ORANGE GROVE ENERGY, L.P.
1900 East Golf Road, Suite 1030, Schaumburg, IL 60173 Tel: 847 908 2800 Fax: 847 908 2888

July 8, 2008

DOCKET
08-AFC-4
DATE JUL 8 2008
RECD. JUL 9 2008

Ms. Melissa Jones
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Dear Ms. Jones:

Orange Grove Energy, L.P. hereby submits the enclosed Supplement to the Application for Certification (AFC) for the Orange Grove Project, located in unincorporated San Diego County, California. The enclosed supplement augments the Application for Certification (08-AFC-4) submitted to your office dated June 16, 2008. This supplement is designed to respond directly to information needs identified by CEC Staff's data adequacy review.

As an officer of Orange Grove Energy, L.P., I hereby attest under penalty of perjury that the contents of this application are true and accurate to the best of my knowledge.

Dated this 8th day of July, 2008.

Sincerely,

Steve Thome
Vice President of Development
Orange Grove Energy, L.P.

Enclosure: (75 paper copies and 50 CD-ROM copies)

Table of Contents

List of Exhibits

SUPPLEMENT TO THE APPLICATION FOR CERTIFICATION ORANGE GROVE PROJECT

1.0 INTRODUCTION

This Supplement to the Application for Certification (AFC) for the Orange Grove Project (08-AFC-4) provides clarifying and augmenting information to respond to data adequacy needs identified by CEC Staff based on review of the AFC submittal dated June 16, 2008. Information is provided in the following sections:

- Section 2.0 – Biological Resources
- Section 3.0 – Facility Design
- Section 4.0 – Water Resources

Back-up information for these sections is provided in Exhibits appended to this Supplement.

2.0 BIOLOGICAL RESOURCES

Seven data adequacy items have been identified for the biological resources section of the AFC, as addressed below.

1. CNDDB Forms:

CNDDB Forms for the coastal California gnatcatcher, least bell's vireo, San Diego horned lizard, Northern Red-Diamond Rattlesnake, Rufous-crowned sparrow, Engelmann oak, and Parry's tetracoccus are included as Exhibit A.

2. Resumes/Qualifications of Biologists:

Resumes of biologists performing field studies and special status species surveys are included as Exhibit B.

3. Gnatcatcher Habitat Compensation Contacts:

The following summary presents information on various opportunities related to the mitigation of impacts to coastal sage scrub (CSS) (including CSS occupied by coastal California gnatcatcher) that would occur as a result of the Orange Grove Project.

There are several existing conservation banks in San Diego County that may be able to sell mitigation credits for CSS. The current status of these banks and descriptions of contacts that have been made and contact information is provided below:

(1) Daley Ranch Conservation Bank
Darren Parker (Assistant Planner)
City of Escondido
Planning Division
201 North Broadway
Escondido, CA 92025-2798
(760) 839-4553

The Daley Ranch Conservation Bank currently has available mitigation credits for CSS/chaparral occupied by coastal California gnatcatcher.

(2) Crestridge Conservation Bank

Tammy Lawhead

J. Whalen Associates

1660 Hotel Circle North, Suite 725

San Diego, CA 92108-2820
(619) 683-5544

This conservation bank currently has available mitigation credits for CSS occupied by coastal California gnatcatcher, but only 0.36 credit acres are remaining. However, the bank is not authorized to sell credits to projects that are outside of the South County Plan Area of the Multiple Species Conservation Plan (MSCP). Therefore, a waiver from the California Department of Fish and Game (CDFG) and US Fish and Wildlife Service (USFWS) would be required for the bank to sell mitigation credits to the Orange Grove Project.

(3) Cornerstone Conservation Bank

Jim Braun

City of San Diego
Water Department
600 B Street, Suite 1150
San Diego, CA 92101
(619) 533-6517

This bank is operated by the City. They have CSS credits for occupied California gnatcatcher habitat.

Discussions with the CDFG (Dave Mayer, Natural Communities Conservation Plan (NCCP) Group [858-467-4234] and Dave Lawhead, California Environmental Quality Act (CEQA)/California Endangered Species Act (CESA) Group [858-627-3997]) identified one bank (in process) that may be able to sell mitigation credits for CSS within the next six months. Michael McCollum identified another bank that he is currently processing that may also be able to sell mitigation credits for CSS. Furthermore, J. Whalen Associates has been looking at a property (i.e., Snow property) that could be developed as a compensation site. The current status of these banks and the potential compensation site as well as the key contact information for these mitigation opportunities is provided below:

(1) Red Mountain Mitigation Bank
Westley Peltzer (attorney)
751 Rancheros Drive, Suite 4
San Marcos, CA 92069
(760) 744-7125
WWPeltzer@aol.com

The Red Mountain Mitigation Bank will be authorized to sell mitigation credits for CSS occupied by coastal California gnatcatcher within the next year (likely within six months). The bank has also been processing separate conservation easements for a small number of applicants with extremely pressing mitigation needs prior to authorization of the bank (with approval from the agencies). This secondary process has involved purchase of CSS mitigation credits with an associated processing fee. The bank is not particularly interested in processing additional conservation easements since they are trying to focus on completion of the bank, but have indicated that they would entertain offers. Furthermore, it appears that all of the credits that will become available at the time of bank authorization will likely be

purchased by the US Border Patrol for impacts related to construction of the new international border fence.

(2) Carlsbad Oaks Habitat Bank
Michael McCollum
McCollum Associates
10196 Clover Ranch Drive
Sacramento, CA 95829-6574
(916) 688-2040

This bank will be authorized to sell mitigation credits for CSS occupied by coastal California gnatcatcher.

(3) Snow Property Compensation Site
Tammy Lawhead
J. Whalen Associates
1660 Hotel Circle North, Suite 725
San Diego, CA 92108-2820
(619) 683-5544

The Snow Property is not developed as a mitigation bank. It is however available for use as a compensation site and is occupied by coastal California gnatcatcher.

Also, should suitable mitigation credits not be available for the Orange Grove Project, the applicant may purchase and manage land that supports the vegetation communities for which compensation/mitigation is required. In particular, the agencies are interested in protecting land in the Rice Canyon area in order to create a north/south connection between habitat occupied by coastal California gnatcatcher at locations to the north and south. As such the Orange Grove Project could purchase land in this area, develop a habitat management plan for the land, establish an endowment for the annualized costs of monitoring and management, and convey an easement in perpetuity to protect the land.

4. Agency Correspondence with USFWS, ACOE, RWQCB and CDFG:

There has been no written correspondence to these agencies directly related to the Project as currently proposed. A summary of prior conversations follows.

The Applicant met with United States Fish and Wildlife Service (USFWS) and the US Army Corps of Engineers (ACOE) on May 27, 2008 to discuss the project. In attendance from the USFWS was Michelle Moreno and from the ACOE was Laurie Monarres. The

project and potential permitting requirements related to the federal Endangered Species Act (ESA) and the Clean Water Act were discussed. Ms. Monarres explained that if the project avoided all jurisdictional waters a 404 Permit would not be required by the ACOE and if a 404 Permit was not required a 401 Water Quality Certification would also not be required. As discussed in the AFC submittal dated June 19, 2008 the project is avoiding all impacts to jurisdictional waters by incorporating horizontal directional drilling (HDD). Therefore a 404 Permit will not be required for the project.

At the meeting on May 27, 2008, the federally protected species that were located within and adjacent to the project were reviewed. Ms. Moreno indicated that impacts to the California gnatcatcher could be permitted through the County's Habitat Loss Permit (HLP) process. She went on further to explain the HLP process would not handle any issues related to critical habitat. The project is located within critical habitat for the gnatcatcher. She did explain that critical habitat impacts would only need to be addressed if a federal permit such as a 404 Permit was required for the project. During the meeting minimization measures were discussed that could be incorporated into the project description that could avoid the need for any other permitting requirement under the federal ESA. Minimization measures discussed include construction timing measures and techniques such as HDD. As discussed in the AFC submittal, the project incorporates minimization measures to avoid all impacts to federally protected species located within and adjacent to the project so that Section 10 consultation will not be required.

The Applicant is currently preparing a Section 1602 Streambed Alteration Agreement Notification package. TRC spoke to the California Department of Fish and Game (CDFG) and explained the project and they verified that even though we were drilling under the resources there was a potential of an impact so the Notification package needed to be submitted for review. We expect that the Notification package will be submitted in mid-July 2008. Under the Fish and Game Code regulations, the CDFG have 30 days to deem the packages complete and once the package is deemed complete 30 more days to issue an Agreement for the project.

5. Identify Agencies with Jurisdiction:

The jurisdiction of relevant agencies is identified in Table 1 below. The Regional Water Quality Control Board (RWQCB) is not shown because, without the need for 401 Water Quality Certification (see item 4 above), the RWQCB does not have jurisdiction related to biological resources. The project will avoid disturbance to surface waters that otherwise would trigger RWQCB jurisdiction. The State Water Resources Control Board, overseeing the RWQCB, is listed as an agency contact in the Water Resources section of the AFC, due to jurisdiction over storm water permitting.

Table 1 – Agencies with Authority Concerning Biological Resources

AGENCY	AUTHORITY
U.S. Army Corps of Engineers San Diego Region 16885 W. Bernardo Drive, Suite 300A San Diego, CA 92127 (858) 674-5384 Laurie Monarres laurie.a.monarres@usace.army.mil	Clean Water Act Section 404 – Alteration of "waters of the U.S."
U.S. Fish and Wildlife Service Carlsbad Field Office 6010 Hidden Valley Road Carlsbad, CA 92011 (760) 431-9440 Michelle Moreno Michelle_Moreno@fws.gov	Take of Species protected under the Federal Endangered Species Act
County of San Diego Department of Public Works 5469 Kearny villa Road, Suite 305 San Diego, CA 92123 (858) 874-4039 Thomas Duffy Thomas.duffy@sdcounty.ca.gov	Take of Species protected under the Federal Endangered Species Act
California Department of Fish and Game South Coast Region 4949 Viewridge Avenue San Diego, CA 92123 (858) 467-4201 Tamara Spears	• Take of species protected under the CA Endangered Species Act • CDFG may exercise jurisdiction over HDD, to be determined following submittal of an application.

6. Agency Contact Information:

Agency contact information is provided in Table 1, above.

7. Schedule for Conformance with the County NCCP and Obtaining a HLP:

The Applicant met with the County of San Diego on June 11, 2008 to discuss various issues regarding the project including Habitat Loss Permit (HLP) process and was informed that the HLP would need to be submitted as part of the grading plans submittal. Mr. Nael Areigat will be the lead from the County of San Diego for the grading permit. He is a Project Manager with the Land Development Division with the Department of Public Works for the County of San Diego. Tom Duffy will be the lead for the HLP. Mr. Duffy is an Environmental Planner with the Environmental Services Units with the Department of Public Works. It is anticipated that the HLP will take approximately four to six months to process and the County of San Diego will need a completed CEQA document or equivalent in order to complete the process. The June 11, 2008 meeting included discussion of the AFC process and the expected FSA issuance in October 2008. The County anticipated that the HLP process can substantially be completed by that time if the application is submitted in July 2008. J-Power is expecting to submit the grading permit application along with the HLP application in mid-July 2008. Preliminary discussions regarding the HLP have also occurred with Michelle Moreno with the USFWS as noted above in Response 4.

In addition to the above items, the protocol survey reports for the Least Bell's vireo and Southwestern Willow Flycatcher have been completed and are provided as Exhibits C.1 and C.2, respectively.

3.0 FACILITY DESIGN

Seven data adequacy items have been identified for Facility Design, as addressed below.

1. Foundation Types, Design Criteria, Analytical Techniques, Assumptions, Loading Conditions, and Loading Combinations for Structures and Major Equipment:

Supplemental Information for Foundations, Facility Structures, and Major Mechanical and Electrical Equipment is provided in Exhibit D.

2, 3, 4, 5 and 7. Dimensions, Surface Area Requirements, and Design Criteria for the Power Generation System, the Heat Dissipation System, Cooling Water Supply System Tanks and Foundations, Atmospheric Emission Control System, and Switchyards/Transformers:

Supplemental information clarifying and augmenting the AFC is provided in Exhibit E.

6. Waste Disposal System and On-Site Disposal Sites:

There are no on-site waste disposal sites except for the sanitary waste septic tank and leach field described in AFC Section 2.7.2. All other project waste disposal will be offsite, as described in detail in Section 6.14 - Waste Management.

As referenced in AFC Section 2.7.2, the location and preliminary plan for the sanitary waste system are shown in Drawings C100 and C200 in AFC Appendix 2-A. As further described in Section 6.5.5, the design criteria for the sanitary waste septic system include the County Plumbing Code and the County septic tank ordinance. The County septic tank ordinance is Title 6, Division 8, Chapter 3 of the San Diego County Code of Regulatory Ordinances. The County Plumbing Code is Title 9, Division 4, Chapter 1 of the San Diego County Code of Regulatory Ordinances. A detailed design report, including description of system sizing, is provided in Appendix 6.5-H.

Process wastewater streams are identified in AFC Table 2.7-1. As described in AFC Section 2.7.1, process wastewater will be recycled onsite using reverse osmosis (RO) water treatment. The RO treated water and RO reject will be recycled to the plant water supply as described in Section 2.7.1. As also described in Section 2.7.1, with the RO treatment, the plant will essentially function as zero liquid discharge technology. Only a few hundred gallons per month of wastewater will be generated that will not be recycled onsite. This water will be from turbine wash and plant drains, where the water may contain oil making it unsuitable for onsite recycling. As described in Section 6.14 - Waste Management (Table 6.14-4), the few hundred gallons per month of turbine wash water and plant drain water that is not recycled will be stored in an onsite wastewater tank and hauled offsite periodically to a licensed treatment facility. The wastewater storage tank will be carbon steel with an approximate height and diameter of 22 feet and 19 feet, respectively (Table 1 in AFC Appendix 6.13-A). The tank will be field fabricated with an approximately 40,000 gallon capacity (AFC Table 2.3-1).

7. See item 2, 3, 4, 5 and 7, above

4.0 WATER RESOURCES

The only identified data adequacy item for water resources is the need for an executed water option for the Project fresh water supply. A copy of the executed option is provided in Exhibit F.

EXHIBIT A
CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/20/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica*

Common Name: California gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(TOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses 1 # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Heard and saw one adult bird. Only heard second bird.

County: San Diego County Landowner / Mgr.: Unknown

Quad Name: Pala 7.5" topographic quadrangle Elevation: _____

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33o 21' 19" 117o 06' 49" (taken from USGS National Mapping program http://nationalmap.gov/)

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora) and chaparral bushmallow (Malacothamnus fasciculatus). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date: Loggerhead shrike and San Diego horned lizard
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Existing dirt access road.

Threats: Development

Comments:

Determination: *(check one or more, and fill in blanks)*
- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes☐ no☐

DFG/BDB/1747 Rev. 11/17/05

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 02/12/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: Coastal California Gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults | _____ # juveniles | _____ # larvae | _____ # egg masses | _____ # unknown

☐ breeding ☑ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____

Quad Name: Pala Topographical Quadrangle Elevation: 630 feet

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐

T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐

Source of Coordinates (GPS, topo. map & type): GIS map

GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐

Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: Lat. 33 21' 10.429" N / Long. 117 6' 57.256" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, blue elderberry, cholla, beavertail cactus, with understory of nonnative grassess and forbs. On mostly south facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access road, State Route 76.

Threats: Developement.

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during habitat assessment survey

Photographs: *(check one or more)* Slide Print Digital

Plant / animal ☐ ☐ ☐
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 03/28/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: Coastal California Gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
2				

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____
Quad Name: Pala Topographical Quadrangle Elevation: 440 feet
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS map
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: Lat. 33 21' 13.704" N / Long. 117 6' 50.411" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, blue elderberry, cholla, beavertail cactus, with understory of nonnative grassess and forbs. On mostly south facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access road, State Route 76.

Threats: Developement.

Comments: First survey of a CAGN protocol survey - Survey dates included March 28, 2008; April 3, 10, 17, and 25, 2008; and May 2, 2008.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during CAGN protocol survey

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/03/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: Coastal California Gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
2				

breeding	wintering	burrow site	rookery	nesting	other
☑	☐	☐	☐	☑	☐

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____
Quad Name: Pala Topographical Quadrangle Elevation: 440 feet
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS map
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: Lat. 33 21' 13.704" N / Long. 117 6' 50.411" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, blue elderberry, cholla, beavertail cactus, with understory of nonnative grassess and forbs. On mostly south facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access road, State Route 76.

Threats: Developement.

Comments: Second survey of a CAGN protocol survey - Survey dates included March 28, 2008; April 3, 10, 17, and 25, 2008; and May 2, 2008.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during CAGN protocol survey

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/10/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: Coastal California Gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
2				

breeding	wintering	burrow site	rookery	nesting	other
☑	☐	☐	☐	☑	☐

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____
Quad Name: Pala Topographical Quadrangle Elevation: 440 feet
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS map
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: Lat. 33 21' 13.704" N / Long. 117 6' 50.411" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, blue elderberry, cholla, beavertail cactus, with understory of nonnative grassess and forbs. On mostly south facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access road, State Route 76.

Threats: Developement.

Comments: Third survey of a CAGN protocol survey - Survey dates included March 28, 2008; April 3, 10, 17, and 25, 2008; and May 2, 2008.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during CAGN protocol survey

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/25/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: Coastal California Gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 5 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
2	3			

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____
Quad Name: Pala Topographical Quadrangle Elevation: 440 feet
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS map
T____ R____ Sec____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: Lat. 33 21' 13.534" N / Long. 117 6' 49.373" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, blue elderberry, cholla, beavertail cactus, with understory of nonnative grassess and forbs. On mostly south facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access road, State Route 76.

Threats: Developement.

Comments: Fifth survey of a CAGN protocol survey with three fledged juveniles off the nest and adults feeding juveniles- Survey dates included March 28, 2008; April 3, 10, 17, and 25, 2008; and May 2, 2008.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during CAGN protocol survey

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/02/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: Coastal California Gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 5 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

2	3			
# adults	# juveniles	# larvae	# egg masses	# unknown

☑	☐	☐	☐	☑	☐
breeding	wintering	burrow site	rookery	nesting	other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____
Quad Name: Pala Topographical Quadrangle Elevation: 440 feet
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GIS map
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: Lat. 33 21' 13.534" N / Long. 117 6' 49.373" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, blue elderberry, cholla, beavertail cactus, with understory of nonnative grassess and forbs. On mostly south facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access road, State Route 76.

Threats: Developement.

Comments: Last survey of a CAGN protocol survey with three fledged juveniles off the nest and adults building second nest- Survey dates included March 28, 2008; April 3, 10, 17, and 25, 2008; and May 2, 2008.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: _____
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during CAGN protocl survey

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes☐ no☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/14/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Vireo bellii pusillus*

Common Name: Least Bell's Vireo

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 4 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown
4				

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____

Quad Name: Pala Topographical Quadrangle Elevation: 290 feet

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): map

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: Pair 1: Lat. 33 20' 36.62" N / Long. 117 7' 10.02" W
Pair 2: Lat. 33 20' 34.97" N / Long. 117 7' 10.72" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Southern cottonwood-willow riparian forest - dominat trees and shrubs include western cottonwood, black willow, arroyo willow, mule-fat, mugwort, rageweed, cattails, and poison oak. Riparian cooridor along the north side of the San Luis Rey River.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access roads, old buildings, State Route 76.

Threats: Developement.

Comments: Observed duirng LBV presence/absence protocol surveys. Protocol presence/absence LBV surveys were conducted on April 14 and 24, 2008; May 4, 14, and 28, 2008; and June 3, 13, and 23, 2008. At least two male LBV's from the 2 pairs were observed during all surveys. Additional LBV other than the 4 adults (2 pair) observed are on a seperate CNDDB form.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: National Geographic Birds of North America
☐ By another person (name): _____
☑ Other: Qualified biologist, during LBV presence/absence protocol surveys

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

DFG/BDB/1747 Rev. 6/18/08

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 06/23/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Vireo bellii pusillus*

Common Name: Least Bell's Vireo

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 8 Subsequent Visit? ☐ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

7	1			
# adults	# juveniles	# larvae	# egg masses	# unknown

☑ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____
Quad Name: Pala Topographical Quadrangle Elevation: 290 feet
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): map
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: Pair 1: Lat. 33 20' 36.62" N / Long. 117 7' 10.02" W; Pair 3 + Juv.: Lat. 33 20' 33.96" N / Long. 117 7' 13.26" W
Pair 2: Lat. 33 20' 34.97" N / Long. 117 7' 10.72" W; Single Male: Lat. 33 20' 41.11" N / Long. 117 7' 3.96" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Southern cottonwood-willow riparian forest - dominat trees and shrubs include western cottonwood, black willow, arroyo willow, mule-fat, mugwort, rageweed, cattails, and poison oak. Riparian cooridor along the north side of the San Luis Rey River.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Dirt access roads, old buildings, State Route 76.

Threats: Developement.

Comments: Observed duirng LBV presence/absence protocol surveys. Protocol presence/absence LBV surveys were conducted on April 14 and 24, 2008; May 4, 14, and 28, 2008; and June 3, 13, and 23, 2008.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: National Geographic Birds of North America
☐ By another person (name): _____
☑ Other: Qualified biologist, during LBV presence/absence protocol surveys

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes☐ no☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Vireo bellii*

Common Name: Least Bell's Vireo

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Heard and saw one bird.

