OF PLANTS OBSERVED IN 6 ADDITIONAL POOLS IN 1990-1991 BY JONES AND STOKES ASSOC.(SACRAMENTO CO. 1998).

Owner/Manager: SAC COUNTY

Occurrence No. 30 **Map Index:** 23887 **EO Index:** 7473

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PRESTON, R. 1993 (OBS)

Dates Last Seen
Element: 1993-04-28
Site: 1993-04-28
Record Last Updated: 1995-10-30

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.49142º / -121.21978º
UTM: Zone-10 N4261843 E655255
Area: 11.9 ac
Elevation: 180 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: 0.85 MI SW OF JCT OF SLOUGHHOUSE RD AND JACKSON RD (HWY 16).

Ecological: ASSOCIATED WITH ISOETES ORCUTTII, I. HOWELLII, ERYNGIUM CASTRENSE, DOWNINGIA BICORNUTA, NAVARRETIA LEUCOCEPHALA, ETC. G. HETEROSEPALA FOUND ONLY IN THE DEEPER POOLS.

Threat: POTENTIAL THREATS FROM CONSTRUCTION OF NEW POOLS ADJACENT TO EXISTING POOLS.

General: OVER 1000 PLANTS IN 1993, NOT OBSERVED DURING 1990 SURVEY, POSSIBLY DUE TO DROUGHT. SITE IS A PROPOSED VERNAL POOL PRESERVE/MITIGATION SITE. SITE OWNED BY DUNMORE HOMES.

Owner/Manager: PVT

Gratiola heterosepala

Boggs Lake hedge-hyssop

Element Code: PDSCR0R060

Status
Federal: None
State: Endangered

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists
CNPS List: 1B
R-E-D Code: 1-2-2

Habitat Associations
General: MARSHES AND SWAMPS (FRESHWATER), VERNAL POOLS.
Micro: CLAY SOILS; USUALLY IN VERNAL POOLS, SOMETIMES ON LAKE MARGINS. 5-2400M.

Occurrence No. 33 **Map Index:** 23929 **EO Index:** 21341

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1991 (OBS)

Dates Last Seen
Element: 1991-05-13
Site: 1991-05-13
Record Last Updated: 1995-10-30

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.43183º / -121.36241º
UTM: Zone-10 N4254999 E642933
Radius: 80 meters
Elevation: 45 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 30 **Qtr:** N
Meridian: M

Location: 0.75 MI NW OF INTERSECTION OF BOND AND WATERMAN RDS.

Ecological: ASSOCIATED WITH ERYNGIUM VASEYI, ELEOCHARIS MACROSTACHYA, DOWNINGIA ORNATISSIMA. MOST PLANTS IN NEARLY BARREN PORTIONS OF POOL. ANOTHER RARE PLANT ALSO HERE: LEGENERE LIMOSA.

General: 20 PLANTS IN 1991. SITE OWNED BY CAMRAY DEVELOPMENT.

Owner/Manager: PVT

Occurrence No. 34 **Map Index:** 23930 **EO Index:** 7475

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing
Main Source: WITHAM, C. 1991 (OBS)

Dates Last Seen
Element: 1991-05-09
Site: 1991-05-09
Record Last Updated: 1993-08-04

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45796º / -121.35336º
UTM: Zone-10 N4257912 E643671
Radius: 80 meters
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 17 **Qtr:** SW
Meridian: M

Location: 0.35 MI N OF INTERSECTION OF CALVINE AND WATERMAN ROADS.

Ecological: LARGE VERNAL POOL COMPLEX; GROWING IN SPARSELY VEGETATED DEEPER AREAS OF POOLS. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, ERYNGIUM VASEYI, G. EBRACTEA, ISOETES NUTTALLII, PLAGIOBOTHRYS BRACTEATUS, LASTHENIA GLABBERIMA, & ELATINE CA.

Threat: ADJACENT AREAS SLATED FOR DEVELOPMENT, COULD IMPACT POOLS. TWO-THIRDS OF THE POOL COMPLEX HAS BEEN DISKED.

General: APPROX 200 PLANTS IN 1991.

Owner/Manager: PVT

Occurrence No. 35 **Map Index:** 23931 **EO Index:** 7476

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WYMER, N. 1989 (OBS)

Dates Last Seen
Element: 1989-04-28
Site: 1989-04-28
Record Last Updated: 1995-10-30

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46805º / -121.35784º
UTM: Zone-10 N4259025 E643260
Area: 513.0 ac
Elevation: 75 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 17 **Qtr:** XX
Meridian: M

Location: BETWEEN BRADSHAW RD AND ELK GROVE-FLORIN RD, N OF CALVINE RD, S OF GERBER RD.

Ecological: 3 POOLS WITHIN A ROLLING GRASSLAND WITH DOWNINGIA BICORNUTA, PLAGIOBOTHRYS STIPITATUS MICRANTHA, G. EBRACTEATA, ETC.

Threat: HORSE TRACKS THROUGH 1 POOL, ORV TRACKS ALSO EVIDENT. FUTURE DEVELOPMENT SITE FOR ELLIOT HOMES.

General: NEED BETTER MAP OF POPULATION; MAP AT CNDDB IS OF PROJECT SITE. SITE OWNED BY ELLIOT HOMES.

Owner/Manager: PVT

Gratiola heterosepala

Boggs Lake hedge-hyssop

Element Code: PDSCR0R060

Status
Federal: None
State: Endangered

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists
CNPS List: 1B
R-E-D Code: 1-2-2

Habitat Associations
General: MARSHES AND SWAMPS (FRESHWATER), VERNAL POOLS.
Micro: CLAY SOILS; USUALLY IN VERNAL POOLS, SOMETIMES ON LAKE MARGINS. 5-2400M.

Occurrence No. 48 **Map Index:** 24906 **EO Index:** 6407

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WYMER, N. 1989 (OBS)

Dates Last Seen
Element: 1989-06-02
Site: 1989-06-02
Record Last Updated: 1995-12-13

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.62046º / -121.15306º
UTM: Zone-10 N4276278 E660786
Area: 3.4 ac
Elevation: 290 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 09N
Range: 07E
Section: 24 **Qtr:** XX
Meridian: M

Location: NW OF INTERSECTION OF PRAIRIE CITY RD AND WHITE ROCK RD. AEROJET PROPERTY.
Ecological: IN PONDS WITH DOWNINGIA BICORNUTA, ELEOCHARIS PALUSTRIS, GRATIOLA EBRACTEATA, LASTHENIA GLABERRIMA, PLAGIOBOTHRYS STIPITATA MICRANTHA, AND PSILOCARPHUS BREVISSIMUS.
Threat: POSSIBLE SITE OF CLAY EXTRACTION BY AEROJET.
General: PLANTS NOT COUNTED IN 1988 OR 1989. MAPPED AS 3 SMALL POLYGONS.
Owner/Manager: PVT-AEROJET GENERAL CORP

Occurrence No. 57 **Map Index:** 28976 **EO Index:** 30713

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: TAYLOR, D. 1993 (PERS)

Dates Last Seen
Element: 1993-06-18
Site: 1993-06-18
Record Last Updated: 1994-08-08

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.54240º / -121.23355º
UTM: Zone-10 N4267477 E653945
Area: 1,492.9 ac
Elevation: 160 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: BETWEEN DOUGLAS RD AND KIEFER BLVD, E OF SUNRISE BLVD AND MATHER AFB.
Location Detail: MAPPED AS NON-SPECIFIC POLYGON PER SECTIONS GIVEN ON LIST (8, 17, & 20).
General: ONLY INFO IS LIST FROM D. TAYLOR GIVING TRS (AS REPORTED BY SUGNET & ASSOC). EXACT LOCATION UNKNOWN. BETTER INFO NEEDED.
Owner/Manager: UNKNOWN

Occurrence No. 81 **Map Index:** 39745 **EO Index:** 34747

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown
Main Source: ROBISON, R. 1998 (OBS)

Dates Last Seen
Element: 1998-06-05
Site: 2002-08-30
Record Last Updated: 2003-02-25

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46486º / -121.29484º
UTM: Zone-10 N4258771 E648763
Area: 62.3 ac
Elevation: 100 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 07N
Range: 06E
Section: 14 **Qtr:** NW
Meridian: M

Location: ON EAST SIDE OF EXSELSIOR ROAD, WEST OF DIERKS ROAD. ABOUT 0.7-1.0 MI NORTH OF CALVINE ROAD. DIERKS RANCH.
Location Detail: NW1/4 OF NW1/4 OF SECTION 14.
Ecological: IN A VERNAL POOL WITH GRATIOLA EBRACTEATA.
Threat: PREVIOUSLY DISKED AND PARTIALLY LEVELLED. DEVELOPMENT PLANNED FOR THIS SITE.
General: ONLY 4 PLANTS IN 1998, 1 IN FLOWER, 3 IN FRUIT. SITE DEVELOPED PERMIT 2081, SOIL TRANSPLANTED TO LAGUNA CREEK MITIGATION BANK.
Owner/Manager: PVT

Gratiola heterosepala

Boggs Lake hedge-hyssop

Element Code: PDSCR0R060

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: Endangered	**State:** S3.1	**R-E-D Code:** 1-2-2

Habitat Associations

General: MARSHES AND SWAMPS (FRESHWATER), VERNAL POOLS.

Micro: CLAY SOILS; USUALLY IN VERNAL POOLS, SOMETIMES ON LAKE MARGINS. 5-2400M.

Occurrence No. 82 **Map Index:** 40095 **EO Index:** 35097

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SACRAMENTO CO. 1998 (LIT)

Dates Last Seen
Element: 1991-04-XX
Site: 1991-04-XX
Record Last Updated: 1998-11-05

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53063º / -121.19119º
UTM: Zone-10 N4266242 E657663
Radius: 80 meters
Elevation: 227 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 22 **Qtr:** SE
Meridian: M

Location: NEAR KIEFER LANDFILL, EAST SIDE OF GRANT LINE ROAD ABOUT 0.9 MILE NE OF KIEFER BLVD, SOUTHEAST OF RANCHO CORDOVA.

Location Detail: PLANTS OBSERVED IN ONE POOL. MAPPED IN DRAINAGE ON EAST SIDE OF ROAD ABOUT 200 METERS NE OF 227' BENCHMARK.

Ecological: VERNAL POOL.

Threat: INDIRECT IMPACTS FROM PROPOSED LANDFILL EXPANSION.

General: UNKNOWN NUMBER OF PLANTS OBSERVED IN 1990-1991 BY JONES AND STOKES ASSOC.(SACRAMENTO CO. 1998).

Owner/Manager: SAC COUNTY

Occurrence No. 84 **Map Index:** 43542 **EO Index:** 43542

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WITHAM, C. 2000 (OBS)

Dates Last Seen
Element: 2000-05-17
Site: 2000-05-17
Record Last Updated: 2000-08-22

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53358º / -121.26604º
UTM: Zone-10 N4266444 E651132
Area: 3.1 ac
Elevation: 135 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 24 **Qtr:** NE
Meridian: M

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

Location Detail: 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, PLAGIOBOTHRYS STIPITATUS VAR. MICRANTHUS, AND LASTHENIA GLABERRIMA.

Threat: 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. THIS LAND SHOULD REMAIN IN COUNTY OF SACRAMENTO OWNERSHIP AND EVENTUALLY BE PROTECTED AS PART OF THE SACRAMENTO COUNTY HCP.

Owner/Manager: SAC COUNTY

Great Valley Valley Oak Riparian Forest

Element Code: CTT61430CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G1
State: S1.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 13 **Map Index:** 11610 **EO Index:** 15617

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. 1985 (PERS)

Dates Last Seen
Element: 1985-07-16
Site: 1985-07-16
Record Last Updated: 1998-07-23

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38342º / -121.32015º
UTM: Zone-10 N4249693 E646719
Area: 209.6 ac
Elevation: 45 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: ALONG DEER CR ABOUT 1 AIR MI NE OF CONFL W/COSUMNES RIVER. BETW GRANT LINE & DILLARD RDS.

Location Detail: BNDRY INCL SOME GRAZING-MAINTAINED SAVANNAH W/VALLEY OAKS 80-100 FT TALL, SOME W/>6 FT DBH.

Ecological: 80-90% CLOSED CANOPY; VALLEY OAK DOMINANT, WALNUTS SUBDOMINANT. DENSE BOX ELDER, SAMBUCUS; LIANAS IMPENETRABLE.

Threat: SCS STREAM CLEARING THREATENS PART.

General: DFG TRYING TO REFOREST. RAPTOR AND LONGHORN BEETLE HABITAT. DFG HAS A 34 ACRE CONSERVATION EASEMENT HERE. THIS WAS OCC #013 OF CTT61430CA

Owner/Manager: PVT

Juncus leiospermus var. ahartii

Ahart's dwarf rush

Element Code: PMJUN011L1

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2T1
State: S1.2

Other Lists
CNPS List: 1B
R-E-D Code: 3-2-3

Habitat Associations
General: VERNAL POOLS.
Micro: RESTRICTED TO THE EDGES OF VERNAL POOLS. 30-100M.

Occurrence No. 7 **Map Index:** 43632 **EO Index:** 43632

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: BITTMAN, R. 1999 (PERS)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 2000-08-25

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52384º / -121.24060º
UTM: Zone-10 N4265406 E653370
Radius: 1/5 mile
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 29 **Qtr:** NW
Meridian: M

Location: SOUTHEAST CORNER OF KIEFER BOULEVARD AND SUNRISE BOULEVARD, WEST OF BLODGETT RESERVOIR, SOUTHEAST OF RANCHO CORDOVA.

Location Detail: PROPOSED SHALAKO GOLF COURSE.

Threat: PROPOSED GOLF COURSE.

General: 4 PLANTS OBSERVED. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Occurrence No. 8 **Map Index:** 43633 **EO Index:** 43633

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WITHAM, C. 2000 (OBS)

Dates Last Seen
Element: 2000-05-01
Site: 2000-05-01
Record Last Updated: 2000-08-24

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53403º / -121.26542º
UTM: Zone-10 N4266495 E651185
Area: 1.7 ac
Elevation: 135 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 24 **Qtr:** NE
Meridian: M

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

Location Detail: PLANTS ARE 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: SHALLOW VERNAL POOLS GENERALLY DOMINATED BY NAVARRETIA LEUCOCEPHALA. PLANTS FOUND IN BARE AREAS WITHIN POOLS (USUALLY ON MARGINS) & ALONG VERNAL SWALES. WITH JUNCUS UNCIALIS, GRATIOLA EBRACTEATA, PILULARIA AMERICANA, AND CRASSULA AQUATICA.

Threat: SITE HAS BEEN PROPOSED FOR AN AGGREGATE MINE.

General: 300 PLANTS OBSERVED IN 2000. THIS LAND SHOULD REMAIN IN COUNTY OF SACRAMENTO OWNERSHIP AND EVENTUALLY BE PROTECTED AS PART OF THE SACRAMENTO COUNTY HCP. THE RARE GRATIOLA HETEROSEPALA IS FOUND IN NEARBY POOLS.

Owner/Manager: SAC COUNTY

Legenere limosa

legenere

Element Code: PDCAM0C010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 2-3-3

Habitat Associations

General: VERNAL POOLS. MANY HISTORICAL OCCURRENCES ARE EXTIRPATED.

Micro: IN BEDS OF VERNAL POOLS. 1-880M.

Occurrence No. 12 **Map Index:** 11838 **EO Index:** 30958

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1983 (OBS)

Dates Last Seen
Element: 1983-05-31
Site: 1983-05-31
Record Last Updated: 1997-04-14

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.56860º / -121.21580º
UTM: Zone-10 N4270414 E655436
Radius: 80 meters
Elevation: 200 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: APPROX. 0.8 MI NW OF JCT DOUGLAS ROAD AND NIMBUS ROAD, 1.6 MI NE OF JCT DOUGLAS RD AND SUNRISE BLVD.

Location Detail: N SIDE OF CREEK.

Ecological: VERNAL POOL. CORNING SOILS WITH ALAMO CLAY.

Threat: AREA PLANNED FOR DEVELOPMENT AS INDUSTRIAL PARK.

General: MORE THAN 1000 PLANTS IN LARGE VERNAL POOL (1-2 ACRES) IN 1983.

Owner/Manager: PVT

Occurrence No. 13 **Map Index:** 11827 **EO Index:** 30957

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1983 (OBS)

Dates Last Seen
Element: 1983-05-31
Site: 1983-05-31
Record Last Updated: 1997-04-14

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.56544º / -121.22241º
UTM: Zone-10 N4270053 E654867
Radius: 80 meters
Elevation: 190 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: 1.2 MI NE OF JCT DOUGLAS ROAD AND SUNRISE BLVD, IMMEDIATELY N OF MAN-MADE KNOLL.

Location Detail: N SIDE OF CREEK.

Ecological: VERNAL POOL ON CORNING SOILS WITH ALAMO CLAY.

Threat: AREA PROPOSED AS AN INDUSTRIAL PARK.

General: ABOUT 100 PLANTS IN 1983 IN 1000 SQUARE FOOT VERNAL POOL.

Owner/Manager: PVT

Occurrence No. 27 **Map Index:** 30207 **EO Index:** 8195

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1991 (OBS)

Dates Last Seen
Element: 1991-04-XX
Site: 1991-04-XX
Record Last Updated: 1994-10-24

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.42823º / -121.36137º
UTM: Zone-10 N4254601 E643031
Area: 90.7 ac
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 30 **Qtr:** E
Meridian: M

Location: NORTHWEST CORNER OF BOND ROAD AND WATERMAN ROAD, ELK GROVE.

Location Detail: FIVE SUB-POPULATIONS FOUND IN NATURAL VERNAL POOLS AND FIVE IN DISTURBED/CREATED SEASONAL DEPRESSIONS.

Ecological: NATURAL AND CREATED VERNAL POOLS/SEASONAL DEPRESSIONS. ASSOCIATES IN NATURAL POOLS INCLUDE ELEOCHARIS MACROSTACHYA, LASTHENIA GLABERRIMA, GRATIOLA HETEROSEPALA, AND DOWNINGIA PUSILLA.

Threat: CATTLE GRAZING, DEVELOPMENT PLANNED FOR THIS SITE.

General: 1000'S OF PLANTS OBSERVED AT THIS SITE IN 1991. NATURAL POOLS ARE OF EXCELLENT QUALITY; CREATED DEPRESSIONS ARE OF FAIR QUALITY. MOST OF THE LEGENERE POPULATIONS WILL BE PRESERVED ALTHOUGH SOME LESSER QUALITY POOLS WILL BE DESTROYED.

Legenere limosa

legenere

Element Code: PDCAM0C010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 2-3-3

Habitat Associations

General: VERNAL POOLS. MANY HISTORICAL OCCURRENCES ARE EXTIRPATED.

Micro: IN BEDS OF VERNAL POOLS. 1-880M.

Owner/Manager: PVT

Occurrence No. 28 **Map Index:** 30205 **EO Index:** 4847

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1988 (OBS)

Dates Last Seen
Element: 1988-03-26
Site: 1988-03-26
Record Last Updated: 1995-11-14

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.48269º / -121.28417º
UTM: Zone-10 N4260767 E649657
Area: 18.6 ac
Elevation: 90 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 02
Qtr: SE
Meridian: M

Location: SOUTH FLORIN COUNTY PARK, ABOUT 1 MILE SOUTH OF FLORIN ROAD AND 0.7 MILE EAST OF EXCELSIOR ROAD, NORTHEAST OF ELK GROVE.

Location Detail: LOCATED NEAR THE SOUTHERN BORDER OF THE PARK (PRE-DEVELOPMENT). FOUR COLONIES MAPPED WITHIN THE S 1/2 OF THE SE 1/4 OF SECTION 2.

Ecological: VERNAL POOLS. ASSOCIATED WITH ELEOCHARIS MACROSTACHYS AND LASTHENIA GLABERRIMA.

Threat: PARK SLATED FOR DEVELOPMENT (1988).

General: ABOUT 100 PLANTS OBSERVED WITHIN THE PARK (INCLUDING OCCURRENCE #29). POPULATION MAY BE LOW DUE TO DRY YEAR. SITE IS RELATIVELY UNDISTURBED/UNGRAZED. HIGH QUALITY SEASONAL WETLAND.

Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 29 **Map Index:** 30204 **EO Index:** 4848

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DAINS, V. 1988 (OBS)

Dates Last Seen
Element: 1988-03-26
Site: 1988-03-26
Record Last Updated: 1995-11-14

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.49232º / -121.28485º
UTM: Zone-10 N4261835 E649578
Area: 9.7 ac
Elevation: 110 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 02
Qtr: NE
Meridian: M

Location: SOUTH FLORIN COUNTY PARK, ABOUT 0.2 MILE SOUTH OF FLORIN ROAD AND 0.7 MILE EAST OF EXCELSIOR RD, NORTHEAST OF ELK GROVE.

Location Detail: LOCATED NEAR THE NORTH-CENTRAL PORTION OF THE PARK (PRE-DEVELOPMENT). TWO COLONIES MAPPED ALONG AN EPHEMERAL DRAINAGE IN THE W 1/2 OF THE NE 1/4 OF SECTION 2.

Ecological: VERNAL POOLS. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA AND LASTHENIA GLABERRIMA.

Threat: PARK SLATED FOR DEVELOPMENT (1988).

General: ABOUT 100 PLANTS OBSERVED WITHIN THE PARK (INCLUDING OCCURRENCE #28). POPULATION MAY BE LOW DUE TO DRY YEAR. ONLY A FEW PLANTS SEEN AT EACH LOCATION. SITE IS RELATIVELY UNDISTURBED/UNGRAZED. THESE ARE HIGH QUALITY SEASONAL WETLANDS.

Owner/Manager: SAC COUNTY-PARKS & REC

Legenere limosa

legenere

Element Code: PDCAM0C010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 2-3-3

Habitat Associations

General: VERNAL POOLS. MANY HISTORICAL OCCURRENCES ARE EXTIRPATED.

Micro: IN BEDS OF VERNAL POOLS. 1-880M.

Occurrence No. 30 **Map Index:** 30206 **EO Index:** 4853

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WITHAM, C. 1991 (OBS)

Dates Last Seen
Element: 1991-04-26
Site: 1991-04-26
Record Last Updated: 1994-10-24

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.43236º / -121.34950º
UTM: Zone-10 N4255078 E644058
Area: 18.3 ac
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 29
Qtr: NW
Meridian: M

Location: SOUTHEAST CORNER OF SHELDON ROAD AND WATERMAN ROAD, ELK GROVE.

Location Detail: THREE COLONIES MAPPED AS A SINGLE POLYGON WITHIN THE SW 1/4 OF THE NW 1/4 OF SECTION 29.

Ecological: LARGE SEASONAL WETLAND AND VERNAL POOL WITHIN A DAIRY PASTURE. DOMINANTS INCLUDE LASTHENIA GLABERRIMA, ALLOCARYA BRACTEATUS, ELEOCHARIS MACROSTACHYA, AND RANUNCULUS BONARIENSIS TRISEPALUS. DOWNINGIA PUSILLA OCCURS IN A NEARBY VERNAL POOL.

Threat: HEAVILY DAMAGED BY CATTLE GRAZING; ADJACENT PROPERTY BEING DEVELOPED FOR HOMES.

General: MORE THAN 300 PLANTS OBSERVED IN 1991; COLONIES RANGE IN SIZE FROM 5 TO 300 PLANTS.

Owner/Manager: PVT

Occurrence No. 44 **Map Index:** 41012 **EO Index:** 41012

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1997 (LIT)

Dates Last Seen
Element: 1999-05-02
Site: 1999-05-02
Record Last Updated: 2002-09-19

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54605º / -121.29613º
UTM: Zone-10 N4267779 E648484
Area: 12.1 ac
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 14
Qtr: XX
Meridian: M

Location: MATHER FIELD, WEST OF ANDERS DRIVE AND BETWEEN THE AIRPORT AND MORRISON CREEK, RANCHO CORDOVA.

Location Detail: MAPPED IN 4 POOLS JUST EAST OF THE WASTEWATER TREATMENT PONDS. JSA POOL #S 1192, 1193, 1492, AND 1524.

Ecological: GROWING IN VERNAL POOLS.

General: SEVERAL HUNDRED PLANTS OBSERVED IN 1997. UNKNOWN NUMBER OF PLANTS OBSERVED IN 1999 BY GREENHOUSE.