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HD MD SD Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HD MD SD GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33o 20' 38" 117o 07' 09" (taken from USGS National Mapping program http://nationalmap.gov/)

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

In riparian habitat along the San Luis Rey river drainage and floodplain. The song of this species is quite distinctive and this bird was belting it out loudly. Hard to miss. In high quality riparian habitat of different height classes including taller willows. Primary tree species were Fremont cottonwood (Populus fremontii), red willow (Salix laevigata), arroyo willow (Salix lasiolepis), Goodding's black willow (Salix gooddingii), shining willow (Salix lasiandra lasiandra), and western sycamore (Platanus racemosa).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Existing dirt access road.

Threats: Development

Comments:

Determination: *(check one or more, and fill in blanks)*
- ☐ Keyed (cite reference): _____
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/22/2008 5/22/2008

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Phrynosoma coronatum (blainvillii population)*

Common Name: San Diego horned lizard

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 3 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

3 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Seen in existing dirt access road.

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Bonsall 7.5" topographic quadrangle Elevation: _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 33o 20' 35" 117o 07' 59" (taken from USGS National Mapping program http://nationalmap.gov/)

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Walked line of pepper trees and observed three horned lizards taking cover in copious number of rodent holes that occur under strip of pepper trees (Schinus molle). Trees grow on north side of SR Hwy 76 from Rice Canyon Road east to a subdivision entrance road (that is just katy-corner and north of Couser Canyon Road).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Along SR Hwy 76 in rural residential area.

Threats: Development

Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes☐ no☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/20/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Phrynosoma coronatum (blainvillii population)*

Common Name: San Diego horned lizard

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ ☐ no ☑ unk.
Yes, Occ. #

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Seen in existing dirt access road.

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: 33o 21' 11" 117o 06' 54" (taken from USGS National Mapping program http://nationalmap.gov/)

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora),and chaparral bushmallow (Malacothamnus fasciculatus). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date: Loggerhead shrike and California gnatcatcher
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Existing dirt access road.

Threats: Development

Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/10/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Phrynosoma coronatum (blainvillii population)*

Common Name: San Diego horned lizard

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Ryan Villanueva, TRC
Address: 21 Technology Dr.

E-mail Address: rvillanueva@trcsolutions.com
Phone: (949) 838-7482

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Observed in existing dirt road.

County: San Diego County Landowner / Mgr.: Unknown

Quad Name: Pala 7.5" topographic quadrangle Elevation: _____

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑

Coordinates: 33° 21' 08" -117° 06' 55" (taken from USGS National Mapping program http://nationalmap.gov/)

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oat grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California coastal buckwheat (Eriogonum fasciculatum), laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifolia), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora), and chaparral bushmallow (Malathamnus fasciculatus).

Other rare taxa seen at THIS site on THIS date: California gnatcatcher
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Existing dirt access road.

Threats: Development

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 09/19/2007

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

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California Native Species Field Survey Form

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Scientific Name: *Crotalus ruber ruber*

Common Name: Northern Red-Diamond Rattlesnake

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Michael Bumgardner
Address: 11571 Prospect Hill Drive
Gold River, CA 95670
E-mail Address: MBumgardner4@comcast.net
Phone: (916) 638-7368

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1				
# adults	# juveniles	# larvae	# egg masses	# unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: unknown
Quad Name: Pala Elevation: 390 feet
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model unknown
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy unknown meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: 117° 6' 46.169" W, 33° 21' 21.784" N (submitted on behalf of the observer [Dionisios Glentis, Staff Archaeologist for TRC Solutions, Irvine, CA])

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

coastal sage scrub (southern aspect) dominated by California sagebrush, California coastal buckwheat, laurel sumac, holly-leaved cherry, scrub oak, and white sage

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances:

Threats:

Comments:

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Dionisios Glentis, Staff Archaeologist for TRC Solutions
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes☐ no☐

DFG/BDB/1747 Rev. 6/16/08

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 03/14/2007

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

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Scientific Name: *Quercus engelmannii*

Common Name: Engelmann Oak

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 7 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Michael Bumgardner
Address: 11571 Prospect Hill Drive
Gold River, CA 95670
E-mail Address: MBumgardner4@comcast.net
Phone: (916) 638-7368

Plant Information

Phenology: 100 % vegetative _____ % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: San Diego Gas & Electric Company
Quad Name: Pala Elevation: 440 feet
T____ R____ Sec ____, ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model unknown
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy unknown meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: 33° 21' 36.713" N, 117° 6' 38.018" W (submitted on behalf of the observer [Karen Wilson, biologist, formerly with TRC Solutions, Irvine, CA])

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*
individuals are located in an abandoned citrus grove that has not been maintained for at least 5 years

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☐ Fair ☑ Poor
Immediate AND surrounding land use:
Visible disturbances: formerly used and maintained as a citrus orchard
Threats: site is proposed for use as a new power plant
Comments: occurrence consists of one mature oak and several saplings

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Karen Wilson, biologist, formerly with TRC Solutions
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☐
Habitat ☐ ☐ ☐
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☐ no ☐

Mail to:
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Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/22/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

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California Native Species Field Survey Form

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Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 4 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 60 % vegetative 20 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 428 ft
T____ R____ Sec ____, ____ ¼ of ____¼, Meridian: HB☐ MD☐ SB☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of ____¼, Meridian: HB☐ MD☐ SB☐ GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 14 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489516 3691144

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 11/17/06

Mail to:
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Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/22/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 11 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 50 % vegetative 30 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 465 ft
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: HB MB SB Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: HB MB SB GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 14 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489509 3691221

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*

- ☐ Keyed (cite reference): _____
- ☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
- ☑ Compared with photo / drawing in: CalPhoto
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 11/17/06

Mail to:
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Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/22/2008

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Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

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Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 6 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(~OS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 60 % vegetative 20 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 466 ft
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HB☐ MD☐ SB☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HB☐ MD☐ SB☐ GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 16 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489590 3691272

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
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Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

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Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

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Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 4 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 70 % vegetative 20 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 453 ft
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 15 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489691 3691300

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

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Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 4 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes. Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 60 % vegetative 20 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 491 ft
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑
Coordinates: 489602 3691366

Source of Coordinates (GPS, topo. map & type): _____
GPS Make & Model Garmin Etrex
Horizontal Accuracy 15 ft meters/feet
OR Geographic (Latitude & Longitude) ☐

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were alread in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

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Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 9 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 60 % vegetative 20 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 480 ft
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HD MD SD Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HD MD SD GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 15 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489583 3691333

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

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Date of Field Work (mm/dd/yyyy): 05/21/2008

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Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ ☐ no ☑ unk.
Yes, Occ. #

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 80 % vegetative 10 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 479 ft
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HO MO SO Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: HO MO SO GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 16 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489577 3691315

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
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Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 6 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Servs(~OS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 80 % vegetative 10 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 444 ft
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: HD MD SD
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: HD MD SD
Source of Coordinates (GPS, topo. map & type): _____
GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑
Horizontal Accuracy 17 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489577 3691240

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☑
Habitat ☐ ☐ ☑
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 11/17/06

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 3 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Srves(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 80 % vegetative 10 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 448 ft
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 16 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489621 3691242

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☑
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 05/21/2008

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Tetracoccus dioicus Parry*

Common Name: Parry's Tetracoccus

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 4 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes. Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Virginia Moran, Ecological Outreach Srvcs(EOS)
Address: POB 2858
Grass Valley, CA 95945
E-mail Address: ecooutreachmoran@yahoo.com
Phone: (530) 272-7132

Plant Information

Phenology: 80 % vegetative 10 % flowering 10 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego County Landowner / Mgr.: Unknown
Quad Name: Pala 7.5" topographic quadrangle Elevation: 447 ft
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Etrex
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 16 ft meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: 489654 3691245

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub. Dominants of herbaceous layer was primarily nonnative annual bromes and wild oak grasses (dried) with the following shrubs: California sagebrush (Artemisia californica), California Coastal buckwheat (Eriogonum fasciculatum), Laurel sumac (Malsoma laurina), holly-leaved cherry (Prunus illcifolia), scrub oak (Quercus berberidifoila), white sage (Salvia apiana), ropevine clematis (Clematis pauciflora). The typically later blooming tarweeds (Deinandra fasciculata and Deinandra paniculata) were already in anthesis and entering seed set (in mid-May).

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Abandoned orchard surrounded by high quality coastal sage scrub.

Visible disturbances: Current use was beehives. Pala Del Norte is access road that bisects the property.

Threats: Development

Comments: The flowering periods and seed set seemed accelerated in many herbaceous species. Most of the herb layer was dead.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☑ Compared with specimen housed at: Rancho Santa Ana Botanic Garden
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☑
Habitat ☐ ☐ ☑
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 12/20/2007

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Aimophila ruficeps*

Common Name: Rufous-crowned Sparrow

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Paula Potenza - TRC Solutions, Inc.
Address: 1903 Wright Place, Suite 190
Carlsbad, CA 92008
E-mail Address: ppotenza@trcsolutions.com
Phone: (760) 603-1740

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☑ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: San Diego Landowner / Mgr.: _____

Quad Name: Pala Topographical Quadrangle Elevation: 445 feet

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐

Source of Coordinates (GPS, topo. map & type): map

GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐

Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: Lat. 33 21' 36.55" N / Long. 117 6' 45.81" W

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Coastal sage scrub and grasslands - coastal sage scrub dominate shrubs included California sage brush, California buckwheat, laural sumac, lemonade berry, black sage, white sage, deer weed, with understory of nonnative grassess and forbs. On mostly southeast facing slope/bowl.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use:

Visible disturbances: Paved residential road, State Route 76, SDG&E substation, old orchard and storage yard.

Threats: Developement.

Comments: Observed duirng CAGN winter protocol surveys. Observed rufous-crowned sparrow in the same area again on Jan. 16 and 31, 2008; and Feb. 12, 2008.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: National Geographic Birds of North America
☐ By another person (name): _____
☑ Other: Permitted CAGN biologist, during CAGN protocl surveys

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

EXHIBIT B
BIOLOGIST RESUMES

CURRICULUM VITAE
Peter H. Bloom
President, Bloom Biological, Inc.

13611 Hewes Avenue
Santa Ana, CA 92705

Phone: 714-544-6147
Email: phbloom1@aol.com

Education

Ph.D. *Candidate*	2001	College of Natural Resources, University of Idaho, Moscow *Dissertation*; Natal dispersal and philopatry in sympatric *Buteos* in southwestern California. Dr. J. Michael Scott (Chair)
M.S.	1989	(Biology) California State University, Long Beach. *Thesis* Red-shouldered Hawk habitat home range and habitat use in southern California. Graduation with Honors: Outstanding Thesis Award, School of Natural Sciences.
B.S.	1979	(Zoology) California State University, Long Beach

Employment

1/77 - Present *President, Bloom Biological; Independent research biologist/consultant.* As president of my own biological consulting group, I annually direct and supervise the work of 7 expert associates, species specialists, and up to 50 subcontractors per year. Contracts I steward range from small to large, million dollar multifaceted and complex projects. Responsibilities include directing and performing surveys of nesting and wintering birds of prey for the California Department of Fish and Game, National Park Service, Bureau of Land Management, U.S. Forest Service, Department of Defense, and numerous private land owners as well as a raptor status and management plan for U.S. Naval Weapons Station; Seal Beach and Fallbrook Detachments. Corporate clients have included The Irvine Ranch, Tejon Ranch, Rancho Mission Viejo, Newhall Ranch, Ahmanson Ranch, MWD, and Los Angeles Department of Water and Power. During this work, my associates and I prepare and/or contribute to numerous biological assessments, environmental impact reports, and provide expert advice to corporations, non-profit conservation groups, and federal and local government(s) on the subject of threatened and endangered species, conservation, general biological surveys. I have worked on international avian and herpetological research projects in the western U.S., Alaska, Peru, Ecuador, and India. During this work, I have coordinated and logged over 500 flight hours of helicopter and fixed wing nest survey work and aerial radio tracking of eagles, California condors, red-shouldered hawks, red-tailed hawks and great blue herons in the western United States.

7/90 - Present *Research Biologist, Western Foundation of Vertebrate Zoology.* Duties range from serving on the Science Advisory Board of the South Orange County Natural Communities Conservation Program. Member of the Technical Advisory Committee for the 17,000 acre Nature Reserve of Orange County. Management of long-term (38 year) raptor ecology study in California. Supervisor on a two year Caltrans radio-telemetry study of nesting peregrine falcons in southwestern California and their relationship to California least terns. Principal biologist overseeing long-term monitoring of raptors of the Nature Reserve of Orange County. Established and directed an Institute for Bird Populations MAPS passerine monitoring station for 7 years.

1/93 - Present *Research Biologist/Expert Advisor in India* (7 visits). Served as international advisor for Indo-US wildlife conservation project sponsored by the U.S. Fish & Wildlife Service International Affairs Office, the Indian Government, and the Bombay Natural History Society. Responsibilities involve educating Indian biologists and government officials on multiple techniques needed to capture and mark birds, and conduct VHF and satellite telemetry tracking research projects.

5/82 - 6/90 *Research Biologist, National Audubon Societ*y. Directed the successful efforts to capture all wild free flying California condors for transmitter placement or captive breeding. Radio tracked California condors and conducted contaminant studies on condors and 180 golden eagles.

5/81 - 9/83 *Research Biologist*, University of California, Santa Cruz. Principal investigator on a three year study designed to determine the status of northern goshawk populations in California for the Department of Fish and Game.

1/80 - 8/81 *Research Biologist.* Trapped and placed transmitters on great gray owls for the U.S. Forest Service, prairie falcons for the Department of Fish and Game, and peregrine falcons in Peru, South America for the Bodega Bay Institute of Pollution Ecology.

4/79 - 10/79 *Wildlife Biologist.* U.S.D.I., Bureau of Land Management. Principal investigator of a study designed to determine the status of the Swainson's hawk in California. Surveyed all suitable habitat including semi-arid and desert regions in California, reviewed literature and museum records, ascertained reproductive success, banded adults and young, and prepared final report. My effort resulted in state (California) listing of the Swainson's hawk.

6/75 - 10/79 *Biological Technician and Biologist.* U.S.D.I., Bureau of Land Management. California and Nevada. Conducted reptile, amphibian, small mammal, and avian surveys of 3.25 million acres of public land as part of a grazing EIS. Diet study and banded 180 nestling golden eagles.

Primary research emphasis

Long term analysis of population ecology and biology of sympatric raptors; specifically red-tailed hawk, red-shouldered hawk, barn owl and great horned owl.

Supplemental analysis of the western screech owl, long-eared owl, Cooper's hawk, white-tailed kite and golden eagle.

35,000 raptors banded as part of a dispersal, migration, survivorship, and mate/territory fidelity study.

Thirty year study on the status and ecology of Swainson’s hawk in northeast California.

Aging techniques for golden eagles, *buteos* and large owls based upon molt characteristics as determined from recaptured known-aged banded nestlings.

Publications

Bloom, P.H., W.S. Clark, and J.W. Kidd. 2007. Capture techniques. IN Bird and Bildstein (eds). Raptor research and management techniques. Hancock House, Blaine, WA.

Kidd, J.W., P.H. Bloom, C.W. Barrows and C.T. Collins. 2007. Status of Burrowing Owls in southwestern California. IN Proceedings of the California burrowing owl symposium, November 2003. Bird populations monographs No. 1. Institute for Bird Populations and Albion Environmental, Inc.

Lincer, J.L. and P.H.Bloom. 2007. The Status of the Burrowing Owl (*Athene cunicularia*) in San Diego County, California. IN Proceedings of the California burrowing owl symposium, November 2003. Bird populations monographs No. 1. Institute for Bird Populations and Albion Environmental, Inc.

Houston, C.S. and P.H. Bloom. 2005. Turkey Vulture marking history: The switch from leg bands to patagial tags. North Am. Bird Bander 30:59-64.

Clark, W.S. and P.H. Bloom. 2005. Basic II and basic III plumages of Rough-legged Hawks. J. Field Ornith. 76:83-89.

P.H. Bloom and W.S. Clark. 2001. Molt and sequence of plumages of Golden Eagles, and a technique for in-hand ageing. North Am. Bird Bander 26:97-116.

Collins, C.T. and P.H. Bloom. 2000. The status of Harlan's Hawk in southern California. Western Birds 31:200-202.

Goldstein, M.I., P.H. Bloom, J.H. Sarasola, and T.E. Lacher. 1999. Post-migration weight gain of Swainson's Hawks in Argentina. Wilson Bull. 111:428-432.

Tietje W.D., P.H. Bloom, and J.K. Vreeland. 1998. Characteristics of Red-tailed Hawk nest sites in oak woodlands of central California. IN Proceedings; Symposium on Oak Woodlands: Ecology, Management, and Urban Interface Issues.

Hall, L.S., M.S. Morrison, and P.H. Bloom. 1997. Population status of the endangered Hawaiian Hawk. J. Raptor Res. 31:11-15.

Bloom, P.H. and M.D. McCrary. 1996. The urban Buteo: Red-shouldered Hawks in southern California. In: D.M. Bird, D.E. Varland, and J.J. Negro (eds.). Raptors in human landscapes, adaptations to built and cultivated environments. Academic Press.

Woodbridge, B., K.K. Finley and P.H. Bloom. 1995. Reproductive performance, age structure and natal dispersal of Swainson's Hawks in the Butte Valley, California. J. Raptor Res. 29:187-192.

Bloom, P.H. 1994. The biology and current status of the Long-eared Owl in coastal southern California. Bull. Southern California Acad. Sci. 93:1-12.

Garrison, B.A. and P.H. Bloom. 1993. Natal origins and winter site fidelity of Rough-legged Hawks wintering in California. J. Raptor Research 27:116-118.

Bloom, P.H., M.D. McCrary, and M.J. Gibson. 1993. Red-shouldered hawk home range and habitat use in southern California. J. of Wildl. Manage. 57:258-265

Bloom, P.H., J.L. Henckel, E.H. Henckel, J.K. Schmutz, B. Woodbridge, J.R. Bryan, R.L. Anderson, P.J. Detrich, T.L. Maechtle, J.O. McKinley, M.D. McCrary, K. Titus, and P.F. Schempf. 1992. The Dho-gaza with Great Horned Owl Lure: An analysis of its effectiveness in capturing raptors. J. Raptor Res. 26:167-178.

McCrary, M.D., P.H. Bloom, and M.J. Gibson. 1992. Observations on the behavior of surplus adults in a Red_shouldered Hawk population. J. Raptor Res. 26:10-12.

Risebrough, R.W., A.M. Springer, S.A. Temple, C.M. White, J.L.B. Albuquerque, P.H. Bloom, R.W. Fyfe, M.N. Kirven, B.A. Luscombe, D.G. Roseneau, M. Sander, N.J. Schmitt, C.G. Thelander, W.G. Vasina, and W.W. Walker II. 1990. Observaciones del Halcon Peregrino, *Falco peregrinus* subspp, en America Del Sur. Rev. Brasil. Biol., 50:563-574.

Pattee, O.H., P.H. Bloom, J.M. Scott, and M.R. Smith. 1990. Lead hazards within the range of the California Condor. Condor 92:931-937.

Risebrough, R.W., R.W. Schlorff, P.H. Bloom and E.E. Littrell. 1990. Investigations of the decline of Swainson's Hawk populations in California. J. Raptor Res. 23:63-71.

Clark, W.S., P.H. Bloom, and L.W. Oliphant. 1989. Aplomado Falcon steals prey from Little Blue Heron. J. Field Ornith. 60:380-381.

Harlow, D.L. and P.H. Bloom. 1989. Status of Buteos and the Golden Eagle in the western United States. IN Proceedings on the status of western raptors. National Wildlife Federation

Bloom, P.H., J.M. Scott, O.H. Pattee, and M.R. Smith. 1989. Lead contamination of Golden Eagles within the range of the California Condor. IN Raptors in the modern world - Proceedings of the international conference on birds of prey, Eilat, Israel, 1987.

Wiemeyer, S.N., J.M. Scott, M.P. Anderson, P.H. Bloom, and C.J. Stafford. 1988. Environmental contaminants in California Condors. J. Wildl. Manage. 52(2):238-247.

Bloom, P.H. 1987. Capturing and handling raptors. IN Millsap, B.A., K.W. Cline, B. Giron Pendleton, and D.A. Bird (eds.). Raptor Management Techniques Manual. National Wildlife Federation Science Technical Series #10. National Wildlife Federation.

Bloom, P.H. 1985. Raptor movements in California. Pgs. 313-323. IN Harwood, M. (ed). Proceedings of hawk migration conference IV. Rochester, New York.

Schlorff, R.D. and P.H. Bloom. 1984. Importance of riparian systems to nesting Swainson's Hawks in the Central Valley of California. Pgs. 612-618. IN Warner, R.E. and K.M. Hendrix (eds.). California riparian systems, ecology, conservation, and productive management. Univ. of California Press.

McCrary, M.D. and P.H. Bloom. 1984. Lethal effects of introduced grasses on Red-shouldered Hawks. J. Wildl. Manage. 48:1005-1008.

McCrary, M.D. and P.H. Bloom. 1984. Observations on female promiscuity in the Red-shouldered Hawk. Condor 86:486.

Bloom, P.H. and S.J. Hawks. 1983. Nest box use and reproductive biology of the American Kestrel in Lassen County, California. J. Raptor Res. 17:9-14.

Bloom, P.H. 1983. Notes on the distribution and biology of the Flammulated Owl in California. Western Birds 14:49-52.

Bloom, P.H. and S.J. Hawks. 1982. Food habits of nesting Golden Eagles in northeast California and northwest Nevada. J. Raptor Res. 16:110-115.

Barrows, C.W., P.H. Bloom and C.T. Collins. 1982. Sexual differences in the tail barring of Spotted Owls. N. American Bird Bander 7:138-139.

Bloom, P.H. 1979. Ecological studies of the Barn Owl in California. IN Shaeffer, P. and S.M. Ehlers (eds.). Proceedings of the National Audubon Society's Symposium on Owls of the West: Their Ecology and Conservation.

Collins, C.T. and P.H. Bloom. 1975. An aid to eagle banders. Western Bird Bander. 50:70.

Bloom, P.H. and M.D. McCrary. 1974. Disturbed foothill grassland breeding bird survey. Am. Birds 28:1000.

Bloom, P.H. 1974. Some precautions to be used in banding studies of nestling raptors. Western Bird Bander 49:4-5.

McCrary, M.D. and P.H. Bloom. 1974. Coastal grassland winter bird survey. Am. Birds 28:1043.

Bloom, P.H. 1973. Seasonal variation in body weight of sparrow hawks in California. Western Bird Bander 48:17-19.

Technical Reports

Bloom, P.H. 2005. Raptor status and management recommendations for the Santa Monica Mountains and Simi Hills, Los Angeles and Ventura Counties, California. Santa Monica Mountains National Recreation Area.

Bloom, P.H. 2002. Breeding raptor and loggerhead shrike status and management recommendations for site 300, Lawrence Livermore Laboratory, Livermore, CA.

Hull, B. and P. Bloom. 2001. The North American bander's manual for raptor banding techniques. North Am. Banding Council.

Bloom, P.H. 1996. Raptor status and management recommendations for Naval Ordnance Center, Pacific Division, Fallbrook Detachment, and Naval Weapons Station, Seal Beach, 1993/95.

Morrison, M.L., L.S. Hall and P.H. Bloom. 1994. Hawaiian Hawk (*Buteo solitaries*) population survey. Prepared for U.S. Fish and Wildlife Service.

Bloom, P.H. 1991. Status of the Golden Eagle on Marine Corps Base, Camp Pendleton. Prepared for Dept. of Defense.

Bloom, P.H. 1988. China Lake Naval Weapons Center raptor inventory and assessment. Prepared for Dept. of Defense.

Bloom, P.H., G.R. Stewart, and B.J. Walton. 1985. The status of the Northern Goshawk in California, 1981-1983. Wildlife Management Branch Administrative Report 85-1. Supported by Federal Aid in Wildlife Management, Non-game Wildlife Investigations, California Department of Fish and Game, W_64_R_2.

Bloom P.H. 1983. Raptor inventory and habitat assessment for the Santa Margarita River basin area, San Diego, California. U.S.D.I, Fish and Wildlife Service.

Bloom, P.H. 1980. The status of Swainson's Hawk in California, 1979. Federal Aid in Wildlife Restoration, Project W_54_R_12, Non-game Wildlife Investigations. Job Final Report 11_8.0. 42p.

Bloom, P.H. 1980. The raptorial birds of Camp Pendleton Marine Corps Base, San Diego County, California. Prepared for Dept of Defense. 33p.

Peer reviewer

Journal of Wildlife Management
Journal of Raptor Research
Journal of Field Ornithology
Auk
Condor
North American Bird Bander

Professional presentations

To date, I have conducted several hundred presentations for public and professional organizations. Examples of the range of presentations include keynote speaking engagements for National Audubon Society chapters, professional meetings, and conferences on the subject of raptors, reptiles, amphibians, and natural history. I have also presented internationally including invited speaking engagements at Eilat, Israel on California Condors, and Milan, Italy regarding raptors in North America.

Professional affiliations

Board Member Orange County Natural History Association, 1991-2002,
Board Member Sea & Sage Audubon Society, 1985-95
Board Member Western Bird Banding Association, 1982-84.

Member American Ornithologists Union

Member	Society for the Study of Amphibians and Reptiles
Life Member	The Wildlife Society, Western Section
Life Member	Raptor Research Foundation
Life Member	Cooper Ornithological Society
Life Member	Association of Field Ornithologists
Life Member	Western Bird Banding Association
Life Member	Society for Conservation Biology
Life Member	Hawk Migration Association

Representative North American Banding Council, Raptor Research Representative, 1999 – 2002.

Awards

2005	The Wildlife Society Western Section, Professional of the Year.
1981	Association of Field Ornithologists, Bergstrom Award.
2004-06	The Nature Conservancy, Satellite Transmitters.

Examples of granting institutions

Rancho Mission Viejo,	1987-1991	$100,000
Communications Specialists	1987-2005	$250,000
Donna and Richard O'Neill	1987-1990	$ 10,000
Marine Corps Base, Camp Pendleton	1992–1998	$ 10,000
Naval Weapons Station, Seal Beach	1997-2000	$ 30,000
The Nature Reserve of Orange County	1998-2007	$150,000

Permits

Master Bird Bander Permit (#20431)
Federal Endangered Species Permit (#TE-787376-8) for Red-legged Frog (transmitters, transponders), Arroyo Southwestern Toad (transmitters, transponders), California Gnatcatcher (banding), Least Bell's Vireo (banding), Southwestern Willow Flycatcher (banding), California Least Tern, Snowy Plover, Peregrine Falcon, Bald Eagle, and Swainson's Hawk.

Federal Bird Marking and Salvage Permit.
State of California Scientific Collecting permit and Memorandum of Understanding for all raptors, herptiles, and small mammals.
Migratory Bird Predator Management authorization.
Migratory Bird avian relocation permit.
Cowbird trapping authorization in California.
Federal and state authorization for Desert Tortoise surveys.

To date, over 25 subpermittees, including researchers at the UFWS, University of California, Davis, and UC Santa Cruz work under the auspices of my permits.

References

Dr. Charles T. Collins, Professor Emeritus, California State University, Long Beach	562-598-4385
Dr. J. Michael Scott, Professor, University of Idaho, Moscow	208-885-6336

MICHAEL BUMGARDNER

Principal, Bumgardner Biological Consulting

Mr. Bumgardner has over 20 years of experience with the terrestrial vertebrates, invertebrates, and flora of North, Central, and South America; Asia; Africa; and western Europe. He also has over 18 years of experience in the management and preparation of environmental documents that comply with the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Tahoe Regional Planning Agency (TRPA) Rules of Procedure, Federal Endangered Species Act (FESA), and California Endangered Species Act (CESA). He has extensive experience in the coordination and preparation of biological resource assessments, impact assessments, management plans, mitigation programs, and habitat conservation planning and permitting associated with special-status species.

TECHNICAL CAPABILITIES

- Experienced with the statutory requirements and guidelines for federal Endangered Species Act Section 7 Consultations, Section 10(a)(1)(B) incidental take permits, Section 10(a)(1)(A) safe harbor agreements, and California Fish and Game Code Section 2081 management agreements and Section 2080.1 consistency determinations.
- Experienced in the preparation of biological assessments and conservation strategies for state and federal threatened and endangered species and other special-status species.
- Managed and conducted surveys for species including, but not limited to: *valley elderberry longhorn beetle, California tiger salamander, arroyo toad, western spadefoot, mountain yellow-legged frog, California red-legged frog, desert tortoise, western pond turtle, blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox, California clapper rail, spotted owl, northern goshawk, burrowing owl, Swainson's hawk, least Bell's vireo, southwestern willow flycatcher, California gnatcatcher.*
- Experienced in the management and preparation of environmental documents that comply with CEQA, NEPA, and the TRPA Rules of Procedure.
- Experienced with impact analyses involving sensitive habitats and special-status species, designing feasible mitigation measures to reduce significant impacts on biological resources, and resolving project conflicts with biological resources.
- Serves on the Science Subteam of the US Fish and Wildlife Service's Recovery Team for the Santa Barbara County DPS of *California tiger salamander*.
- Served as guest lecturer for course on Ecological Methods (Sierra Community College) and Conservation Biology (California State University - Sacramento).

EDUCATION AND AFFILIATIONS

B.S., Zoology, June 1980, University of California at Davis, California

Registrations

Federal Scientific Take Permit No. TE-785564-6 for California Gnatcatcher (*Polioptila californica californca*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), California Clapper Rail (*Rallus longirostris obsoletus*), and California Tiger Salamander (*Ambystoma californiense*)

California Department of Fish and Game Scientific Collector's Permit #801214-01 and Letter of Authorization for Yellow-billed Cuckoo (*Coccyzus americanus*), Willow Flycatcher (*Empidonax traillii*), California Gnatcatcher (*Polioptila californica californca*), California Black Rail (*Laterallus jamaicensis coturniculus*), and California Clapper Rail (*Rallus longirostris obsoletus*)

PROJECT EXPERIENCE

State and Federal Endangered Species Act Compliance

Sespe Oil Field Endangered Species Act/Permitting Assistance in Regards to *California Condor*, Seneca Resources

California Red-legged Frog Monitoring, Salvage, and Relocation for the Marsh Creek Bridge Repairs, Sycamore Environmental Consultants and Contra Costa County Planning Department

San Joaquin Kit Fox Potential Den Surveys and Clearance for the Vernalis-Thoming 3 & 4 Aggregate Mining Sites, Teichert Aggregates

Least Bell's Vireo and *Southwestern Willow Flycatcher* Surveys within Recreation Residence Tracts of the Angeles National Forest, Angeles National Forest

San Joaquin Kit Fox Potential Den Surveys on 2,700+ Acres within The Villages at Laguna San Luis SUDP, Berryman Ecological LLC

Review of Coachella Valley Multi-Species Habitat Conservation Plan and EIR/EIS (particularly for *Peninsular Bighorn Sheep*), Pacific Municipal Consults and City of Palm Springs

Review and Comment on Proposed Critical Habitat for *Southwestern Willow Flycatcher*, Southern California Edison

Soledad Canyon Sand and Gravel Mine Expert Witness Services, Jeffer, Mangels, Butler, and Marmaro LLP

Angeles National Forest Fire and Vegetation Management Program Endangered Species Surveys and FESA Compliance, North State Resources, Inc.

Northwest Casmalia Enhanced Oil Recovery Project *California Tiger Salamander* and *California Red-legged Frog* Habitat Assessment and Endangered Species Act Compliance, Santa Maria Pacific, LLC

Kettleman Hills Waste Management Facility Class 1 Landfill Expansion *Blunt-nosed Leopard Lizard* Surveys and Endangered Species Act Compliance, TRC Solutions

Zeneca Richmond Facility Saltmarsh Remediation Project *California Clapper Rail* Focused Survey and Habitat Evaluation/Impact Assessment, LFR Levine Fricke

Los Flores Ranch Remediation Project *California Tiger Salamander* Habitat Evaluation, Impact Assessment, and Alternative Land Use Development Strategy, Chevron Environmental Management Company

White Paper on the Known Historic and Current Distribution of the *San Joaquin Kit Fox* in Eastern Merced and Stanislaus Counties and Western Madera County, Merced County

UC Merced/University Community Federally Listed *Vernal Pool Crustacean*, *California Tiger Salamander*, *Special-Status Plant*, and *San Joaquin Kit Fox/Fresno Kangaroo Rat* Survey Programs and Biological Assessment, University of California and Merced County

Turk Anticline 3-D Seismic Exploration Project Endangered Species Impact Avoidance Program, Enron Oil and Gas Company

Stewart Tract Section 2081 Habitat Management Plan for *Swainson's Hawk*, Califia Development

Milpitas Recycled Water Pipeline Project Passive Relocation Program for *Burrowing Owl*, Santa Clara Valley Water District

Natural Resource Management Projects

California Tiger Salamander Distribution Study in Southern San Luis Obispo County, U.S. Fish and Wildlife Service

Tulare Basin Wildlife Management Area Planning Assistance, U.S. Fish and Wildlife Service

Hansen Creek (Nevada) Biological Monitoring Program, Getchell Gold Mine

Lawrence Berkeley National Laboratory Biological Baseline Database, U.S. Department of Energy

Environmental Baseline Study for a 10-year comprehensive plan that addresses 280+ petroleum-related projects in eastern Venezuela, Petroleos de Venezuela, S.A.

Utility and Infrastructure Projects

Elk Grove Routine Stormwater Channel Maintenance Program Biological Assessment for *Giant Garter Snake* and *Valley Elderberry Longhorn Beetle*, City of Elk Grove

Habitat Assessments for *Southwestern Willow Flycatcher* at Southern California Edison Facilities in the Santa Ana River Watershed, Southern California Edison

Alba Phase 3 LNG Plant Preliminary Impact Analysis, Alternatives Analysis, and Environmental Impact Assessment (EIA) (Equatorial Guinea), Marathon Oil Company

Mill Creek 2/3 Hydroelectric Project FERC Relicensing *Southwestern Willow Flycatcher* Expert Witness Services, Downy, Brand, Seymour, and Rohwer

Level 3 Fiber Optic Cable Biological Assessments, ESA Compliance, and Permit Compliance Monitoring, Level 3 and Kiewit Environmental

Paiute Natural Gas Pipeline Biological Evaluation, Lake Tahoe Basin Management Unit, USDA Forest Service

Santa Rosa Subregional Long-Term Wastewater Project EIR and Biological Assessment, City of Santa Rosa

Southern Nevada Water Authority Treatment and Transmission Facility EIS and Biological Assessment, Southern Nevada Water Authority (Nevada)

Biological Evaluations for several wastewater infrastructure projects on National Forest lands in the Lake Tahoe Basin, South Tahoe Public Utility District

Echo Lake Dam Stabilization Environmental Assessment, PG&E

Mining Projects

California Red-legged Frog Survey and Endangered Species Act Compliance Strategy for the Gardner Ranch Mining and Processing Facility, Granite Construction Company

California Red-legged Frog Survey for the Bee Rock Quarry and Adjacent Drainages, Granite Construction Company

Day Creek-Inland Rock Mine Expansion *San Bernardino Kangaroo Rat* Trapping Study, West Coast Environmental & Engineering and Hanson Aggregates

Los Alamos Sand Mine *California Tiger Salamander* and *California Red-legged Frog* Surveys, Biological Assessment, and Safe Harbor Agreement, Los Alamos Sand Company

Williams Quarry Expansion Project Biological Resources Report, Resource Design Technology, Inc.

Madera Ranch Quarry *California Tiger Salamander* Biological Assessment and Draft Biological Opinion, Pacific Municipal Consultants

Ozena Valley Ranch Surface Mining Site Biological Resources Report, West Coast Environmental & Engineering

Santa Maria River Surface Mining Site Biological Resources Report, West Coast Environmental & Engineering

Diamond Rock Surface Mining Site Biological Resources Report and *Blunt-nosed Leopard Lizard* Impact Avoidance Program, West Coast Environmental & Engineering

Transportation Projects

Analysis of Impacts to *Willow Flycatcher* Habitat from Emergency Washout Repairs on the Caliente Line along Meadow Valley Wash (Nevada), Union Pacific Railroad

Analysis of Impacts to *Willow Flycatcher* Habitat from Emergency Washout Repairs on the Clifton Branch of the Lordsburg Line along the Gila River (Arizona), Union Pacific Railroad

Biological Evaluations for 18 Union Pacific Railroad Bridge Replacement Projects in California, Olsson Consulting

Grizzly Island Road Bridge Replacement Project *California Clapper Rail* Surveys, Sycamore Environmental Consultants

Union Pacific Railroad Yolo Bypass North Track Project Biological Assessment, Parsons Corporation

Kowloon-Canton Railway Corporation Lok Ma Chau Spurline (Hong Kong) Expert Witness Services, Denton Wilde Sapte (Legal Counsel, London)

Kowloon-Canton Railway Corporation Lok Ma Chau Spurline Environmental Impact Assessment Defensibility Review and Response to Comments, California Environmental Consulting Associates

US Highway 101 Auxiliary Lanes Project Wetlands Delineation, Natural Environment Study, and Biological Assessment, San Mateo County Department of Transportation

TRPA Projects

Heavenly Ski Resort Master Plan EIR/EIS, Biological Resources Surveys, Biological Evaluation, and Annual Monitoring Programs, Heavenly Ski Resort and Tahoe Regional Planning Agency

Golden Bear Park Master Plan EIR/EIS, Tahoe Regional Planning Agency and El Dorado County

Harootunian Trust Land Transfer Biological Evaluation, Lake Tahoe Basin Management Unit, USDA Forest Service

Department of Defense Projects

California Gnatcatcher Surveys for the Santa Margarita River Conjunctive Use Project within MCB Camp Pendleton, Fallbrook Naval Weapons Station, and City of Fallbrook, North State Resources, Inc.

Brooks Air Force Base (Texas) Inventory of Avian Species, U.S. Air Force Center for Environmental Excellence (AFCEE)

Hohenfels Combat Maneuver Training Center (Germany) Integrated Natural Resources Management Plan-Fish and Wildlife and Threatened and Endangered Species Management Programs, U.S. Army Europe (USAEUR)

Andrews Air Force Base and Davidsonville and Brandywine Communication Sites (Maryland) Biological Inventory and Integrated Natural Resources Management Plan, AFCEE

Fort Leonard Wood (Missouri) BRAC US Army Chemical School and Military Police School Relocation Mitigation Monitoring Framework and Adaptive Management Strategy, U.S. Army

U.S. Fish and Wildlife Service World-listed, and Portuguese Government Listed Species Surveys and Integrated Natural Resources Management Plan (Azores), AFCEE and U.S. Air Force Air Combat Command (ACC)

Dyess Air Force Base (Texas) Threatened and Endangered Species, Fish and Wildlife, and Outdoor Recreation Component Plans of the Integrated Natural Resources Management Plan, ACC

Vandenberg Air Force Base (California) Fiber Optic Cable Route Biological Assessment, U.S. Air Force Space Missile Command

Camp Pendleton Relocation of Baseline Road and Case Springs Access Road Habitat Suitability and Assessment for the *Stephen's Kangaroo Rat*, *California Gnatcatcher*, *and Least Bell's Vireo,* U.S. Marine Corps

LESLIE GOFF

EDUCATION
B.S., General Biology, University of California, Irvine (UCI), 2006

AREAS OF EXPERTISE
Ms. Leslie Goff has experience in the following areas:

- Biological Resources Surveys
- Construction Monitoring

REPRESENTATIVE EXPERIENCE
Ms. Goff presently serves as a Staff Biologist with TRC in Irvine, California. Her primary responsibilities include the assessment of biological resources and monitoring.

Burlington Northern Santa Fe Railway, Bridge Renewal Project - San Bernardino County, (Environmental Monitor)
Ms. Goff trained as an environmental monitor during construction activities preparing for a bridge renewal.

J-Power, Orange Grove - Pala, CA (Biologist)
Ms. Goff assisted in delineating jurisdictional wetlands and "waters of the US" and "waters of the State" and preparation of the delineation report to support required permit applications.

The Irvine Ranch Conservancy- Irvine, CA (Volunteer)
Ms Goff is a volunteer for the conservancy promoting educational awareness of Orange County's biological diversity. She works as trail guide along many of the canyons and paths that run through the Irvine Ranch Land Reserve.

University of California - Irvine, CA (Animal Behavior Volunteer)
Ms. Goff worked in the aviary located at the UC Irvine arboretum as a research volunteer maintaining four active flights with 20 breeding pairs of Zebra Finches each. She conducted bird surveys to document behavioral changes and conditioning.

University of California, Irvine- Field studies

Sacramento County
Ms. Goff conducted a field study of riparian growth along the Sacramento River and a small creek to compare the effects of daily water height fluctuation versus annual flooding.

Joshua Tree National Park
Ms. Goff joined a field team to conduct an analysis on the Jojoba plant to determine the affects of slope angle, elevation, and soil moisture on

growth and distribution of dioecious plants, Jojoba being a representative species.

San Joaquin Fresh Water Marsh
Ms. Goff has conducted monitoring in the freshwater marsh for species composition and diversity. She has also monitored three man-made Vernal Pools within the marsh to determine their success as mitigation for construction impacts.

STEPHEN JON MONTGOMERY

Wildlife Biologist

SJM Biological Consultants, Inc.

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Email: steve@sjmbio.com

U.S. Fish and Wildlife Service Permit TE745541-10

EXPERIENCE

Owner, Principal Consultant
SJM Biological Consultants
1983 to Present

Manage and conduct field surveys, analyze data and prepare reports for diverse types of biological studies, including: rare/endangered/sensitive species studies; environmental impact reports; development suitability studies; project monitoring; biological inventories. Prepare proposals, determine equipment and budget requirements, manage projects and technical staff, meet with municipal, state and federal agencies, and present findings at meetings.

Recent, On-going and Former Projects

Conducted Station-wide Habitat Mapping, and Developed a Long-term Monitoring Methodology for the Federally Endangered Stephens' Kangaroo Rat, at the Fallbrook Naval Weapons Station (FNWS), Fallbrook, California. Mapped occupied and suitable/unoccupied Stephens' kangaroo rat habitat, live-trapped SKR to confirm species identity of kangaroo rats in certain habitats/areas, developed specific methods for monitoring SKR habitat occupation through time, established SKR monitoring plots in the field, collected initial baseline monitoring data at established monitoring plots, recorded habitat conditions at monitoring stations, analyzed initial monitoring data, prepared report describing results of the above-described field studies, at FNWS. For Fallbrook Naval Weapons Station, Fallbrook, California. 2001-on-going.

Conducted Live-trapping Surveys in the Imperial Valley, Imperial County, California., for the California Sensitive Hispid and Arizona Cotton Rats, for the Imperial Irrigation District (IID)

Habitat Conservation Plan. For Ecorp, Redlands. 2007-2008.

Conducted USFWS Protocol Field Surveys for the Federally Endangered Yuma Clapper Rail at the Earp (CA)-Parker (AZ) Bridge. For Ecorp (Redlands), for Cal Trans (District 8).2008.

Mapped Distribution of the Federally Endangered Stephens' Kangaroo Rat Along the Proposed Route of the SDGE Sunrise Powerlink Project in eastern San Diego County. For Arcadis, Inc. San Diego, California. 2006-2007.