Owner/Manager: SAC COUNTY

Legenere limosa

legenere

Element Code: PDCAM0C010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G2
State: S2.2

Other Lists
CNPS List: 1B
R-E-D Code: 2-3-3

Habitat Associations
General: VERNAL POOLS. MANY HISTORICAL OCCURRENCES ARE EXTIRPATED.
Micro: IN BEDS OF VERNAL POOLS. 1-880M.

Occurrence No. 45 **Map Index:** 41014 **EO Index:** 41014

Dates Last Seen
Element: 1997-XX-XX
Site: 1997-XX-XX
Record Last Updated: 1999-05-04

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1997 (LIT)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53428º / -121.28474º
UTM: Zone-10 N4266491 E649501
Area: 0.6 ac
Elevation: 110 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 23
Qtr: XX
Meridian: M

Location: MATHER FIELD, ABOUT 0.5 MILE WEST OF EXCELSIOR ROAD ALONG NORTH SIDE OF KIEFER BLVD, RANCHO CORDOVA.
Location Detail: PLANTS FOUND IN 2 NEIGHBORING POOLS, OCCURRENCE MAPPED AS A SINGLE POLYGON BY JSA AND CNDDB. JSA POOL #1121.
Ecological: GROWING IN VERNAL POOLS.
General: SEVERAL HUNDRED PLANTS OBSERVED IN 1997.
Owner/Manager: SAC COUNTY

Occurrence No. 46 **Map Index:** 41015 **EO Index:** 41015

Dates Last Seen
Element: 1993-XX-XX
Site: 1997-XX-XX
Record Last Updated: 1999-05-04

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1997 (LIT)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52852º / -121.26035º
UTM: Zone-10 N4265892 E651638
Area: 1.2 ac
Elevation: 135 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 19
Qtr: XX
Meridian: M

Location: MATHER FIELD, ABOUT 0.1 MILE EAST OF EAGLES NEST ROAD ALONG NORTH SIDE OF KIEFER BLVD, RANCHO CORDOVA.
Location Detail: MAPPED IN 1 POOL JUST ENE OF THE JUNCTION OF EAGLES NEST ROAD AND KIEFER BLVD. JSA POOL #1258.
Ecological: GROWING IN DEEP VERNAL POOL. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, LASTHENIA GLABERRIMA, ERYNGIUM, GRATIOLA EBRACTEATA, DOWNINGIA SPP., ISOETES, AND PILULARIA AMERICANA.
General: ABOUT 1000 PLANTS OBSERVED IN 1993. AREA SEARCHED BUT NO PLANTS OBSERVED IN 1997.
Owner/Manager: SAC COUNTY

Occurrence No. 47 **Map Index:** 41016 **EO Index:** 41016

Dates Last Seen
Element: 1993-XX-XX
Site: 1997-XX-XX
Record Last Updated: 1999-05-04

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1997 (LIT)

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52618º / -121.25141º
UTM: Zone-10 N4265647 E652423
Area: 2.5 ac
Elevation: 145 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 19
Qtr: XX
Meridian: M

Location: MATHER FIELD, ABOUT 0.6 MILE EAST OF EAGLES NEST ROAD ALONG NORTH SIDE OF KIEFER BLVD, RANCHO CORDOVA.
Location Detail: MAPPED IN 1 POOL IMMEDIATELY NORTH OF KIEFER BLVD. JSA POOL #1390.
Ecological: GROWING WITHIN AN INTERCONNECTED VERNAL POOL AND SWALE SYSTEM. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, LASTHENIA GLABERRIMA, ERYNGIUM, GRATIOLA EBRACTEATA, DOWNINGIA SPP., ISOETES, AND PILULARIA AMERICANA.
General: ABOUT 500 PLANTS OBSERVED IN 1993. AREA SEARCHED BUT NO PLANTS OBSERVED IN 1997.
Owner/Manager: SAC COUNTY

Legenere limosa

legenere

Element Code: PDCAM0C010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 2-3-3

Habitat Associations

General: VERNAL POOLS. MANY HISTORICAL OCCURRENCES ARE EXTIRPATED.

Micro: IN BEDS OF VERNAL POOLS. 1-880M.

Occurrence No. 60 **Map Index:** 50727 **EO Index:** 50727

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: STARR, S. 2002 (OBS)

Dates Last Seen
Element: 2002-05-23
Site: 2002-05-23
Record Last Updated: 2003-03-25

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47358º / -121.35771º
UTM: Zone-10 N4259639 E643260
Radius: 80 meters
Elevation: 100 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 07N
Range: 06E
Section: 07 **Qtr:** SE
Meridian: M

Location: CHURCHILL DOWNS PRESERVE, 0.9 AIRMI SOUTHWEST OF GERBER ROAD AT THE CENTRAL CALIFORNIA RAILROAD TRACKS, EAST OF FLORIN.

Location Detail: MAPPED WITHIN THE NE 1/4 OF THE SE 1/4 OF SECTION 7.

Ecological: PLANTS FOUND IN VERNAL POOLS IN ASSOCIATION WITH ELEOCHARIS MACROSTACHYA, LASTHENIA GLABERRIMA, L. FREMONTII, PLAGIOBOTHRYS SPITATUS, AND DESCHAMPSIA DANTHIOIDES.

Threat: NONE NOTED IN 2002.

General: THOUSANDS OF PLANTS OBSERVED IN 2002 BY STARR. PLANTS FOUND WITHIN A PRESERVE. SURROUNDED BY RESIDENTIAL DEVELOPMENT AND OPEN PASTURE.

Owner/Manager: PVT-ELLIOT CONSERVANCY

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 5 **Map Index:** 33179 **EO Index:** 2805
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FIELDS, W. 1995 (OBS)

Dates Last Seen
Element: 1995-02-28
Site: 1995-02-28
Record Last Updated: 1996-07-08

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56852º / -121.26395º
UTM: Zone-10 N4270325 E651241
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 12 **Qtr:** NE
Meridian: M

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

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.

Threat: 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.

Owner/Manager: PVT-RMC LONESTAR

Occurrence No. 12 **Map Index:** 32441 **EO Index:** 2105
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-02-22
Site: 1995-05-24
Record Last Updated: 1995-09-22

Quad Summary: SLOUGHHOUSE (3812142/495B), BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50257º / -121.24805º
UTM: Zone-10 N4263033 E652766
Radius: 1/5 mile
Elevation: 120 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 31 **Qtr:** SE
Meridian: M

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

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

Ecological: HARDPAN VERNAL POOL IN ANNUAL GRASSLAND

Threat: RURAL AGRICULTURAL USES.

General: POOLS #42, 70, 72, & 200: <50 ADULTS OBSERVED; POOL #44 (2/1/1995): 50+ ADULTS OBSERVED, (2/22/1995): <50 ADULTS OBSERVED; POOLS #41 & 83C: 50+ ADULTS OBSERVED; 6 ADULTS COLLECTED AND DEPOSITED IN CAS.

Owner/Manager: PVT

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 14 **Map Index:** 32443 **EO Index:** 638

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-03-31
Site: 1995-03-31
Record Last Updated: 1996-03-06

Quad Summary: CARMICHAEL (3812153/512D), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.50564º / -121.37821º
UTM: Zone-10 N4263165 E641409
Area: 15.7 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 36
Meridian: M
Qtr: NE

Location: 1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.
Location Detail: ELDER CREEK PROPERTY. LEPIDURUS PACKARDI WERE FOUND IN 10 OF 90 SAMPLED WETLANDS.
Ecological: HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND.
Threat: 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.
Owner/Manager: PVT-PIPE TRADES TRUST FUND

Occurrence No. 21 **Map Index:** 32447 **EO Index:** 1011

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-03-21
Site: 1996-03-21
Record Last Updated: 1997-03-27

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53565º / -121.30751º
UTM: Zone-10 N4266606 E647513
Area: 4.9 ac
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 22
Meridian: M
Qtr: NE

Location: 1.3 KM W OF KIEFER BLVD & MATHER PARK WAY; S OF FORMER MATHER AFB.
Location Detail: GRANITE-TEICHERT PILOT PROJECT SITE (PART). 1995: 10 TOTAL WATERBODIES SURVEYED. 1996: 10 TOTAL WATERBODIES SURVEYED.
Ecological: BOTH CONSTRUCTED AND HISTORIC HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND; WETLAND COMPENSATION/MITIGATION PRESERVE.
General: 1995: POOLS #7 & 8: 50+ ADULTS OBSERVED, 2 ADULTS COLLECTED AND DEPOSITED IN CAS, MID VALLEY FAIRY SHRIMP (BRANCHINECTA SP) WAS PRESENT. 1996: POOL #7-<50 ADULTS OBSERVED, LINDERIELLA OCCIDENTALIS ALSO PRESENT.
Owner/Manager: PVT-GRANITE CONSTRUCTION

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 22 **Map Index:** 32455 **EO Index:** 8883

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-03-21
Site: 1996-03-21
Record Last Updated: 1997-03-27

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53832º / -121.30122º
UTM: Zone-10 N4266913 E648056
Area: 2.0 ac
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 22 **Qtr:** NE
Meridian: M

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

Location Detail: 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.

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.

Owner/Manager: PVT-GRANITE CONSTRUCTION

Occurrence No. 23 **Map Index:** 28975 **EO Index:** 30716

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-03-22
Site: 1996-03-22
Record Last Updated: 1997-03-10

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.55947º / -121.19671º
UTM: Zone-10 N4269434 E657119
Area: 6,066.4 ac
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: AREA EAST OF SUNRISE BLVD, NORTH OF JACKSON RD & SOUTH OF WHITE ROCK ROAD.

Location Detail: T09N, 07E, SECTIONS 25, 26, 35 & 36, AND T08N, R07E, SECTIONS 2, 3, 8, 10, 15, 17, 20, 21 & 29. INCLUDES THE SAMMIS SUNRISE DOUGLAS PROJECT SITE & THE GENCORP AEROJECT OFFSITE GET B SITE. FEATURES LOCATED SOMEWHERE WITHIN THESE SECTIONS.

Ecological: ANNUAL GRASSLAND WITH HARDPAN VERNAL POOLS, NATURAL SEASONAL WETLANDS, SWALES, MANMADE VERNAL POOLS, STOCK PONDS, SCRAPES AND DREDGE PITS.

Threat: AGRICULTURE, ROAD CONSTRUCTION.

General: 1993: LEPIDURUS PACKARDI OBS IN ~126 OF 434 INSPECTED FEATURES THROUGHOUT THIS AREA. 1995: OBS IN ~130 OF 386 FEATURES IN T08N, R07E, SEC 8, 17, & 20. 1996: OBS IN ~45 OF 153 FEATURES IN T08N, R07E, SEC 20 & T09N, R07E, SEC 25, 26, 35 & 36.

Owner/Manager: PVT, UNKNOWN

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 25 **Map Index:** 32459 **EO Index:** 1888
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HUBER, A. 1991 (OBS)

Dates Last Seen
Element: 1999-02-23
Site: 1999-02-23
Record Last Updated: 1999-12-21

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section:
Qtr:
Meridian:

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

Location Detail: 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.

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

General: MANY INDIVIDUALS OBSERVED 4/24/91; OVERALL SITE QUALITY MAY BE QUESTIONABLE. UNKNOWN NUMBER OBSERVED IN 1 NATURAL VERNAL POOL ON 3/5/93. SUGNET RECORD #149. PRESERVE SITE HAD 100'S TO 1000'S OBSERVED IN 1997-99

Owner/Manager: PVT

Occurrence No. 31 **Map Index:** 32519 **EO Index:** 1749
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SIMOVICH, MARIE A. 1990 (LIT)

Dates Last Seen
Element: 1990-03-17
Site: 1990-03-17
Record Last Updated: 1995-09-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.61300º / -121.15126º
UTM: Zone-10 N4275453 E660960
Area: 2.2 ac
Elevation: 295 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: 24
Qtr: SE
Meridian: M

Location: PRAIRIE CITY SVRA; 0.1 KM SSW OF PRAIRIE CITY ROAD X WHITE ROCK ROAD.

Ecological: LARGE, EPHEMERAL POND; VEGETATION THROUGHOUT; CLEAR WATER ALONG EDGES, BUT MILKY IN CENTER; POND DRY BY SUMMER.

Threat: LIGHT OFF-HIGHWAY VEHICLES USAGE;

General: POOL #D-L. PACKARDI OBSERVED IN EARLY AND LATE SPRING; L. OCCIDENTALIS, LYNCEUS BRACHYURUS AND OTHER INVERTS PRESENT; HYLA REGILLA HEARD CALLING AND TADPOLES OBSERVED IN LATE SPRING.

Owner/Manager: DPR-PRAIRIE CITY SVRA

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G3	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

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

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

Occurrence No. 54 **Map Index:** 32730 **EO Index:** 1142

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CRANSTON, P. 1993 (OBS)

Dates Last Seen
Element: 1993-02-02
Site: 1993-02-02
Record Last Updated: 1996-01-05

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55807º / -121.24877º
UTM: Zone-10 N4269191 E652586
Area: 20.2 ac
Elevation: 140 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 07 **Qtr:** SE
Meridian: M

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

Location Detail: 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.

Threat: IDENTIFIED FOR EXCHANGE.

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

Owner/Manager: BLM

Occurrence No. 66 **Map Index:** 34791 **EO Index:** 13036

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-03
Site: 1992-04-03
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51058º / -121.40219º
UTM: Zone-10 N4263677 E639309
Radius: 80 meters
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 26 **Qtr:** SW
Meridian: M

Location: RAILROAD DITCH AT 47TH AVENUE (ELDER CREEK RD) & SPTRR, NEAR POWER INN ROAD; NEAR SW CORNER OF SACRAMENTO ARMY

Location Detail: SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH ST AND HWY 50.

Ecological: RAILROAD DITCH.

General: KOFORD OBSERVED TADPOLE SHRIMP DURING SURVEY IN SPRING OF 1992; BRANCHINECTA LYNCHI AND LINDERIELLA OCCIDENTALIS ALSO OBSERVED.

Owner/Manager: PVT-SOUTHERN PACIFIC RR

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 67 **Map Index:** 34792 **EO Index:** 13094

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.52498º / -121.40725º
UTM: Zone-10 N4265267 E638840
Radius: 80 meters
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 26 **Qtr:** NW
Meridian: M

Location: FRUITRIDGE ROAD X SPTRR, NEAR POWER INN ROAD; NEAR NORTHWEST CORNER OF SACRAMENTO ARMY DEPOT.
Location Detail: SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH ST & HWY 50.
Ecological: TURBID POOL.
General: TADPOLE SHRIMP OBSERVED BY E.J. KOFORD DURING SURVEY IN SPRING OF 1992; LINDERIELLA OCCIDENTALIS ALSO PRESENT.
Owner/Manager: PVT-SOUTHERN PACIFIC RR

Occurrence No. 71 **Map Index:** 34802 **EO Index:** 11938

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-08-06

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.49808º / -121.29492º
UTM: Zone-10 N4262458 E648688
Radius: 1/5 mile
Elevation: 110 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 35 **Qtr:** SW
Meridian: M

Location: NEAR NORTHEAST CORNER OF EXCELSIOR ROAD AND FLORIN ROAD.
Ecological: VERNAL POOL.
General: KOFORD OBSERVED TADPOLE SHRIMP DURING SURVEY IN SPRING OF 1992.
Owner/Manager: UNKNOWN

Occurrence No. 85 **Map Index:** 36381 **EO Index:** 31378

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WOLFF, D. 1997 (OBS)

Dates Last Seen
Element: 1997-02-12
Site: 1997-02-12
Record Last Updated: 1997-08-07

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46479º / -121.32439º
UTM: Zone-10 N4258716 E646185
Radius: 80 meters
Elevation: 65 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 16 **Qtr:** NE
Meridian: M

Location: SOUTH OF LAGUNA CREEK, 0.5 MILE WEST OF VINEYARD BLVD, 4 MILES NE OF ELK GROVE.
Location Detail: SITE IS LOCATED NORTH OF A LARGE SUBDIVISION BETWEEN VINEYARD LANE AND CENTRAL CALIFORNIA TRACTION.
Ecological: HABITAT CONSISTS OF A GRAZED SEASONAL WETLAND FORMED BY EARTH EXCAVATION, SCRAPING 6 YEARS AGO. SOME VERNAL POOL PLANTS PRESENT, BUT MANY WEEDY, NON-NATIVES AS WELL; DOMINANTS: PLAGIOBOTHRYS STIPATATUS, ELEOCHARIS MACROSTACHYA.
General: 7 ADULTS OBSERVED (6 DEAD, 1 ALIVE) ON 12 FEB 1997.
Owner/Manager: SAC COUNTY-PARKS & REC

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 86 **Map Index:** 30622 **EO Index:** 30614
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1993-03-12
Site: 1993-03-12
Record Last Updated: 1997-03-20

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38950º / -121.34574º
UTM: Zone-10 N4250327 E644472
Radius: 3/5 mile
Elevation: 50 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: 08 **Qtr:** XX
Meridian: M

Location: VICINITY OF GRANT LINE ROAD. ABOUT 1.5 MILES SE OF ELK GROVE.
Location Detail: ROADSIDE DITCH LOCATED SOMEWHERE IN SECTION 8.
Ecological: MANMADE ROADSIDE DITCH.
General: LEPIDURUS PACKARDI OBSERVED IN THE 1 FEATURE INSPECTED. SUGNET RECORD #129.
Owner/Manager: UNKNOWN

Occurrence No. 90 **Map Index:** 33686 **EO Index:** 30620
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1993-02-16
Site: 1993-02-16
Record Last Updated: 1997-03-20

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.48894º / -121.34410º
UTM: Zone-10 N4261365 E644417
Area: 1,920.3 ac
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH OF GERBER ROAD, SOUTH OF FLORIN ROAD, EAST OF ELK GROVE-FLORIN ROAD. ABOUT 5 MILES NORTH OF ELK GROVE.
Location Detail: SEASONAL WETLANDS, VERNAL POOLS AND ROADSIDE DITCHES SOMEWHERE IN SECTIONS 4, 5 & 6.
Ecological: NATURAL SEASONAL WETLANDS, NATURAL VERNAL POOLS AND MANMADE ROADSIDE DITCHES.
General: LEPIDURUS PACKARDI OBSERVED IN 1 OF 3 SEASONAL WETLANDS & 4 OF 48 VERNAL POOLS INSPECTED IN SEC 4. ALSO IN 3 OF 21 SEASONAL WETLANDS INSPECTED IN SEC 5 & 1 OF 3 ROADSIDE DITCHES INSPECTED IN SEC 6. SUGNET RECORD #'S 136, 137, 138 & 139.
Owner/Manager: UNKNOWN

Occurrence No. 91 **Map Index:** 33687 **EO Index:** 30618
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1997-02-12
Site: 1997-02-12
Record Last Updated: 1999-10-14

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45287º / -121.33463º
UTM: Zone-10 N4257377 E645315
Area: 2,537.5 ac
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: EAST OF ELK GROVE-FLORIN RD, WEST OF EXCELSIOR RD, NORTH OF SHELDON RD. NNE OF ELK GROVE.
Location Detail: VERNAL POOLS LOCATED SOMEWHERE IN SECTIONS 15, 16, 17 & 19. 1997 SURVEY BY D. WOLFF WAS NEAR CENTER OF SECTION 16 BORDERED BY RR TRACKS.
Ecological: NATURAL VERNAL POOLS. 1997 IN NORTHERN HARDPAN VERNAL POOLS COMMUNITY.
Threat: DEVELOPEMENT, CATTLE GRAZING
General: LEPIDURUS PACKARDI OBSERVED IN 29 OF 49 FEATURES INSPECTED IN SEC 15 ON 3/2/93, AND IN 1 FEATURE INSPECTED IN SECTION 16 ON 1/25/93. SUGNET RECORD #'S 140 & 141. 7 OBSERVED IN 1997.
Owner/Manager: UNKNOWN

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 92 **Map Index:** 33691 **EO Index:** 30608

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1997-03-07

Quad Summary: FLORIN (3812144/496B), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.50290º / -121.47384º
UTM: Zone-10 N4262718 E633076
Radius: 3/5 mile
Elevation: 15 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 31 **Qtr:** XX
Meridian: M

Location: SOUTH OF 47TH AVE, NORTH OF FLORIN RD, EAST OF WOODBINE AVE. ON SOUTHERN END OF SACRAMENTO.
Location Detail: ROADSIDE DITCHES SOMEWHERE IN SECTION 31.
Ecological: MOST OF THIS SECTION IS URBANIZED.
General: LEPIDURUS PACKARDI WAS OBSERVED IN A ROADSIDE DITCH ON 4/2/92. SUGNET RECORD #144.
Owner/Manager: UNKNOWN

Occurrence No. 93 **Map Index:** 33692 **EO Index:** 30610

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1992-04-03
Site: 1992-04-03
Record Last Updated: 1998-08-10

Quad Summary: FLORIN (3812144/496B), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51048º / -121.39984º
UTM: Zone-10 N4263669 E639514
Area: 1,513.2 ac
Elevation: 35 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 35 **Qtr:** XX
Meridian: M

Location: SOUTH OF FRUITRIDGE RD, NORTH OF FLORIN RD, EAST OF POWER INN RD, AND WEST OF FLORIN PERKINS RD.
Location Detail: MANMADE ROADSIDE DITCHES LOCATED SOMEWHERE IN SECTIONS 26 AND 35.
Ecological: MOST OF SECTION 26 IS URBANIZED.
General: LEPIDURUS PACKARDI OBSERVED IN A ROADSIDE DITCH IN SECTION 26 AND A ROADSIDE DITCH IN SECTION 35. SUGNET RECORD #'S 143 & 145.
Owner/Manager: UNKNOWN

Occurrence No. 94 **Map Index:** 33693 **EO Index:** 30611

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WHITNEY, K. 1998 (PERS)

Dates Last Seen
Element: 1998-01-28
Site: 1998-01-28
Record Last Updated: 1999-12-27

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.49943º / -121.28461º
UTM: Zone-10 N4262624 E649584
Area: 161.9 ac
Elevation: 115 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 35 **Qtr:** SE
Meridian: M

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.
Location Detail: ARROYO SECO MITIGATION BANK SITE (PREVIOUSLY DESCRIBED AS: VERNAL POOLS SOMEWHERE IN SECTION 35).
Ecological: NATURAL VERNAL POOLS IN A VERNAL POOL COMMUNITY
General: 2 APR 1992: UNKNOWN NUMBER OF LEPIDURUS PACKARDI OBSERVED IN A VERNAL POOL, SUGNET RECORD #150. 100'S OBSERVED IN MITIGATION BANK, SURVEYED 28 JAN 1998.
Owner/Manager: PVT

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 95 **Map Index:** 20270 **EO Index:** 30662

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1993 (PERS)

Dates Last Seen
Element: 1990-01-01
Site: 1990-01-01
Record Last Updated: 1997-03-18

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.61434º / -121.16239º
UTM: Zone-10 N4275582 E659988
Area: 375.6 ac
Elevation: 300 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: 24
Qtr: XX
Meridian: M

Location: NORTHWEST OF THE INTERSECTION OF WHITE ROCK ROAD AND PRAIRIE CITY ROAD.
Location Detail: A "NATURAL STOCK POND" SOMEWHERE IN SECTION 24.
Ecological: "NATURAL STOCK POND". NORTHERN HARDPAN VERNAL POOLS KNOWN FROM THIS SAME AREA. THIS OCCURRENCE WAS SNAPPED TO THE VERNAL POOL COMMUNITY OCCURRENCE.
General: LEPIDURUS PACKARDI OBSERVED IN A "NATURAL STOCKPOND". SUGNET RECORD #180.
Owner/Manager: PVT, UNKNOWN

Occurrence No. 113 **Map Index:** 36874 **EO Index:** 31890

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MUTH, D. 1996 (OBS)

Dates Last Seen
Element: 2000-03-15
Site: 2000-03-15
Record Last Updated: 2000-08-10

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A), BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50388º / -121.25393º
UTM: Zone-10 N4263168 E652250
Area: 587.8 ac
Elevation: 125 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 31
Qtr: XX
Meridian: M

Location: VICINITY OF THE INTERSECTION OF EAGLES NEST ROAD AND HWY 16 (JACKSON ROAD), SOUTH OF MATHER AIR FORCE BASE.
Ecological: HABITAT CONSISTS OF NORTHERN HARDPAN VERNAL POOLS, AS WELL AS SCRAPES, SWALES, DEPRESSIONS, AND STOCK PONDS; SURROUNDED BY NON-NATIVE GRASSLAND.
Threat: THREATENED BY GRAVEL MINING.
General: NUMEROUS FAIRY SHRIMP AND TADPOLE SHRIMP FOUND AT THIS SITE DURING SPRING 1996 SURVEYS. 10 PLUS ADULTS OBSERVED MARCH 2000 IN WESTERN PORTION OF POLYGON.
Owner/Manager: PVT