Conducted Habitat Assessment for the California Threatened Mohave Ground Squirrel along the proposed approximately 22-mile alignment for the AT&T Fiber Optic Cable Route in San Bernardino County, California. For Chambers Group. Irvine, California. 2007-2008.

Conducted Protocol Trapping Survey for the California Threatened Mohave Ground Squirrel at the 80-acre Capital Pacific Homes proposed development site in Rosamond, Kern County, California. For Chambers Group. Santa Ana, California. 2007.

Conducted Protocol Trapping Survey for the California Threatened Mohave Ground Squirrel at the 13-acre Lumber 84 proposed development site in Lancaster, Los Angeles County, California. For Eilar Associates. Encinitas, California. 2007.

Conducted protocol live-trapping surveys for the federally endangered Pacific Pocket Mouse at Camp Pendleton Marine Corps Base, San Diego County, for the Oscar One and Edson Range road improvement project. For The Environmental Company. Santa Barbara, California. 2007.

Conducted habitat assessments and field (trapping) surveys for the Federally Endangered San Bernardino Kangaroo Rat and California Sensitive Los Angeles pocket mouse, and analyzed potential wildlife corridor issues, for the proposed State Route 79 expansion project in the region of the City of Hemet, Riverside County, California. For CH2MHill, Santa Ana, California. 2005-2008.

Conducted Protocol Surveys for the Federally Threatened California Gnatcatcher at the Fallbrook Naval Weapons Station, Fallbrook, California. In Collaboration with the San Diego Zoological Society. 2006-2007.

Mapped the Distribution of the Federally Endangered Stephens' Kangaroo Rat at the U.S. Navy RTS (Remote Training Site) Warner Springs, San Diego County, California. For Tierra Data Systems (for U.S. Navy). 2006.

Served as Team Member in Developing Methodology, and Served as Principal Investigator for Live-trapping Studies, for Long-term Monitoring Studies of the Federally Endangered San Bernardino Kangaroo Rat, in the Santa Ana River Wooly Star Preserve, as Part of Multi-species Habitat Conservation Plan. For SAIC (San Diego, Calif.) and Everest International Consultants, Inc. (Long Beach, Calif.), for U.S. Army Corps of Engineers Mitigation Studies for 7 Oaks Dam Project.

2005-2008.

Conducted Protocol Trapping Studies for State (California) Threatened Mohave Ground Squirrel, for CalTrans Projects at Cushenberry and along SR138 and SR395, and in Adelanto, in San Bernardino County, as well as at Edwards Air Force Base, Los Angeles County, California. For Chambers Group, ECorp, Redlands, and AMEC, Riverside, Calif. 2004-2007.

Mapped Distribution of Stephens' Kangaroo Rat at the 20,000-acre Rancho Guejito, San Diego, California. Mapped distribution of SKR on large ranch in western San Diego County. For Helix Environmental Planning, La Mesa, Calif. 2004.

Conducted Trapping Survey for the Federally Endangered Pacific Pocket Mouse at the CalTrans Genesee Avenue - Interstate 5 Interchange Project Site, San Diego, California. For Helix Environmental, La Mesa, California. 2004.

Conducted Habitat Assessment and Trapping Study for the Stephens' Kangaroo Rat Along Ammunition Road, for the Proposed Ammunition Road Fencing Project at the Fallbrook Naval Weapons Station, Fallbrook, California. For The Environmental Company, Santa Barbara, Calif. 2004.

Assessed Habitat Conditions for Stephens' Kangaroo Rats at Potential on El Sobrante Landfill Lands South of Lake Mathews. For RECON, San Diego, California. Mapped occupied SKR habitat on one parcel, and determined potential areas for habitat enhancement, for proposed landfill expansion activities. 2002-2003.

Conducted Trapping Studies for Federally Endangered San Bernardino and Stephens' Kangaroo Rats For Various CalTrans Projects, in San Bernardino and Riverside Counties, Calif. For Chambers Group, Redlands, California. 2003-2004.

Conducted Trapping Study for Federally Endangered San Bernardino Kangaroo Rat, Stephens' Kangaroo Rat, Los Angeles Pocket Mouse and other California sensitive small mammals at Lake Elsinore, California. For Glenn Lukos & Associates. 2003.

Conducted Long-term Monitoring Studies of the Effect of Fire on Stephens♠ Kangaroo Rats in the Juliett Area SKR Mitigation Bank on Camp Pendleton Marine Corps Base. For Environmental Security Office, Wildlife Management Branch, Camp Pendleton Marine Corps Base. San Diego, California. Conducted annual vegetation measurements and SKR populations in burned grasslands, to determine effect of fire management strategies on this endangered species. 2000-2004.

Developed and Directed Study of Habitat Recolonization by Stephens' Kangaroo Rats at Former Napalm Storage Sites at the Fallbrook Naval Weapons Station (FNWS), Fallbrook, California. For CH2MHILL, Santa Ana, California. Developed study methods and habitat treatments, directed the implementation of substrate manipulation treatments at study plots which included excavation of

large numbers of artificial burrows, and periodically monitored and reported on the results of the 2-year investigation. 2003-on-going (through 2005).

Developed Post-construction Habitat Restoration Methods and Specifications for the Federally Endangered San Bernardino Kangaroo Rat for Contract 3-4 (Santa Ana River Area) of the Metropolitan Water District (MWD) Inland Feeder Waterline Project. For P&D Consultants. Orange, Calif. Worked with MWD staff and U.S. Fish and Wildlife Service biologists in developing specifications for sand grain sizes, as well as for methods and configurations of sand deposition in the construction area for Contract 3-4. These methods were designed to maximize future use of the construction area by the SBKR. 2001-2004.

Conducted USFWS Protocol Field Surveys for the Federally Endangered Yuma Clapper Rail at the Miles Avenue Bridge Project, Indian Wells, California. For Pacific Southwest Biological Services (San Diego, Calif.). 2002.

Served as Consultant on Stephens' Kangaroo Rat (SKR) Issues to Napalm Canister Decommissioning Team, at Fallbrook Naval Weapons Station, Fallbrook, California. Conducted field assessments of and marked locations for SKR presence/absence/distribution, at napalm storage sites, and at the Palm Plant site, at Fallbrook Naval Weapons Station, Fallbrook, California. Conducted field surveys to determine presence/absence/distribution of SKR at napalm storage sites, advised client regarding necessary restrictions to construction activities and field activities, and regarding required actions to minimize/eliminate incidental take of SKR. Prepared reports describing results of field work. For Battelle Memorial Institute, Columbus, Ohio. 1998-2001.

Conducted USFWS Protocol Field Surveys for the Federally Endangered Yuma Clapper Rail at the Union Pacific Railroad Crossing Site, in Thermal, California. For Chambers Group (Redlands, Calif). 2001.

Conducted Field Surveys for the CSC Palm Springs Round-tailed Ground Squirrel (PSRTGS) and CSC Palm Springs Little Pocket Mouse (PSLPM), for the CalTrans Interstate 10 - McNaughton Interchange Project Site, Coachella Valley, Riverside County, California. Trapped for PSLPM and conducted vocalization surveys for PSRTGS at a proposed freeway ramp. For BonTerra Consultants. Costa Mesa, Calif. 2001.

Conducted Field Vocalization Surveys for the CSC Palm Springs Round-tailed Ground Squirrel (PSRTGS) for the CalTrans Interstate 10 - Jefferson Street Ramp Project Site. For BonTerra Consultants. Costa Mesa, Calif. 2002, 2003.

Conducted Biennial Stephens' Kangaroo Rat Monitoring Study at Marine Corps Base Camp Pendleton. Established monitoring plots, trapped SKR and counted active burrows at plots, followed SKR abundance at plots over an 8 year period, analyzed data and prepared reports. For Marine Corps Base, Camp Pendleton, California, Wildlife Management Branch. 1996-2002.

Presented Stephens' Kangaroo Rat (SKR) Natural History/Ecology Information to Biologists Conducting Annual Firebreak Surveys for SKR at Fallbrook Naval Weapons Station. Presented natural history information to volunteer SKR field (firebreak) survey biologists, in the classroom and in the field. For Fallbrook Naval Weapons Station through San Diego State University Foundation. 1998-2002.

Conducted Long-term Monitoring Studies of the Effect of Fire on the Federally Endangered Pacific Pocket Mouse at the San Mateo North Population Site, Camp Pendleton Marine Corps Base. For Environmental Security Office, Wildlife Management Branch, Camp Pendleton Marine Corps Base. San Diego, California. Conducted vegetation measurements and PPM trapping studies at a proposed burn site designed to rejuvenate habitat for this species. Analyzed data to determine resultant effect of burn on PPM population distribution/size. 2000-2004.

Conducted Translocation Studies of Stephens♠ Kangaroo Rat at the Ramona Airport, San Diego County, California. For KEA Environmental and San Diego County Department of Public Works, San Diego, California. Conducted habitat assessments, trapping, and translocation and long-term monitoring studies, potentially using radio telemetry, to determine response of trapped SKR to introduction into new habitat areas. Conducted study of feasibility of using radio-collars on this species. 2000-2002, on-going.

Conducted Assessment of Presence/Absence of the Federally Endangered Stephens♠ Kangaroo Rat Along State Highways in San Diego County. For California Department of Transportation (CalTrans). San Diego, California. Conducted habitat evaluations and trapping studies for SKR along five highways. 2000.

Assisted In Development of Biological Assessment for the Federally Endangered San Bernardino Kangaroo Rat, for the 7 Oaks Dam Project, San Bernardino County, California. For MEC Analytical Systems. Carlsbad, California. Analyzed impacts of operation of 7 Oaks Dam on SBKR, assisted in analyzing alternative habitat management and enhancement schemes for this species. 1999-2000.

Conducted field surveys for the Federally Threatened California Gnatcatcher and Federally Endangered Stephens♠ Kangaroo Rat on the 1100-acre Norco Hills Ranch property in Norco, California. For VHBC, (Riverside) Crouse Beers Associates (Norco), and SunCal Companies (Irvine) California. Coordinated field team and assisted in field surveys for the CAGN, and conducted field studies for SKR. 1999-2000.

Conducted trapping and related studies for the Federally Endangered Pacific Pocket Mouse (PPM) at various localities along the coast of Southern California. With SC Dodd Consulting. For California Department of Fish and Game/U.S. Fish and Wildlife Service, through San Diego State University Foundation. San Diego, California. Conducted trapping studies to determine current population status of PPM at Dana Point Headlands, assisted in design of study of the effect of shrub removal on PPM presence/abundance/distribution at Headlands, co-conducted shrub removal PPM

habitat alteration study at Headlands, conducted studies of potential translocation receiver sites in coastal Southern California. 1999-2002.

Conducted trapping and habitat affinity studies for the Federally Endangered San Bernardino Kangaroo Rat (SBKR) at various localities in the Santa Ana River, San Bernardino County, California, for U.S. Army Corps of Engineers Seven Oaks Dam project. For MEC Analytical Systems, Carlsbad, California. Assisted in study design, trapped SBKR at 14 sites, and participated in SBKR habitat preferences study. 1999-2000.

Conducted translocation study of the Federally Endangered Stephens♠ Kangaroo Rat for the Phoenix Road improvement project at Fallbrook Naval Weapons Station. Fallbrook, California. For Southwest Division Naval Facilities Engineering Command, San Diego, California. Trapped SKR from within fenced improvement area, translocated animals to nearby artificially excavated burrows, monitored use of artificial burrows by SKR. 1998-1999.

Conducted USFWS Protocol Field Surveys for the Federally Endangered Yuma Clapper Rail at the Gateway to the Americas Project Site in Calexico, California. For Robertson Environmental Consultants, San Diego, California. 1998.

Conducted trapping and habitat assessment surveys for the Federally Endangered San Bernardino Kangaroo Rat (SBKR) at various localities in the Santa Ana River, Lytle Creek and Cajon Creek Washes, San Bernardino County, California. For Sunwest Materials (Ontario, Calif.), CalMat Corporation (Riverside, Calif.), and the Chambers Group (Irvine, Calif.). Trapped and mapped habitat for SBKR in alluvial fan scrub habitats in sandy wash habitats in the three river systems mentioned above. 1998-2000.

Relocated Stephens' Kangaroo Rats (SKR) Residing in the Construction Zone of the Contract 7/8 of the Metropolitan Water District Inland Feeder Pipeline. For P&D Consultants (Orange, Calif.) and Metropolitan Water District of Southern California (Los Angeles, Calif.). Trapped and relocated SKR to artificial burrow systems in nearby suitable habitat at the California Department of Fish and Game San Jacinto Wildlife Area Riverside County, California. Monitored relocated SKR in 1998 and 1999, and monitored SKR recolonization of rehabilitated construction zone in 2000 (on-going)

Directed and Conducted Intensive Trapping Survey for the Federally Endangered Pacific Pocket Mouse at Camp Pendleton Marine Corps Base. Intensive team trapping effort to determine presence/absence of PPM in several previously unsurveyed ranges of Camp Pendleton. 1998, on-going. (See entry below for details of similar survey for PPM on Camp Pendleton in 1996)

Mapped Occupied San Bernardino Merriam's Kangaroo Rat (SBKR) Habitat in Portions of the Metropolitan Water District Inland Feeder Pipeline Alignment, in alluvial fan scrub habitats in the Santa Ana River and City Creek. P&D Technologies. Orange, Calif. Conducted trapping studies

and completed maps of occupied habitat for SBKR along the Inland Feeder waterline right-of-way. 1994-2000.

Conducted Required Studies for the Metropolitan Water District Inland Feeder Waterline Right-of-Way. P&D Technologies, Orange, Calif. Conducted required field studies for sensitive small-mammal species, assisted in the development of a preliminary biological assessment of impacts to San Bernardino Kangaroo Rat, mitigation work for Stephens' kangaroo rats, and others. July 1994-1996.

Prepared a Biological Assessment for Stephens♠ Kangaroo Rats for an Erosion Control/Repair Project in the Juliett Firebreak Area of Camp Pendleton. For the Mission Resource Conservation District. Fallbrook, California. Conducted field surveys for SKR along an existing eroded firebreak, assisted in the development of an erosion control plan, and prepared a biological assessment of the potential impacts on SKR of the proposed plan. 1997.

Conducted Status Review Field Studies of the Federally Endangered Amargosa Vole (AV) in the Mojave Desert. For California Department of Fish and Game, through the San Diego State University Foundation. Conducted live-trapping surveys and habitat assessments to determine the current status and distribution of the AV. 1997-1998.

Conducted (as co-investigator) Trapping and General Monitoring Studies of the Dana Point Headlands PPM Population. For U.S. Fish and Wildlife Service, California Department of Fish and Game, and Orange County Nature Reserve. Conducted live-trapping studies of PPM, studied predator activity, developed long-term monitoring plan for this population, conducted study of the effect of vegetation thinning on PPM population at this site. 1997-2000, on-going.

Conducted Annual Surveys for Federally Endangered Yuma Clapper Rail (YCR) at the California Department of Fish and Game (CDFG) Wister Unit (Imperial Wildlife Area) Wildlife Refuge, Imperial County, California. Conducted field surveys and trained CDFG personnel to conduct surveys for YCR Approx. 1990-2000.

Conducted Trapping Studies of the Federally Endangered Pacific Pocket Mouse (PPM) on Marine Corps Base, Camp Pendleton. For California Department of Fish and Game, through San Diego State University Foundation. Conducted grid live-trapping studies of PPM populations, primarily to determine proper trap spacing for long-term monitoring studies of this species, at two localities on Camp Pendleton. 1997-1998.

Co-managed Field Team and Participated in Intensive Trapping Survey for the Federally Endangered Pacific Pocket Mouse at Camp Pendleton Marine Corps Base. Also Coordinated Project with Base Environmental Office Personnel. With Ogden Environmental Services and LSA & Assoc., San Diego and Orange Counties. Intensive team trapping effort to determine presence/absence of PPM in several ranges of Camp Pendleton. Managed team of 10 biologists,

coordinated with Base environmental office and range control contacts, conducted trapping surveys, assisted in report preparation. 1996.

Determined Base-wide Distribution of Stephens' Kangaroo Rat (SKR) on Camp Pendleton Marine Corps Base, San Diego County, Developed Long-term SKR Management Plan for the Base , Prepared Biological Assessment of the Impact of SKR Management Plan on Other Sensitive Species and on the Base Operations. With Tetra Tech Corporation, San Bernardino, Calif. Mapped SKR distribution through trapping and visual surveys; developed Base SKR management plan involving population preservation, SKR movement corridor development and preservation, long-term monitoring methods, and potential for population translocations; evaluated impact of management plan on least Bell's vireos, California gnatcatchers, sensitive reptiles, and other sensitive biota; evaluated impacts of management plan on various required Base operations and activities and projects. October 1994-1998.

Conducted Field Studies Required for the Metropolitan Water District Inland Feeder Waterline Project, on the Federally Endangered Stephens' Kangaroo Rat and alluvial fan scrub inhabiting San Bernardino kangaroo rat, in the area of the Santa Ana River, San Jacinto Wildlife Area and San Timoteo Canyon. For P&D Environmental Services, Orange, Calif. Conducted trapping studies, mapped habitat, assessed impacts of proposed project, developed mitigation strategies, prepared portion of Biological Assessment for San Bernardino kangaroo rat. 1994-95.

Conducted Field Surveys for Occupied Stephens' Kangaroo Rat (SKR) Habitat on March Air Force Base (MAFB), as Part of SKR Habitat Analysis with The Nature Conservancy (Temecula, Calif. Office). With Tetra Tech Corporation, San Bernardino, Calif. Mapped SKR distribution/density and conducted burrow counts along formal transects at approximately 46 floral sampling plots within the SKR Preserve on the northern portion of MAFB, as part of an overall study of SKR-habitat relationships. 1995, 1996, 1997.

Conducted Habitat Analysis and Live-trapping Survey for Pacific Pocket Mice (PPM) at a 20-acre site in the Tijuana River Valley. For San Diego County Park and Recreation Department, San Diego, Calif. April-June 1995.

Conducted Preliminary Habitat Evaluation for Presence/Absence of the Federally Endangered Pacific Pocket Mouse (PPM) at Three Sites in the Tijuana Estuarine Sanctuary, in San Diego, Calif. For California State Coastal Conservancy, Oakland, Calif. Conducted field assessment of three sites for potential for PPM and prepared a general study design for trapping at these localities. March 1995.

Conducted Trapping Studies for the Federally Endangered Pacific Pocket (Little) Mouse (PPM) in San Mateo and San Onofre Creeks, Northwestern Camp Pendleton, San Diego County. Pacific Southwest Biological Services. National City, Calif., for Tri-City Water District. Conducted trapping surveys for PPM in numerous habitats in these drainages and adjacent lands located within approximately 2 miles of the coastline. July-August 1994.

Conducted Trapping Studies for the Federally Endangered Pacific (Little) Pocket Mouse (PPM) for the City of San Diego North Torrey Pines Bridge Replacement Project. Lettieri-McIntyre & Associates. San Diego, Calif. Trapped for PPM in sage scrub and disturbed field habitats adjacent to Pacific Coast Highway, at the northwestern section of Los Penasquitos Lagoon, Del Mar, California. August 1994.

Conducted Trapping Studies for the Federally Endangered Pacific (Little) Pocket Mouse (PPM) in the San Dieguito Lagoon and Adjacent Lands. BioSystems. Santa Cruz, Calif., for Southern California Edison. Conducted live-trapping surveys for PPM in numerous habitats in and surrounding the San Dieguito Lagoon, east and west of Interstate Highway 5, Del Mar, California. August 1994.

Conducted Trapping Studies for Stephens' Kangaroo Rats, San Bernardino Kangaroo Rat, and Los Angeles (Little) Pocket Mouse Along the Lamb Canyon Section of State Highway 79, Riverside County, California. Dames & Moore, Santa Barbara, Calif. Conducted trapping and habitat mapping surveys for these three species in various habitats in Lamb Canyon. July-August 1994.

Conducted Second Translocation Study of Federally Endangered Stephens' Kangaroo Rat, at the Fallbrook Naval Weapons Station in Fallbrook, California. Kvaas Construction Co. San Diego, Calif. As required by U.S. Fish and Wildlife Service and U.S. Navy: conducted pre-construction endangered species information presentation to construction personnel; conducted intensive small-mammal trapping study; designed, constructed and installed artificial burrow systems; relocated animals from occupied to artificially prepared habitat area; and monitored result of translocation experiment. Installed PIT (passive integrated transponder) into relocated animals to provide positive identification of released individuals. 1994-1996.

Conducted On-site Monitoring of IRP Hazardous Waste Remediation Project for Federally Endangered Stephen's Kangaroo Rat, at March Air Force Base, Riverside, California. Tetra Tech, Inc. San Bernardino, Calif. As required by U.S. Fish and Wildlife Service, conducted pre-project site survey for Stephens' kangaroo rat, delivered pre-project endangered species information presentation to field personnel, monitored and coordinated trenching project to minimize impacts to SKR habitat, coordinated with U.S. Air Force contact and construction personnel. 1993.

Conducted Survey for Rodent Scat to Detect Presence of Potential Poison Bait in Stephens' Kangaroo Rat Habitat, on March Air Force Base, Riverside, California. U.S. Air Force. Riverside, Calif. Conducted field survey for rodent small mammal scat at numerous locations on March AFB. 1993.

Conducted First Translocation Study of Federally Endangered Stephens' Kangaroo Rat, at the Fallbrook Naval Weapons Station in Fallbrook, California. Cox Construction Co. Vista, Calif. As required by U.S. Fish and Wildlife Service, conducted pre-construction endangered species information presentation to construction personnel, conducted extensive small-mammal trapping study, designed/constructed/installed artificial burrow systems, relocated animals from occupied to

artificially prepared habitat area, and monitored result of translocation experiment. Installed PIT (passive integrated transponder) into relocated animals to provide positive identification of released individuals. 1993-1995.

Conducted Quantitative (Emlen) Bird Transects, General Small Mammal Trapping and Trapping for Mojave Ground Squirrels on Edwards Air Force Base in San Bernardino, Los Angeles and Kern Counties, Calif. Tetra Tech, Inc. San Bernardino, Calif. Conducted the above-described general and focused studies of the fauna in various habitat types in the Mojave Desert on Edwards Air Force Base. Sixty bird transects were conducted and the resultant data analyzed. 1993.

Conducted Habitat Quality Analysis (HQA) Transects for Small Mammals, Large Mammals and Birds, at March Air Force Base in Riverside County, California. Tetra Tech, Inc. San Bernardino, California. Conducted small-mammal trapping and quantitative (Emlen) bird transects at selected sites on the western portion of March Air Force Base. 1992.

Conducted Stephens' Kangaroo Rat Habitat Mapping on March Air Force Base in Riverside County, California. Tetra Tech, Inc. San Bernardino, California. Trapped and assessed habitat for SKR on the approximately 3000-acre West March Air Force Base. 1992.

Conducted Stephens' Kangaroo Rat Habitat Mapping Studies on Riverside National Cemetery, in Riverside County, Calif. Royston, Hanamoto, Alley and Abey (Mill Valley, Calif.) and U.S. Veterans Administration (Washington, D.C.). Mapped SKR habitat on cemetery lands, and prepared mitigation plan for proposed loss of this species. 1992.

Conducted Biological Analysis (Natural Environmental Study) of a Proposed Widening of Cal-Trans Interstate Highway 215, between Moreno Valley and Interstate Highway 10, in Riverside County, California. Myra L. Frank & Associates. Los Angeles, California. Analyzed biological resources (plants, animals and habitats); delineated wetlands; assessed potential impacts to existing biota. 1992-1993.

Conducted Field Surveys for Stephens' Kangaroo Rats (SKR), Other Sensitive Rodents, Nocturnal and Diurnal Raptors, Least Bell's Vireo and Other Riparian Birds, and Analyzed and Designed Wildlife Corridors on the Lockheed Corporation 9000-acre Potrero Creek Property, located near Beaumont, Riverside County, California. Pacific Southwest Biological Services (National City) and Douglas Wood & Associates (Newport Beach). Conducted trapping and habitat mapping surveys for SKR, repeated field surveys for LBV and riparian birds, and designed corridors to allow passage of wildlife species through the property. 1992.

Conducted Cumulative Human Impact Evaluation (CHIE) for Mohave Ground Squirrels at the Apple Valley (California) Municipal Airport. San Bernardino County. P & D Technologies. Orange, California. Conducted CHIE on parcels proposed for inclusion in an expansion of the Apple Valley Airport, according to guidelines established by California Department of Fish and Game. 1992.

Conducted Biological Analysis of Proposed Routes for Cal-Trans Highway 126 Between I-5 and State Route 14, Los Angeles County, California. Livingstone-Parks and Parsons Brinckerhoff Corporation (San Bernardino). Tier 1 study of the botanical and zoological resources along three potential routes for Highway 126. Included: aerial habitat reconnaissance; search for sensitive plants, animals and habitats; analysis of the potential for wildlife corridors; comparative analysis of the impacts associated with highway construction on the biological resources along the routes. 1992.

Conducted Mule Deer Activity and Mitigation Analysis for Eastern Transportation Corridor (E.T.C.), in Orange County. P & D Technologies, Orange, California. Field assessment of mule deer use of foothill shrub habitats along a proposed state highway corridor. 1991.

Conducted Assessments of Wildlife Use of Meadow and Timber/Shrub Habitats on Southern California Edison (SCE) mitigation lands in the Southern Sierra Nevada, Shaver Lake Area, 1987-1992. Advance Sciences Inc. San Diego, California. Intensive studies of song birds, mule deer and small mammals in montane meadows and timber/shrub habitats in the SCE forest lands surrounding Shaver Lake, Sierra County, California. Involved small mammal live-trapping, deer pellet-group counts, and extensive bird censusing using transects and modified circular-plot methods. 1987-1992.

Conducted Habitat Quality Analysis (HQA) Transects for Small and Large Mammals Along Alternate Routes for the Metropolitan Water District (MWD) Inland Feeder Corridor, Riverside County, California. P&D Technologies, San Diego/Orange, California. Small-mammal trapping, large-mammal scent stations and large-mammal transects at selected sites within the study area. 1991-1993.

Conducted Assessments of Habitat for the Federally Endangered Stephens' Kangaroo Rat (SKR), Along Alternate Routes for the Metropolitan Water District (MWD) Inland Feeder Corridor, Riverside County, California. P&D Technologies, San Diego/Orange, California. Mapping of occupied habitat for SKR along alternate 1/4-mile wide potential pipeline corridors. Included: aerial habitat reconnaissance, development of a multi-tiered approach to the comparison of potential alignments, intensive field habitat checks, mapping of occupied SKR habitat. 1992.

Conducted Assessment of Habitat for Federally Endangered Stephens' kangaroo rats (SKR), along alternate routes for the Metropolitan Water District (MWD) Pipeline Number 6, Riverside and San Diego Counties, California. Pacific Southwest Biological Services, San Diego, California. Mapping of occupied habitat for SKR along 1/4-mile-wide potential pipeline corridors. Included: aerial habitat reconnaissance, development of a multi-tiered approach to the comparison of potential alignments, intensive field habitat checks, mapping of occupied SKR habitat. 1992.

Conducted Field Studies of Federally Endangered Stephens' Kangaroo Rats, in Riverside and San Diego Counties. Numerous private clients. Field trapping, identification and assessment of habitat and populations of SKR. 1977-present.

Conducted Monitoring of Construction Activity in Desert Tortoise (Federally Threatened) Habitat Along Highway 158. Barstow Area, California. Parsons, Brinckerhoff, Quade & Douglas, Inc. San Bernardino, California. Constant monitoring of impacts to desert tortoise habitat at drilling sites associated with the construction of Highway 158.

Assisted in a Search for Desert Tortoise (Federally Threatened) on a 160-acre Parcel in Palm Desert, California. Alice Karl, Biological Consultant, Sanger, California. Intensive walking surveys for tortoises in desert habitats.

Conducted a Study of the Impact of Simulated Geothermal Drilling Activity on Federally Endangered Yuma Clapper Rails at the Wister Unit, Imperial County, California. Freeport-McMoran/Geysers and Calpine Corporations, Santa Rosa, California. Radio-telemetry monitoring of habitat use and response to geothermal drilling by Yuma Clapper Rail. Telemetry, banding, habitat and food source (crayfish) sampling, assessment of migration departure and arrival dates, and general population assessments using YCR vocalization counts. 1989-1990.

Conducted Assessment of the Status of Stephens' Kangaroo Rats on Bureau of Land Management Lands in Western Riverside and Northern San Diego Counties. Bureau of Land Management, Indio Resource Area Office. Live-trapping studies and habitat mapping for SKR on 57 parcels covering approximately 12,000 acres of undeveloped land. 1989.

Mapped Stephens' Kangaroo Rat Habitat and Major Sensitive Species Localities in Western Riverside County. The Planning Center, Newport Beach, California. Large-scale mapping of approximately 200,000 acres in southwestern Riverside County. 1988.

Conducted Field Monitoring of Federally Endangered Least Bell's Vireo, Federally Threatened California Gnatcatcher, Coastal Cactus Wren, Raptors, Amphibians and Reptiles on the Otay Ranch in Southern San Diego County. Advance Sciences Inc., San Diego, California. Involved a variety of field methods, including herpetofaunal drift fence and pit-trap lines, seasonal bird counts utilizing vocalizations to identify different species, etc. 1986-1987.

Conducted Sensitive Endangered Least Tern Foraging and Waterbird Monitoring Studies at the Chula Vista Bayfront, San Diego County. Jones and Stokes Associates, Inc. Sacramento, California. Long-term assessment of use of San Diego Bay shoreline by numerous waterbirds. 1987.

Conducted Study of the Effect of the Del Mar Grand Prix on Waterbirds Inhabiting San Dieguito Lagoon, San Diego County. 1987-1989. Butler Roach Group and Pacific Southwest Biological Services, Inc., San Diego, California. For 22nd District Agricultural Association, as required by

California Coastal Commission. Intensive field monitoring of responses of coastal lagoon water-birds to grand prix automobile races in immediately adjacent lands. 1987-1989.

Conducted Preliminary Study of the Impact of a Geothermal Drilling Operation on the Yuma Clapper Rail (YCR), Imperial Valley, California. Kennecott Corporation, Salt Lake City, Utah. Intensive monitoring of Federally Endangered YCR in freshwater marsh habitats near a geothermal drilling operation, using vocalization count techniques. 1987.

Conducted Geothermal Development Impact Studies. Wister Wildlife Management Area, Niland, California. Kennecott Corporation, Salt Lake City, Utah. 1983-1987. Long-term studies of waterfowl and other waterbirds on a California State wildlife refuge; includes investigation of flight patterns, Federally Endangered Desert Pupfish and Yuma Clapper Rail,and miscellaneous amphibians, reptiles, birds and mammals. 1983-1987.

Conducted Study Design for Biological Monitoring and Assessment Program for the Sweetwater Marsh Upland/Wetland Complex. City of Chula Vista and California State Coastal Conservancy (San Diego, California). Includes a variety of State and Federal and otherwise sensitive species.

Prepared Biological Resources Management Plan for the Naval Aerial Gunnery Range, East and West Mesa, Imperial County, California. U.S. Navy Wildlife Resources Section, San Bruno, California. For Innis-Tennenbaum Co., San Diego, California. Included description of existing vegetation and wildlife of East and West Mesa study areas, discussion of impacts of transfer of ownership of current private land holdings to U.S. Navy, and preparation of management plan for transferred lands. Several sensitive species and habitat areas involved.

Conducted Golden Eagle Study. City of Riverside and GTE Sprint Corporation, California. Study of the seasonal activity of golden eagles and the impact of park development on the species, in the Sycamore Canyon area of the City of Riverside.

Conducted San Pasqual Valley Floodplain Biological Study. Applied Environmental Management. San Diego, California. Field surveys for the Federally Endangered Least Bell's Vireo and other riparian bird species.

Conducted Tijuana River Sewage Outfall Pipeline Biological Impact Study - Tijuana Ocean Engineering Study (T.O.E.S.). Butler/Roach Group. San Diego, California. Field studies of sensitive zoological resources along a coastal pipeline corridor; included investigation of such species as the Federally Endangered California Least Tern and Light-footed Clapper Rail, and California (state) Endangered Belding's Savannah Sparrow.

Senior Zoologist
Pacific Southwest Biological Services, Inc.
1977-1983

Summary of Significant Projects

Raptor Nesting Survey. San Diego Gas and Electric Company.

San Dieguito Lagoon Enhancement Plan. City of Del Mar, California.

Original Mission Trails Regional Park Biological Study. San Diego, California.

Stephens' Kangaroo Rat Studies. San Diego and Riverside Counties, California.

Algodones Dunes Rare Plant Study. Bureau of Land Management.

ADDITIONAL EXPERIENCE/POSITIONS

Conducted annual Yuma clapper rail census surveys at the California Department of Fish and Game, Wister Unit (Imperial Wildlife Area) in Imperial County, California (1983 to present)

Instructor, San Diego State University, Department of Biology, "Conservation of Wildlife," 1994

Research Associate, 1995-present, Department of Biology, San Diego State University. San Diego, Calif.

Peregrine Falcon Eyrie Observer, 1981-82 (Volunteer), U.S. Fish and Wildlife Service, Northern California.

Forest Wildlife Advisor, 1980-81, Forest Lands and Product Cooperative, Northern California.

Research Assistant/Diver, December 1977-January 1978, Dr. W.L. Montgomery. Punta Colorado, Baja California, Mexico

Biological Assistant, March to August 1976, U.S. Fish and Wildlife Service Coyote Predation Study. Utah and Montana.

Research Assistant, 1975, NSF Spruce-Fir Succession Study. Utah State University, Logan, Utah.

Research Assistant, 1972, IBP Desert Biome Study. Utah State University. Logan, Utah.

CERTIFICATIONS/PERMITS

U.S. Fish and Wildlife Service Permit to trap, tag and handle the Federally Endangered Pacific Pocket Mouse (TE745541-9)

U.S. Fish and Wildlife Service Permit to trap, handle, and translocate the Federally Endangered Stephens' Kangaroo Rat (TE745541-9)

U.S. Fish and Wildlife Service Permit to trap and handle the Federally Endangered San Bernardino Kangaroo Rat(TE745541-9)

U.S. Fish and Wildlife Service Permit to conduct field studies of Federally Endangered Yuma Clapper Rail. Formerly held USFWS Permit to trap, handle and conduct radio telemetry studies on this species. (TE745541-9)

U.S. Fish and Wildlife Service Permit to conduct field surveys for the Federally Endangered Amargosa Vole (TE745541-9)

U.S. Fish and Wildlife Service Permit to conduct field surveys for the Federally Threatened California Gnatcatcher (as independent investigator on Shana Dodd's USFWS Permit)

California Department of Fish and Game Memorandum of Understanding to trap, handle and translocate the State Threatened (Federally Endangered) Stephens' Kangaroo Rat

California Department of Fish and Game Memorandum of Understanding to trap and handle the California State Sensitive (Federally Endangered) Pacific Pocket Mouse

California Department of Fish and Game Memorandum of Understanding to trap and handle the California State Sensitive (Federally Endangered) San Bernardino Kangaroo Rat

California Department of Fish and Game Memorandum of Understanding to trap and handle the California Endangered (Federally Endangered) Amargosa Vole.

California Department of Fish and Game Memorandum of Understanding to conduct trapping studies of the sensitive Mojave Ground Squirrel, Palm Springs Round-tailed Ground Squirrel, Palm Springs Little Pocket Mouse

California Department of Fish and Game Memorandum of Understanding to trap, hold and relocate the sensitive Palm Springs Round-tailed Ground Squirrel at the Jefferson Street Interchange Project site (Palm Springs)

California Department of Fish and Game Mojave Ground Squirrel Cumulative Human Impact Evaluation (CHIE) Training Sessions - 1991,1992

Formerly held California Department of Fish and Game MOU's to trap/handle (and for the YCR, conduct radio telemetry studies) on the Federally Endangered Yuma Clapper Rail and desert pupfish (lapsed in 1991-1992)

California Department of Fish and Game Collecting Permit, 1977-present.

Certified Scuba Diver-Issued 1970.

Private Pilot License.

24-hour Hazardous Waste Training Certification. September 1992.

CLIENTS DIRECTLY OR INDIRECTLY INVOLVED IN PROJECTS PARTICIPATED IN BY MR. MONTGOMERY

A.A. Webb & Associates
Advance Sciences, Inc.
Affinis
AMEC (San Diego, Calif.)
Aware Development Company
Battelle Pacific Northwest National Laboratory
BioSystems Inc. (Santa Cruz, Calif.)
Brian F. Mooney Associates
Buie Corporation
Butler Roach Group
California Department of Fish and Game
California State Coastal Commission
California State Coastal Conservancy
California Transportation Department (CalTrans)
CalMat Corporation
Calpine Corporation (Santa Rosa, Calif.)
Center for Natural Lands Management (Fallbrook, Calif.)
Chambers Group (Irvine)
CH2M Hill (Newport Beach, Calif.)
City of Chula Vista
City of Del Mar
City of Hemet
City of Riverside
City of Temecula
City of San Diego, Public Utilities Dept.
Chambers Group
Concordia Homes

Conservation Biology Institute (San Diego, Calif.)
County of Riverside
County of San Bernardino
County of San Diego (Public Works Dept., Parks and Recreation Dept.)
Cox Construction Company (Vista, Calif.)
Dames & Moore (Santa Barbara, Calif.)
Douglas Wood & Associates (Newport Beach, San Luis Obispo, Calif.)
Earth Tech (Colton, Calif.)
EDAW (San Diego, Calif.)
Environmental Solutions, Inc. (Irvine, Calif.)
Essex Environmental Consultants
Everest International Consultants, Inc (Long Beach, Calif.).
Fallbrook Public Utilities District (Fallbrook, Calif.)
Fluor Corporation
Freeport-McMoran/Geysers Geothermal
Glenn Lukos & Associates
GTE Sprint Corporation
Harland Bartholomew & Associates (Sacramento, Calif.)
Helix Environmental Planning (La Mesa, Calif.)
Jones and Stokes Associates
KEA Environmental
Kennecott Corporation
KTU&A Architects and Planners
Kvaas Construction Co. (San Diego, Calif.)
LG&E Power Engineers & Constructors
Lettieri-McIntyre & Associates (San Diego, Calif.)
Livingstone-Parks
LSA Associates (Irvine, Calif.)
MEC Analytical Systems (Carlsbad, Calif.)
Merkel & Associates (San Diego, Calif.)
Michael Brandman Associates
Metropolitan Water District (MWD) of Southern California
Mission Viejo Company
Myra Frank Associates
NBS/Lowry
Ogden Environmental and Energy Services (San Diego, Calif.)
P&D Technologies (San Diego and Orange, California)
Pacific Gateway Homes
Pacific Southwest Biological Services (National City, Calif.)
Pardee Construction Company
Parsons Brinckerhoff, Quade and Douglas
Psomas & Associates (Costa Mesa, Calif.)
Pulte Homes

Radian International
RANPAC Engineering Corporation (Temecula, Calif.)
RECON
RBF/Sholders & Sanford
Robert Bein, William Frost & Associates
Royston, Hanamoto, Alley and Abey
SAIC (San Diego, Calif.)
San Diego Gas and Electric Co.
San Diego State University Foundation
S.C. Dodd Consulting
Sempra Energy (San Diego, Calif.)
Southern California Edison Co.
Southland Engineering Co.
Southwest Division, Naval Facilities Engineering Command
SunCal Companies
Sunwest Materials
Sweetwater Environmental Biologists
Tetra Tech, Inc. (San Bernardino, San Diego)
The Environmental Company (Solana Beach, Calif.)
The Environmental Trust (San Diego, Calif.)
The Lusk Company
The Nature Conservancy (Temecula, Calif.)
The Planning Center (Newport Beach, Calif.)
Tierra Environmental Services (San Diego, Calif.)
Tierra Madre Consultants
Tomac Engineering
UltraSystems Engineers and Constructors
U.S. Air Force (March Air Reserve Base)
U.S. Bureau of Land Management
U.S. Marine Corps (Camp Pendleton)
U.S. Forest Service
U.S. Navy (Southwest Division Naval Facilities Engineering Command)
Vernadero Consulting (Scottsdale, Ariz.)
Westec Services
Western Municipal Water District
Western Waste Management Corporation
3M Corporation

EXAMPLES OF SIGNIFICANT PUBLICATIONS, UNPUBLISHED REPORTS AND PRESENTATIONS

Contributor at Wildlife Society Workshop Entitled: Biology and Management of Rodents in Southern California (26 June 1993).

Inventory for Stephens' kangaroo rats and habitat assessment on 57 BLM parcels located in western Riverside and northern San Diego Counties. Bureau of Land Management Report (November 1989)

A study of the impact of a geothermal drilling operation on the Yuma clapper rail (Rallus longirostris yumanensis), June to August 1987, Imperial Valley, California (1988)

A study of the effects of the Del Mar Grand Prix on water-associated birds inhabiting the San Dieguito Lagoon, Del Mar, California (1987,1988,1989)

EDUCATION

Master of Science, Biology/Ecology, 1976, Utah State University.
Thesis: Rodent-Habitat Relationships in Great Basin Desert Shrub Communities.

Bachelor of Science, Wildlife Biology, 1970, Utah State University.

Organic Chemistry, Summer 1972, University of California, San Diego.

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C U R R E N T E M P L O Y E R:

Owner and sole proprietor of: ***EOS-Ecological Outreach Services*** **(www.ecooutreach.com)** started May, 1999. Offering botanical and general ecological consulting, conservation planning, outreach and education programs, restoration ecology/native plant gardening, photography, and nature/technical writing services.

W O R K H I S T O R Y

Consulting (specific list of projects is available upon request)

My consulting experience includes performing the following tasks:

-rare plant surveys and floristic inventories
-designing mitigation for rare plant/floristic impacts
-vegetation mapping
-wetland delineations/mitigation
-restoration and revegetation projects
-conducting general biological surveys (including birds)
-preparing Habitat Management plans
-preparing Resource Management plans/recommendations
-conservation planning
-desert tortoise monitor
-assisting with red-legged frog surveys and other herpetological surveys
-conducting Quino checkerspot butterfly protocol surveys
-construction monitoring/writing monitoring plans
-utility forester
-checking and setting small mammal and herp traps
-conducting literature reviews
-preparing and conducting educational and training programs
-writing and reviewing biological sections of CEQA and NEPA documents
-permitting services including 404, 401 and 1600 programs

Companies include: **NorCal**: many private landowners, UC-Berkeley Museum (Paleobotanical Dept), Nevada Irrigation District, Lake of the Pines Subdivision, Jones and Stokes-Sacramento, Ecorps-Rocklin, Salvation Army (Sacramento), EcoBridges Consulting.