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 116 **Map Index:** 37098 **EO Index:** 32096

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1994-05-11
Site: 1994-05-11
Record Last Updated: 1997-10-07

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.51464º / -121.21016º
UTM: Zone-10 N4264436 E656044
Area: 159.9 ac
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 28 **Qtr:** SE
Meridian: M

Location: SOUTH OF BLODGETT RESERVOIR (LAGUNA CREEK), NE OF THE INTERSECTION OF HWY 16 AND GRANT LINE ROAD, SE OF SACRAMENTO.
Ecological: HABITAT CONSISTS OF NORTHERN HARDPAN VERNAL POOLS.
General: "DUTRA" SITE. BRANCHINECTA LYNCHI, LEPIDURUS PACKARDI, LINDERIELLA OCCIDENTALIS, AND AN UNKNOWN BRANCHINECTA SPECIES WERE OBSERVED ON 11 MAY 1994.
Owner/Manager: UNKNOWN

Occurrence No. 124 **Map Index:** 40261 **EO Index:** 35372

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52143º / -121.18916º
UTM: Zone-10 N4265225 E657860
Area: 17.1 ac
Elevation: 220 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 27 **Qtr:** XX
Meridian: M

Location: KIEFER LANDFILL, 0.7 MI E JCT OF GRANT LINE RD & KIEFER BLVD, 1.7 MILES NNE OF DEER CREEK CROSSING AT JACKSON HWY (16).
Location Detail: INSIDE KIEFER LANDFILL EXPANSION FOOTPRINT REDUCTION AREA.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION.
General: LEPIDURUS PACKARDI FOUND IN 13 POOLS. BRANCHINECTA LYNCHI ALSO FOUND HERE.
Owner/Manager: SAC COUNTY

Occurrence No. 125 **Map Index:** 40263 **EO Index:** 35373

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53093º / -121.18642º
UTM: Zone-10 N4266284 E658078
Radius: 80 meters
Elevation: 230 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 23 **Qtr:** SW
Meridian: M

Location: KIEFER LANDFILL, 1.1 MILES NE JCT OF GRANT LINE RD & KIEFER BLVD, 0.2 MILE S OF GRANT LINE RD AT BM 216.
Location Detail: KIEFER LANDFILL EXPANSION FOOTPRINT AREA.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION
General: OBSERVED IN VERNAL POOL IN THE NORTHERN CORNER OF THE PROPERTY WITHIN THE PROPOSED LANDFILL FOOTPRINT. BRANCHINECTA LYNCHI ALSO FOUND HERE.
Owner/Manager: SAC COUNTY

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 126 **Map Index:** 40367 **EO Index:** 35374
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52352º / -121.18354º
UTM: Zone-10 N4265467 E658345
Area: 43.1 ac
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 26 **Qtr:** XX
Meridian: M

Location: KIEFER LANDFILL, 1.0 MILE EAST OF JUNCTION OF KIEFER BLVD AND GRANT LINE ROAD.
Location Detail: KIEFER LANDFILL EXPANSION FOOTPRINT AREA.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION
General: LEPIDURUS PACKARDI FOUND IN 7 VERNAL POOLS. 6 OF THE POOLS ARE IN A SEASONAL DRAINAGE AND 1 OF THE POOLS HAS BEEN DAMMED TO HOLD MORE WATER.
Owner/Manager: SAC COUNTY

Occurrence No. 127 **Map Index:** 40369 **EO Index:** 35376
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.51927º / -121.18988º
UTM: Zone-10 N4264984 E657802
Radius: 80 meters
Elevation: 220 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 27 **Qtr:** XX
Meridian: M

Location: KIEFER LANDFILL, 0.6 MI ESE OF THE JUNCTION OF KIEFER BLVD AND GRANT LINE RD.
Location Detail: KIEFER LANDFILL EXPANSION FOOTPRINT AREA.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION
General: FOUND IN 3 POOLS ON THE WEST SIDE OF THE LANDFILL EXPANSION BOUNDARY.
Owner/Manager: SAC COUNTY

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 128 **Map Index:** 40372 **EO Index:** 35379
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COUNTY OF SACRAMENTO 1998 (LIT)

Dates Last Seen
Element: 1994-04-XX
Site: 1994-04-XX
Record Last Updated: 1998-12-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.51456º / -121.19457º
UTM: Zone-10 N4264453 E657403
Radius: 80 meters
Elevation: 190 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 27 **Qtr:** XX
Meridian: M

Location: JUST NORTH OF KIEFER BLVD, 0.6 MI FROM THE JUNCTION OF KIEFER BLVD AND GRANT LINE RD.
Ecological: NORTHERN HARDPAN VERNAL POOL COMMUNITY.
Threat: PROPOSED LANDFILL EXPANSION.
General: OBSERVED IN A VERNAL POOL.
Owner/Manager: SAC COUNTY

Occurrence No. 131 **Map Index:** 41009 **EO Index:** 41009
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-05

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54694º / -121.29410º
UTM: Zone-10 N4267881 E648659
Area: 68.0 ac
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 14 **Qtr:** XX
Meridian: M

Location: OLD MATHER AIR FORCE BASE, SOUTH OF SACRAMENTO MATHER AIRPORT RUNWAYS EAST OF WATER TREATMENT PONDS.
Location Detail: 36 VERNAL POOLS IN THE COMPLEX CONTAINED VERNAL POOL TADPOLE SHRIMP (VPTS).
Ecological: FOUND ON THE BASE IN VERNAL POOLS, VERNAL SWALES, SEASONAL WETLANDS, AND FRESHWATER MARSH.
Threat: DEVELOPMENT.
General: OBSERVED IN 1993 AND 1996-97. LINDERIELLA OCCIDENTALIS ALSO OBSERVED.
Owner/Manager: SAC COUNTY

Occurrence No. 132 **Map Index:** 41018 **EO Index:** 41018
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-04

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54991º / -121.31781º
UTM: Zone-10 N4268173 E646586
Radius: 80 meters
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 16 **Qtr:** XX
Meridian: M

Location: 0.75 MILES SOUTH FROM JCT OLD PLACERVILLE AND ROUTIER ROADS, NORTH OF WEST END OF SACRAMENTO MATHER AIRPORT RUNWAYS.
Location Detail: IN POOLS NUMBERED 1291 AND 1291.1
Ecological: FOUND IN TWO VERNAL POOLS, AT THE OLD MATHER AIR FORCE BASE.
Threat: DEVELOPEMENT
General: OBSERVED IN 1993 AND 1996-97. ALSO LINDERIELLA OCCIDENTALIS OBSERVED.
Owner/Manager: SAC COUNTY

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G3	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

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

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

Occurrence No. 133 **Map Index:** 41024 **EO Index:** 41024

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-11

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52698º / -121.25613º
UTM: Zone-10 N4265728 E652010
Area: 10.6 ac
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 19
Qtr: XX
Meridian: M

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

Location Detail: 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.

Threat: IMPACTED BY HUMANS.

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

Owner/Manager: SAC COUNTY

Occurrence No. 134 **Map Index:** 41025 **EO Index:** 41025

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-10

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53359º / -121.26601º
UTM: Zone-10 N4266445 E651135
Area: 10.0 ac
Elevation: 140 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 24
Qtr: XX
Meridian: M

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

Location Detail: 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.

Threat: IMPACTED BY HUMANS.

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

Owner/Manager: SAC COUNTY

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 135 **Map Index:** 41026 **EO Index:** 41026
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 2004-03-09
Site: 2004-03-09
Record Last Updated: 2004-05-17

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53421º / -121.24715º
UTM: Zone-10 N4266545 E652777
Area: 12.1 ac
Elevation: 150 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 19
Qtr: NE
Meridian: M

Location: 0.9 MILE ENE OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK
Location Detail: ONE VERNAL POOL IN THIS PORTION OF THE COMPLEX, WITH VERNAL POOL TADPOLE SHRIMP; PART OF OLD MATHER AIR FORCE BASE.
Ecological: HABITAT CONSISTS A DISTURBED VERNAL POOL AND AN EPHEMERAL STREAM, TRIBUTARY TO MORRISON CREEK.
Threat: THREATENED BY TURBID/SEDIMENT-LADEN AND FLOC RELEASES UPSTREAM AND FUTURE WATER QUALITY ISSUES FROM URBAN RUNOFF.
General: INDIVIDUALS OBSERVED IN 1996-97. 1 ADULT OBSERVED ON 9 MAR 2004.
Owner/Manager: SAC COUNTY

Occurrence No. 136 **Map Index:** 41027 **EO Index:** 41027
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-06

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52846º / -121.24758º
UTM: Zone-10 N4265907 E652752
Radius: 80 meters
Elevation: 150 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 19
Qtr: XX
Meridian: M

Location: 0.8 MILE EAST OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK.
Location Detail: 1 VERNAL POOL IN THIS PORTION OF THE COMPLEX, WITH VERNAL POOL TADPOLE SHRIMP (VPTS). PART OF THE OLD MATHER AIR FORCE BASE.
Ecological: DISTURBED VERNAL POOL.
Threat: IMPACTED BY HUMANS.
General: OBSERVED IN 1996-97. ALSO LINDERIELLA OCCIDENTALIS OBSERVED.
Owner/Manager: SAC COUNTY

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 137 **Map Index:** 41041 **EO Index:** 41041

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-11

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53469º / -121.28301º
UTM: Zone-10 N4266540 E649650
Area: 0.7 ac
Elevation: 110 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 23 **Qtr:** XX
Meridian: M

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

Location Detail: 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.

General: OBSERVED IN 1996-97.

Owner/Manager: SAC COUNTY

Occurrence No. 138 **Map Index:** 41142 **EO Index:** 41142

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HUBER, A. 1999 (OBS)

Dates Last Seen
Element: 1999-02-27
Site: 1999-02-27
Record Last Updated: 1999-06-02

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54972º / -121.26767º
UTM: Zone-10 N4268233 E650956
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 13 **Qtr:** SW
Meridian: M

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

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

Threat: THREATENED BY DEVELOPMENT AND 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.

Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 165 **Map Index:** 46127 **EO Index:** 46127

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CAPELL, S. ET AL 2001 (OBS)

Dates Last Seen
Element: 2004-02-12
Site: 2004-02-12
Record Last Updated: 2004-08-19

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46329º / -121.33734º
UTM: Zone-10 N4258529 E645058
Area: 93.8 ac
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 17 **Qtr:** NE
Meridian: M

Location: CHURCHILL DOWNS WETLAND PRESERVE (PART); 4 MILES NNE OF ELK GROVE.

Location Detail: 1 MILE SOUTH GERBER RD, 0.5 MILE NORTH CALVINE RD & EXTENDING FROM 0.4 MILE WEST BRADSHAW RD. 2001 SURVEY: SE 1/4 OF NE 1/4, SECTION 17. 2002 SURVEY: INDIVIDUALS OBSERVED IN POOL NUMBER CVP1 (NW 1/4 OF THE NE 1/4, SECTION 17).

Ecological: SITE IS VERNAL POOL PRESERVE - GRASSLAND. OTHER SPECIES: LINDERIELLA OCCIDENTALIS AND BRANCHINECTA LYNCHI ALSO IN VICINITY. SURROUNDING LAND CONSISTS OF HOMES.

General: 16 MAR 2001: 100'S OF ADULTS OBSERVED. 5 APR 2001: 10'S OF EXOSKELETONS OBSERVED IN POOL - NO LIVE SHRIMP FOUND. 100'S OBS IN 1 POOL ON 21 JAN 2002. NONE OBS IN JAN & MAR 2003 SURVEYS. 10'S OBS IN 1 POOL ON 12 FEB 2004.

Owner/Manager: PVT-ELLIOTT HOMES

Lepidurus packardi

vernal pool tadpole shrimp

Element Code: ICBRA10010

Status
Federal: Endangered
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: INHABITS VERNAL POOLS AND SWALES IN THE SACRAMENTO VALLEY CONTAINING CLEAR TO HIGHLY TURBID WATER.
Micro: POOLS COMMONLY FOUND IN GRASS BOTTOMED SWALES OF UNPLOWED GRASSLANDS. SOME POOLS ARE MUD-BOTTOMED & HIGHLY TURBID.

Occurrence No. 173 **Map Index:** 48534 **EO Index:** 48534

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2002 (LIT)

Dates Last Seen
Element: 2002-01-21
Site: 2004-XX-
Record Last Updated: 2004-08-19

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47306º / -121.36003º
UTM: Zone-10 N4259578 E643059
Area: 55.4 ac
Elevation: 50 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 07 **Qtr:** SE
Meridian: M

Location: CHURCHILL DOWNS WETLAND PRESERVE (PART); 4.5 MILES NORTH OF ELK GROVE.

Location Detail: 0.5 MILE SOUTH OF GERBER RD, 1.2 MILES NORTH OF CALVINE AND 0.5 MILE EAST OF FLORIN RD. INDIVIDUALS OBSERVED IN POOL NUMBERS 8 AND 34 (NE 1/4 OF THE SE 1/4, SECTION 7).

Ecological: HABITAT CONSISTS OF VERNAL POOLS WITHIN A GRASSLAND. LINDERIELLA OCCIDENTALIS AND BRANCHINECT LYNCHI ALSO IN VICINITY.

General: 1000'S OBSERVED IN POOL 8 AND 10'S OBSERVED IN POOL 34 ON 21 JAN 2002. NONE OBSERVED IN JAN AND MARCH 2003 SURVEYS. SPECIES NOT OBS DURING 2004.

Owner/Manager: PVT

Occurrence No. 178 **Map Index:** 53920 **EO Index:** 53923

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FARMER, M. 2002 (OBS)

Dates Last Seen
Element: 2002-03-15
Site: 2002-03-15
Record Last Updated: 2004-01-13

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53993º / -121.32235º
UTM: Zone-10 N4267058 E646210
Area: 44.0 ac
Elevation: 65 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 16 **Qtr:** XX
Meridian: M

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

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

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

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

Owner/Manager: PVT-GRANITE CONSTRUCTION CO

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 49 **Map Index:** 31558 **EO Index:** 22317

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FOSTER WHEELER ENVIRON. CORP. 1995 (LIT)

Dates Last Seen
Element: 1995-02-14
Site: 1995-04-21
Record Last Updated: 1995-10-02

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51137º / -121.39697º
UTM: Zone-10 N4263773 E639762
Area: 5.3 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 26 **Qtr:** SE
Meridian: M

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

Location Detail: FOUND ONLY IN SEASONAL WETLAND INSIDE THE OVAL OF AND ADJACENT TO THE RUNNING TRACK

Ecological: 53 PONDED WATER AREAS SAMPLED EVERY 2 WEEKS BETWEEN 12/19/94 & 4/21/95. ARES SURVEYED INCLUDED SEASONAL WETLANDS, SHALLOW SWALES, TIRE TRACKS, PONDED AREAS IN RUNNING TRACK & BASEBALL DIAMOND, AND FIELD & ROADSIDE DRAINAGE DITCHES.

General: LINDERIELLA OCCIDENTALIS WAS FOUND IN 6 OF THE 53 SITES FROM 1/31/95 TO 2/14/95; 31 ADULTS COLLECTED AND DEPOSITED IN CAS;. 3 OF THE 6 POOLS ALSO HAD BRACHINECTA LYNCHI; MORE POOL INFO IN REPORT.

Owner/Manager: DOD-BT COLLINS RESERVE TR CNTR

Occurrence No. 50 **Map Index:** 32459 **EO Index:** 6484

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HUBER, A. 1991 (OBS)

Dates Last Seen
Element: 1996-03-21
Site: 1996-03-21
Record Last Updated: 1997-03-27

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long:
UTM:
Radius:
Elevation:
Mapping Precision:
Symbol Type:
Township:
Range:
Section: **Qtr:**
Meridian:

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

Location Detail: 1992: GRANITE CONSTRUCTION CO. AND TEICHERT MINING COMPANY; OVERALL SITE QUALITY MAY BE QUESTIONABLE. 1995 AND 1996: GRANITE-TEICHERT PILOT PROJECT SITE, MID-VALLEY FAIRY SHRIMP (BRANCHINECTA SP.) OBSERVED IN POOL #8 IN 1995.

Ecological: CONSTRUCTED AND NATURAL VERNAL POOLS WITHIN ANNUAL GRASSLAND.

Threat: GRAZING; GRAVEL PITS IN NORTHERN PORTIONS OF SITE; PROPOSED AGGREGATE MINING.

General: 1992: MANY INDIVIDUALS OBS BY A. HUBER FROM 2/22-3/31. 4/2-KOFORD OBS ALONG EXCELSIOR RD 0.6 & 1.1 MI N OF JACKSON HWY. 1995: SUGNET & ASSOC. OBS <50 ADULTS IN POOL #8. 1996: SUGNET & ASSOC. OBS 50+ ADULTS IN ALL 10 POOLS SURVEYED.

Owner/Manager: PVT

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 63 **Map Index:** 32517 **EO Index:** 2093

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GIBSON, J. & T. SKORDAL 1996 (LIT)

Dates Last Seen
Element: 1996-03-20
Site: 1996-06-10
Record Last Updated: 1996-08-09

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65480º / -121.21752º
UTM: Zone-10 N4279978 E655100
Area: 17.2 ac
Elevation: 270 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: PHOENIX FIELD UNIT 4. 1.3 KM ENE OF SUNSET AVENUE X HAZEL AVENUE.

Location Detail: 1995-2 SEASONAL WETLANDS AND 1 VERNAL POOL WERE SURVEYED. LINDERIELLA OBSERVED IN 1 SEASONAL WETLAND AND 1 VERNAL POOL. 1996-SAME WETLANDS AND POOL SURVEYED AS 1995; LINDERIELLA OBSERVED ONLY IN VP-1.

Ecological: VERNAL POOL AND SEASONAL WETLAND HABITAT IN ANNUAL GRASSLAND. THE SURVEY AREA IS SITUATED ON A PORTION OF THE OLD PHOENIX FIELD AIRPORT AND A MAJORITY OF THE SURVEY AREA IS COVERED BY THE REMAINS OF THE ABANDONED TARMAC.

Threat: RESIDENTIAL DEVELOPMENT IS UNDERWAY; SILT SCREENS, FENCES AND/OR RETAINING WALLS INSTALLED FOR HABITAT PROTECTION.

General: 1995: POOL #SW-1: L. OCCIDENTALIS OBSERVED ON 1/27; POOL #VP-1: L. OCCIDENTALIS OBSERVED ON 1/13, 1/27, AND 2/9. 1996: POOL #VP1-L. OCCIDENTALIS OBSERVED ON 1/9, 1/24, 2/7, 2/21, 3/6 & 3/20; MAX DEPTH OF POOL #VP1 WAS 18 INCHES.

Owner/Manager: CITY OF FAIR OAKS

Occurrence No. 64 **Map Index:** 32518 **EO Index:** 2094

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GIBSON, J. & T. SKORDAL 1996 (LIT)

Dates Last Seen
Element: 1996-03-06
Site: 1996-05-27
Record Last Updated: 1996-08-09

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.68909º / -121.29718º
UTM: Zone-10 N4283651 E648098
Radius: 80 meters
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 06E
Section: 26 **Qtr:** SW
Meridian: M

Location: STOCK RANCH; 0.8 KM SW OF AUBURN ROAD X SYLVAN ROAD.

Location Detail: 1995-18 SEASONAL WETLAND/VERNAL POOL HABITATS SURVEYED; POOLS RANGED IN SIZE FROM 65 TO 9,920 SQ. FT; LINDERIELLA WAS FOUND IN SW-4. 1996-9 SEASONAL WETLAND/VERNAL POOL HABITAT SURVEYED; LINDERIELLA ONLY OBSERVED IN SW-4.

Ecological: SEASONAL WETLAND/VERNAL POOL HABITAT IN NON-NATIVE GRASSLAND, ORCHARDS, OAK WOODLAND AND PORTIONS OF SAN JUAN & ARCADE CREEKS W/ ASSOCIATED DRAINAGES; PLANT SPECIES: AVENA SP., BROMUS RIGIDUS, B. MOLLIS, PERENNIAL RYE, ERODIUM & VICIA SPP.

Threat: PREDATION BY HYLA TADPOLES; COMPETITION PRESSURE FROM AQUATIC INSECTS; HEAVY VEHICLE USE ON SITE.

General: POOL #SW-4: LINDERIELLA OBSERVED IN 1995 (1/13, 1/27 & 2/9) AND 1996 (2/7, 2/21 & 3/6); SEVERAL GENERATIONS OF SHRIMP OBSERVED, WITH LACK OF ADULTS IN LAST GENERATION, POSSIBLY DUE TO PREDATION FROM HYLA TADPOLES.

Owner/Manager: PVT-STOCK RANCH

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 65 **Map Index:** 32519 **EO Index:** 1750

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SIMOVICH, M. A. 1990 (LIT)

Dates Last Seen
Element: 1990-03-17
Site: 1990-03-17
Record Last Updated: 1995-12-05

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.61300º / -121.15126º
UTM: Zone-10 N4275453 E660960
Area: 2.2 ac
Elevation: 295 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: 24 **Qtr:** SE
Meridian: M

Location: PRAIRIE CITY SVRA; 0.1 KM SSW OF PRAIRIE CITY ROAD X WHITE ROCK ROAD.

Ecological: LARGE EPHEMERAL POND; VEGETATION THROUGHOUT AREA; CLEAR WATER ALONG EDGES, BUT MILKY IN CENTER; POND DRIED UP BY SUMMER.

Threat: LIGHT OFF-HIGHWAY VEHICLES USAGE; POSSIBILITY OF OHV OIL SPILLS.

General: POOL #D-L. OCCIDENTALIS OBSERVED IN EARLY SPRING, BUT FEW IN LATE SPRING; LEPIDURUS PACKARDI, LYNCEUS BRACHYURUS AND OTHER INVERTS WERE PRESENT. HYLA REGILLA HEARD CALLING IN EARLY SPRING AND TADPOLES PRESENT IN LATE SPRING.

Owner/Manager: DPR-PRAIRIE CITY SVRA

Occurrence No. 66 **Map Index:** 32520 **EO Index:** 1748

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SIMOVICH, M. A. 1990 (LIT)

Dates Last Seen
Element: 1990-03-17
Site: 1990-03-17
Record Last Updated: 1995-12-05

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.60255º / -121.13953º
UTM: Zone-10 N4274314 E662005
Radius: 80 meters
Elevation: 330 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 08E
Section: 30 **Qtr:** SE
Meridian: M

Location: PRAIRIE CITY SVRA; 1.6 KM SE OF PRAIRIE CITY ROAD X WHITE ROCK ROAD.

Ecological: VERNAL POOL; VEGETATION IN AREAS WITH LOW OHV USAGE, BUT NO VEGETATION WITH HIGH OHV USAGE; POOL DRY BY SUMMER.

Threat: OFF-HIGHWAY VEHICLE USAGE.

General: POOL #D-MATURE AND ABUNDANT L. OCCIDENTALIS OBSERVED IN EARLY SPRING, BUT FEW IN LATE SPRING.

Owner/Manager: DPR-PRAIRIE CITY SVRA

Occurrence No. 67 **Map Index:** 32521 **EO Index:** 1746

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SIMOVICH, M. A. 1990 (LIT)

Dates Last Seen
Element: 1990-03-17
Site: 1990-03-17
Record Last Updated: 1995-12-05

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.59970º / -121.13843º
UTM: Zone-10 N4274000 E662107
Area: 8.3 ac
Elevation: 325 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 08E
Section: 30 **Qtr:** SE
Meridian: M

Location: PRAIRIE CITY SVRA; 2.0 KM SE OF PRAIRIE CITY ROAD X WHITE ROCK ROAD.

Ecological: VERNAL POOL PRESERVE; GRASSLAND WITH SCATTERED OAKS AND DISTINCTIVE VERNAL POOL VEGETATION; POOLS DRY BY SUMMER.

Threat: PAST CATTLE GRAZING; MINIMAL IMPACT BY OFF-HIGHWAY VEHICLES USAGE.

General: POOLS #A & B-L. OCCIDENTALIS OBSERVED IN EARLY SPRING, BUT FEW IN LATE SPRING.

Owner/Manager: DPR-PRAIRIE CITY SVRA

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 68 **Map Index:** 32324 **EO Index:** 1710
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WYMER, N. 1994 (OBS)

Dates Last Seen
Element: 1994-03-27
Site: 1994-03-27
Record Last Updated: 1996-06-26

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65123º / -121.21958º
UTM: Zone-10 N4279578 E654929
Area: 47.4 ac
Elevation: 260 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: PHOENIX PARK; PHOENIX FIELD VERNAL POOLS; 0.5 KM ESE OF SUNSET AVENUE X HAZEL AVENUE.

Location Detail: VP1, VP11, VP12, VP12(A & B); ACCIDENTAL HERBICIDE SPRAYING IN VP1 ON 2/24/1992.

Ecological: PHOENIX FIELD VERNAL POOLS; PROTECTED AREA WITH PUBLIC ACCESS; ORCUTTIA VISCIDA PRESENT IN VP1, VP11, VP12, VP12A & VP12B, AND IN FULL FLOWER ON 4/20/1994, NOT USUAL FLOWER TIME AT END OF MAY.

Threat: ACCIDENTAL HERBICIDE SPRAYING (DIURON-KARMEX, SIMAZINE-PRINCEP, GLYPHOSATE-ROUNDUP); BICYCLE RIDERS; FOOT TRAFFIC.

General: 4/13/1979-ENG & BRODE COLLECT, ENG CAT#391. 1993-3/31-2 MALES, 5 FEMALES OBS; 4/1-2 MALES, 8 FEMALES OBS; 4/6-2 FEMALES OBS; 3/27/94-MANY ADULTS OBS CLASPING-PROTECT FROM PREDATION BY DAMSELFLY & DIVING BEETLE; ALL FEMALES W/ BROOD PATCH.

Owner/Manager: CITY OF FAIR OAKS

Occurrence No. 109 **Map Index:** 32730 **EO Index:** 1141
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CRANSTON, P. 1993 (OBS)

Dates Last Seen
Element: 1993-02-02
Site: 1993-02-02
Record Last Updated: 1996-01-05

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55807º / -121.24877º
UTM: Zone-10 N4269191 E652586
Area: 20.2 ac
Elevation: 140 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 07 **Qtr:** SE
Meridian: M

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

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

Ecological: GRASSLAND.

Threat: IDENTIFIED FOR EXCHANGE.

General: MANY INDIVIDUALS FROM BOTH SPECIES, LINDERIELLA OCCIDENTALIS AND LEPIDURUS PACKARDI, OBSERVED; UNKNOWN NUMBERS COLLECTED.

Owner/Manager: BLM

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 118 **Map Index:** 32443 **EO Index:** 636
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1995 (LIT)

Dates Last Seen
Element: 1995-03-31
Site: 1995-03-31
Record Last Updated: 1996-03-06

Quad Summary: CARMICHAEL (3812153/512D), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.50564º / -121.37821º
UTM: Zone-10 N4263165 E641409
Area: 15.7 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 36
Qtr: NE
Meridian: M

Location: 1.2 KM ESE OF ELDER CREEK ROAD X FLORIN PERKINS ROAD; SE OF THE FORMER SACRAMENTO ARMY DEPOT.
Location Detail: ELDER CREEK PROPERTY. LINDERIELLA OCCIDENTALIS WERE FOUND IN 2 OF 90 SAMPLED WETLANDS.
Ecological: HARDPAN VERNAL POOLS IN ANNUAL GRASSLAND.
Threat: RURAL AGRICULTURE; URBAN DEVELOPMENT OCCURING IN VICINITY.
General: POOLS #46 & 50: 2/21/95: >50 ADULTS OBSERVED. POOL #50: 3/31/95: <50 ADULTS OBSERVED.
Owner/Manager: PVT-PIPE TRADES TRUST FUND

Occurrence No. 124 **Map Index:** 34791 **EO Index:** 12939
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-03
Site: 1992-04-03
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.51058º / -121.40219º
UTM: Zone-10 N4263677 E639309
Radius: 80 meters
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 26
Qtr: SW
Meridian: M

Location: RAILROAD DITCH AT 47TH AVENUE (ELDER CREEK RD) & SPTRR, NEAR POWER INN ROAD; NEAR SW CORNER OF SACRAMENTO ARMY
Location Detail: SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM THE CORNER OF 65TH ST & HWY 50.
Ecological: RAILROAD DITCH.
General: KOFORD OBSERVED LINDERIELLA DURING SURVEY IN SPRING OF 1992; BRANCHINECTA LYNCHI AND LEPIDURUS PACKARDI ALSO OBSERVED.
Owner/Manager: PVT-SOUTHERN PACIFIC RR

Occurrence No. 125 **Map Index:** 34792 **EO Index:** 13153
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.52498º / -121.40725º
UTM: Zone-10 N4265267 E638840
Radius: 80 meters
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 26
Qtr: NW
Meridian: M

Location: FRUITRIDGE ROAD X SPTRR, NEAR POWER INN ROAD; NEAR NORTHWEST CORNER OF SACRAMENTO ARMY DEPOT.
Location Detail: SPTRR IS SOUTHERN PACIFIC TRACTION RR, WHICH RUNS SE FROM CORNER OF 65TH STREET AND HWY 50.
Ecological: TURBID POOL.
General: LINDERIELLA OBSERVED BY E.J. KOFORD DURING SURVEY IN SPRING OF 1992; LEPIDURUS PACKARDI ALSO PRESENT.
Owner/Manager: PVT-SOUTHERN PACIFIC RR

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 126 **Map Index:** 34793 **EO Index:** 12914

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.52515º / -121.38497º
UTM: Zone-10 N4265320 E640782
Radius: 80 meters
Elevation: 40 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 05E
Section: 25 **Qtr:** NW
Meridian: M

Location: FRUITRIDGE ROAD X CENTRAL CALIFORNIA TRACTION (RR), NEAR FLORIN-PERKINS ROAD; NEAR NE CORNER OF SACRAMENTO ARMY
Ecological: CLEAR POOL WITH DETRITUS.
General: LINDERIELLA OBSERVED BY KOFORD DURING SURVEY IN SPRING OF 1992.
Owner/Manager: PVT-CENTRAL CALIFORNIA TRR

Occurrence No. 128 **Map Index:** 34797 **EO Index:** 12595

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-06-20

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52536º / -121.34421º
UTM: Zone-10 N4265406 E644335
Radius: 1/5 mile
Elevation: 56 ft

Mapping Precision NON-SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 06E
Section: 29 **Qtr:** N
Meridian: M

Location: ROADSIDE DITCH NEAR FRUITRIDGE ROAD AND MAYHEW ROAD; SOUTHWEST OF MATHER AFB.
General: KOFORD OBSERVED LINDERIELLA DURING SURVEY IN SPRING OF 1992.
Owner/Manager: UNKNOWN

Occurrence No. 129 **Map Index:** 34798 **EO Index:** 12597

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1999-05-11

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52812º / -121.26090º
UTM: Zone-10 N4265847 E651591
Radius: 80 meters
Elevation: 147 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 07E
Section: 19 **Qtr:** SW
Meridian: M

Location: CORNER OF KIEFER BLVD & EAGLES NEST ROAD; SOUTHEAST OF MATHER AFB.
Ecological: VERNAL POOL WITH VEGETATION.
General: KOFORD OBSERVED LINDERIELLA DURING SURVEY IN SPRING OF 1992.
Owner/Manager: UNKNOWN

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 130 **Map Index:** 34799 **EO Index:** 12583
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-03
Site: 1992-04-03
Record Last Updated: 1996-08-06

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.51083º / -121.29784º
UTM: Zone-10 N4263868 E648407
Radius: 1/5 mile
Elevation: 111 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 27 **Qtr:** SE
Meridian: M

Location: ROADSIDE DITCH AT ELDER CREEK AND EXCELSIOR ROAD; SOUTH OF MATHER AFB.
Ecological: CLEAR ROADSIDE DITCH WITH VEGETATION.
General: KOFORD OBSERVED LINDERIELLA DURING SURVEY IN SPRING OF 1992.
Owner/Manager: UNKNOWN

Occurrence No. 131 **Map Index:** 34800 **EO Index:** 12050
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-08-06

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.49605º / -121.36443º
UTM: Zone-10 N4262122 E642630
Radius: 80 meters
Elevation: 48 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 06 **Qtr:** NW
Meridian: M

Location: 0.1 MILES WEST OF HEDGE AVENUE AND SOUTH OF FLORIN ROAD IN A 35 FOOT LONG PUDDLE.
Ecological: 35 FOOT LONG PUDDLE.
General: KOFORD OBSERVED LINDERIELLA IN PUDDLE DURING SURVEY IN SPRING OF 1992.
Owner/Manager: UNKNOWN

Occurrence No. 132 **Map Index:** 34801 **EO Index:** 11973
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KOFORD, E. 1992 (PERS)

Dates Last Seen
Element: 1992-04-02
Site: 1992-04-02
Record Last Updated: 1996-08-06

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.49628º / -121.33490º
UTM: Zone-10 N4262194 E645205
Radius: 4/5 mile
Elevation: 64 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 05 **Qtr:** NE
Meridian: M

Location: ROADSIDE DITCHES NEAR FLORIN ROAD AND BRADSHAW ROAD, BESIDE FLORIN ROAD.
Location Detail: TWO SITES, 0.6 MILES APART.
Ecological: ROADSIDE DITCHES.
General: KOFORD OBSERVED LINDERIELLA IN DITCHES DURING SURVEY IN SPRING OF 1992.
Owner/Manager: UNKNOWN

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 136 **Map Index:** 34807 **EO Index:** 29316
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. ET AL 1996 (PERS)

Dates Last Seen
Element: 1996-03-23
Site: 1996-03-23
Record Last Updated: 1996-09-09

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.59987º / -121.17173º
UTM: Zone-10 N4273960 E659206
Area: 423.6 ac
Elevation: 280 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: 35 **Qtr:** NE
Meridian: M

Location: SOUTHEAST OF WHITE ROCK ROAD X GRANT LINE ROAD; SOUTH OF FOLSOM.

Location Detail: GENCORP-AEROJET OFFSITE GET B SITE; 120 POOLS SAMPLED DURING SURVEY CONDUCTED FROM 2/10-3/23/1996; ADJACENT LAND USE: GRAZING PASTURELAND, STATE RECREATIONAL VEHICLE AREA.

Ecological: HABITAT CONSISTS OF NON-NATIVE GRASSLAND, STOCKPONDS, SCRAPES, ARTIFICIAL PONDS, SWALES AND DREDGE PITS.

Threat: STUDY WAS CONDUCTED FOR ROAD CONSTRUCTION FOR ACCESS TO GROUNDWATER CLEANUP WELLS.

General: LINDERIELLA OBSERVED IN 48 POOLS, WITH 6 VOUCHER SPECIMENS SENT TO CAS; LEPIDURUS PACKARDI AND BRANCHINECTA LYNCHI (1 POOL) ALSO PRESENT.

Owner/Manager: PVT-GENCORP AEROJET

Occurrence No. 137 **Map Index:** 34808 **EO Index:** 12665
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. 1996 (OBS)

Dates Last Seen
Element: 1996-01-30
Site: 1996-01-30
Record Last Updated: 1996-07-09

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.63534º / -121.23497º
UTM: Zone-10 N4277789 E653623
Radius: 80 meters
Elevation: 105 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: EAST END OF SAILOR BAR, 100 METERS NORTH OF AMERICAN RIVER; 0.9 KM WEST OF HAZEL AVENUE BRIDGE.

Location Detail: SE OF PARKING LOT AT FIRST FISHING ACCESS ROAD; ADJACENT LAND USE: GRAVEL STORAGE AREA FOR COUNTY, PUBLIC PARKWAY.

Ecological: VERNAL POOL IN DREDGE TAILINGS; GRAVEL AND COBBLED SOIL, SCATTERED LIVE OAKS AND COTTONWOOD TREES BORDERING RIPARIAN AREA.

Threat: POSSIBLE THREAT: PUBLIC PARKWAY, FISHING ACCESS AREA AND RECREATIONAL USES.

General: LINDERIELLA OBSERVED; BRANCHINECTA LYNCHI ALSO PRESENT.

Owner/Manager: SAC COUNTY

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 144 **Map Index:** 32455 **EO Index:** 8929

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-03-21
Site: 1996-03-21
Record Last Updated: 1997-03-27

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53832º / -121.30122º
UTM: Zone-10 N4266913 E648056
Area: 2.0 ac
Elevation: 70 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 22 **Qtr:** NE
Meridian: M

Location: ALONG NORTH EDGE OF KIEFER BLVD; 0.7 KM WNW OF KEIFER BLVD & MATHER PARK WAY.

Location Detail: GRANITE-TEICHERT PILOT PROJECT SITE (PART). 1996: 10 TOTAL POOLS SURVEYED.

Ecological: CONSTRUCTED AND NATURAL HARDPAN VERNAL POOLS IN ANNUAL NON-NATIVE GRASSLAND. WETLAND COMPENSATION/MITIGATION PRESERVE.

General: 50+ ADULTS OBSERVED IN ALL TEN POOLS SAMPLED.

Owner/Manager: PVT-GRANITE CONSTRUCTION

Occurrence No. 147 **Map Index:** 28976 **EO Index:** 30714

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-03-22
Site: 1996-03-22
Record Last Updated: 1996-09-09

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.54240º / -121.23355º
UTM: Zone-10 N4267477 E653945
Area: 1,492.9 ac
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: BETWEEN DOUGLAS BLVD AND KEIFER BLVD; BETWEEN SUNRISE BLVD AND JAEGER ROAD; EAST OF MATHER AFB.

Location Detail: SAMMIS DOUGLAS SUNRISE PROJECT SITE. 1995: TOTAL OF 386 WATERBODIES SURVEYED OVER ENTIRE PROJECT SITE WITHIN T08N, R07E, SECTIONS 8, 17 & 20. 1996: 33 TOTAL WATERBODIES SURVEYED IN PILOT WETLANDS IN SEC 20 ONLY.

Ecological: HARDPAN VERNAL POOL IN ANNUAL GRASSLAND.

Threat: AGRICULTURAL.

General: 1995: DATA SEVERELY SUMMARIZED, ~80 POOLS HAD L. OCCIDENTALIS PRESENT, ABUNDANCES VARIED FROM <50 TO >50. 1996: >50 ADULTS OBSERVED IN 30 POOLS, 1 POOL (#SB19) OBSERVED <50 ADULTS ON 3/20/1996; ALL POOLS WITHIN SEC 20.

Owner/Manager: PVT-SARES REGIS GROUP

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 148 **Map Index:** 34820 **EO Index:** 12442
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SUGNET & ASSOC. 1996 (LIT)

Dates Last Seen
Element: 1996-03-04
Site: 1996-03-04
Record Last Updated: 1996-08-07

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER

Lat/Long: 38.73067º / -121.20815º
UTM: Zone-10 N4288413 E655751
Area: 3.3 ac
Elevation: 285 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 10N
Range: 07E
Section: 09 **Qtr:** SE
Meridian: M

Location: WEST OF FOLSOM LAKE; 1.7 KM ESE OF EUREKA ROAD X SIERRA COLLEGE BLVD.
Location Detail: SILVERWOOD/GB HIGH SCHOOL MITIGATION SITE. 1995: 9 TOTAL WETLANDS SAMPLED. 1996: 8 TOTAL WETLANDS SAMPLED.
Ecological: CONSTRUCTED SEASONAL WETLANDS WITHIN NON-NATIVE ANNUAL GRASSLAND.
General: 2/9/1995: >50 ADULTS OBSERVED IN POOL #6, SURFACE AREA=263 SQ METERS, WATER DEPTH=9.0 CM; NO OTHER BRANCHIOPODS OBSERVED. 1996: >50 ADULTS OBSERVED IN 4 POOLS (#HV2, VP3, VP4 & VP6); NO OTHER BRANCHIOPODS OBSERVED.
Owner/Manager: PVT-HOMEFED COMMUNITIES

Occurrence No. 149 **Map Index:** 28182 **EO Index:** 29286
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. 1996 (OBS)

Dates Last Seen
Element: 1996-03-10
Site: 1996-03-10
Record Last Updated: 1996-08-05

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.53154º / -121.39537º
UTM: Zone-10 N4266013 E639863
Area: 38.7 ac
Elevation: 40 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 05E
Section: 23 **Qtr:** XX
Meridian: M

Location: ALONG THE CENTRAL CALIFORNIA TRACTION COMPANY (RR) RIGHT-OF-WAY, FROM THE NORTH END OF 83RD ST TO FLORIN PERKINS RD.
Location Detail: LOCATED IN A SERIES OF PONDED DEPRESSIONS ALONG THE RAILROAD RIGHT-OF-WAY. LINDERIELLA FOUND IN 12 OF 27 SAMPLED DEPRESSIONS.
Ecological: HABITAT CONSISTS OF PONDED DEPRESSIONS. BRANCHINECTA MESOVALLENSIS (UNDESCRIBED) AND B. LYNCHI ALSO FOUND IN THIS AREA.
Threat: CONSTANT DISTURBANCE FROM RAILROAD TRUCKS AND OTHERS DRIVING THROUGH POOLED AREAS. ALSO TIRES & DEBRIS IN POOLED AREAS.
General: SURVEYS CONDUCTED FROM 6 FEBRUARY TO 10 MARCH 1996.
Owner/Manager: PVT

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 154 **Map Index:** 37098 **EO Index:** 32097
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1996 (PERS)

Dates Last Seen
Element: 1994-05-11
Site: 1994-05-11
Record Last Updated: 1997-10-08

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.51464º / -121.21016º
UTM: Zone-10 N4264436 E656044
Area: 159.9 ac
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 28 **Qtr:** SE
Meridian: M

Location: SOUTH OF BLODGETT RESERVOIR (LAGUNA CREEK), NE OF THE INTERSECTION OF HWY 16 AND GRANT LINE ROAD, SE OF SACRAMENTO.
Ecological: HABITAT CONSISTS OF NORTHERN HARDPAN VERNAL POOLS.
General: "DUTRA" SITE. BRANCHINECTA LYNCHI, LEPIDURUS PACKARDI, LINDERIELLA OCCIDENTALIS, AND AN UNKNOWN BRANCHINECTA SPECIES WERE OBSERVED ON 11 MAY 1994.
Owner/Manager: UNKNOWN

Occurrence No. 160 **Map Index:** 41021 **EO Index:** 41021
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-04

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54571º / -121.31895º
UTM: Zone-10 N4267705 E646496
Area: 29.1 ac
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 16 **Qtr:** XX
Meridian: M

Location: 1 MILE SOUTH FROM JCT OLD PLACERVILLE AND ROUTIER ROADS, NORTH OF WEST END OF SACRAMENTO MATHER AIRPORT RUNWAYS.
Location Detail: CALIFORNIA LINDERIELLA IN POOLS NUMBERED 1278-79, 1284-85, 1287-88, 1290-91, 1293-95, 1359, 1361-68
Ecological: FOUND IN 20 VERNAL POOLS, AT THE OLD MATHER AIR FORCE BASE.
Threat: DEVELOPEMENT
General: OBSERVED IN 1993 AND 1996-97
Owner/Manager: SAC COUNTY

Occurrence No. 161 **Map Index:** 41022 **EO Index:** 41022
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-04

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55335º / -121.30909º
UTM: Zone-10 N4268568 E647339
Area: 2.3 ac
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 15 **Qtr:** XX
Meridian: M

Location: 0.7 MILES SE FROM JCT OLD PLACERVILLE AND ROUTIER ROADS, NW CENTER OF SACRAMENTO MATHER AIRPORT RUNWAYS.
Location Detail: CALIFORNIA LINDERIELLA IN POOLS NUMBERED 1402-06 IN OPEN AREA BETWEEN TAXI AND RUNWAYS.
Ecological: FOUND IN 5 VERNAL POOLS, AT THE OLD MATHER AIR FORCE BASE.
Threat: DEVELOPEMENT
General: OBSERVED IN 1996-97.
Owner/Manager: SAC COUNTY

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 162 **Map Index:** 41009 **EO Index:** 41023

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-05

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54694º / -121.29410º
UTM: Zone-10 N4267881 E648659
Area: 68.0 ac
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 14
Qtr: XX
Meridian: M

Location: OLD MATHER AIR FORCE BASE, SOUTH OF SACRAMENTO MATHER AIRPORT RUNWAYS, EAST OF WATER TREATMENT PONDS.
Location Detail: 36 VERNAL POOLS IN THE COMPLEX CONTAINED CALIFORNIA LINDERIELLA.
Ecological: FOUND ON THE OLD BASE IN VERNAL POOLS, VERNAL SWALES, SEASONAL WETLANDS, AND FRESHWATER MARSH.
Threat: DEVELOPMENT.
General: OBSERVED IN 1993 AND 1996-97. LEPIDURUS PACKARDI ALSO OBSERVED.
Owner/Manager: SAC COUNTY

Occurrence No. 163 **Map Index:** 41025 **EO Index:** 41033

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-10

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53359º / -121.26601º
UTM: Zone-10 N4266445 E651135
Area: 10.0 ac
Elevation: 140 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 24
Qtr: XX
Meridian: M

Location: 0.4 MILE NNW OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK.
Location Detail: 7 VERNAL POOLS IN THIS PORTION OF THE COMPLEX CONTAIN CALIFORNIA LINDERIELLA. THIS IS PART OF THE OLD MATHER AIR FORCE BASE.
Ecological: VERNAL POOLS, AND DISTURBED VERNAL POOLS
Threat: IMPACTED BY HUMANS.
General: OBSERVED IN 1993 AND 1996-97. LEPIDURUS PACKARDI ALSO OBSERVED.
Owner/Manager: SAC COUNTY

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 164 **Map Index:** 41034 **EO Index:** 41034
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-XX-XX
Site: 1997-XX-XX
Record Last Updated: 1999-05-10

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56391º / -121.26848º
UTM: Zone-10 N4269806 E650856
Area: 4.0 ac
Elevation: 120 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 12 **Qtr:** XX
Meridian: M

Location: 0.3 MILE NORTH OF INTERSECTION OF G AVE AND DOUGLAS RD, NW MATHER REGIONAL PARK, OLD MATHER AIR FORCE BASE.
Location Detail: 2 VERNAL POOLS IN THIS PORTION OF THE COMPLEX CONTAIN CALIFORNIA LINDERIELLA.
Ecological: VERNAL SWALE-VERNAL POOLS, AND DISTURBED SEASONAL WETLAND.
Threat: DEVELOPMENT, IMPACTED BY HUMANS.
General: OBSERVED IN 1993 AND 1997 SURVEYS.
Owner/Manager: SAC COUNTY

Occurrence No. 165 **Map Index:** 41024 **EO Index:** 41038
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-11

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52698º / -121.25613º
UTM: Zone-10 N4265728 E652010
Area: 10.6 ac
Elevation: 125 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 19 **Qtr:** XX
Meridian: M

Location: 0.1 MILE EAST OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK (6 FEATURES, ALONG KIEFER BLVD).
Location Detail: MORRISON CREEK DRAINAGE AREA, IN THE OLD MATHER AIR FORCE BASE.
Ecological: 6 FEATURES THAT ARE EITHER, VERNAL POOLS, VERNAL SWALES, OR A BRANCH OF MORRISON CREEK.
Threat: IMPACTED BY HUMANS.
General: OBSERVED IN 1993 AND 1996-97 IN 5 OF THE 6 FEATURES MAPPED. ALSO LEPIDURUS PACKARDI OBSERVED.
Owner/Manager: SAC COUNTY

Occurrence No. 166 **Map Index:** 41027 **EO Index:** 41039
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52846º / -121.24758º
UTM: Zone-10 N4265907 E652752
Radius: 80 meters
Elevation: 150 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 19 **Qtr:** XX
Meridian: M

Location: 0.8 MILE EAST OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK.
Location Detail: 1 VERNAL POOL IN THIS PORTION OF THE COMPLEX, WITH CALIFORNIA LINDERIELLA. PART OF THE OLD MATHER AIR FORCE BASE.
Ecological: DISTURBED VERNAL POOL.
Threat: IMPACTED BY HUMANS.
General: OBSERVED IN 1996-97. ALSO OBSERVED LEPIDURUS PACKARDI.
Owner/Manager: SAC COUNTY

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 167 **Map Index:** 41040 **EO Index:** 41040
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-11

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53326º / -121.27385º
UTM: Zone-10 N4266396 E650452
Area: 1.5 ac
Elevation: 115 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 06E
Section: 24 **Qtr:** XX
Meridian: M

Location: 0.7 MILE WNW OF JUNCTION OF KIEFER BLVD AND EAGLES NEST ROAD, MATHER REGIONAL PARK.
Location Detail: 2 VERNAL POOLS IN THIS PORTION OF THE COMPLEX CONTAIN CALIFORNIA LINDERIELLA. PART OF THE OLD MATHER AIR FORCE BASE.
Ecological: VERNAL POOLS.
General: OBSERVED IN 1996-97.
Owner/Manager: SAC COUNTY

Occurrence No. 182 **Map Index:** 42726 **EO Index:** 42726
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KIRKPATRICK, G. 1993 (OBS)

Dates Last Seen
Element: 1993-03-31
Site: 1993-03-31
Record Last Updated: 2000-04-11

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47701º / -121.34071º
UTM: Zone-10 N4260046 E644736
Area: 156.9 ac
Elevation: 60 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 07N
Range: 06E
Section: 08 **Qtr:** XX
Meridian: M

Location: ALONG CENTRAL CALIFORNIA TRACTION RAILROAD, NORTH OF CALVINE RD, SOUTH OF FLORIN RD, & WEST OF VINEYARD RD.
Location Detail: LONG NARROW RAIN FILLED DEPRESSIONS IN RAILROAD RIGHT-OF-WAY. LAND USE IS GRAZING AND RAILROAD RIGHT-OF-WAY. SOME ADJACENT PASTURES HAD REALLY NICE LOOKING VERNAL POOLS.
Ecological: UNDULATING TOPOGRAPHY, RED CLAY SOILS. POOLS 5 X 10 TO 15 METERS
Threat: RAILROAD MAINTENENCE, CONVERSION TO RESIDENTIAL, INTENSIVE AGRICULTURE, GRAZING, DUMPING.
General: NUMEROUS TO FEW ADULTS OBSERVED, HIGHER NUMBERS IN THE MIDDLE SECTION OF MAPPED AREA. ALSO OBSERVED LEPIDURUS SP, CLAM SHRIMP, RED COPEPODS.
Owner/Manager: PVT

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 183 **Map Index:** 42727 **EO Index:** 42727

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KIRKPATRICK, G. 1993 (OBS)

Dates Last Seen
Element: 1993-04-01
Site: 1993-04-01
Record Last Updated: 2000-04-11

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.49830º / -121.36023º
UTM: Zone-10 N4262378 E642992
Area: 27.2 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 31
Qtr: SE
Meridian: M

Location: ALONG CENTRAL CALIFORNIA TRACTION RAILROAD, BETWEEN HEDGE AVE AND FLORIN ROAD, SACRAMENTO.