1986-1988 and 1998 to 2004

SoCal: Center for Natural Lands Management, Camp Stevens of Julian, Sempra Energy/SDG&E, The Nature Conservancy, U.S. Forest Service, KEA Environmental, City of Escondido (Dixon Lake/Daley Ranch), Western Environmental Consulting, EcoVentures California, SJM Consulting, California Native Plant Society, J. Rumbaugh Smith Consulting, Sweetwater Consulting, Advanced Sciences.

Governmental/Institutional Experience

Botanist, Selawik National Wildlife Refuge June-October 1997
U.S. Fish and Wildlife Service, Kotzebue, Alaska
Position jointly funded by U.S. Air Force. Priority was to complete provisions of Conservation Agreement/Plan I initiated with U.S. Air Force in 1996 for rare plant mitigation. Wrote the scope of work and budget for this project. Mitigation included transplantation and seed collection. Multi-partnership project (5 entities).

Endangered Species Specialist/Botanist August 1992-December 1996
U.S. Fish and Wildlife Service, Regional Office and Ecological Services, Anchorage, Alaska

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Coordinated first (and only) Ecological Services Rare Plant Program for Alaska. Implemented Sections 4, 6 and 7 of the Endangered Species Act; (listing, intergovernmental coordination, and consultation, respectively). Initiated and wrote first Conservation Agreement/Plan in Alaska between USFWS and U.S. Air Force for project above. Reviewed NEPA documents. Assessed impacts to fish and wildlife habitat for private, state and federal projects. Coordinated and/or conducted rare plant/floristic surveys. Wrote and supervised contracts, projects/field reports and summarized ecological data. Coordinated and assisted in revegetation projects. Initiated and coordinated the first inter-agency/NGO Anchorage "Celebrating Wildflowers" event which is still held annually. Created and implemented a pilot Anchorage Native Plant Salvaging Program for which I received an award.

Endangered Species Specialist/Botanist ***June 1991-July 1992***
U.S. Fish and Wildlife Service, Ecological Services, Cheyenne, Wyoming
Standard duties included those described above. Created Wyoming Rare Plant Working Group and initiated the Wyoming Rare Plant Field Guide.

Natural Resource Specialist-Eastern Team ***June 1990-June 1991***
National Park Service, Denver Service Center, Lakewood, Colorado
Completed environmental compliance for Park Service projects and participated as team planner. Wrote NEPA documents, completed Section 7's with USFWS, participated in wetlands delineation's in compliance with Clean Water Act 404 process, Executive Order on Wetlands/Floodplains. Conducted compliance for other regulations such as local coastal regulations.

Biologist, Enhancement Project ***December 1989-May 1990***
Wyoming Game and Fish, Cheyenne, Wyoming
Attempted to investigate if there was any possible correlation between pesticide application on wildlife habitat and wildlife damage claims from ranchers. (Soil Conservation Service cost-shared up to 80% of the pesticide application costs).

Coordinator, Land Protection Planning and ***June-November 1989***
Stewardship, The Nature Conservancy, Frankfort, Kentucky
Coordinated landowner registry program and cared for 23 preserves. Required ability to work with all types of people and be resourceful to meet stewardship needs as economically as possible. Also led hikes for the public and donors.

Environmental Services Technician ***January 1988-May 1989***
California Dept Parks and Recreation, San Diego
Conducted "CEQA" surveys (Calif. Environmental Quality Act) for rare plants, conducted trail-use evaluations, assisted in revegetation projects, wrote and supervised two contracts, digitized rare plant locations using GIS (arc-info). Assisted wildlife biologists in setting traps and analyzing research data.

Research Technician ***May-September 1987***
Toolik Lake Arctic Research Station, Alaska Systems Ecology Research Group
San Diego State University
Assisted in research project to monitor long-term ecological effects of the Trans-Alaskan pipeline. Data collected included root growth, phenology, leaf area index and biomass of tundra vegetation. In San Diego assisted in project to monitor success of "created" vernal pools versus natural ones. Used two listed plant species as indicators: San Diego mesa mint (*Pogogyne abramsii*) and toothed lobelia (*Downingia cuspidata*).

Ecologist (seasonal only) ***April-October 1986***
Ohio Dept of Natural Resources, Div of Natural Areas and Preserves, Columbus
Used aerial photos and topographic maps to locate potential natural areas in Belmont and Guernsey Counties. (Both counties were over 50% strip-mined). Potential areas were field checked and ecological data was taken to quantify significant ecological attributes and justify candidacy.

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Graduate Student ***January 1984-June 1986***
Dept of Botany, Ohio University, Athens, Ohio
Conducted Master's research on former federal candidate Category 2 species, *Synandra hispidula* (Guyandotte Beauty) of the Mint Family. Research included demography, phenology, germination studies, and herbivory (by default). Thesis sent to USFWS Office of Endangered Species, Atlanta, Georgia.

Undergraduate research experience ***May 1983-January 1985***
Dept of Botany, Ohio University, Athens, Ohio
Research assistant for graduate advisor Dr. Philip Cantino, Systematist. Prepared pollen for electron microscopy. Conducted floristic survey of property under consideration for acquisition by the university. Worked in The Bartley Herbarium assisting with routine duties of the herbarium: processing loans, accessioning, annotating, identifying, mounting and repairing specimens.

Current Certifications

Nevada and San Diego County approved biologist, Women and Minority Business Enterprise as certified by the CPUC (California Public Utilities Commission) VON # 1KS00011, Federal, and State of California Permits to Collect Federal, and State Endangered, Threatened, and Rare Plants, Individual Permit for Quino Checkerspot TE-036890-0). Registered on Central Contract Registration with US Gov't and as Small Business. Certified Small Business, State of California (Ref # 0041912). Others in progress.

Interpretive/Instructional Experience

Freelance naturalist/environmental educator/teacher

Some Present & Past EOS Clients: Eco-Kids (Sierra Nevada Deep Ecology Institute, Grass Valley), Independence Trail Docent Program Nevada County, UC Berkeley Museum (Paleobotany Program), Bell Gardens, Valley Center, CA; KQ Resort, Julian, CA ; Rancho Corrido Campground, Pauma Valley, CA ; home school and children groups, on-call with many groups and programs. I play the guitar, sing, and compose songs.

Freelance Multi-subject and Study ***2006-Currently***
Skills Improvement Tutor
Home Tutoring Plus
Meadow Vista, California

Adjunct Instructor ***January-May 2007***
Biology Department, Sierra College, Rocklin, California
Taught course in Ecological Field Methods including lecture, labs and field trips.

Teacher ***September-November 2004***
Alta Sierra Elementary, Grass Valley, California
Create and teach after school nature education classes for elementary students.

Instructor ***June 2001-present (first two wkds of June)***
Sierra Club Nature Knowledge Workshop, San Diego Chapter
Create nature education and conservation programs for adults who want to learn more about local and regional ecology. My specific role is to emphasize plants and plant ecology.

Adjunct Instructor ***August-2001-September 2003***
Biology Department, Palomar College, Escondido, California
Instructed lab and lecture fast track course in introductory biology.

Interpretive Specialist/Ranger ***July 1998-July 1999***

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Dixon Lake/Daley Ranch, City of Escondido, California
First position of its kind in the City which I created. Part-time position that includes creating and coordinating a docent program, renovating and maintaining park interpretive signs, and leading natural history hikes/talks. Also prepared and obtained grant through the Natural Resources Conservation Service for removal of exotics at Lake Wohlford and Dixon Lake.

Adjunct Instructor and Tutor ***January-May /Sept-Nov 1997***
Biology Department, University of Alaska, Anchorage
Instructed labs and lecture courses in introductory biology/botany.

Instructor (Intermittent) ***June 1995-June 1997***
Anchorage School District
Conduct workshops on botany/ecology topics for teacher in-services as part of a National Science Foundation Earth Sciences grant.

Summary of other interp/instruction/outreach experience

-1998 Presenter, Reptile Exhibit, San Diego Natural History Museum.
-1988: Instructor, Denver C. Fox 6th grade Outdoor School, Santa Ysabel, Calif.
-1986: Instructor for self-designed course on the local flora, Ohio Univ., Athens, Ohio
-1983-84: Teaching Assistant, Department of Botany, Ohio Univ.
-1980: Seasonal Naturalist, Grand Lake St. Mary's State Park, Ohio Dept of Parks and Recreation.
-1979: Counselor, Camp Farnsworth, Thetford, Vermont.
-1978: Youth Conservation Corps, Defiance, Ohio

E D U C A T I O N

M.S. in Botany (plant systematics and ecology), 1986
Dept of Botany, Ohio University, Athens, Ohio
B.S. in Field Biology, Ohio University, 1983.

Additional coursework at University of California, La Jolla,
University of Wyoming, University of Alaska, Anchorage and Sierra Community College (Rocklin, Ca)

C O M P U T E R E X P E R I E N C E

Windows, Word-Perfect, Microsoft Works, Word 97/2000,GIS-arc-info (digitized data only), Microsoft Excel, Quattro-Pro, Harvard Graphics, ArcView GIS, STPLAN 4.1, Internet/email software.

T R A I N I N G (always on-going)

Grant Writing, Environmental Law, Conducting Section 7 Consultations (Endangered Species Act), Effective Presentations, Negotiation Skills, Bear and Firearms Safety (Alaska job requirement), Conflict Resolution & Consensus Building, Conservation Biology (Interagency Workshop, 1995), Inventorying and Monitoring Rare Plants (BLM Workshop 1995), CNPS Vegetation Sampling Workshop (refresher), San Diego's Sensitive Butterflies Workshop (2001) and Geology of San Diego County (SDNHM Class, 2002), Wetland Delineation (Wetlands Training Institute) (refresher) 2004, Soils Class (Fall 2005), ARC VIEW GIS (Fall 2005), Climate Change: Is This a New Age for Land Use Planning and CEQA? (May 2007), Willows of California, Chico Herbarium, Cal State Chico (June 2008).

V O L U N T E E R

I believe very strongly in contributing to my community. I am always involved in some type of volunteer activity.

February 2005: Completed Laubach Literacy Training for Literacy Program, Nevada Co Library System
March 2004-present: Redbud Chapter, CNPS and other community/environmental groups in Grass Valley
March 2003-November 2004: Member, Julian Planning Group, San Diego County
2000-Volunteer, San Diego Bird Atlas Project. San Diego Natural History Museum.

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1998-present: Volunteer and/or Speaker: Volcan Mountain Preserve Foundation, California Native Plant Society, Iron Mountain Conservancy, Ramona, Adopt-a-Canyon Campaign hike leader, Sierra Club (Volunteer for many other groups as available).
1994-97: Vice President and Program Chair, Alaska Native Plant Society
1997: Education Chair, Anchorage Chapter of Audubon Society
1987-89: Chair of Programming, San Diego Chapter of the California Native Plant Society
1987: Orchid House volunteer, San Diego Zoo
1980-82: Careline Volunteer (24-hour crisis line)

A W A R D S / P U B L I C A T I O N S / O T H E R I N F O

2005: Nevada's Buried Treasure: The Lund Petrified Forest. Abstract for Botanical Society of America, University of California Museum of Palentology. Erwin, D. et al. (Moran listed as co-author)

2004: Rare Plant and Vegetation Surveys, Santa Ysabel Preserve 2002 and 2003 (http://www.co.san-diego.ca.us/parks/docs/syosp/Appendix_A.pdf) and Post-Cedar Fire Ecosystem and Rare Plant Impact Survey, Santa Ysabel Ranch Open Space Preserve, East Ranch (http://www.sdcounty.ca.gov/parks/docs/syosp/Appendix_B.pdf) Reports produced for The Nature Conservancy and San Diego County. On county website at addresses above.

1997: Awarded the Outstanding Stewardship Award by the Anchorage Waterways Council for the pilot Native Plant Salvaging Program.

1997: Speaker for the Public Lecture Series, Anchorage Waterways Council/Aududon Society

1997: "Implementation of the Multi-partnership Conservation Agreement for *Oxytropis arctica barnebyana* (Barneby's milkvetch) Kotzebue LRRS 1996/1997." Final Report for the U.S. Air Force Work Order Number 86059. Elmendorf Air Force Base, Anchorage, Alaska. 49 pp. plus appendices.

1996. "Aleutian shield fern" and "How you can help protect endangered species" In: Alaska's Threatened and Endangered Species, edited by M.Sydeman, Alaska Department of Fish and Game. pp. 23 and 29.

1996, Coastal America Progress Report and Update, "Strengthening Regional Efforts--the Barneby's Milkvetch Conservation Agreement" pp.13. Coastal America, Washington, D.C.

1995, 1996 and 1997, received awards from U.S. Fish and Wildlife Service for performance, including

two Special Achievement awards, a time-off award for coordinating "Celebrating Wildflowers", and an "On-the-Spot" award for the report completed for the U.S. Air Force.

Moran, V.S. 1994. "A different perspective on sustainability". Ecological Applications 4(3) pp. 405-6.

Advisor for 1994 and 1998 DOI Multi-agency (USFWS, BLM, USFS and Heritage Programs) Wyoming & Alaska Rare Plant Field Guides.

Assisted in editing 2001 List of Flora of San Diego County through the San Diego Natural History Museum.

Freelance writer, Academic Press Dictionary of Science, Harcourt Brace Jovanovich, Inc.,San Diego, California. Researched topics in mycology, taxonomy, systematics, ecology and botany for science dictionary.

1987. New county record for *Scribneria bolanderi* and *Agrostis avencea*. Madrono 34:4 pp.381.

1986*:* Presented results of graduate research at Ecological Society of America meeting, Syracuse, New Publication of abstract.

Wrote and was awarded a grant from the Ohio Dept of Natural Resources, Division of Natural

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reserves for graduate research project.

Variety of freelance articles published in the Chico News and Review, The Union newspaper (Grass Valley), YubaNet, Truth-Out, Anchorage Daily News, Casper Star, newsletter of the Alaska Native Plant Society (Borealis), Audubon Society (Okiotak), Alaska Wildlife Alliance, California Native Plant Society Newsletter, Vision Magazine, The Blend, and many others. Have also performed commentaries for various public radio stations.

O R G A N I Z A T I O N S / M E M B E R S H I P S

California Native Plant Society, California Botanical Society, Audubon Society, California Oak Foundation, California Native Grassland Association, and KVMR Community Radio, and others.

I N T E R E S T S

Philosophy, hiking/botanizing/bird watching, running, camping, backpacking, cycling, skiing of all kinds, writing, playing guitar/composing songs and my two dogs.

References will be furnished upon request.

PAULA POTENZA

EDUCATION
M.A, Biology, California State University, Fullerton, 1996
B.A., Biology, University of California, San Diego, 1987

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS
U.S. Fish and Wildlife Service (USFWS) permit to survey for California gnatcatcher and Quino checkerspot butterfly, 2002-2007
USFWS and California Department of Fish and Game (CDFG) permits to handle giant garter snakes, 1998-1999
USFWS permit to survey for Quino checkerspot butterfly, 1998
USFWS permit to survey for California gnatcatcher, 1997-1998

AREAS OF EXPERTISE
Ms. Paula Potenza has technical experience in the following general areas:

- Biological Resource Surveys and Inspection
- Report Writing
- Revegetation
- Environmental Training

REPRESENTATIVE EXPERIENCE
Ms. Potenza has nearly 17 years of experience in environmental inspection and biological resource surveying on small to large-scale projects with sensitive biological resource issues. Her biological expertise includes avian, herpetological, and mammalian species surveys; impact assessments; and mitigation measure development and monitoring. Ms. Potenza also combines a technical background in erosion control, stream and wetland crossing procedures, and revegetation with proven capabilities in field crew coordination, client and agency relations, technical writing, and environmental training. In addition, she holds a USFWS permit authorizing her to conduct surveys for coastal California gnatcatcher and Quino checkerspot butterfly.

Otay River Constructors, State Route South Toll Road Project – Chula Vista, CA (Lead Biologist: 2004 – Present)
Ms. Potenza supervises, coordinates, and conducts California gnatcatcher presence/absence breeding season and nesting surveys in accordance with agency protocols, and in conjunction with noise monitoring as required by the USFWS Biological Opinion. She prepares and submits the California gnatcatcher 45-day report and the annual report of her findings to the USFWS.

Southern California Edison (SCE), As-Needed Environmental Services – Mono, Inyo, Tulare, Kern, Ventura, Los Angeles, Kern, San Bernardino, and Riverside Counties, CA (Biologist: 2006 – Present)
Ms. Potenza conducts biological surveys and provides reports for SCE's operation, maintenance, and construction of electric distribution and transmission lines. She also drafts the scope and cost estimate for new projects.

San Diego Gas & Electric (SDG&E), Otay Mesa Power Purchase Agreement Transmission Line Project – San Diego County, CA (Environmental Inspector: 2006 – Present)
Ms. Potenza conducts preconstruction coastal California gnatcatcher surveys and construction monitoring activities for compliance with the mitigation monitoring plan for construction of a new 230 kilovolt (kV) transmission project in Southern San Diego County. She also conducts burrowing owl surveys according to the methodology provided by the California Burrowing Owl Symposium.

San Diego Gas & Electric (SDG&E), On-Call Biological Services – CA (Lead Biologist: 2000 – Present)
Ms. Potenza conducts biological surveys for areas with potential to support 110 sensitive wildlife and plant species, including presence/absence surveys for California gnatcatcher (protocol-level surveys in accordance with the agency protocols), least Bell's vireo, Belding's savannah sparrow, nesting raptors, and Quino checkerspot butterfly, and prepares technical reports for SDG&E's operation, maintenance, and new construction of electric distribution and transmission lines and natural gas pipelines in accordance with Sempra's 50-year Natural Community Conservation Plan permit. She also prepares application packages for CDFG 1600 permits and U.S. Army Corps of Engineers 404 permits for electric and gas transmission activities. Ms. Potenza provides environmental documentation to support National Environmental Policy Act (NEPA) compliance for U.S. Marine Corps (Camp Pendleton and Miramar) operation and maintenance, and she conducts fieldwork for permit and report submittals. Ms. Potenza reviews reports and pre-activity surveys for areas with potential to support 110 sensitive wildlife, and plant species, and wetlands and jurisdictional drainages. She coordinates with SDG&E on survey results and agency reports, and provides environmental documentation to support NEPA compliance for the Bureau of Indian Affairs resulting in the issuance of Categorical Exclusions.

Arcadis, San Diego Gas & Electric Sunrise Powerlink Project – San Diego, CA (Lead Biologist: 2006)
Ms. Potenza conducted reconnaissance-level wildlife surveys within the proposed Inland Valley Link right-of-way for a proposed 500 kV transmission line project. She identified, documented, and mapped special-status species and habitat to support special-status species along the route. Ms. Potenza monitored

surveyors to ensure that no sensitive species or habitats were impacted by their activities.

San Diego Gas & Electric, Miguel to Mission 230 kV #2 Project – San Diego County, CA (Associate Biologist: 2005 – 2006)
Ms. Potenza conducted preconstruction coastal California gnatcatcher surveys and construction monitoring activities for construction of a 230 kV transmission project in Southern San Diego County per the mitigation and monitoring plan in the project's Environmental Impact Report (EIR). Her duties included conducting preconstruction surveys for 110 sensitive species covered in SDG&E's NCCP, nesting birds, and Quino checkerspot butterfly.

Pajaro Valley Water Management Agency, Revised Basin Management Plan – Santa Cruz and Monterey Counties, CA (Lead Biologist: 2005)
Ms. Potenza coordinated and conducted a least Bell's vireo presence/absence survey in accordance with agency protocols. She prepared and submitted a survey letter report of her findings per the project Biological Opinion. Ms. Potenza also conducted surveys to verify nesting bird habitat along the project route.

Southern California Gas Company, Playa del Rey Well 11 – Playa del Rey, CA (Lead Biologist: 2005)
Ms. Potenza coordinated and conducted a Belding's savannah sparrow presence/absence survey and a general bird nest survey in accordance with standard survey protocols. She prepared and submitted a Belding's savannah sparrow methodology letter report and a Belding's savannah sparrow and general bird nest survey letter report of her findings per the recommendation of the CDFG and the California Coastal Commission. Ms. Potenza also conducted environmental crew training prior to the start of project activities and monitored nesting bird during project activities.

Orange County Integrated Waste Management Department, Gothard Street Refuse Disposal Station – Huntington Beach, CA (Lead Biologist: 2005)
Ms. Potenza coordinated and conducted California gnatcatcher presence/absence breeding season and nesting surveys in accordance with agency protocols. She completed and submitted the California gnatcatcher 45-day report of findings to the USFWS.

Mojave Pipeline/Kern River Gas Transmission Company, Line No. 1905 Meter Station Modification Project – San Bernardino County, CA (Lead Biologist: 2004)
Ms. Potenza was approved by the USFWS to conduct desert tortoise presence/absence surveys at four existing meter stations. She conducted the surveys and prepared and submitted the desert tortoise survey letter report of findings per the project Biological Opinion.

Southern California Gas Company, Niland Pipe Relocation Project – Niland, CA (Biological Monitor: 2004)
Ms. Potenza monitored a pipeline construction crew for desert tortoise mitigation compliance. She was approved by the USFWS to handle and relocate desert tortoise. Ms. Potenza also trained construction crews to avoid potential impacts to tortoise and other biological resources.

Southern California Edison, Oak Valley Substation Project – Riverside County, CA (Lead Planner: 2004)
Ms. Potenza supervised, coordinated, and conducted biological surveys for a new 115 kilovolt (kV) substation and a 220 kV substation proposed for either two separate substation sites of approximately three acres and 10 acres respectively, or on one site of approximately 15 acres that would accommodate both substations. She conducted sensitive resource surveys, which included general and sensitive wildlife surveys. She also supervised and contributed to the habitat assessment report in support of the proposed project.