Location Detail: NARROW RAIN-FILLED DEPRESSION IN RIGHT-OF-WAY ~ 5 METERS IN WIDTH AND 15 METERS IN LENGTH. UNDULATING TOPOGRAPHY ON RED CLAY SOILS.

Ecological: CLEAR, CLAY BOTTOMED POOL WITH SOME EMERGENT VEGETATION, POOL IS ADJACENT TO SAND LOADER USED FOR RAIL BED MAINTENENCE.

Threat: RAILROAD MAINTENENCE AND GRADING OF RAILROAD.

General: MODERATE DENSITY OF REPRODUCTIVE ADULTS OBSERVED; ALSO OBSERVED WESTERN TOAD TADPOLES, 1993.

Owner/Manager: PVT

Occurrence No. 197 **Map Index:** 48380 **EO Index:** 48380

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2001 (LIT)

Dates Last Seen
Element: 2001-03-28
Site: 2001-03-28
Record Last Updated: 2002-11-20

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52095º / -121.35780º
UTM: Zone-10 N4264896 E643159
Radius: 80 meters
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 30
Qtr: NE
Meridian: M

Location: GRANITE VINEYARD SITE; 0.4 MILES SE THE INTERSECT OF HEDGE AVE AND FRUTRIDGE ROAD.

Location Detail: WETLAND #6

Ecological: HABITAT ON SITE CONSISTS PRIMARILY OF NON-NATIVE GRASSLAND WITH SEASONALLY FLOODED/INUNDATED AREAS, A RIPARIAN CORRIDOR WITH FLOWING WATER 9 MONTHS OF THE YEAR AND AN IRRIGATION POND.

General: L. OCCIDENTALIS CYSTS (AND BRANCHINECTA SP. CYSTS) IDENTIFIED IN DRY SEASON SOIL SAMPLE TAKEN ON 21 SEP 2000. SITE SURVEYED 8 TIMES FROM 14 FEB 2001 TO 7 MAY 2001. INDIVIDUALS OBSERVED ON 13 MAR 2001 AND 28 MAR 2001.

Owner/Manager: PVT

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CDFG Status:**
State: None	**State:** S2S3	

Habitat Associations

General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.

Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 198 **Map Index:** 48381 **EO Index:** 48383

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2002 (LIT)

Dates Last Seen
Element: 2002-01-31
Site: 2002-01-31
Record Last Updated: 2002-07-29

Quad Summary: BUFFALO CREEK (3812152/511C), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.55732º / -121.25130º
UTM: Zone-10 N4269103 E652367
Area: 15.5 ac
Elevation: 135 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 07
Qtr: XX
Meridian: M

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

Location Detail: 31 JAN 2002: OBSERVED IN 5 OF 7 SAMPLED WETLANDS (A, B, C, E, AND F). OBSERVED IN 6 OF 7 WETLANDS ON 12 JAN 2002.

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.

General: 100'S OBSERVED IN WETLANDS A & B AND 1000'S OBSERVED IN WETLANDS C, E AND F ON 31 JAN 2002.

Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 214 **Map Index:** 48534 **EO Index:** 51506

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2003 (LIT)

Dates Last Seen
Element: 2004-01-15
Site: 2004-01-15
Record Last Updated: 2004-08-19

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47306º / -121.36003º
UTM: Zone-10 N4259578 E643059
Area: 55.4 ac
Elevation: 50 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 07
Qtr: SE
Meridian: M

Location: CHURCHILL DOWNS WETLAND PRESERVE (PART); 4.5 MILES NORTH OF ELK GROVE.

Location Detail: 0.5 MILE SOUTH OF GERBER RD, 1.2 MILES NORTH OF CALVINE AND 0.5 MILE EAST OF FLORIN RD.

Ecological: HABITAT CONSISTS OF NATURAL AND CREATED VERNAL POOLS WITHIN A GRASSLAND.

General: 10'S TO 1,000'S OBSERVED IN 16 OF 35 NATURAL VERNAL POOLS (DIVIDED BETWEEN THIS SITE & OCC 215) 21 JAN, 7 MAR 2003. ALSO OBSERVED IN 2002. NO OTHER BRANCHIOPOD SPECIES OBS IN 2003. 10'S OBS IN 2 POOLS, 1000'S OBS IN 2 POOLS ON 15 JAN 2004.

Owner/Manager: PVT

Linderiella occidentalis

California linderiella

Element Code: ICBRA06010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: SEASONAL POOLS IN UNPLOWED GRASSLANDS WITH OLD ALLUVIAL SOILS UNDERLAIN BY HARDPAN OR IN SANDSTONE DEPRESSIONS.
Micro: WATER IN THE POOLS HAS VERY LOW ALKALINITY, CONDUCTIVITY, AND TDS.

Occurrence No. 215 **Map Index:** 46127 **EO Index:** 51507

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ECORP CONSULTING, INC. 2003 (LIT)

Dates Last Seen
Element: 2004-01-15
Site: 2004-01-15
Record Last Updated: 2004-08-19

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.46329º / -121.33734º
UTM: Zone-10 N4258529 E645058
Area: 93.8 ac
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 17
Qtr: NE
Meridian: M

Location: CHURCHILL DOWNS WETLAND PRESERVE (PART); 4 MILES NNE OF ELK GROVE.

Location Detail: 1 MILE SOUTH GERBER RD, 0.5 MILE NORTH CALVINE RD & EXTENDING FROM 0.4 MILE WEST BRADSHAW RD.

Ecological: SITE IS VERNAL POOL PRESERVE - GRASSLAND. SURROUNDING LAND CONSISTS OF HOMES.

General: 10'S TO 1,000'S OBSERVED IN 16 OF 35 NATURAL VERNAL POOLS (DIVIDED BETWEEN THIS SITE & OCC 214) 21 JAN AND 7 MAR 2003. ALSO OBSERVED IN 2002. NO OTHER BRANCHIOPOD SPECIES OBS IN 2003. 10'S OBS IN 1 POOL, 100'S OBS IN 3 POOLS ON 15 JAN 2004

Owner/Manager: PVT-ELLIOTT HOMES

Occurrence No. 220 **Map Index:** 53920 **EO Index:** 53920

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FARMER, M. 2002 (OBS)

Dates Last Seen
Element: 2002-03-15
Site: 2002-03-15
Record Last Updated: 2004-01-13

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53993º / -121.32235º
UTM: Zone-10 N4267058 E646210
Area: 44.0 ac
Elevation: 65 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 16
Qtr: XX
Meridian: M

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

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

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

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

Owner/Manager: PVT-GRANITE CONSTRUCTION CO

Navarretia myersii ssp. myersii

pincushion navarretia

Element Code: PDPLM0C0X1

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G1T1	**CNPS List:** 1B
State: None	**State:** S1.1	**R-E-D Code:** 3-3-3

Habitat Associations

General: VERNAL POOLS, VALLEY AND FOOTHILL GRASSLAND.

Micro: CLAY SOILS WITHIN NONNATIVE GRASSLAND. 20-330M.

Occurrence No. 3 **Map Index:** 11841 **EO Index:** 19342

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HORENSTEIN, J. 1994 (OBS)

Dates Last Seen
Element: 1994-04-19
Site: 1994-04-19
Record Last Updated: 1994-07-15

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65538º / -121.21511º
UTM: Zone-10 N4280046 E655309
Area: 7.1 ac
Elevation: 270 ft

Mapping Precision SPECIFIC
Symbol Type: POLYGON

Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: CDFG PHOENIX FIELD ECOLOGICAL RESERVE, ABOUT 0.5 MILE EAST OF HAZEL AVE AND NORTH OF SUNSET AVE, FAIR OAKS.

Location Detail: PLANTS FOUND IN THE MORE SHALLOW, DRY POOLS AT THIS SITE, GROWING ON OR CLOSE TO SIDE SLOPE OF POOLS.

Ecological: ASSOCIATED WITH LASTHENIA FREMONTII, POGOGYNE ZIZYPHROIDES, PSILOCARPHUS SP., ERODIUM BOTRYS, JUNCUS CAPITATUS, BRODIAEA MINOR, ERYNGIUM VASEYI, DESCHAMPSIA DANTHONOIDES. ANOTHER RARE PLANT: ORCUTTIA VISCIDA ALSO HERE.

Threat: IRRIGATION RUNOFF AND HORTICULTURAL ESCAPES FROM SURROUNDING BACKYARDS THREATEN.

General: AT LEAST 1000 PLANTS IN 1994.

Owner/Manager: DFG-PHOENIX FIELD ER

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 25 **Map Index:** 11862 **EO Index:** 28006

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOOD, L. 1977 (LIT)

Dates Last Seen
Element: 1975-12-XX
Site: 1975-12-XX
Record Last Updated: 1998-07-15

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER, SACRAMENTO

Lat/Long: 38.71378º / -121.20745º
UTM: Zone-10 N4286540 E655849
Radius: 1/5 mile
Elevation: 250 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: ROCK CORRAL VERNAL POOLS. (ABOUT 0.4 MILE NORTH OF CHERRY AVENUE NEAR LINDA CREEK).
Location Detail: POOL AND GRASSLAND ADJACENT TO RELATIVELY UNDISTURBED OAK WOODLAND/RIPARIAN COMMUNITY.
Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO
Threat: SOME GRAZING, HORSEBACK RIDING HERE.
General: LARGELY INTACT.
Owner/Manager: UNKNOWN

Occurrence No. 27 **Map Index:** 11973 **EO Index:** 27517

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GRIGGS, T. 1980 (OBS)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.60240º / -121.13828º
UTM: Zone-10 N4274300 E662114
Radius: 1/5 mile
Elevation: 350 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 08E
Section: 30 **Qtr:** SE
Meridian: M

Location: PRAIRIE CITY RD, SOUTH FROM HWY 50 TO WHITE ROCK RD, E TO SCOTT RD, THEN S.
Location Detail: SMALL AREA DENSE POOLS SEEN IN 1983 AERIAL PHOTOGRAPHS.
Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Threat: ADJ TO ORV PARK W/SUBURBAN DEVELOPMENT THREAT IN 1990.
General: SITE NEEDS FIELD CHECK.
Owner/Manager: UNKNOWN

Occurrence No. 29 **Map Index:** 11854 **EO Index:** 27493

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MACDONALD, R. 1976 (LIT)

Dates Last Seen
Element: 1976-08-XX
Site: 1976-08-XX
Record Last Updated: 1998-07-15

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.66156º / -121.20884º
UTM: Zone-10 N4280742 E655841
Radius: 1 mile
Elevation: 270 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 99X
Range: 99X
Section: XX **Qtr:** XX
Meridian: M

Location: PHOENIX FIELD VERNAL POOLS VIC OF AIRPORT. AREA MOSTLY N & E OF AIRPORT.
Location Detail: POOLS IN FIELDS ON BLUFF TOPS W/EXTENSIVE MIMA MOUND TOPOGRAPHY.
Ecological: DOWNINGIA, 4 SPP OF BRODIAEA, LASTHENIA, POGOGYNE ZIZYPHROIDES, LILEA SCILLOIDES, RANUNCULUS ALVEOLATUS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Threat: FAIR OAKS REC & PARK DESTROYED PART OF ACREAGE.
General: CDFG NOW PROTECTING 8 ACRES.
Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 31 **Map Index:** 11687 **EO Index:** 27494

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GRIGGS, T. 1980 (OBS)

Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50407º / -121.28495º
UTM: Zone-10 N4263138 E649545
Radius: 1 mile
Elevation: 120 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 08N
Range: 06E
Section: 35 **Qtr:** SE
Meridian: M

Location: LARGE AREA BOUNDED BY JACKSON RD, EAGLES NEST, CALVINE, AND EXCELSIOR RD.
Location Detail: VAST AREA OF SPARSE VERNAL POOLS. EXTENDS N TO JACKSON RD.
Ecological: ON REDDING-CORNING ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Threat: HOUSING DEVELOPMENT IN AREA. SOME CATTLE USE.
Owner/Manager: UNKNOWN

Occurrence No. 32 **Map Index:** 11910 **EO Index:** 16253

Dates Last Seen
Element: 1984-06-XX
Site: 1984-06-XX

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GRIGGS, T. 1980 (LIT)

Record Last Updated: 1998-07-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.54185º / -121.18505º
UTM: Zone-10 N4267498 E658174
Area: 2,415.2 ac
Elevation: 250 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 08N
Range: 07E
Section: 14 **Qtr:** W
Meridian: M

Location: ON E & SE SIDE OF GRANT LINE RD. BETW 1 & 6 MI N OF HWY 16 (JACKSON RD).
Location Detail: TOPOGRAPHY LEVEL W/POOLS & SEVERAL LARGE VERNAL PONDS IN ANNUAL GRASSLAND W/MANY FLOWER SPP.
Ecological: ON UPPER (OLDEST) EDGE OF HIGH TERRACE ON REDDING SOIL SERIES SOILS. DRAINAGE TO W. ORCUTTIA VISCIDA PRESENT. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Threat: CATTLE GRAZING LIGHT OVER PAST YEARS.
General: SITE PARTIALLY ON LANDFILL LOCATION.
Owner/Manager: PVT, SAC COUNTY

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 55 **Map Index:** 11675 **EO Index:** 26932

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GRIGGS, T. 1980 (OBS)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47906º / -121.28884º
UTM: Zone-10 N4260357 E649257
Radius: 1 mile
Elevation: 90 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 11 **Qtr:** NW
Meridian: M

Location: NE OF ELK GROVE ALONG BRADSHAW RD. 1-2.5 MI N OF CALVINE RD ALONG EXCELSIOR RD.

Location Detail: LARGE AREA OF SPARSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOGRAPHS. ORCUTTIA TENUIS KNOWN FROM THIS AREA.

Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO

Threat: AREA GRAZED, HOUSING IN VICINITY, PER 1980 SITE VISIT.

Owner/Manager: UNKNOWN

Occurrence No. 56 **Map Index:** 11641 **EO Index:** 26982

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GRIGGS, T. 1980 (OBS)

Dates Last Seen
Element: 1980-05-13
Site: 1980-05-13
Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45518º / -121.30079º
UTM: Zone-10 N4257688 E648264
Radius: 1/5 mile
Elevation: 70 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 15 **Qtr:** SE
Meridian: M

Location: NE OF ELKGROVE ALONG BRADSHAW RD. (ACT NW OF INT. OF CALVINE & EXCELSIOR RDS.)

Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Threat: GRAZING IN VICINITY.

Owner/Manager: UNKNOWN

Occurrence No. 57 **Map Index:** 11566 **EO Index:** 26933

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing
Main Source: GRIGGS, T. 1980 (OBS)

Dates Last Seen
Element: 1987-06-17
Site: 1987-06-17
Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.43101º / -121.35800º
UTM: Zone-10 N4254915 E643319
Radius: 1/5 mile
Elevation: 55 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 30 **Qtr:** E
Meridian: M

Location: NE OF ELKGROVE ALONG BRADSHAW RD (W OF WATERMAN RD. BETWEEN SHELDON & BOND RDS).

Ecological: PORTIONS RETAIN NATURAL TOPOGRAPHY W/GOOD SPECIES DIVERSITY. ON REDDING-CORNING ASSOC. SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Threat: AREA GRAZED, WESTERN PORTIONS ONCE USED AS SMALL RESERVOIRS W/CHECK DAMS; OTHER AREAS W/SMALL CHECKS, TERRACES.

General: PARCEL TO BE SOLD, 1987.

Owner/Manager: SAC COUNTY

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 58 **Map Index:** 11587 **EO Index:** 26930

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GRIGGS, T. 1980 (OBS)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45962º / -121.33940º
UTM: Zone-10 N4258119 E644886
Radius: 1/5 mile
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 16 **Qtr:** E
Meridian: M

Location: NE OF ELK GROVE ALONG BRADSHAW RD.
Location Detail: >80 AC OF DENSE POOLS SEEN IN 1983 AERIAL PHOTOS. AREA OF SPARSE POOLS ALSO TO WEST IN 1/2 S17, E 1/2 S18.
Ecological: ON REDDING-CORNING ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Occurrence No. 65 **Map Index:** 11922 **EO Index:** 13189

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: COCHRANE, S. 1982 (OBS)

Dates Last Seen
Element: 1982-07-28
Site: 1982-07-28
Record Last Updated: 1998-07-15

Quad Summary: CLAY (3812132/495C), SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.36640º / -121.16568º
UTM: Zone-10 N4248062 E660250
Area: 254.9 ac
Elevation: 115 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06N
Range: 07E
Section: 13 **Qtr:** W
Meridian: M

Location: E OF CLAY STATION RD. APPROX 1.5-3.5 MI N OF HWY 104.
Location Detail: VALLEY GRASSLAND W/VERNAL STREAMS & POOLS. NOT CONTINUOUS HABITAT, BUT IN UNPLOWED AREAS.
Ecological: VERY HUMMOCKY. HOGWALLOW TOPO. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP.INFO.
Threat: AGRI EXPANSION & WEED INVASION THREATEN.
General: RELATIVELY UNDISTURBED.
Owner/Manager: UNKNOWN

Occurrence No. 66 **Map Index:** 11800 **EO Index:** 16249

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WESCO 1982 (LIT)

Dates Last Seen
Element: 1982-XX-XX
Site: 1982-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: FOLSOM (3812162/511B)
County Summary: PLACER

Lat/Long: 38.74267º / -121.23974º
UTM: Zone-10 N4289691 E652980
Area: 150.6 ac
Elevation: 230 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 10N
Range: 07E
Section: 08 **Qtr:** NW
Meridian: M

Location: BOTH SIDES DOUGLAS BLVD <1 MILE WEST OF JUNCTION WITH SIERRA COLLEGE BLVD, ROSEVILLE.
Ecological: 4 AREAS; 14 ACRES HIGH QUALITY POOLS ON HIGH TERRACE HARDPAN, ZONED AG; 50 AC HIGH QUALITY LOW TERRACE HARDPAN POOLS, ZONED RESID; 22 AC MED QUALITY VOLCANIC MUDFLOW POOLS, ZONED AG; 14 AC LOW QUALITY LOW TERRACE HARDPAN POOLS ZONED RESID.
General: RANKINGS AND 1977 ZONING FROM WESCO, 1982. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP.INFO.
Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 80 **Map Index:** 11666 **EO Index:** 16243

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54710º / -121.29254º
UTM: Zone-10 N4267901 E648794
Area: 113.9 ac
Elevation: 70 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: MATHER AIR FORCE BASE WEST OF KITTY HAWK SCHOOL.
Location Detail: DENSE VERNAL POOLS IN WEST PORTION, SPARSE VERNAL POOLS IN EAST PORTION AS SEEN IN 1983 AERIAL PHOTOS.
Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: DOD-MATHER AFB

Occurrence No. 81 **Map Index:** 11831 **EO Index:** 16242

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.56528º / -121.22130º
UTM: Zone-10 N4270037 E654964
Area: 515.9 ac
Elevation: 190 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH OF DOUGLAS ROAD, EAST OF SUNRISE BLVD, WEST OF NIMBUS RD, SE OF RANCHO CORDOVA.
Location Detail: AREA OF DENSE VERNAL POOLS SEEN IN 1983 AERIAL PHOTOS.
Ecological: ON REDDING-CORNING ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Occurrence No. 82 **Map Index:** 11801 **EO Index:** 16240

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53657º / -121.22732º
UTM: Zone-10 N4266841 E654501
Area: 870.2 ac
Elevation: 100 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 07E
Section: 20 **Qtr:** XX
Meridian: M

Location: EAST OF SUNRISE BLVD, N OF KIEFER BLVD, E OF MATHER AIR FORCE BASE.
Location Detail: DENSE VERNAL POOLS SEEN IN 1983 AERIAL PHOTOS.
Ecological: ON REDDING-CORNING ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP.INFO.
Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 83 **Map Index:** 11793 **EO Index:** 16241

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAPS)

Quad Summary: SLOUGHHOUSE (3812142/495B), BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.49760º / -121.23287º
UTM: Zone-10 N4262506 E654100
Area: 515.0 ac
Elevation: 110 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 07E
Section: 05
Qtr: XX
Meridian: M

Location: N OF GRANT LINE RD JUST EAST OF SUNRISE BLVD, ABOUT 2 MI WEST OF SLOUGHHOUSE.

Location Detail: TWO AREAS OF DENSE VERNAL POOLS CONNECTED BY AN AREA OF SPARSE POOLS.

Ecological: N DENSE AREA ON REDDING-CORNING ASSOCIATION SOILS. S DENSE AREA ON SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Owner/Manager: UNKNOWN

Occurrence No. 84 **Map Index:** 11820 **EO Index:** 16239

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48859º / -121.22604º
UTM: Zone-10 N4261518 E654715
Area: 162.8 ac
Elevation: 175 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 07E
Section: XX
Qtr: XX
Meridian: M

Location: BETWEEN GRANT LINE ROAD & SLOUGHHOUSE RD, S OF JACKSON HWY, ABOUT 1.5 MI WSW OF SLOUGHHOUSE.

Location Detail: TWO SMALL, ALMOST CONTIGUOUS AREAS OF DENSE VERNAL POOLS.

Ecological: NORTH AREA ON REDDING-CORNING ASSOCIATION SOILS; SOUTH AREA ON SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Owner/Manager: UNKNOWN

Occurrence No. 85 **Map Index:** 11849 **EO Index:** 26874

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53490º / -121.20800º
UTM: Zone-10 N4266688 E656188
Radius: 1 mile
Elevation: 160 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 21
Qtr: XX
Meridian: M

Location: N OF BLODGETT RESERVOIR, EAST OF MATHER AIR FORCE BASE.

Location Detail: PATCHY SPARSE DISTRIBUTION OF VERNAL POOLS IN PORTIONS OF SECTIONS 8,10,15,16,17,21,22,29.

Ecological: ON REDDING-CORNING AND SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 87 **Map Index:** 11625 **EO Index:** 26868

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52434º / -121.31662º
UTM: Zone-10 N4265337 E646742
Radius: 1/5 mile
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: XX **Qtr:** N
Meridian: M

Location: BOTH SIDES OF JACKSON ROAD ABOUT 1 MI W OF EXCELSIOR ROAD, S OF MATHER AIR FORCE BASE.

Location Detail: >80 ACRES OF DENSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOGRAPHS. PATCH OF SPARSE POOLS S OF ELDER CREEK ROAD ALSO.

Ecological: ON REDDING-CORNING AND SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Owner/Manager: UNKNOWN

Occurrence No. 88 **Map Index:** 11588 **EO Index:** 26872

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.50461º / -121.33996º
UTM: Zone-10 N4263110 E644747
Radius: 1 mile
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: 32 **Qtr:** NE
Meridian: M

Location: W OF BRADSHAW RD. S OF ELDER CR ROAD. ABOUT 3 MI SW OF MATHER AIR FORCE BASE.

Location Detail: TWO SMALL AREAS OF DENSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOS.

Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO

Owner/Manager: UNKNOWN

Occurrence No. 89 **Map Index:** 11597 **EO Index:** 26869

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Quad Summary: ELK GROVE (3812143/496A), CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.49045º / -121.32884º
UTM: Zone-10 N4261557 E645745
Radius: 1 mile
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 04 **Qtr:** XX
Meridian: M

Location: E & W OF BRADSHAW ROAD, N OF GERBER ROAD. ABOUT 5 MI N OF ELK GROVE.

Location Detail: EAST OF ROAD SPARSE VERNAL POOLS EXTEND FOR OVER 1 MILE. WEST OF ROAD SMALLER POOL AREA ON E SIDE OF CENTRAL CALIFORNIA TRECTION RAILROAD LINES.

Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 90 **Map Index:** 11951 **EO Index:** 16237

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.46087º / -121.14912º
UTM: Zone-10 N4258574 E661486
Area: 518.1 ac
Elevation: 133 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 07E
Section: 13
Meridian: M
Qtr: XX

Location: MEISS ROAD VICINITY, ABOUT 1 MI S OF COSUMNES RIVER & 1.5 MI E OF DILLARD RD.
Location Detail: DENSE VERNAL POOLS. ALSO A SMALL AREA OF SPARSE POOLS LIES JUST WEST OF BOUNDARY SHOWN.
Ecological: ON PENTZ-PARDEE-RED BLUFF ASSOC SOILS AND SAN JOAQUIN ASSOC SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO
Owner/Manager: UNKNOWN

Occurrence No. 92 **Map Index:** 11877 **EO Index:** 16236

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: CLAY (3812132/495C), SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.38952º / -121.19331º
UTM: Zone-10 N4250579 E657785
Area: 2,684.8 ac
Elevation: 130 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06N
Range: 07E
Section: 03
Meridian: M
Qtr: XX

Location: WEST OF CLAY STATION RD AND S OF BADGER CR. INCL. PARTS OF SEVERAL SECTIONS.
Location Detail: LARGE DENSE AREA. BOUNDARY SHOWN INCL SMALLER POOL AREAS WHICH OCCUR W/IN 1/4 MI OF LARGER POOL AREA.
Ecological: ON REDDING-CORNING AND SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Occurrence No. 95 **Map Index:** 11698 **EO Index:** 26866

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.52906º / -121.27745º
UTM: Zone-10 N4265924 E650147
Radius: 1 mile
Elevation: 130 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 99X
Range: 99X
Section: XX
Meridian: M
Qtr: XX

Location: NORTH OF KIEFER BLVD W OF MATHER RD & SOUTH OF KIEFER BLVD E OF MATHER RD.
Location Detail: AREAS OF SPARSE VERNAL POOLS AS SEEN IN 1983 AERIAL PHOTOS.
Ecological: PARTLY ON REDDING-CORNING ASSOC SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 96 **Map Index:** 11612 **EO Index:** 26867

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.54462º / -121.32440º
UTM: Zone-10 N4267575 E646023
Radius: 1 mile
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: WEST & SOUTH OF WEST END OF MATHER FIELD RUNWAYS & SMALL PATCH BETW RUNWAYS AT W END.
Location Detail: PATCHES OF SPARSE VERNAL POOLS SEEN IN 1983 AERIAL PHOTOS.
Ecological: ON SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO
Owner/Manager: UNKNOWN

Occurrence No. 110 **Map Index:** 11805 **EO Index:** 16228

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.40323º / -121.22743º
UTM: Zone-10 N4252043 E654776
Area: 75.9 ac
Elevation: 90 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06N
Range: 07E
Section: 05 **Qtr:** NE
Meridian: M

Location: NEAR ALTA MESA RD, FROM 0.75 TO 1.5 MI N OF BLAKE RD.
Location Detail: THREE AREAS OF DENSE VERNAL POOLS.
Ecological: ON REDDING-CORNING ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Occurrence No. 111 **Map Index:** 11929 **EO Index:** 26540

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.44240º / -121.16468º
UTM: Zone-10 N4256497 E660169
Radius: 1 mile
Elevation: 120 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH OF APPLE ROAD, EAST OF BERRY RD ABOUT 1/4 MI; EXTENDS E ABOUT 1/2 MI, S 3/4 MI.
Location Detail: SPARSE DISTRIBUTION OF VERNAL POOLS.
Ecological: ON PENTZ-PARDEE-RED BLUFF ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 113 **Map Index:** 11923 **EO Index:** 16225

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.37916º / -121.16563º
UTM: Zone-10 N4249478 E660226
Area: 60.9 ac
Elevation: 110 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06N
Range: 08E
Section: 13 **Qtr:** NW
Meridian: M

Location: EAST OF CLAY STATION RD, SOUTH OF LAGUNA CREEK.
Location Detail: DENSE DISTRIBUTION OF VERNAL POOLS.
Ecological: ON SAN JOAQUIN ASSOC SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Occurrence No. 118 **Map Index:** 11670 **EO Index:** 16222

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND & DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.38690º / -121.28690º
UTM: Zone-10 N4250133 E649616
Area: 167.6 ac
Elevation: 65 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: EAST OF COSUMNES RIVER, NW OF DILLARD RD, SOUTH OF FREEMAN RD.
Location Detail: DENSE DISTRIBUTION OF VERNAL POOLS.
Ecological: SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO
Owner/Manager: UNKNOWN

Occurrence No. 119 **Map Index:** 11712 **EO Index:** 26512

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOLLAND, R. & V. DAINS 1986 (MAP)

Dates Last Seen
Element: 1983-XX-XX
Site: 1983-XX-XX
Record Last Updated: 1998-07-15

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.37768º / -121.26411º
UTM: Zone-10 N4249147 E651627
Radius: 1/5 mile
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 06N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH OF WALMORT RD, EAST OF NORTH BADGER CR.
Location Detail: SMALL AREA OF DENSE VERNAL POOLS.
Ecological: SAN JOAQUIN ASSOCIATION SOILS. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
Owner/Manager: UNKNOWN

Northern Hardpan Vernal Pool

Element Code: CTT44110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 133 **Map Index:** 20270 **EO Index:** 30661

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WYMER, N. 1988 (OBS)

Dates Last Seen
Element: 1988-04-18
Site: 1988-04-18
Record Last Updated: 1998-07-15

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.61434º / -121.16239º
UTM: Zone-10 N4275582 E659988
Area: 375.6 ac
Elevation: 300 ft

Mapping Precision SPECIFIC
Symbol Type: POLYGON

Township: 09N
Range: 07E
Section: 24 **Qtr:** XX
Meridian: M

Location: EXTENDING 1/2 MILE NORTH OF THE INTERSECTION OF WHITE ROCK AND PRAIRIE CITY ROADS AND WSW ABOUT 1 MILE.

Location Detail: NUMEROUS VERNAL POOLS SCATTERED OVER THE AEROJET SACRAMENTO PROPERTY.

Ecological: SPECIES PRESENT INCLUDED GRATIOLA HETEROSEPALA, DOWNINGIA BICORNUTA, ELEOCHARIS PALUSTRIS, ERYNGIUM VASEYI VAR. VALLICOLA, GRATIOLA EBRACTEATA, LASTHENIA GLABERRIMUS, PLAGIOBOTHRYS STIPITATUS VAR. MICRANTHUS, PSILOCARPHUS BREVISSIMUS.

Threat: POSSIBLE SITE OF CLAY EXTRACTION BY AEROJET.

General: MORE INFO IN WYM88R03. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

Owner/Manager: PVT-AEROJET GENERAL CORP

Northern Volcanic Mud Flow Vernal Pool

Element Code: CTT44132CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G1
State: S1.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 1 **Map Index:** 11782 **EO Index:** 16218

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WESCO 1982 (LIT)

Dates Last Seen
Element: 1982-XX-XX
Site: 1982-XX-XX
Record Last Updated: 1998-07-16

Quad Summary: FOLSOM (3812162/511B), CITRUS HEIGHTS (3812163/512A), ROCKLIN (3812172/527C), ROSEVILLE (3812173/528D)
County Summary: PLACER

Lat/Long: 38.75189º / -121.25431º
UTM: Zone-10 N4290690 E651693
Area: 432.3 ac
Elevation: 240 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 10N
Range: 07E
Section: 06
Qtr: XX
Meridian: M

Location: BETWEEN DOUGLAS BLVD & MINERS RAVINE JUST EAST OF ROSEVILLE.

Ecological: DIVERSITY OF POOL TAXA PRESENT INCLUDES DICHELOSTEMMA LACUNA-VERNALIS. MOST OF THIS LARGE AREA IS ON VOLCANIC SUBSTRATE. <50 ACRES IN THE NW PORTION OF THE BOUNDED AREA IS LOW TERRACE FORMATION W/HARDPAN VERNAL POOLS.

General: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO

Owner/Manager: UNKNOWN

Orcuttia tenuis

slender orcutt grass

Element Code: PMPOA4G050

Status
Federal: Threatened
State: Endangered

NDDB Element Ranks
Global: G3
State: S3.1

Other Lists
CNPS List: 1B
R-E-D Code: 2-3-3

Habitat Associations
General: VERNAL POOLS.
Micro: 30-1735M.

Occurrence No. 16 **Map Index:** 11658 **EO Index:** 22364

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BIOSYSTEMS ANALYSIS 1988 (LIT)

Dates Last Seen
Element: 1987-05-19
Site: 1987-05-19
Record Last Updated: 1994-12-01

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.47660º / -121.29254º
UTM: Zone-10 N4260078 E648939
Radius: 80 meters
Elevation: 110 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 06E
Section: 11 **Qtr:** NW
Meridian: M

Location: WEST SIDE OF LAGUNA CREEK, 0.2 MI E OF EXCELSIOR ROAD. 1.6 MI N OF CALVINE ROAD.

Ecological: ELONGATE, NARROW VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND. WITH ELEOCHARIS MACROSTACHYA, ALLOCARYA STIPITATA, DOWNINGIA BICORNUTA, NAVARRETIA LEUCOCEPHALA, PSILOCARPHUS BREVISSIMUS, ERYNGIUM VASEYI, ETC.

Threat: GRAZING DOES NOT SEEM TO BE ADVERSELY IMPACTING PLANTS. INDUSTRIAL PARK HAS BEEN PROPOSED FOR THIS PARCEL.

General: HOLLAND REPORTED 10,000+ PLANTS IN 1983. ABUNDANT IN 1986 AND 1987.

Owner/Manager: PVT

Occurrence No. 71 **Map Index:** 34526 **EO Index:** 272

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WHITNEY, K. 1993 (OBS)

Dates Last Seen
Element: 1993-05-20
Site: 1993-05-20
Record Last Updated: 1996-04-02

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.55422º / -121.22933º
UTM: Zone-10 N4268795 E654288
Radius: 80 meters
Elevation: 175 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 17 **Qtr:** NE
Meridian: M

Location: EAST OF MATHER AIR FORCE BASE; 0.85 MI SE OF JCT SUNRISE BLVD AND DOUGLAS ROAD.

Location Detail: ON BORDER OF SECTION LINE BETWEEN SECTION 17 AND 8.

Ecological: ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, ERYNGIUM VASEYI, & NAVARRETIA LEUCOCEPHALA.

General: 500 PLANTS ESTIMATED IN 1993.

Owner/Manager: PVT

Orcuttia viscida

Sacramento orcutt grass

Element Code: PMPOA4G070

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B
State: Endangered	**State:** S1.1	**R-E-D Code:** 3-3-3

Habitat Associations

General: VERNAL POOLS. ENDEMIC TO SACRAMENTO COUNTY.

Micro: 30-100M.

Occurrence No. 1 **Map Index:** 40832 **EO Index:** 40832

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PRESTON, R. 1998 (OBS)

Dates Last Seen
Element: 1998-07-28
Site: 1998-07-28
Record Last Updated: 1999-02-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53149º / -121.18853º
UTM: Zone-10 N4266343 E657893
Area: 5.1 ac
Elevation: 220 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 22 **Qtr:** SE
Meridian: M

Location: GRANT LINE ROAD ABOUT 2.9 MILES NORTH OF JACKSON HIGHWAY (HWY 16), NORTH OF SLOUGHHOUSE.

Location Detail: MAPPED IN LARGE POOL ALONG EAST SIDE OF ROAD, ABOUT 1 MILE NORTHEAST OF KIEFER ROAD AND JUST SW OF BEND IN GRANTLINE ROAD.

Ecological: DEEP VERNAL POOL WITH ISOETES HOWELLII, ERYNGIUM VASEYI, PSILOCARPHUS BREVISSIMUS, LILAEA SCILLOIDES, PLAGIOBOTHRYS STIPITATUS MICRANTHUS, AND ELEOCHARIS MACROSTACHYA.

Threat: GRAZING (THREAT?), COMPETITION WITH ELEOCHARIS MACROSTACHYA AND EXOTIC GLYCERIA DECLINATA.

General: TYPE LOCALITY. ABUNDANT IN 1986 AND 1987, ABOUT 400,000 IN 1995, AND 138,000 IN 1998. NUMEROUS COLLECTIONS MADE BY B. CRAMPTON AT THIS SITE. THIS SITE FORMERLY INCLUDED WITH NEARBY OCCURRENCE #6.

Owner/Manager: SAC COUNTY, PVT

Occurrence No. 4 **Map Index:** 11886 **EO Index:** 22369

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown
Main Source: CRAMPTON, B. #5003 AHUC (HERB)

Dates Last Seen
Element: 1958-07-07
Site: 1986-06-16
Record Last Updated: 1994-11-18

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.67823º / -121.19606º
UTM: Zone-10 N4282614 E656917
Radius: 1/5 mile
Elevation: 240 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: 0.4 MI E OF JCT MAIN AVE AND GREENBACK LN, ABOUT 2 MI E OF ORANGEVALE, 2.1 MI NW OF FOLSOM.

Ecological: NEARLY BARREN AREA IN THE MIDDLE OF LARGE VERNAL POOL WITH ERYNGIUM. OPEN ROLLING PLAINS WITH BLUE OAKS.

Threat: AREA NOW DEVELOPED FOR HOUSING, SHOPPING CENTER, AND PARKING LOTS.

Owner/Manager: PVT

Orcuttia viscida

Sacramento orcutt grass

Element Code: PMPOA4G070

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B
State: Endangered	**State:** S1.1	**R-E-D Code:** 3-3-3

Habitat Associations

General: VERNAL POOLS. ENDEMIC TO SACRAMENTO COUNTY.

Micro: 30-100M.

Occurrence No. 5 **Map Index:** 11841 **EO Index:** 18718

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SMITH, K. 1980 (OBS)

Dates Last Seen
Element: 1997-07-14
Site: 1997-07-14
Record Last Updated: 1995-08-10

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65538º / -121.21511º
UTM: Zone-10 N4280046 E655309
Area: 7.1 ac
Elevation: 270 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: N OF SUNSET BLVD JUST E OF PHOENIX FIELD AIRPORT, "PHOENIX VERNAL POOLS", FAIR OAKS.

Ecological: IN SILICA-IRON HARDPAN IN VERNAL POOLS IN BLUE OAK WOODLAND. WITH ERYNGIUM VASEYI, EREMOCARPUS SETIGERUS, ALLOCARYA STIPITATA, PSILOCARPHUS BREVISSIMUS. NAVARRETIA MYERSII, ANOTHER RARE PLANT, ALSO AT THIS SITE.

Threat: PROPERTY INVADED BY EXOTIC PLANTS, ESPECIALLY FROM ADJACENT YARDS.

General: POOL ACQUIRED & FENCED BY CDFG AS ECOLOGICAL RESERVE. MONITORED ANNUALLY. OVER 200,000 PLANTS IN 1986, AN EXCEPTIONALLY GOOD YEAR, OVER 100,000 IN 1994-1996, 9500 IN 1997. INCLUDES FORMER OCC #2.

Owner/Manager: DFG-PHOENIX FIELD ER

Occurrence No. 6 **Map Index:** 11881 **EO Index:** 14411

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES ASSOC. 1990 (OBS)

Dates Last Seen
Element: 1998-07-27
Site: 1998-07-27
Record Last Updated: 1999-02-11

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52317º / -121.19421º
UTM: Zone-10 N4265410 E657416
Area: 40.2 ac
Elevation: 220 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 07E
Section: 27 **Qtr:** SE
Meridian: M

Location: NEAR KIEFER LANDFILL, EAST SIDE OF GRANT LINE RD, NORTH AND SOUTH OF KIEFER BLVD, SOUTHEAST OF RANCHO CORDOVA.

Location Detail: SEEN IN SEVERAL POOLS N OF KIEFER BLVD; SEARCHED FOR BUT NOT FOUND S OF KIEFER FOR SEVERAL YRS; MAY BE EXTIRPATED FROM THERE DUE TO AGRICULTURE AND USE AS PERMANENT LIVESTOCK PONDS. TADPOLE SHRIMP FOUND IN POOLS WITH O. VISCIDA IN 1995.

Ecological: VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND. REDDING GRAVELLY LOAM SOIL. ASSOCIATED WITH ELEOCHARIS MACROSTACHYA, ERYNGIUM VASEYI, ALLOCARYA STIPITATA, PSILOCARPHUS BREVISSIMUS, LILAEA SCILLOIDES, MARSILEA VESTITA, & DOWNINGIA BICORNUTA.

Threat: LANDFILL EXPANSION MAY DESTROY SOME POOLS; REVISED EIR DUE OUT IN 1996.

General: 1000'S OF PLANTS IN 1990, 1,000,000+ IN 1995, 129,000+ IN 1998. INCLUDES FORMER OCC #'S 3,7,9,10,12, AND 14. MAPPED AS PER JONES & STOKES REPORT, 1990.

Owner/Manager: SAC COUNTY, PVT

Orcuttia viscida

Sacramento orcutt grass

Element Code: PMPOA4G070

Status
Federal: Endangered
State: Endangered

NDDB Element Ranks
Global: G1
State: S1.1

Other Lists
CNPS List: 1B
R-E-D Code: 3-3-3

Habitat Associations
General: VERNAL POOLS. ENDEMIC TO SACRAMENTO COUNTY.
Micro: 30-100M.

Occurrence No. 15 **Map Index:** 11839 **EO Index:** 30943

Occ Rank: Good
Origin: Introduced Back into Native Hab./Range
Presence: Presumed Extant
Trend: Unknown
Main Source: WITHAM, C. 1995 (OBS)

Dates Last Seen
Element: 1997-06-16
Site: 1997-06-16
Record Last Updated: 1999-02-16

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65159º / -121.21905º
UTM: Zone-10 N4279619 E654974
Radius: 80 meters
Elevation: 270 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: PHOENIX PARK, SOUTH OF SUNSET AVE, 0.5 MILE EAST OF HAZEL AVE, FAIR OAKS.

Ecological: ON REDDING SERIES SOILS. ASSOCIATES INCLUDE ELEOCHARIS MACROSTACHYA, PLAGIOBOTHRYS STIPITATA, DOWNINGIA BICORNUTA, TRICHOSTEMA LANCEOLATUM, PSILOCARPHUS BREVISSIMUS, ERYNGIUM VASEYI, LILAEA SCILLOIDES, AND BRODIAEA MINOR.

Threat: SUMMER RUNOFF FROM ADJACENT BALL PARK ENTERS W LOBE OF POOL. ALSO THREATENED BY RECREATIONAL USE.

General: THIS OCCURRENCE ESTABLISHED FROM SEED COLLECTED FROM NEARBY NATIVE OCCURRENCE #5 BY T. GRIGGS IN 1978. 1000+ PLANTS IN 1985, 10,000+ IN 1986, 1000+ IN 1991, ABOUT 100,000 IN 1995, 35 IN 1996, 1000 IN 1997.

Owner/Manager: CITY OF FAIR OAKS-PARKS & REC

Occurrence No. 17 **Map Index:** 11785 **EO Index:** 21912

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: STONE, D. 1987 (OBS)

Dates Last Seen
Element: 1995-07-12
Site: 1995-07-12
Record Last Updated: 1997-03-26

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.52887º / -121.24205º
UTM: Zone-10 N4265961 E653233
Radius: 80 meters
Elevation: 150 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 07E
Section: 20 **Qtr:** SW
Meridian: M

Location: EAST SIDE OF SUNRISE BLVD, APPROX. 0.2 MI NORTH OF ITS INTERSECTION WITH KIEFER BLVD.

Location Detail: SITE OF PROPOSED INDUSTRIAL PARK DEVELOPMENT; POPULATION TO BE WITHIN PRESERVE/MITIGATION AREA.

Ecological: Y-SHAPED VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND. W/ERYNGIUM VASEYI, ELEOCHARIS MACROSTACHYA, ALLOCARYA STIPITATA, PSILOCARPHUS, GRATIOLA EBRACTEATA AND NAVARRETIA LEUCOCEPHALA.

Threat: MODERATE-INTENSIVE GRAZING. THE INVASIVE GLYCERIA DECLINATA AND WIDENING OF SUNRISE BLVD MAY ALSO THREATEN.

General: GREATER THAN 10,000 PLANTS IN 1987 IN 1995. ANNUAL DURATION OF INUNDATION HAS BEEN ARTIFICIALLY INCREASED BY ELEVATED GRADE OF SUNRISE BLVD.

Owner/Manager: PVT

Orcuttia viscida

Sacramento orcutt grass

Element Code: PMPOA4G070

Status	NDDB Element Ranks	Other Lists
Federal: Endangered	**Global:** G1	**CNPS List:** 1B
State: Endangered	**State:** S1.1	**R-E-D Code:** 3-3-3

Habitat Associations

General: VERNAL POOLS. ENDEMIC TO SACRAMENTO COUNTY.

Micro: 30-100M.

Occurrence No. 18 **Map Index:** 11806 **EO Index:** 22363

Dates Last Seen
Element: 1987-10-19
Site: 1987-10-19
Record Last Updated: 1994-12-01

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: STONE, D. 1987 (OBS)

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53452º / -121.22970º
UTM: Zone-10 N4266609 E654298
Radius: 80 meters
Elevation: 165 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 07E
Section: 20 **Qtr:** NE
Meridian: M

Location: APPROX. 0.9 MILE NORTHEAST OF INTERSECTION OF KIEFER BLVD & SUNRISE BLVD, BENEATH TRANSMISSION LINES.

Ecological: VERNAL POOL SURROUNDED BY ANNUAL GRASSLAND. WITH ELEOCHARIS MACROSTACHYA, ERYNGIUM VASEYI, PSILOCARPHUS BREVISSIMUS, ALLOCARYA STIPITATA, NAVARRETIA LEUCOCEPHALA, DOWNINGIA BICORNUTA, ETC.

Threat: GRAZING, COMPETITION FROM ELEOCHARIS, & ACTIVITIES ASSOCIATED WITH TRANSMISSION LINE MAINTENANCE & DEVELOPMENT THREATEN.

General: 1000 PLANTS ESTIMATED IN 1987.

Owner/Manager: PVT

Occurrence No. 19 **Map Index:** 26036 **EO Index:** 5231

Dates Last Seen
Element: 1995-08-17
Site: 1995-08-17
Record Last Updated: 1997-03-27

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WITHAM, C. 1995 (OBS)

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.55291º / -121.17401º
UTM: Zone-10 N4268745 E659111
Area: 5.7 ac
Elevation: 250 ft

Mapping Precision SPECIFIC
Symbol Type: POLYGON

Township: 08N
Range: 07E
Section: 14 **Qtr:** NE
Meridian: M

Location: ENE OF MATHER AFB. 4 POOLS; 75-500 YARDS S OF GLORY LANE, 0.75-0.9 MI E OF GRANT LINE RD.

Location Detail: NE 1/4 OF NE 1/4 OF SECTION 14.