Southern California Edison, Summit Substation Project – San Bernardino County, CA (Lead Planner: 2003 – 2004)
Ms. Potenza supervised, coordinated, and conducted biological surveys for a proposed 3.5-mile transmission line and substation upgrade. She conducted sensitive resource surveys, which included general and sensitive wildlife surveys, and protocol-level surveys for California gnatcatcher, in accordance with the agency protocols. Ms. Potenza supervised and contributed to the habitat assessment report in support of the project. She also coordinated and supervised project biological subconsultants.

San Diego Gas & Electric, Miguel to Mission 230 kV #2 Project – San Diego County, CA (Lead Planner: 2002 – 2003)
Ms. Potenza supervised, coordinated, and conducted biological surveys and prepared biological sections of a Proponent's Environmental Assessment (PEA) to the California Public Utilities Commission for a proposed 35-mile transmission line upgrade. She conducted sensitive resource surveys and surveys for sensitive wildlife in accordance with agency protocols. She was responsible for hiring, coordinating, and supervising project biological subconsultants, and she supervised and contributed to the biological and technical report preparation in support of the PEA.

EnCana, Wild Goose Gas Storage Project – Butte and Colusa Counties, CA (Associate Biologist: 2001)
Ms. Potenza performed surveys for sensitive wildlife species to facilitate the expansion of an underground natural gas storage facility and construction of approximately 30 miles of pipeline. Key resource issues included wetlands,

agricultural fields, special-status species, and a crossing of the Sacramento River. Ms. Potenza helped prepare various plans and reports, including the biological assessment, restoration plan, mitigation monitoring plan, and the biological resources section of the Proponent's Environmental Assessment.

Williams Communications, Inc., Fiber Optic Project – CA (Spread Coordinator: 2000 – 2001)
Ms. Potenza coordinated environmental inspection and training activities during installation of approximately 110 miles of underground fiber optic cable on the San Diego to Riverside route. She participated in protocol-level California gnatcatcher surveys and presence/absence surveys for least Bell's vireo. She oversaw documentation and reporting protocols, and preparation of variances. Ms. Potenza also implemented training programs and coordinated directly with agency representatives from the California Public Utilities Commission and the client.

Pacific Gas and Electric Company, San Mateo-Martin Circuit No. 4 60 kV Conversion – San Mateo County, CA (Biological Monitor: 2000)
Ms. Potenza monitored construction activities during the replacement of approximately 11.5 miles of existing overhead transmission lines. Construction occurred in extremely sensitive habitats for the federally listed San Francisco garter snake, California red-legged frog, and three sensitive butterfly species. Ms. Potenza coordinated with numerous contractors, the USFWS, and the CDFG.

Alliance Pipeline L.P., Alliance Pipeline Project – IL, IA, MN, and IL (Lead Environmental Inspector/Biological Monitor: 1999 – 2000)
Ms. Potenza supervised environmental inspection activities for an 891-mile, 36-inch-diameter natural gas pipeline from Canada to Illinois. She supervised one inspector, and she worked closely with construction contractors, agency representatives, and third-party monitors to ensure protection of wetlands and natural resources, and compliance with permit requirements. Ms. Potenza coordinated with the Federal Energy Regulatory Commission (FERC), the U.S. Army Corps of Engineers, and county agriculture inspectors. Prior to construction, Ms. Potenza provided inspection and biological monitoring during the clearing phase. She surveyed and inspected approximately 100 miles of right-of-way in Illinois and Iowa for Indiana bat and bat habitat, and she provided daily compliance reports with digital photographs.

Alberta Energy Company, Wild Goose Gas Storage Project – Butte County, CA (Associate/Environmental Inspector: 1998 – 1999)
Ms. Potenza performed environmental inspection and monitoring during construction of an underground natural gas storage facility and connecting pipelines within a wetland complex. She inspected for topsoil handling, wetland and water crossings, biological and cultural resource protection, and hazardous

materials. Ms. Potenza conducted environmental training for the construction workforce, and she worked closely with contractors, field crews, and agency representatives to ensure compliance with regulatory requirements. She also coordinated and monitored restoration and revegetation of disturbed areas in riparian and wetland communities. Ms. Potenza conducted winter bird, nesting bird, and vegetation surveys for postconstruction monitoring of wetland creation and enhancement sites. She also provided visual and auditory identification of birds, data collection from wetland control and creation sites, and writing and editing of annual reports.

Questar Corporation, TransColorado Phase II – CO and NM (Environmental Inspector: 1998 – 1999)
Ms. Potenza inspected construction of 70 miles of 24-inch-diameter pipeline. She focused on erosion control, topsoil handling, hazardous materials, biological and cultural resource protection, noxious weed control, and stream and wetland protection. Ms. Potenza coordinated daily with construction management and personnel from the FERC, Bureau of Land Management, and U.S. Forest Service. She also documented daily compliance activities via an electronic reporting system, and she provided on-site environmental training for construction crews.

Chambers Group, Inc. – Orange County, CA (Wildlife Biologist: 1992 – 1998)
Ms. Potenza participated in surveys for endangered, threatened, and sensitive species, including the California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, burrowing owl, southwestern arroyo toad, and desert tortoise. She provided construction, restoration, and annual inspections and written reports for the FERC Office of Pipeline Regulation on natural gas pipeline projects throughout the United States. She also conducted construction inspections to evaluate compliance with FERC mitigation plans, especially at environmentally sensitive areas such as wetlands and river crossings. Ms. Potenza monitored geotechnical survey crews, land surveying crews, and construction crews for compliance, including desert tortoise mitigation. She was approved by the USFWS to handle and relocate desert tortoise. She trained construction crews to avoid potential impacts to tortoise and other biological resources, and she managed a brown-headed cowbird-trapping program as part of mitigation for construction of a transportation corridor.
The Nature Conservancy – McCloud, CA (Biologist: 1994)
Ms. Potenza set up vegetation study plots in existing and revegetated areas of California coastal sage scrub. She identified dominant plant species and percent plant cover.

Natural Resource Consultants, David A. Levine – Orange County, CA (Wildlife Biologist: 1994)

Ms. Potenza participated in California gnatcatcher surveys, identified California gnatcatcher, cactus wrens, and other birds by sight and sound, and followed breeding gnatcatcher pairs to identify home range and nest site. She assisted mist netting of California gnatcatchers, and conducted vegetation mapping of local coastal sage scrub and chaparral communities by identifying major plant types and communities. Ms. Potenza also mapped community locations on aerial photographs.

Sweetwater Environmental Biologists, Inc. – Mojave Desert, CA (Wildlife Technician: 1992 – 1993)
Ms. Potenza participated in desert tortoise surveys on military installations. She also participated in California gnatcatcher surveys and a cowbird-trapping program in southern California.

Biological Consultant, Victor M. Horchar – Twenty-Nine Palms, CA (Wildlife Biologist: 1992 – 1993)
Ms. Potenza conducted mitigation compliance monitoring on a military installation for survey and drill crews working in desert tortoise habitat. She participated in desert tortoise surveys and collected, recorded, and reported biological data. Ms. Potenza identified, classified, and recorded all reptiles, birds, and mammals as part of general wildlife surveys.

Wildlife Consultant, Dr. Bayard H. Brattstrom – Mojave Desert, CA (Wildlife Biologist: 1992)
Ms. Potenza assisted in a breeding bird survey and she identified species of birds on the survey site by sight and sound. Ms. Potenza also assisted in analyzing collected data on bird densities for future publication.

Institute of Wildlife and Environmental Toxicology, Clemson University – Chariton, IA (Research Technician: 1989 – 1990)
Ms. Potenza located and monitored wild bird nests; monitored artificial nests; trapped and banded birds; tracked and located bobwhites and rabbits using upland wildlife telemetry; and conducted small mammal monitoring, carcass searching, and collecting for a study to determine the effects of pesticides on wildlife in rural agricultural Iowa.

Sea World, Inc. – San Diego, CA (Aviculturist: 1987 – 1988)
Ms. Potenza hand-raised quarantined penguins from eggs to adults. She prepared, collected, and maintained detailed records, and acted as co-supervisor on the graveyard shift during a second quarantine. She also trained and supervised new employees.

TEACHING AND ADVISORY POSITIONS

California State University, Fullerton, Biology Instructor/Teaching Assistant, Zoology and Biology undergraduate courses, Department of Biological Sciences, 1993 and 1994

SPECIALIZED TRAINING

- San Diego County Sensitive Butterfly Workshop, Nature Festivals of San Diego County, 2002 and 2004
- Desert Tortoise Workshop, Desert Tortoise Council, 1995 and 2003
- San Diego's Sensitive Butterflies Seminar, San Diego Natural History Museum, 2001
- Quino Checkerspot Butterfly Workshop/Training Seminar, U.S. Fish and Wildlife Service, 1997
- Research and Management of the Brown-headed Cowbird in Western and Eastern Landscape Seminar, Research Working Group, Partners in Flight, California State University, Sacramento, 1997
- Declining Amphibians and Reptiles in California Workshop, San Diego Natural History Museum, 1997
- Southwestern Willow Flycatcher Workshop, Audubon California's Kern River Preserve, 1997
- Southwestern Willow Flycatcher Workshop, San Diego Natural History Museum, 1995

SELECTED PUBLICATIONS AND PRESENTATIONS

Bolger, D.T., A.C. Alberts, R.M. Sauvajot, P. Potenza, C. McCalvin, D. Tran, S. Mazzoni, and M.E. Soule. "Response of rodents to habitat fragmentation in coastal southern California." *Ecological Applications*, vol. 7 no. 2, 1997.

COMPANY PROFILE

CADRE
Environmental

Cadre Environmental is an environmental consulting firm specializing in conducting natural history research for threatened and endangered species throughout California. The managing Owner/Research Biologist/GIS Analyst of the firm, Mr. Ruben Ramirez, has over 15 years of experience in environmental consulting, conducting wildlife surveys, and developing Geographic Information Systems (GIS) databases, having worked as a Wildlife Biologist for the Angeles National Forest; as a Wildlife Biologist/GIS Analyst for Michael Brandman Associates; and as a Principal Wildlife Biologist/GIS Analyst for PCR Services.

Mr. Ramirez founded Cadre Environmental in June 2002. Since its inception the firm has worked on various public and private environmental projects both in northern and southern California.

701 Palomar Airport Road, Suite 300 - Carlsbad, California 92011
T: 949-300-0212 F:760-758-3844 e-mail:r.ramirez@cadreenvironmental.com

RUBEN S. RAMIREZ, JR.

PROFESSIONAL EXPERIENCE

2002 - Present **Cadre Environmental, Carlsbad California**
Owner/Research Biologist

As Owner/Research Biologist for Cadre Environmental, I am responsible for all aspects of the business. These responsibilities include business development, client/agency interaction and coordination, project initiation and research, documentation, and mapping . I personally conduct all surveys for federal and state listed species for Cadre Environmental. Specifically, I have and continue to conduct focused survey programs for the arroyo toad, California red-legged frog, coastal California gnatcatcher, San Bernardino kangaroo rat and Pacific pocket mouse. I am currently conducting amphibian natural history research for both federal and private clients throughout Southern California. Clients include the Mojave Water Agency, Cleveland National Forest -FS, Rancho Mission Viejo Rancho Las Flores Limited Partnership, and the Pechanga Indian Reservation. In addition to conducting sensitive species research, I am also responsible for developing geographic information system (GIS) databases including creation, database development, and map production.

I also served as a member of Los Angeles County Significant Ecological Areas Technical Advisory Committee (SEATAC) from 2004-2006

1997 - 2002 **PCR Services Corporation, Irvine California**
Principal Wildlife Biologist/GIS Specialist

As a Principal Wildlife Biologist for PCR Services Corporation, I conducted surveys for federal and state listed species with an emphasis on amphibians. I conducted amphibian natural history research for both federal and private clients on project sites totaling over 30,000 acres throughout Southern California. These clients included the United States Forest Service, United States Fish and Wildlife Service, Caltrans, Rancho Las Flores Limited Partnership, Summit Valley Ranch, and Rancho Mission Viejo. In addition to conducting research, I served as a liaison between private landowners and the federal and state agencies providing assistance and strategic guidance throughout the permitting process. Some of the clients included AeraEnergy, LLC a division of Shell, The City of San Diego, Palmdale Water District, Woodside Homes, Pacific Century Homes, Communities Southwest, West San Bernardino Water District, Coussoulis Development, and KHovnanian Companies of California. Responsibilities also included a continued commitment to the identification of mitigation lands and participation in all stages of conducting baseline studies, agency coordination and documentation (technical reports, mitigation bank agreements, management plans). Mitigation bank projects included Viejo Substation (Southern California Edison), Hidden Ranch (Ecological Capital Corporation), Four Seasons (KHovnanian), Summit Valley (Caltrans), and Sonny Meadows (Taylor Family).

PROFESSIONAL EXPERIENCE

1995 - 1997 **Michael Brandman Associates, Tustin California**
Wildlife Biologist/GIS Specialist

As a Wildlife Biologist for an environmental consulting firm, I conducted biological constraints analyses for both private and public clients throughout Southern California. These reconnaissance level surveys led to recommendations on strategies for addressing federal, state, and local regulations specific to the projects. This involved the preparation of proposals which included the development of scope of works, budgets, and schedules. Due to my experience with federal and state listed species and GIS, I was directly involved in all aspects of the projects I managed relating to biological resources. These included conducting focused surveys, developing GIS databases, conducting alternative analyses, and preparing documentation specific to the permit process. Six months after joining the Michael Brandman Associates Biological Services Division, I was promoted to Wildlife Biologist/GIS Specialist and was made the GIS Manager for the 10,000 acre Foothill Transportation South, Transportation Corridor Agencies, Corridor Project and have remained involved to the present time.

1994 - 1996 **United States Forest Service, Angeles National Forest**
Wildlife Biologist

As a Wildlife Biologist, I conducted focused surveys for federal and state listed flora and fauna occurring throughout the Forest. I was responsible for the documentation of the surveys which included recommendations for improving management practices specific to preventing impacts to sensitive species. As a biologist for the Forest Service, I also developed GIS coverages for those sensitive resources I documented during focused surveys. Tasks included the development of coverages, databases, and map production using ArcInfo and ArcView.

EDUCATION

2000 M.S., California State Polytechnic University, Pomona
Biological Sciences
Thesis: Arroyo Toad Upland Habitat Utilization and Movement Patterns

1993 B.A., California State University, Fullerton
Biological Sciences

PERMITS/CERTIFICATION

Federal Fish and Wildlife Permit (TE780566-10), Threatened and Endangered Species

California Gnatcatcher (Polioptila californica californica)

Pacific Pocket Mouse (Perognathus longimembris pacificus)

San Bernardino Kangaroo Rat (Dipodomys merriami parvus)

Arroyo Toad (Bufo californicus), use of pitfall traps, radiotelemetry and passive integrated transponders

California Red-legged frog (Rana aurora draytonii)

California Department of Fish and Game Permits

General Scientific Collection Authorization

Authorization to Collect State Designated Endangered, Threatened and Rare Plants

Memorandum of Understanding (MOU) to conduct studies on the San Bernardino Kangaroo Rat and Los Angeles Pocket Mouse (Perognathus longimembris brevinasus)

Certified Qualified Biological Consultant - Riverside County Environmental Programs Dept.

REFERENCES

Jill Sherman, Environmental Director, Viejas Indian Reservation (619) 659-2342

Dr. Eric Stein, Principal - S. Ca. Coastal Water Research Project (714) 372-9233

Steve Nelson, Director Biological Services, PCR Services Corporation (949) 753-7001

Nancy Ferguson, Acting San Bernardino Branch Chief, USFWS (760) 431-9440

Ray Bransfield, Section 7/CWA 404 Program Coordinator, USFWS (805) 644-1766

Kirsten Winter, Forest Biologist, Forest Service, Cleveland National Forest (858) 673-6180

Ann Johnston, Principal, Bonterra Consulting (714) 444-9199

Markus Spiegelberg, Regional Director, Center for Natural Lands Management (649) 295-4953

PROJECT EXPERIENCE

BIOLOGY - SOUTHERN CALIFORNIA

Mojave Water Agency - Threatened and Endangered Habitat Assessments/Focused Surveys, Water Quality Monitoring of Reservoir Releases/Development of Management Plans.

Pechanga Indian Reservation - Baseline Studies Including Focused Studies for Threatened and Endangered Species/Wildlife Movement Corridor Analysis, Development of Habitat Conservation Plan.

Summit Valley Ranch - Developed Hydrogeomorphic Habitat Baseline Analysis for the Arroyo Toad.

Angeles National Forest - Conducted Three-year Natural History Research Study on Upland Habitat Characterization and Activity Patterns for the Arroyo Toad, Little Rock Creek.

Rancho Las Flores - Conducting Three-year Natural History Research Study on Upland Habitat Characterization, Activity Patterns, Hydrogeomorphic Habitat Baseline Analysis, Stream Restoration Plan for the Arroyo Toad, Horsethief Canyon.

Cleveland National Forest - Conducting Home Range Telemetry Study Characterizing Upland Habitat Usage and Home Ranges for the Arroyo Toad, San Juan Creek.

Rancho Mission Viejo - Conducting Natural History Research Study on the Upland Habitat Characterization and Activity Patterns for the Arroyo Toad, San Juan Creek.

Talega Associates, LLC - Conducting Pitfall Trapping Study to Determine Upland Habitat Movements for the Arroyo Toad, San Clemente.

Southern California Edison - San Onofre Station Conducting Habitat Assessments/Focused and Monitoring for Federally Threatened and Endangered Species.

Southern California Edison - Hidden Ranch, Conduct Baseline Natural Resource Studies and Establishment of a Mitigation Bank.

Tentative Tract 46628/Rancho Palas Verdes - Conducted Focused Pacific Pocket Mouse Presence/Absence Surveys.

City of Carlsbad - Conducted Focused Pacific Pocket Mouse Presence/Absence Surveys.

County of Riverside - Conduct MSHCP Habitat Assessments, Focused Surveys and Permit Processing.

Foothill Transportation Corridor/South - Conducted Focused Pacific Pocket Mouse and Coastal California Gnatcatcher Presence/Absence Surveys.

San Mateo North - Seasonal Activity Monitoring of Pacific Pocket Mouse Population.

RYAN P. VILLANUEVA

EDUCATION

B.S., Biology, University of California Santa Cruz (UCSC) 2005.
B.A., Environmental Studies, University of California Santa Cruz (UCSC) 2005.

SPECIALIZED TRAINING AND CERTIFICATION

- Desert Tortoise Surveying, Monitoring, and Handling Techniques Workshop. The Desert Tortoise Council. October 2005.
- Army Corps of Engineers Wetland Delineation & Management Training Program. Richard Chinn Environmental Training, Inc. October 2005.
- OSHA 40-Hour Hazardous Waste Operations (HAZWOPER) Training, 29 CFR 1910.120. JoshuaCasey Corporate Training and Education. August 2005.
- OSHA 8-Hour Hazardous Waste Operations (HAZWOPER) Refresher, 29 CFR 1910.120. JoshuaCasey Corporate Training and Education. September 2007.

REPRESENTATIVE EXPERIENCE

Mr. Villanueva presently serves as a Staff Biologist. His primary responsibilities include the assessment of natural resources and the acquisition of federal, state, and local permits. His duties include conducting habitat assessments and biological surveys, the delineation of wetlands and other jurisdictional waters, biological monitoring, and production of documents in support of local, state, and federal regulations including the California Environmental Quality Act, National Environmental Policy Act, Clean Water Act, Endangered Species Act, and others. Mr. Villanueva has been conducting habitat assessments and presence/absence surveys for the desert tortoise (*Gopherus agassizii*) and monitoring construction operations in their habitat since August 2005. The following information highlights his experience with the species:

Desert Tortoise Habitat Assessment and Presence/Absence Surveys

Kinder Morgan Energy Partners (KMEP), San Bernardino County, California and Clark County, Nevada.
August 2005
Conducted presence/absence survey for desert tortoise and assessed biological resources at 37 locations along the 8-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Followed U.S. Fish and Wildlife Service (USFWS) protocol to survey project area and potential zone of influence.

KMEP, San Bernardino County, California.
September 2005
Conducted presence/absence survey for desert tortoise and assessed biological resources at 12 locations along the 8-inch Calnev pipeline from Colton to Barstow, California. Followed USFWS protocol to survey project area and potential zone of influence.

KMEP, San Bernardino County, California.
October 2005
Conducted presence/absence survey for desert tortoise (*Gopherus agassizii*) and assessed biological resources at one location along the 14-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Followed USFWS protocol to survey project area and potential zone of influence.

KMEP, San Bernardino County, California.
November 2005
Conducted pre-construction clearance surveys for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Yermo, California along the Calnev 8-inch pipeline for 4 different locations along the 8-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Administered initial biological resources and desert tortoise training to crew. Ensured minimization of impacts to the area by overseeing installation of Best Management Practices (BMPs) during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
November 2005
Conducted presence/absence survey for desert tortoise (*Gopherus agassizii*) and assessed biological resources at one location (Mile Post 123.1) along the 14-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Followed USFWS protocol to survey project area and potential zone of influence.

KMEP, San Bernardino County, California.
December 2005
Conducted pre-construction clearance surveys for (*Gopherus agassizii*) and monitored construction operations near Baker, California along the Calnev 8-inch pipeline for 3 different locations along the 8-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
December 2005-January 2006
Conducted pre-construction clearance surveys for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Baker, California along the Calnev 8-inch pipeline for 4 different locations along the 8-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
January 2006
Conducted pre-construction clearance surveys for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Yermo, California along the Calnev 8-inch

pipeline for 4 different locations along the 8-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
February 2006
Conducted pre-construction clearance surveys for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Yermo, California along the Calnev 14-inch pipeline for 6 different locations along the 14-inch Calnev pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
February 2006
Conducted pre-construction clearance survey for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Baker, California along the Calnev pipeline for a new valve location near the Baker Station along the Calnev Pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
March 2006
Conducted desert tortoise (*Gopherus agassizii*) clearance surveys with biologist Ted Rado for 3 sites on the Calnev 8-inch pipeline and 3 sites on the Calnev 14-inch pipeline from Barstow, California to Bracken, Nevada.