Ecological: POOLS WITHIN GRASSLAND IN RED BLUFF/REDDING SOILS. WITH ERYNGIUM VASEYI, NAVARRETIA LEUCOCEPHALA, DOWNINGIA BICORNUTA.

Threat: POOLS MODERATELY TRAMPLED BY CATTLE. POSSIBLY WITHIN SACRAMENTO COUNTY'S URBAN LIMIT.

General: HUNDREDS OF PLANTS IN 1994, 1.2 MILLION ESTIMATED IN 1995.

Owner/Manager: PVT

Progne subis

purple martin

Element Code: ABPAU01010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) INHABITS WOODLANDS, LOW ELEVATION CONIFEROUS FOREST OF DOUGLAS FIR, PONDEROSA PINE, & MONTEREY PINE.
Micro: NESTS IN OLD WOODPECKER CAVITIES MOSTLY, ALSO IN HUMAN-MADE STRUCTURES. NEST OFTEN LOCATED IN TALL, ISOLATED TREE/SNAG.

Occurrence No. 17 **Map Index:** 54694 **EO Index:** 54694

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.62273º / -121.42273º
UTM: Zone-10 N4276092 E637304
Radius: 80 meters
Elevation: 50 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: 22 **Qtr:** NW
Meridian: M

Location: MARCONI AVENUE OVERPASS OF AUBURN ROAD AND UNION PACIFIC & LIGHT RAIL TRACKS, SACRAMENTO

Location Detail: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 1 PAIR OBSERVED NESTING. NEW BREEDING LOCATION IN 2003. HIGH NUMBER OF SECOND YEAR MALES OBSERVED, WHICH IS CONSISTENT WITH TYPICAL PIONEERING BEHAVIOR OF SECOND YEAR BIRDS.

Owner/Manager: UNKNOWN

Occurrence No. 18 **Map Index:** 54696 **EO Index:** 54696

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.61095º / -121.43559º
UTM: Zone-10 N4274765 E636207
Radius: 80 meters
Elevation: 45 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 09N
Range: 05E
Section: 28 **Qtr:** NE
Meridian: M

Location: EL CAMINO OVERPASS OF UNION PACIFIC AND LIGHT RAIL TRACKS, SACRAMENTO

Location Detail: SITE FIRST DOCUMENTED IN 2003 BUT ASSUMED TO HAVE BEEN OCCUPIED IN PRIOR YEARS BASED ON THE PRESENCE OF OVER 90% OF PAIRS WITH ASY MALES.

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 15 PAIRS OBSERVED NESTING.

Owner/Manager: UNKNOWN

Progne subis

purple martin

Element Code: ABPAU01010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) INHABITS WOODLANDS, LOW ELEVATION CONIFEROUS FOREST OF DOUGLAS FIR, PONDEROSA PINE, & MONTEREY PINE.
Micro: NESTS IN OLD WOODPECKER CAVITIES MOSTLY, ALSO IN HUMAN-MADE STRUCTURES. NEST OFTEN LOCATED IN TALL, ISOLATED TREE/SNAG.

Occurrence No. 19 **Map Index:** 54697 **EO Index:** 54697
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.55083º / -121.42235º
UTM: Zone-10 N4268114 E637474
Area: 10.5 ac
Elevation: 40 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 05E
Section: 15 **Qtr:** NW
Meridian: M

Location: HWY 50 AT REDDING ROAD AND UNION PACIFIC AND LIGHT RAIL TRACKS. BETWEEN 65TH ST AND HOWE AVE

Location Detail: NEW SITE IN 2003.

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 3 PAIRS OBSERVED NESTING. HIGH NUMBER OF SECOND YEAR MALES OBSERVED, WHICH IS CONSISTENT WITH TYPICAL PIONEERING BEHAVIOR OF SECOND YEAR BIRDS.

Owner/Manager: CALTRANS

Occurrence No. 20 **Map Index:** 54698 **EO Index:** 54698
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.56037º / -121.46510º
UTM: Zone-10 N4269109 E633731
Area: 17.1 ac
Elevation: 25 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 05E
Section: 07 **Qtr:** E
Meridian: M

Location: HWY 50 FROM 34TH STREET TO STOCKTON BLVD, SACRAMENTO

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 19 PAIRS OBSERVED NESTING.

Owner/Manager: CALTRANS

Progne subis

purple martin

Element Code: ABPAU01010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) INHABITS WOODLANDS, LOW ELEVATION CONIFEROUS FOREST OF DOUGLAS FIR, PONDEROSA PINE, & MONTEREY PINE.
Micro: NESTS IN OLD WOODPECKER CAVITIES MOSTLY, ALSO IN HUMAN-MADE STRUCTURES. NEST OFTEN LOCATED IN TALL, ISOLATED TREE/SNAG.

Occurrence No. 21 **Map Index:** 54699 **EO Index:** 54699
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.56385º / -121.47122º
UTM: Zone-10 N4269487 E633191
Radius: 80 meters
Elevation: 26 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 07 **Qtr:** N
Meridian: M

Location: CAPITAL CITY FWY (BUSINESS I-80) BETWEEN "R" AND "S" STREETS, SACRAMENTO

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 14 PAIRS OBSERVED NESTING.

Owner/Manager: CALTRANS

Occurrence No. 22 **Map Index:** 54700 **EO Index:** 54700
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.55769º / -121.47405º
UTM: Zone-10 N4268799 E632956
Radius: 1/10 mile
Elevation: 27 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 05E
Section: 07 **Qtr:** S
Meridian: M

Location: EASTBOUND HWY 50 OFFRAMP TO SOUTHBOUND HWY 99 AND NORTHBOUND HWY 99 OFFRAMP TO EASTBOUND HWY 50, SACRAMENTO

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 7 PAIRS OBSERVED NESTING.

Owner/Manager: CALTRANS

Occurrence No. 23 **Map Index:** 54701 **EO Index:** 54701
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.53948º / -121.48432º
UTM: Zone-10 N4266763 E632094
Radius: 80 meters
Elevation: 27 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 04E
Section: 13 **Qtr:** SE
Meridian: M

Location: SUTTERVILLE ROAD OVER THE UNION PACIFIC RAIL YARD, WEST OF HWY 99, SACRAMENTO

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 6 PAIRS OBSERVED NESTING.

Owner/Manager: UNKNOWN

Progne subis

purple martin

Element Code: ABPAU01010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) INHABITS WOODLANDS, LOW ELEVATION CONIFEROUS FOREST OF DOUGLAS FIR, PONDEROSA PINE, & MONTEREY PINE.
Micro: NESTS IN OLD WOODPECKER CAVITIES MOSTLY, ALSO IN HUMAN-MADE STRUCTURES. NEST OFTEN LOCATED IN TALL, ISOLATED TREE/SNAG.

Occurrence No. 24 **Map Index:** 54702 **EO Index:** 54702
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: LEEMAN, T, D. AIROLA, D. KOPP 2003 (LIT)

Dates Last Seen
Element: 2003-XX-XX
Site: 2003-XX-XX
Record Last Updated: 2004-03-12

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.56215º / -121.48743º
UTM: Zone-10 N4269274 E631782
Area: 14.5 ac
Elevation: 23 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 04E
Section: 12 **Qtr:** NE
Meridian: M

Location: HWY 50 BETWEEN 18TH AND 20TH STREETS, SACRAMENTO

Ecological: BIRDS ARE NESTING IN WEEP HOLES IN FREEWAY AND STREET OVERPASSES. WEEP HOLES ARE VERTICAL HOLES CONSTRUCTED INTO THE UNDERSIDE OF SOME HOLLOW BOX GIRDER ELEVATED FREEWAYS, OVERPASSES & BRIDGES TO RELIEVE AIR PRESSURE & DRAIN CONDENSATION.

General: SITES MONITORED EVERY 4-8 DAYS FROM MID-MAY TO EARLY AUGUST 2003. 21 PAIRS OBSERVED NESTING.

Owner/Manager: CALTRANS

Riparia riparia

bank swallow

Element Code: ABPAU08010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CDFG Status:**
State: Threatened	**State:** S2S3	

Habitat Associations

General: (NESTING) COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.

Micro: REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.

Occurrence No. 76 **Map Index:** 11013 **EO Index:** 6822

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Stable
Main Source: HUMPHREY, J. 1986 (PERS)

Dates Last Seen
Element: 1989-05-06
Site: 1989-05-06
Record Last Updated: 1995-11-02

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.63030º / -121.29354º
UTM: Zone-10 N4277133 E648536
Area: 25.6 ac
Elevation: 100 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: NORTH SIDE OF THE AMERICAN RIVER, JUST DOWNSTREAM FROM THE SAN JUAN RAPIDS, AMERICAN RIVER PARKWAY, SACRAMENTO.

Ecological: HABITAT CONSISTS OF A VERTICAL BLUFF, CONTAINING 40-50 NEST HOLES; SEVERAL LARGE COTTONWOODS RISE UP FROM THE RIVER'S EDGE IN CLOSE PROXIMITY TO THE NEST SITE.

Threat: POSSIBLE THREAT FROM HUMANS, AS SITE IS JUST BELOW SOME PRIVATE RESIDENCES.

General: NESTING COLONY OF 20 INDIVIDUALS OBSERVED IN 1985; ~20 ADULTS OBSERVED FORAGING (ALONG WITH NORTHERN ROUGH-WINGED SWALLOWS) AND ENTERING NESTING BURROWS ON 15 APRIL 1989; 40 ADULTS OBSERVED FORAGING ON 6 MAY 1989.

Owner/Manager: SAC COUNTY

Occurrence No. 94 **Map Index:** 11372 **EO Index:** 12978

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HUMPHREY, J. 1986 (PERS)

Dates Last Seen
Element: 1986-XX-XX
Site: 1986-XX-XX
Record Last Updated: 1998-10-28

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.58441º / -121.44342º
UTM: Zone-10 N4271808 E635575
Area: 29.8 ac
Elevation: 30 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 05E
Section: 33 **Qtr:** SE
Meridian: M

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

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

Owner/Manager: SAC COUNTY

Occurrence No. 166 **Map Index:** 11982 **EO Index:** 12971

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HUMPHREY, J. & B. GARRISON 1987 (LIT)

Dates Last Seen
Element: 1987-05-22
Site: 1987-05-22
Record Last Updated: 1989-08-10

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48268º / -121.13161º
UTM: Zone-10 N4261025 E662965
Radius: 1/5 mile
Elevation: 150 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 07N
Range: 08E
Section: 06 **Qtr:** SE
Meridian: M

Location: COSUMNES RIVER, RIVER MILE 30, APPROX 1.5 MI ESE OF JCT OF DILLARD RD AND LATROBE RD.

Ecological: COLONY LOCATED IN NATURAL BANK WITH OPEN GRASSLAND ABOVE; NO OTHER COLONY ALONG THE COSUMNES RIVER.

General: 196 BURROWS AND 15 BIRDS OBSERVED IN 1987 SURVEY, WITH LOW (10%) BREEDING OCCUPANCY.

Owner/Manager: PVT

Riparia riparia

bank swallow

Element Code: ABPAU08010

Status
Federal: None
State: Threatened

NDDB Element Ranks
Global: G5
State: S2S3

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.
Micro: REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.

Occurrence No. 197 **Map Index:** 25468 **EO Index:** 6906

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MOHR, B. 1989 (OBS)

Dates Last Seen
Element: 1990-04-27
Site: 1990-04-27
Record Last Updated: 1995-11-02

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.63740º / -121.25878º
UTM: Zone-10 N4277978 E651546
Area: 17.2 ac
Elevation: 75 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: SOUTH SIDE OF THE AMERICAN RIVER, 0.6 MILE UPSTREAM FROM THE SUNRISE BLVD BRIDGE, AMERICAN RIVER PARKWAY, FAIR OAKS.

Ecological: HABITAT CONSISTS OF A RECENTLY-ERODED SANDY BLUFF, ~12-15 FEET HIGH; NEARBY VEGETATION INCLUDES A BROAD BAND OF DECIDUOUS RIPARIAN FOREST AND A NARROW BAND OF GRASS/THISTLE.

Threat: MAIN THREAT TO THE SITE IS FROM HUMAN RECREATION.

General: 8 ADULTS OBSERVED ENTERING BURROWS ON 7 MAY 1989; 15-20 BIRDS OBSERVED DURING A FOLLOW-UP VISIT IN JUNE 1989. A MIXED GROUP OF BANK SWALLOWS (15-20 MINIMUM) AND NORTHERN ROUGH-WINGED SWALLOWS WERE OBSERVED ON 27 APRIL 1990.

Owner/Manager: SAC COUNTY

Occurrence No. 199 **Map Index:** 33222 **EO Index:** 2603

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PERRINE, P. ET AL 1995 (OBS)

Dates Last Seen
Element: 1995-06-12
Site: 1995-06-12
Record Last Updated: 1995-11-02

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.62385º / -121.28962º
UTM: Zone-10 N4276424 E648890
Radius: 80 meters
Elevation: 70 ft

Mapping PrecisionSPECIFIC
Symbol Type:POINT

Township: 09N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

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

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

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

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

Owner/Manager: SAC COUNTY

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: None	**State:** S3.2	**R-E-D Code:** 2-2-3

Habitat Associations

General: MARSHES AND SWAMPS.

Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 15 **Map Index:** 24528 **EO Index:** 13769

Dates Last Seen
Element: 1993-XX-XX
Site: 1993-XX-XX
Record Last Updated: 2003-04-03

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: HOGAN, B. 1990 (OBS)

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.42496º / -121.20184º
UTM: Zone-10 N4254498 E656963
Area: 38.7 ac
Elevation: 100 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 07E
Section: 27 **Qtr:** XX
Meridian: M

Location: PASTURE CREEK SOUTH OF CLAY STATION RD, AND TRIBUTARY CROSSING SCHOOL ROAD, BETWEEN DILLARD RD & TAVENOR RD.

Location Detail: TWO COLONIES, ONE, UPSTREAM & DOWNSTREAM FROM LEE SCHOOL X ROAD, AND ON EITHER SIDE OF SCHOOL ROAD MIDWAY BETWEEN TAVENOR ROAD & LEE SHORTHORN ROAD.

Ecological: RIVERINE, WITH TYPHA GROWING ALONG THE EDGE OF THE SAGITTARIA POPULATION.

Threat: PORTION OF CREEK MAY BE THINNED BY OWNER. CROWDED BY TYPHA SP., WASHED OUT BY HIGH WATER, HERBIVORY BY MUSKRAT.

General: 100'S OBSERVED ALONG 700' STRETCH OF THE CREEK. CATTLE GRAZING NEARBY BUT LITTLE DAMAGE IS EVIDENT. NORTON REPORTED THAT SOUTHERN POPULATION HAD REDUCED FROM >1000 TO 0 BY 1998. FIELDWORK NEEDED; STILL EXTANT? FORMER EO #39 INCL HERE.

Owner/Manager: PVT

Occurrence No. 18 **Map Index:** 24539 **EO Index:** 17243

Dates Last Seen
Element: 1996-08-XX
Site: 1996-08-XX
Record Last Updated: 2003-06-06

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: MILLER, S. & R. LOPEZ 1991 (PERS)

Quad Summary: ELK GROVE (3812143/496A), FLORIN (3812144/496B)
County Summary: SACRAMENTO

Lat/Long: 38.45158º / -121.39310º
UTM: Zone-10 N4257143 E640216
Area: 136.4 ac
Elevation: 40 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 05E
Section: 13 **Qtr:** SE
Meridian: M

Location: STRAWBERRY CREEK. NORTHWEST AND SOUTH OF CALVINE RD/ELK GROVE-FLORIN RD INTERSECTION, ELK GROVE.

Location Detail: 6 MAIN COLONIES, 1) "CHANNEL OFF OF STRAWBERRY CREEK" MAPPED NW OF CALVINE/ELK GROVE-FLORIN RD JCT 2-4) ALONG CREEK WEST OF ELK GROVE-FLORIN RD 5) ALONG ASSESSORS PARCEL #115013014, 6) JUST WEST OF SPRR, IN STOCK POND (TRANSP POP).

Ecological: COLONY NEAR BAY TOWN CRK IS CEMENT LINED CHANNEL. CENTER COLONIES ARE ALONG DRIED CREEK CHANNEL.

Threat: NW POP IN CANAL WAS TO BE CLEARED OF VEGETATION IN 1991 OR 1992, DEVELOPMENT PROPOSED FOR CENTER POP. HOW MUCH IS LEFT?

General: SACRAMENTO CO PUBLIC WORKS DEPT. TO TRANSPLANT COLONY 1 INTO A GIANT GARTER SNAKE SITE TO MITIGATE FOR CANAL CLEARING ACTIVITIES. POP IN SEC 24 REPLANTED AT SITE AFTER STRAWBERRY CR REALIGNMENT. FORMER EO #19 & #20 HERE.

Owner/Manager: SAC COUNTY PUBLIC WORKS, PVT

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: None	**State:** S3.2	**R-E-D Code:** 2-2-3

Habitat Associations

General: MARSHES AND SWAMPS.

Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 23 **Map Index:** 24525 **EO Index:** 16838

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1993 (OBS)

Dates Last Seen
Element: 1993-07-31
Site: 1993-07-31
Record Last Updated: 1996-01-10

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.57618º / -121.26386º
UTM: Zone-10 N4271175 E651233
Radius: 80 meters
Elevation: 130 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 08N
Range: 06E
Section: XX **Qtr:** XX
Meridian: M

Location: DRAINAGE ON THE E-SIDE OF THE FOLSOM SOUTH CANAL, 1.5 KM (1 MI) SOUTH OF SUNRISE BLVD AT WHITE ROCK RD, EAST OF MATHER.

Ecological: GROWING IN STANDING WATER OF DRAINAGE CHANNEL WITHIN A FIELD OF ANNUAL WEEDS. ASSOCIATES IN CHANNEL INCLUDE TYPHA, POLYGONUM PERSICARIA, AND SAGITTARIA MONTEVIDENSIS SSP CALYCINA.

General: SOLID STAND OF PLANTS APPROX. 10' X 100' IN AREA. SITE IS BORDERED TO THE WEST BY CANAL LEVEE AND TO THE NORTH, SOUTH, AND EAST BY AUTO WRECKING YARDS.

Owner/Manager: UNKNOWN

Occurrence No. 24 **Map Index:** 24527 **EO Index:** 4864

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. & J. PISCIOTTO 1997 (OBS)

Dates Last Seen
Element: 1997-06-17
Site: 1997-06-17
Record Last Updated: 1997-12-23

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.56069º / -121.33203º
UTM: Zone-10 N4269346 E645325
Area: 29.2 ac
Elevation: 60 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 09 **Qtr:** XX
Meridian: M

Location: CHANNELS NEAR BRADSHAW ROAD AND LINCOLN VILLAGE ROAD, SACRAMENTO.

Location Detail: TWO COLONIES; ONE IS IN CHANNEL SOUTH OF LINCOLN VILLAGE ROAD AND EAST OF BRADSHAW ROAD ALONG EITHER SIDE OF DRACO DRIVE; THE OTHER IS EAST OF BRADSHAW ABOUT 0.1 MILE NORTH OF LINCOLN VILLAGE ROAD.

Ecological: SOUTHERN COLONY IN SLOW MOVING WATER OF CEMENT LINED CHANNEL. ASSOCIATES INCLUDE CYPERUS DIFFORMIS, C. ERAGROSTIS, ECHINOCHLOA CRUSGALLI, ERAGROSTIS DIFFUSA, POLYGONUM LAPATHIFOLIUM, P. PERSICARIA, PASPALUM DILATATUM, & SORGHAM HALAPENSE.

Threat: HERBICIDE APPLICATION AND VEGETATION CLEARING IN CHANNELIZED AREA.

General: POPULATION CONSISTS OF SCATTERED PLANTS ALONG THE CHANNEL IN AREAS WHERE SOIL HAS ACCUMULATED. 100'S SEEN IN 1997, MANY SEEDLINGS. MORE INFO NEEDED ON NORTHERN COLONY.

Owner/Manager: SAC COUNTY PUBLIC WORKS

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: None	**State:** S3.2	**R-E-D Code:** 2-2-3

Habitat Associations

General: MARSHES AND SWAMPS.

Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 25 **Map Index:** 24526 **EO Index:** 16889

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CLARK, G. 1992 (OBS)

Dates Last Seen
Element: 1993-08-19
Site: 1993-08-19
Record Last Updated: 1996-02-14

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53604º / -121.34754º
UTM: Zone-10 N4266586 E644023
Area: 79.9 ac
Elevation: 60 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 08N
Range: 06E
Section: 20 **Qtr:** NW
Meridian: M

Location: CORDOVA GOLF COURSE, SACRAMENTO.

Location Detail: TWO PONDS ON GOLF COURSE TO THE NORTH OF JACKSON ROAD (HWY 16) AND WEST OF BRADSHAW ROAD.

Ecological: GOLF COURSE PONDS; ONE IS 100% COVERED WITH SAGITTARIA, THE SMALLER IS 70% COVERED.

Threat: THE PLANT IS VIEWED AS A NUISANCE BY GOLF COURSE MANAGEMENT.

General: TOTAL COVERAGE OF PLANT IS APPROX 0.4 ACRES. PLANTS WERE APPARENTLY FIRST OBSERVED AT THIS SITE IN 1989.

Owner/Manager: CORDOVA RECREATION AND PARKS

Occurrence No. 26 **Map Index:** 24524 **EO Index:** 12899

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1993 (OBS)

Dates Last Seen
Element: 1993-07-22
Site: 1993-07-22
Record Last Updated: 1995-11-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.59505º / -121.45680º
UTM: Zone-10 N4272969 E634390
Area: 47.0 ac
Elevation: 20 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 05E
Section: 68 **Qtr:** N
Meridian: M

Location: SLOUGH ALONG NORTH SIDE OF THE AMERICAN RIVER, BETWEEN SOUTHERN PACIFIC RR TRACKS AND THE PUMPING STATION, SACRAMENTO.

Location Detail: NEXT TO AMERICAN RIVER BIKE TRAIL, FROM SPRR TRACKS WEST APPROX. 1 KM (0.7 MI).

Ecological: SLOUGHS WITH MUDDY SHORES. ASSOCIATES INCLUDE PASPALUM, SETARIA, SALIX, AND TYPHA. MOSTLY GROWING OFFSHORE IN APPROX. 6" OF WATER WITH NO SURROUNDING VEGETATION.

General: 50+ COLONIES OBSERVED IN SEVERAL DISCONTINUOUS SLOUGHS. SITE IS WITHIN THE AMERICAN RIVER PARKWAY COUNTY PARK, COUNTY SHOULD BE MADE AWARE OF THE PLANTS PRESENCE.

Owner/Manager: SAC COUNTY-PARKS & REC

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.2

Other Lists
CNPS List: 1B
R-E-D Code: 2-2-3

Habitat Associations
General: MARSHES AND SWAMPS.
Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 27 **Map Index:** 24521 **EO Index:** 12983

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1993 (OBS)

Dates Last Seen
Element: 1993-10-22
Site: 1993-10-22
Record Last Updated: 1995-11-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.55401º / -121.42282º
UTM: Zone-10 N4268465 E637427
Radius: 80 meters
Elevation: 35 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 05E
Section: 15 **Qtr:** NW
Meridian: M

Location: SMALL CHANNEL JUST SOUTH OF CSU, SACRAMENTO FOOTBALL FIELD.
Location Detail: SOUTH OF STADIUM, BETWEEN ROAD AND PARKING LOT APPROX. 100' EAST OF CULVERT.
Ecological: GRASSY DRAINAGE CHANNEL DOMINATED BY ECHINOCHLOA CRUSGALI WITH CYPERUS AND POLYGONUM.
Threat: SITE IS SUBJECTED TO OCCASIONAL MOWING AND POSSIBLE HERBICIDE APPLICATION.
General: SMALL APPROX. 1 SQ FT COLONY. COMPETITION WITH GRASSES ETC. MAY BE IMPACTING POPULATION.
Owner/Manager: CSU-SACRAMENTO

Occurrence No. 28 **Map Index:** 24522 **EO Index:** 12962

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1992 (OBS)

Dates Last Seen
Element: 1993-10-23
Site: 1993-10-23
Record Last Updated: 1995-11-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.55834º / -121.41403º
UTM: Zone-10 N4268959 E638185
Radius: 80 meters
Elevation: 20 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: DEPRESSION ALONG THE SOUTH SIDE OF THE AMERICAN RIVER, APPROX. 400M WEST OF HOWE AVE, SACRAMENTO.
Location Detail: BETWEEN THE RIVER AND LEVEE, BEHIND AN APARTMENT COMPLEX AND NEAR THE WATER TREATMENT PLANT.
Ecological: GROWING IN A LOW, PERENNIAL WET, DEPRESSION. LUDWIGIA PEPLOIDES IS MAJOR ASSOCIATE.
Threat: SITE IS ADJACENT TO AMERICAN RIVER BIKE TRAIL AND MAY BE SUBJECT TO TRAMPLING.
General: 1 COLONY OBSERVED IN 1992. SITE IS WITHIN THE AMERICAN RIVER PARKWAY.
Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 29 **Map Index:** 24523 **EO Index:** 12937

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1992 (OBS)

Dates Last Seen
Element: 1992-10-23
Site: 1992-10-23
Record Last Updated: 1995-11-14

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.56284º / -121.39303º
UTM: Zone-10 N4269490 E640006
Radius: 80 meters
Elevation: 20 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 06E
Section: 11 **Qtr:** E
Meridian: M

Location: DRAINAGE INTO THE AMERICAN RIVER, BETWEEN LEVEE AND RIVER JUST WEST OF POWER LINES (WEST OF WATT), SACRAMENTO.
Ecological: ALONG SILTY-CLAYEY BANK OF PERENIALLY WET DRAINAGE CHANNEL. ASSOCIATES INCLUDE LUDWEGIA PEPLOIDES, POLYGONUM PERSICARIA, CYPERUS. SAGITTARIA APPEARS TO BE GROWING WITHOUT MUCH COMPETITION FROM IT'S ASSOCIATES.
Threat: PROXIMITY TO BIKE TRAIL MAY RESULT IN OCCASIONAL TRAMPLING.
General: 1 COLONY OBSERVED IN 1992. SITE IS WITHIN THE AMERICAN RIVER PARKWAY.
Owner/Manager: SAC COUNTY-PARKS & REC

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.2

Other Lists
CNPS List: 1B
R-E-D Code: 2-2-3

Habitat Associations
General: MARSHES AND SWAMPS.
Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 44 **Map Index:** 30075 **EO Index:** 20718

Dates Last Seen
Element: 1993-XX-XX
Site: 1993-XX-XX
Record Last Updated: 1995-11-14

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NORTON, K. 1993 (MAP)

Quad Summary: SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.56188º / -121.42061º
UTM: Zone-10 N4269342 E637605
Radius: 80 meters
Elevation: 20 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 08N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: AMERICAN RIVER AT THE GUY WEST BRIDGE, CSUS SIDE OF THE RIVER, SACRAMENTO.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS MAP DETAIL; ECOLOGICAL AND THREAT INFO NEEDED. SITE IS WITHIN THE LOWER AMERICAN RIVER PARKWAY COUNTY PARK.

Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 45 **Map Index:** 30076 **EO Index:** 14446

Dates Last Seen
Element: 1994-05-29
Site: 1994-05-29
Record Last Updated: 1995-11-14

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. 1994 (OBS)

Quad Summary: CARMICHAEL (3812153/512D), SACRAMENTO EAST (3812154/512C)
County Summary: SACRAMENTO

Lat/Long: 38.56822º / -121.37668º
UTM: Zone-10 N4270112 E641420
Radius: 80 meters
Elevation: 15 ft
Mapping PrecisionSPECIFIC
Symbol Type:POINT
Township: 08N
Range: 05E
Section: XX **Qtr:** XX
Meridian: M

Location: AMERICAN RIVER UPSTREAM FROM WATT AVE, NORTH SIDE OF THE RIVER, SACRAMENTO.

Location Detail: LOCATED ABOUT 0.3 MILE EAST OF WATT AVE, AT RIVER MILE 9.7. SITE IS DOWNSTREAM FROM WHERE STORM BASIN DRAINS INTO RIVER (BASIN IS JUST EAST OF THE TEICHERT COMPLEX).

Ecological: BARE, SANDY SHORE OF RIVER IN LESS THAN 6" OF WATER. NO OTHER VEGETATION NEARBY. BANK VEGETATION CONSISTS OF SALIX, RUBUS, ET AL.

Threat: PLANTS APPEAR TO HAVE BEEN GRAZED/BROWSED (MUSKRAT/BEAVER/DEER/???), MAY BE TRAMPLED BY RECREATIONAL USERS.

General: 10 PLANTS OBSERVED IN 1994. SITE IS WITHIN THE LOWER AMERICAN RIVER PARKWAY COUNTY PARK.

Owner/Manager: SAC COUNTY-PARKS & REC

Occurrence No. 46 **Map Index:** 30124 **EO Index:** 5004

Dates Last Seen
Element: 1997-06-18
Site: 1997-06-18
Record Last Updated: 1994-08-04

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NORTON, K. 1993 (MAP)

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.71602º / -121.31631º
UTM: Zone-10 N4286609 E646379
Area: 16.9 ac
Elevation: 150 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 10N
Range: 06E
Section: 15 **Qtr:** SW
Meridian: M

Location: EAST SIDE OF ROSEVILLE ROAD ABOUT 0.9 MILE FROM ANTELOPE ROAD, ANTELOPE.

Location Detail: TWO COLONIES MAPPED BY NORTON IN 1993 IN DRAINAGES BETWEEN ROSEVILLE ROAD AND VILLAVIEW DRIVE AND NORTH OF OUTLOOK DRIVE.ONLY THE SOUTH COLONY REMAINING IN 1997.

Ecological: UNLINED +/- NATURAL CHANNEL WITH SALIX AND TYPHA. SAGITTARIA DOMINATES MUCH OF THIS SHORT WATERCOURSE.

Threat: SITE SURROUNDED BY NEW DEVELOPMENT. NORTH COLONY OBLITERATED BY EARTHMOVING EQUIPMENT.

General: 1000'S OF PLANTS OBSERVED IN 1997. THIS SMALL SECTION OF HABITAT APPEARS TO BE SET ASIDE BY THE CURRENT DEVELOPERS. CHANNEL IS MARKED AND EQUIPEMENT APPEARS TO AVOID IMPACTING AREA.

Owner/Manager:

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3.2

Other Lists
CNPS List: 1B
R-E-D Code: 2-2-3

Habitat Associations
General: MARSHES AND SWAMPS.
Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

UNKNOWN

Occurrence No. 48 **Map Index:** 37751 **EO Index:** 32758

Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. & J. PISCIOTTO 1997 (OBS)

Dates Last Seen
Element: 1997-06-17
Site: 1997-06-17
Record Last Updated: 1997-12-23

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.59441º / -121.30838º
UTM: Zone-10 N4273126 E647317
Area: 50.1 ac
Elevation: 75 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 09N
Range: 06E
Section: 34
Qtr: XX
Meridian: M

Location: RANCHO CORDOVA; CHANNEL ALONG EITHER SIDE OF DAWES AVENUE, NORTH OF DOLECETTO ROAD.

Location Detail: MAPPED FROM 0.25 MILE WEST OF DAWES AVE TO JUST EAST OF COLOMA ROAD. POPULATION MAY EXTEND FURTHER IN BOTH DIRECTIONS.

Ecological: TYPICALLY GROWING IN JOINTS AND BROKEN SEGMENTS OF CONCRETE LINED FLOOD CHANNEL. FEW OTHER PLANTS, MAINLY ECHINOCLOA AND OTHER NON-NATIVE GRASSES.

Threat: CHANNEL MAINTENANCE AND REPAIR.

General: PLANTS MOST VIGOROUS IN OLD BROKEN SECTIONS OF CHANNEL. THESE SECTIONS ARE SCHEDULED FOR REPAIR/REPLACEMENT IN 1997.

Owner/Manager: SAC COUNTY PUBLIC WORKS

Occurrence No. 49 **Map Index:** 37753 **EO Index:** 32760

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NOSAL, T. ET AL 1997 (OBS)

Dates Last Seen
Element: 1997-06-18
Site: 1997-06-18
Record Last Updated: 1997-12-23

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: PLACER, SACRAMENTO

Lat/Long: 38.72201º / -121.31075º
UTM: Zone-10 N4287283 E646850
Radius: 80 meters
Elevation: 150 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 10N
Range: 06E
Section: 15
Qtr: NW
Meridian: M

Location: ROSEVILLE ROAD AT WHYTE AVE, JUST SOUTH OF SAC/PLA COUNTY LINE, ANTELOPE.

Location Detail: WEST OF ROSEVILLE ROAD IN CHANNEL BETWEEN ROAD AND RR TRACKS. NEAR CENTER OF SECTION.

Ecological: FRESHWATER MASH WITH TYPHA.

General: ABOUT 1000 PLANTS OBSERVED IN 1997. MOST PLANTS OCCUR WITHIN TWO 10X10 OPENINGS WITHIN THICK TYPHA STAND. SITE APPEARS TO BE UNMAINTAINED CHANNEL, FEW VISITORS. NO OBVIOUS THREATS.

Owner/Manager: UNKNOWN

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: None	**State:** S3.2	**R-E-D Code:** 2-2-3

Habitat Associations

General: MARSHES AND SWAMPS.

Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 50 **Map Index:** 37757 **EO Index:** 32764

Dates Last Seen
Element: 1994-07-21
Site: 1994-07-21
Record Last Updated: 1997-12-23

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WYMER, N. 1994 (OBS)

Quad Summary: CITRUS HEIGHTS (3812163/512A)
County Summary: SACRAMENTO

Lat/Long: 38.70709º / -121.26209º
UTM: Zone-10 N4285706 E651112
Area: 21.9 ac
Elevation: 180 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 10N
Range: 06E
Section: 24 **Qtr:** SE
Meridian: M

Location: CITRUS HEIGHTS; ALONG CREEK JUST EAST OF FAIR OAKS BLVD BETWEEN OAK BLVD AND OLD AUBURN ROAD.

Location Detail: MAPPED BETWEEN VILLA OAKS AND OLD AUBURN ROAD ALONG SUNRISE CREEK.

Ecological: DRAINAGE CHANNEL WITH SLOW-MOVING WATER. ASSOCIATED WITH ECHINOCHLOA CRUSGALLI, POLYGONUM LAPATHIFOLIUM, PASPALUM DILATUM, CYPERUS ERAGROSTIS, AND SORGHUM HALAPENSE.

Threat: HERBICIDE SPRAYING AND CHANNEL MAINTENANCE.

General: NUMEROUS PLANTS SEEN IN JUNE 1994; CHANNEL CLEARED IN EARLY JULY 1994; PLANTS RECOLONIZED/NUMEROUS IN LATE JULY 1994.

Owner/Manager: SAC COUNTY PUBLIC WORKS

Occurrence No. 56 **Map Index:** 50831 **EO Index:** 50831

Dates Last Seen
Element: 1996-05-24
Site: 1996-05-24
Record Last Updated: 2003-05-23

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MARTIN, D. 1996 (OBS)

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.45797º / -121.32306º
UTM: Zone-10 N4257961 E646315
Area: 42.7 ac
Elevation: 65 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 07N
Range: 06E
Section: 16 **Qtr:** SE
Meridian: M

Location: SOUTH OF CALVINE ROAD, WEST OF CENTRAL CALIFORNIA TRACTION RAILROAD.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED AS PROVIDED, IN THE NW 1/4 OF THE SE 1/4 OF SECTION 16.

Ecological: STOCK POND IN IRRIGATED PASTURE. NAVARRETIA ERIOCEPHALA IN PROPERTY TO NORTHWEST.

Threat: SITE PROPOSED FOR RESIDENTIAL DEVELOPMENT.

General: APPROXIMATELY 15 INDIVIDUALS OBSERVED IN 1996.

Owner/Manager: PVT

Sagittaria sanfordii

Sanford's arrowhead

Element Code: PMALI040Q0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G3	**CNPS List:** 1B
State: None	**State:** S3.2	**R-E-D Code:** 2-2-3

Habitat Associations

General: MARSHES AND SWAMPS.

Micro: IN STANDING OR SLOW-MOVING FRESHWATER PONDS, MARSHES, AND DITCHES. 0-610M.

Occurrence No. 57 **Map Index:** 50850 **EO Index:** 50850

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: NORTON, K. 2003 (PERS)

Dates Last Seen
Element: 199X-XX-XX
Site: 199X-XX-XX

Record Last Updated: 2003-04-03

Quad Summary: SLOUGHHOUSE (3812142/495B), ELK GROVE (3812143/496A)

County Summary: SACRAMENTO

Lat/Long: 38.47903º / -121.24791º
UTM: Zone-10 N4260421 E652828
Area: 73.2 ac
Elevation:

Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON

Township: 07N
Range: 07E
Section: 07 **Qtr:** XX
Meridian: M

Location: ALONG GRANT LINE ROAD, SOUTH OF JCT OF GRANT LINE ROAD & SUNRISE BLVD.

Location Detail: EXACT LOCATION UNKNOWN, MAPPED ALONG GRANT LINE ROAD SOUTH OF INTERSECTION.

Ecological: IN DITCH ALONG ROADSIDE.

Threat: ROADSIDE OCCURRENCE.

General: SITE STUDIED BETWEEN 1991-1998, NO PLANTS REMAINED BY 1998. FIELDWORK NEEDED.

Owner/Manager: UNKNOWN

Spea (=Scaphiopus) hammondii

western spadefoot

Element Code: AAABF01030

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.
Micro: VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

Occurrence No. 55 **Map Index:** 32324 **EO Index:** 2650

Dates Last Seen
Element: 1978-03-05
Site: 1978-03-05
Record Last Updated: 1995-07-20

Occ Rank: Unknown
Origin: Introduced Back into Native Hab./Range
Presence: Presumed Extant
Trend: Unknown
Main Source: MCCREADY, A. 1978 (PERS)

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.65123º / -121.21958º
UTM: Zone-10 N4279578 E654929
Area: 47.4 ac
Elevation: 260 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: PHOENIX PARK, PHOENIX FIELD, FAIR OAKS; APPROX. 0.5 KM ESE OF THE INTERSECTION BETWEEN SUNSET AVENUE AND HAZEL AVENUE.

Ecological: PHOENIX FIELD VERNAL POOLS.

General: CAPTURED & RELEASED 2 MALES. FIRST EVIDENCE OF POP AT THIS SITE; MCCREADY BELIEVES FROGS ARE INTRODUCED. NO EVIDENCE OF BREEDING; INFORMED FAIR OAKS RECREATION & PARK DISTRICT AS POOLS REGISTERED IN NATIONAL REGISTRY OF NATURAL LANDMARKS.

Owner/Manager: CITY OF FAIR OAKS

Occurrence No. 56 **Map Index:** 32325 **EO Index:** 2582

Dates Last Seen
Element: 1978-03-07
Site: 1978-03-07
Record Last Updated: 1995-07-25

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MCCREADY, A. 1978 (PERS)

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.53084º / -121.21486º
UTM: Zone-10 N4266226 E655599
Area: 6,158.4 ac
Elevation: 150 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: ADJACENT TO (FORMER) MATHER AIR FORCE BASE. AREA BORDERED BY SUNRISE BLVD, STATE ROUTE 16, GRANT LINE RD & DOUGLAS RD.

Location Detail: MANY PONDS AND VERNAL POOLS WITHIN THE AREA.

Ecological: VERNAL POOLS. MCCREADY HAS STUDIED THIS AREA SINCE 1967, HE CONSIDERS THESE TO BE SOME OF THE FINEST VERNAL POOLS IN CALIFORNIA.

General: 65 MALES HEARD CALLING; TADPOLES OBS IN 25 DIFFERENT POOLS DURING SEVERAL LATER SPRING SURVEYS. SOME INDIVIDUAL PONDS OFF KEIFER BLVD & JAEGER RD HAD TADPOLES OF SPADEFOOT, WESTERN TOAD, & PACIFIC TREEFROG, WHICH IS AN UNUSUAL PHENOMENON.

Owner/Manager: UNKNOWN

Occurrence No. 167 **Map Index:** 41025 **EO Index:** 41042

Dates Last Seen
Element: 1997-01-XX
Site: 1997-01-XX
Record Last Updated: 1999-05-12

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES & STOKES 1997 (LIT)

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long: 38.53359º / -121.26601º
UTM: Zone-10 N4266445 E651135
Area: 10.0 ac
Elevation: 140 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 08N
Range: 06E
Section: 24 **Qtr:** XX
Meridian: M

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

Location Detail: 3 VERNAL POOLS IN THIS PORTION OF THE COMPLEX WERE FOUND TO CONTAIN WESTERN SPADEFOOT. PART OF THE OLD MATHER AFB. 1993 REPORT INDICATED THAT THERE WERE 6 VERNAL POOLS & SWALES WHERE THEY WERE SEEN BUT NO MAP OR COORDINATES GIVEN.

Ecological: VERNAL POOLS, AND DISTURBED VERNAL POOLS

Threat: IMPACTED BY HUMANS.

General: OBSERVED SEVERAL POPULATIONS IN 1993 AND 1996-97 IN THE VICINITY OF EAGLES NEST ROAD. ALSO OBSERVED LEPIDURUS PACKARDI & LINDERIELLA OCCIDENTALIS.

Spea (=Scaphiopus) hammondii

western spadefoot

Element Code: AAABF01030

Status
Federal: None
State: None

NDDB Element Ranks
Global: G3
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.
Micro: VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.

Owner/Manager: SAC COUNTY

Occurrence No. 169 **Map Index:** 42143 **EO Index:** 42143

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MUTH, D. 1994 (OBS)

Dates Last Seen
Element: 1994-03-XX
Site: 1994-03-XX

Record Last Updated: 2000-01-12

Quad Summary: SLOUGHHOUSE (3812142/495B)
County Summary: SACRAMENTO

Lat/Long: 38.48839º / -121.21910º
UTM: Zone-10 N4261508 E655321
Radius: 1/5 mile
Elevation: 175 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 07N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: WEST SIDE OF SLOUGHHOUSE ROAD, ABOUT 1.5 KM SOUTH OF HIGHWAY 16, SW OF SLOUGHHOUSE.

Location Detail: SITE WAS SET ASIDE AS MITIGATION FOR A PROJECT LOCATED IN SHELDON.

Ecological: HABITAT CONSISTS OF A "CREATED" VERNAL POOL WITHIN NON-NATIVE GRASSLAND CONTAINING NUMEROUS NATURAL AND ARTIFICIAL POOLS.

Threat: THREATENED BY SURROUNDING DEVELOPMENT.

General: 10+ JUVENILES OBSERVED IN MAR 1994.

Owner/Manager: PVT

Taxidea taxus

American badger

Element Code: AMAJF04010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S4

Other Lists
CDFG Status: Y

Habitat Associations
General: MOST ABUNDANT IN DRIER OPEN STAGES OF MOST SHRUB, FOREST, AND HERBACEOUS HABITATS, WITH FRIABLE SOILS.
Micro: NEED SUFFICIENT FOOD, FRIABLE SOILS & OPEN, UNCULTIVATED GROUND. PREY ON BURROWING RODENTS. DIG BURROWS.

Occurrence No. 72 **Map Index:** 56588 **EO Index:** 56604

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BLOOM, D & S. MYERS 1990 (OBS)

Dates Last Seen
Element: 1990-04-12
Site: 1990-04-12
Record Last Updated: 2004-09-01

Quad Summary: BUFFALO CREEK (3812152/511C)
County Summary: SACRAMENTO

Lat/Long: 38.54756º / -121.23574º
UTM: Zone-10 N4268046 E653743
Radius: 1/10 mile
Elevation: 170 ft

Mapping Precision NON-SPECIFIC
Symbol Type: POINT

Township: 08N
Range: 07E
Section: 17
Meridian: M
Qtr: /N

Location: 0.4 MILE EAST OF SUNRISE BLVD AND 0.8 MILES SOUTH OF DOUGLAS ROAD, SOUTHEAST RANCHO CORDOVA.

Ecological: HABITAT CONSISTS PRIMARILY OF ANNUAL GRASSLAND. AREA HAS OVER 500 VERNAL POOLS AND SEVERAL LINEAR MILES OF INTERMITTENT STREAMS AND OTHER WETLANDS. THERE IS A HIGH CONCENTRATION OF MICROTUS AND FEW GROUND SQUIRRELS ON SITE.

Threat: PROPOSED FOR RESIDENTIAL AND COMMERCIAL DEVELOPMENT.

General: 3 INDIVIDUALS OBSERVED AT A DEN. THERE WERE ABOUT 15 BADGER SIZED DENS IN THE AREA - MOST FRESHLY DUG, A COUPLE WITH ENTRANCES FILLED WITH DIRT.

Owner/Manager: PVT

Occurrence No. 73 **Map Index:** 32459 **EO Index:** 56607

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ADAMS, B. 1991 (OBS)

Dates Last Seen
Element: 1991-01-15
Site: 1991-01-15
Record Last Updated: 2004-09-01

Quad Summary: CARMICHAEL (3812153/512D)
County Summary: SACRAMENTO

Lat/Long:
UTM:
Radius:
Elevation:

Mapping Precision:
Symbol Type:

Township:
Range:
Section:
Meridian:
Qtr:

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

Ecological: HABITAT CONSISTS OF GRAZED ANNUAL GRASSLAND WITH VERNAL POOLS. CURRENT LAND USE: GRAZING. GRAVEL PITS IN NORTHERN EXTREME PORTION OF SITE.

Threat: PROPOSED AGGREGATE MINING.

General: CARCASS OF 1 JUVENILE OBSERVED ON 15 JAN 1991.

Owner/Manager: PVT

Thamnophis gigas

giant garter snake

Element Code: ARADB36150

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G2G3	**CDFG Status:**
State: Threatened	**State:** S2S3	

Habitat Associations

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

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

Occurrence No. 169 **Map Index:** 47639 **EO Index:** 47639

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HENKE, J. 2002 (OBS)

Dates Last Seen
Element: 2002-03-27
Site: 2002-03-27
Record Last Updated: 2002-04-11

Quad Summary: ELK GROVE (3812143/496A)
County Summary: SACRAMENTO

Lat/Long: 38.39342º / -121.35265º
UTM: Zone-10 N4250752 E643861
Radius: 80 meters
Elevation: 50 ft

Mapping Precision SPECIFIC
Symbol Type: POINT

Township: 06N
Range: 06E
Section: 08 **Qtr:** NW
Meridian: M

Location: EAST SIDE OF WATERMAN ROAD, 0.8 MILE NORTH OF GRANT LINE ROAD, SE OF ELK GROVE

Location Detail: SNAKE OBSERVED AT THE CONFLUENCE OF A WETLAND SWALE AND THE DITCH.

Ecological: HABITAT CONSISTS OF A ROADSIDE DITCH ALONG WATERMAN ROAD; VEGETATION CONSISTS OF PASPALUM DILATATUM, TYPHA LATIFOLIA, AND CYPERUS ERAGRASTIS.

Threat: THREATENED BY TRAFFIC AND DITCH MAINTENANCE.

General: 1 ADULT OBSERVED ON 27 MAR 2002.

Owner/Manager: PVT

Valley Needlegrass Grassland

Element Code: CTT42110CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G1
State: S3.1

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 42 **Map Index:** 11960 **EO Index:** 13725

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JOKERST, J. 1986 (PERS)

Dates Last Seen
Element: 1987-06-08
Site: 1988-12-09
Record Last Updated: 1998-07-15

Quad Summary: FOLSOM (3812162/511B)
County Summary: SACRAMENTO

Lat/Long: 38.66712º / -121.15273º
UTM: Zone-10 N4281457 E660711
Radius: 1/5 mile
Elevation: 270 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 09N
Range: 07E
Section: XX **Qtr:** XX
Meridian: M

Location: S OF PLACERVILLE RD (=SCOTT RD) JUST E OF JCT W/BLUE RAVINE RD. NEAR HUMBUG CR, FOLSOM.

Location Detail: JUST D/S FROM SM EARTH DAM SUPPORTING TYPHA MARSH.

Ecological: VIRTUALLY PURE STAND OF NASSELLA PULCHRA & JUNCUS BALTICUS. ASSOC SPP INCL CENTAURIUM VENUSTUM, EPILOBIUM DENSIFLORA. THOUGH SMALL, THE STAND IS LUSH, DENSE AND NOT GRAZED.

Threat: DEVELOPMENT IS A THREAT.

General: ONLY SUCH STAND KNOWN FROM SAC & PLACER CO PER BAILEY, 1986. STIPA PLANTS UNUSUALLY LARGE AND ROBUST. PERHAPS EXOTIC OR NEW SPECIES. THIS WAS OCC #042 OF CTT42110CA.

Owner/Manager: PVT