KMEP, San Bernardino County, California.
March 2006
Conducted pre-construction clearance survey for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Mountain Pass, California along the Calnev pipeline for 3 anomaly dig sites along the Calnev Pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, Riverside County, California.
April 2006
Conducted desert tortoise (*Gopherus agassizii*), Coachella Valley fringe toed lizard (*Uma inornata*), and Coachella Valley Milk Vetch (*Astragalus lentiginosus var. coachellae*) clearance surveys with biologist Nick Ricono on Line Section 111 near Cabazon, California. The 20-inch pipeline transports petroleum from Colton, California to Phoenix, Arizona.

KMEP, San Bernardino County, California.
May 2006
Conducted pre-construction clearance survey for desert tortoise (*Gopherus agassizii*) west of Victorville, California for a 1,000 foot relocation along the Calnev Pipeline from Barstow, California to Bracken, Nevada.

KMEP, San Bernardino County, California.
May 2007
Conducted preconstruction clearance survey for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Barstow, California along the Calnev pipeline for 2 anomaly dig sites along the Calnev Pipeline from Barstow, California to Bracken, Nevada. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

Southern California Gas Company (SoCal Gas), Riverside County, California
November 2007
Conducted preconstruction clearance survey for desert tortoise (*Gopherus agassizii*) and monitored construction operations near Desert Hot Springs, California along a new 3,000 foot long, 6-inch pipeline. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

SoCal Gas, San Bernardino County, California
December 2007
Monitored construction operations for desert tortoise (*Gopherus agassizii*) near Twentynine Palms, California along the existing Questar pipeline. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

SoCal Gas, San Bernardino County, California
April 2008
Evaluation for desert tortoise (*Gopherus agassizii*) with biologist Ellen Schafhauser near the existing Questar line near Twentynine Palms, California. Conducted surveys – located sign (scat, track), tortoises (12), and burrows (25).

BNSF, San Bernardino County, California
April 2008
Conducted habitat assessment, presence/absence survey for sensitive species including the desert tortoise (*Gopherus agassizii*) at five proposed microwave tower sites near the BNSF railroad line from Barstow, California to Needles, California.

OTHER REPRESENTATIVE EXPERIENCE

KMEP, San Bernardino County, California.
October 2005
Monitored excavations and anomaly repairs near Devore, California along the Calnev 8-inch pipeline. Ensured minimization of impacts to Cajon Wash by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
September 2005
Monitored construction operations near Cajon Junction, California along the Calnev 8-inch pipeline. Ensured minimization of impacts to Cajon Wash by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

KMEP, San Bernardino County, California.
April 2006
Monitored excavations and anomaly repairs near Devore, California along the Calnev 8-inch pipeline. Monitored site for San Bernardino Kangaroo Rat (SBKR). Prepared and presented SBKR training to the construction crew. Ensured minimization of impacts to unnamed wash near Cajon Wash by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

SoCal Gas, Los Angeles County, California.
May 2006
Conducted nesting bird survey with biologist Nick Ricono at a facility in Playa del Rey.

Tel Tec Plus, San Diego County, California
May 2006
Monitored excavations for a fiber optic line in Camp Pendleton Marine Corps Base, California. Monitored site for California gnatcatcher and coastal sage scrub habitat. Ensured minimization of impacts to coastal sage scrub.

San Diego Gas and Electric (SDG&E), San Diego County, California
June-August 2006
Surveyed SDG&E access roads for erosion issues as well as water permitting issues. Used handheld GPS unit to map locations of such areas.

San Diego Gas and Electric (SDG&E), San Diego County, California
October 2006 – March 2007
Conducted Stormwater Pollution Prevention Plan (SWPPP) inspections. Ensured BMPs were in place and functional.

The City of Santa Clarita, Los Angeles County, California
October 2006

Monitored bank stabilization project along the Santa Clara River. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

Wal-Mart, Solano County, California
December 2006
Conducted a habitat assessment in the city of Fairfield, California.

RMK Mining, Calaveras County, California
December 2006
Delineated wetlands along a stream near Copperopolis, CA. The delineation was conducted using the 1987 United States Army Corps of Engineer (USACE) Wetland Delineation Manual. GPS was used to collect data on Waters of the United States (WUS) and Waters of the State of California (WSC).

Wespac Pipelines, LLC, Los Angeles County, California.
May to September 2007
Provided biological support for a biological assessment along a route from Long Beach to Los Angeles International Airport (LAX). Duties included database searches, driving surveys (biological and land use) and document creation.

ARCADIS, San Diego County, California.
May 2007 - present
Monitored a survey crew which installed aerial markers as well as located monuments throughout San Diego County. Prevented impacts/disturbance to sensitive areas/species.

Southern California Edison (SCE), Kern, Los Angeles, Riverside and San Bernardino Counties, California.
May 2007 - present
Conducted approximately 25 habitat assessments on several sites within various counties. Also, monitored maintenance activities near an osprey nest in Kern County near Weldon, CA.

City of Murrieta, Riverside County, California.
May 2007
Conducted a biological survey just south of Warm Springs Creek in Murrieta, California. The survey was used to complete an initial study for the site.

Granite Construction Company, Yolo County, California.
May 2007
Delineated wetlands along Cache Creek near Esparto, CA. The delineation was conducted using the 1987 United States Army Corps of Engineer (USACE) Wetland Delineation Manual. GPS was used to collect data on Waters of the United States (WUS) and Waters of the State of California (WSC).

Power Engineers, Inc., Riverside County, California.
May to June 2007
Conducted protocol level surveys with biologist Leslie Nelson for burrowing owl in Riverside, California.

ARB, Inc., Kern County, California.
June 2007
Conducted cultural surveys with Dionosis Glentis along a 2 mile stretch near Tupman, California.

C.J. Segerstrom and Sons, Orange County, California.
July 2007
Conducted nesting bird surveys near IKEA in the city of Costa Mesa, California.

San Diego Gas and Electric (SDG&E), San Diego County, California
August 2007
Monitored insulator washing for a transmission line in Camp Pendleton Marine Corps Base, California. Monitored site for disturbance to habitat. Ensured minimization of impacts to habitat.

San Diego Gas and Electric (SDG&E), San Diego County, California
September 2007
Conducted a habitat assessment in Pala, California for a proposed transmission line extension.

The City of Santa Clarita, Los Angeles County, California
September 2007 - present
Monitored restoration along a stretch of the Santa Clara River where bank stabilization activities took place. Ensured restoration site was being maintained by overseeing removal of non-native vegetation and growth of native vegetation.

Castaic Lake Water District (CLWD), Los Angeles County, California
September 2007 - present
Monitored weed removal and restoration of a mitigation area along a stretch of the Santa Clara River. Ensured the mitigation area was being maintained by overseeing removal of non-native vegetation and growth of native vegetation.

KMEP, San Bernardino County, California.
October 2007
Monitored excavations, repairs and installation of Submar mats near Lytle Creek, California along the Calnev 8-inch and 14-inch pipeline. Ensured minimization of impacts to an unnamed creek by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

SDG&E, San Diego County, California.
November 2007

Monitored a directional drill (HDD) under the Sweetwater Marsh in Chula Vista, California. Ensured minimization of impacts to scrub and salt marsh habitat by overseeing installation of BMPs during construction and escorting crew into sensitive areas (salt marsh).

KMEP, San Bernardino County, California.
November 2007
Monitored excavations, repairs and installation of Submar mats and retention walls in Cajon Pass just west of Interstate 15 and north of Lytle Creek, California along the Calnev 14-inch pipeline. Ensured minimization of impacts to scrub habitat by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion.

SCE, Los Angeles County, California.
December 2007
Conducted pre-construction survey and environmental awareness training for burrowing owl (*Athene cunicularia*) and Mohave ground squirrel (*Spermophilus mohavensis*) west of Lancaster, California along a 66kV line upgrade.

SoCal Gas, Los Angeles County, California
January – March 2008
Monitored construction operations as an Environmental Inspector near Castaic, California along the existing Line 85 pipeline. Ensured minimization of impacts to the area by overseeing installation of BMPs during construction and ensuring areas were returned to preconstruction conditions upon completion. Ensured compliance with environmental requirements (fire plan, stormwater, etc.)

BNSF, San Bernardino County, California
January 2008
Conducted habitat assessment for five bridge locations along the BNSF railroad from Barstow, California to Needles, California.

KMEP, San Diego County, California
April 2008
Conducted protocol level surveys for California gnatcatcher with biologist Paula Potenza (TRC) in Pala, California.

KMEP, San Diego County, California
April 2008
Conducted protocol level surveys for Quino checkerspot butterfly with biologist Paula Potenza (TRC) in Pala, California.

SCE, Riverside County, California
April 2008
Conducted nesting bird survey along Temescal Canyon Road in Lake Elsinore, California.

BNSF, Merced and Madera Counties, California
May 2008
Conducted habitat assessment for eight bridge locations along the BNSF railroad from Madera, California to Planada, California.

PROFESSIONAL AFFILIATIONS

- The Desert Tortoise Council

VALERIE WALSH

EDUCATION
B.S., Environmental Biology Management, University of California, Davis, 1999

AREAS OF EXPERTISE
Ms. Valerie Walsh has technical experience in the following general areas:

- Biological and habitat surveys
- San Diego County habitats, flora and fauna
- Wetland delineations
- U.S. Army Corps of Engineers (Corps) Nationwide Permits
- Regional Water Quality Control Board (RWQCB) 401 Certifications
- California Department of Fish and Game (CDFG) Streambed Alteration Agreements
- California Coastal Commission (CCC) Coastal Development Permits
- Technical report writing

REPRESENTATIVE EXPERIENCE
Ms. Walsh is a field biologist with six years of experience in environmental biology, plant taxonomy, land use policy and planning, and restoration ecology. She is knowledgeable of San Diego County habitats, fauna and flora, including sensitive resources, and she can read and identify habitats in the field using topographic and aerial maps and interpret these maps using ArcGIS. Ms. Walsh has experience with qualitative vegetation monitoring and collection of quantitative field data through transect and/or quadracept data collection. She is also skilled at conducting least Bell's vireo surveys through call recognition and visual identification.

San Diego Gas & Electric, On-Call Biological Services - San Diego County, CA (Associate Biologist: 2005-Present)
Ms. Walsh writes pre-activity surveys, verification memos, and postconstruction reports for Sempra Energy/San Diego Gas & Electric's operation, maintenance, and construction of electric distribution and transmission lines under Sempra's 50-year Natural Community Conservation Plan permit. She also conducts biological field surveys on various electrical line projects and biological monitoring on construction projects.

San Diego Gas & Electric, Wetland Permitting Services - San Diego County, CA (Associate Biologist: 2006-Present)
Ms. Walsh performs wetland permitting tasks involved with the Corps Nationwide Permit, RWQCB 401 Certification, CDFG Streambed Alteration Agreement, and CCC Coastal Development Permit applications. She has also performed Corps wetland delineations and created project location and vegetation maps using ArcGIS in association with the wetland permitting jobs.

San Diego Gas & Electric, Miguel to Mission 230 kV #2 and Otay Mesa Power Purchase Agreement Transmission Line Projects - San Diego County, CA (Environmental Inspector: 2006)
Ms. Walsh assisted environmental inspection and compliance monitoring tasks for both projects. She also calculated postconstruction biological impacts using ArcGIS, wrote the postconstruction compliance report, and drafted the revegetation monitoring report for the Miguel to Mission project.

REC Consultants, Inc. - San Diego, CA (Associate Biologist: 2002-2005)
Ms. Walsh managed and compiled various biological technical reports consistent with Multiple Species Conservation Plan, Multiple Habitat Conservation Plan, and Natural Community Conservation Plan standards throughout San Diego County. She processed wetland permits in coordination with CDFG, Corps, and RWQCB standards. She also designed restoration plans in coordination with landscape architects and property owners. Ms. Walsh performed wetland delineations consistent with Corps standards, and she researched historic field data and aerial photographs.

Sequoia National Park - Three Rivers, CA (Biological Technician: 2002)
Ms. Walsh performed work throughout Sequoia National Park that involved eradication of *Arundo donax*, *Rubus discolor*, *Genista monosperma*, *Spartium junceum*, and *Carduus pycnocephalus* through the use of various hand and herbicide control methods. She participated in the restoration of sensitive and common plant species local to the area, and she collected and recorded data using maps and global positioning system units.

Zoological Society of San Diego, Center for Reproduction of Endangered Species - Maui, HI (Biologist: 2000-2001)
Ms. Walsh participated in long-term projects on captive breeding of the critically endangered Hawaiian crow, Hawaiian goose, and a variety of Hawaiian forest birds. She hand-fed baby birds hourly by imitation of the parent, and monitored egg and newborn incubation and recorded data. Ms. Walsh monitored video recordings of bird pairs and potential breeding behavior, prepared daily food plates, and maintained aviaries.

U.S. Geological Survey, Haleakala National Park - Maui, HI (Biological Technician: 2000)
Ms. Walsh collected and provided field data for a research project that studied the relationship between the endemic silversword plant and exotic Argentine ant species. Her research tasks involved daily field monitoring that consisted of hiking under stressful conditions. She worked closely with a field team and collected quantitative baseline field data and mapped ant populations.

Department of Pesticide Regulation - Sacramento, CA (Biological Technician: 1999-2000)
Ms. Walsh collected surface and groundwater samples for a variety of projects throughout California that monitored pesticide concentrations. She followed quality control measures outlined in the preparation, storage and collection of groundwater and surface water procedures. She then entered the field data in a Microsoft Access database.

SPECIALIZED TRAINING

- Wetland Delineation Training, Wetland Training Institute, 2004

H. CERI WILLIAMS-DODD, Ph.D. *CBiol MIBiol*

EDUCATION
Ph.D., Biosciences, Cardiff University of Wales, 2003
M.S., Monitoring, Modeling and Management of Environmental Change, University of London, King's College, 1999
B.S., Ecology and Environmental Management, Cardiff University of Wales, 1998

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS
Chartered Biologist, (#004004551), Institute of Biology, London, 2004

AREAS OF EXPERTISE
Dr. H. Ceri Williams-Dodd has technical experience in the following general areas:

- Project Management
- Environmental Permitting and Compliance
- Biological Resources
- Habitat Restoration
- Multiple Species Habitat Conservation Plans
- California Environmental Quality Act

REPRESENTATIVE EXPERIENCE
Dr. H. Ceri Williams-Dodd has a strong biological background with proven skills in management, strategic planning, report writing and communication. Her experience is broad ranging, including delineating jurisdictional waters, conducting habitat assessments and general plant and wildlife surveys, construction and biological monitoring, mitigation monitoring and reporting, designing and preparing mitigation plans with an emphasis in vegetation restoration, regulatory permitting and compliance (California Department of Fish and Game, U.S. Army Corps of Engineers, Regional Water Quality Control Board, and U.S. Fish and Wildlife Service), Biological Assessments and Section 7 consultations, compliance with Habitat Conservation Plans (particularly the Western Riverside County Multiple Species Habitat Conservation Plan), training and education programs, technical document review, California Environmental Quality Act overview, and preparing response to comments on environmental documents. Dr. Williams-Dodd has published scientific research papers in accredited journals with additional papers in progress.

Residential Developments

Project Manager/Senior Biologist for the following projects based in Southern California: **Azusa Land Partners, Rosedale – Azusa (2004-2007); Capital Pacific Homes, Sierra Peaks – Corona (2003-2007); Centex Homes, Tomlinson Park – Brea (2003-2007); Concorde Development, Whispering Hills – San Juan Capistrano (2003-2007); D.R. Horton, Country Roads – French Valley (2003-2007);**

D.R. Horton, Sky View Ridge – Murrieta (2003-2007); D.R. Horton, Country Roads – French Valley (2004-2007); French Valley Airport, LLC, French Valley Airport – French Valley (2006-2007); Galstain Family Trust, Hillarides – Chino Hills (2004-2007); Harvest Development, Vellano – Chino Hills (2003-2007); Irvine Company/GeoSoils, Inc., Santiago Hills II – Irvine (2003-2007); Irvine Company, Lower Peters Canyon – Irvine (2003-2007); John Laing Homes, Newport Hills TT 28886 & 28886-1, Lake Elsinore (2003-2007); John Laing Homes, Summerly – Lake Elsinore (2004-2007); Lumos Communities, Back Basin – Lake Elsinore (2005-2007); Nexus Residential Communities, Oak Springs Ranch – Wildomar (2005-2007); Oak Hills Investment Co, LLC, TT 16902 – Phelan (2003-2007); RS Development, Temescal Wash – Lake Elsinore (2006-2007); SunCal, Northlake Development – Castaic (2003-2007); Talega Phase I & Phase II – San Clemente (2003-2007); Van Daele Development, Oakmont II – Wildomar (2003-2007); Taylor Woodrow Homes, Ivy House – Wildomar (2005-2007); Armada LLC, Chino Hills Dairy & 80-acre site – Chino Hills & Ontario (2006); Coast Royale, Ceanothus – Laguna Beach (2005-2006); D.R. Horton, Clinton Keith Road – Wildomar (2005-2006); Fieldstone Chow, Chino Hills Project – Chino Hills (2003-2006); Landmark, Desert Hot Springs – Coachella Valley (2006); Lennar/Newland Communities, Spencer's Crossing – French Valley (2004-2006); Meritage homes, Pine Valley Estates, San Bernardino (2003-2006); Oak Tree Industries, Inc., TT 28859 – Sun City (2005); Pelican Properties – Perris (2005-2006); Shea Homes, Tonner Hills – Brea (2005-2006); D.R. Horton, Dry Creek Ranch – French Valley (2003-2005); Rancon, Meadowlark Lane TT 31998 & 31999 – Murrieta (2004-2005); Beazer Homes, TT 30656 – Wildomar (2003-2004); John Laing Homes, Burns Ranch – Menifee (2004)

Regulatory permitting and compliance: Dr. Williams-Dodd was responsible for conducting jurisdictional waters delineations, regulatory permitting with California Department of Fish and Game, U.S. Army Corps of Engineers, and Regional Water Quality Control Board, and compliance with permit conditions, including submittal of information, compliance reports, notification of construction/mitigation activities, preparing and conducting Workers Education Programs, and Homeowners education brochures. She was also responsible for preparing 2081 applications for California Department of Fish and Game, preparing Biological Assessments and facilitating Section 7 consultations with the U.S. Fish and Wildlife Service, preparing compliance documents for the Western Riverside County Multiple Species Habitat Conservation Plan and coordinating approvals, and preparing response to comment letters. As part of the permitting process, Dr. Williams-Dodd was also responsible for reviewing technical biological documents and reports pursuant to the California Environmental Quality Act (CEQA), assisting with the CEQA process, and reviewing biological survey reports. She has also conducted due diligence level site assessments, and reviews of the Coachella Valley Multiple Species Habitat Conservation Plan.

Mitigation Plans, Monitoring and Reporting: Dr. Williams-Dodd was responsible for

compiling plant palettes, designing and writing Habitat Mitigation and Monitoring Plans focusing on riparian and coastal sage scrub vegetation communities, and five year monitoring and reporting of mitigation sites, including obtaining approvals of completion from the agencies. Monitoring of the mitigation sites included planning and conducting qualitative and quantitative assessments of plant cover, growth and wildlife usage, supervising maintenance contractors, and recommending remedial measures to allow for the successful establishment of native habitat.

Biological Surveys: Dr. Williams-Dodd was involved in biological construction monitoring, Least Bell's vireo surveys and noise monitoring, burrowing owl surveys, plant habitat assessments, general wildlife habitat assessments, and assisting with California gnatcatcher surveys.

Commercial and Office Developments, Bridges and Repair Projects

City of Murrieta, Murrieta 18 Office Campus Project – Murrieta, CA (Project Manager: 2007)
Dr. Williams-Dodd was responsible for managing preparation of an Initial Study and associated coordination, including consultation regarding the Western Riverside County Multiple Species Habitat Conservation Plan.

City of Santa Clarita, Bank Stabilization Project – Santa Clarita, CA (Project Manager: 2007 – ongoing)
Dr. Williams-Dodd is responsible for biological monitoring of a restoration site and associated surveys and reporting.

Project Manager/Senior Biologist for the following projects based in Southern California: **Golden Triangle/RS Development, Clinton Keith Road – Wildomar (2006-2007); Rancon, Clinton Keith Self Storage – Wildomar (2003-2007); Rancon, Village Walk Center – Murrieta (2003-2007); Regency Centers, French Valley Village Center – French Valley (2006-2007); D.R. Horton, Gabion Repair Project – Mission Viejo (2005-2006); Gate-King, Industrial Park – Santa Clarita (2006); Taylor Woodrow Homes, La Novia Bridge – San Juan Capistrano (2004-2006); City of Mission Viejo, Oso Creek Emergency Repairs – Mission Viejo (2004-2005); Neil Nadler, Inc., Industrial park – Castaic (2004-2005); Centra Realty Corporation, Ortega Ranch – San Juan Capistrano (2004); Irvine Company, Lambert Channel Repairs – Irvine (2003-2004)**
Dr. Williams-Dodd was responsible for regulatory permitting and compliance; and mitigation plans, monitoring and reporting as described under **Residential Developments** above, in addition to planning and conducting Functional Assessments.

Churches, Schools and Parks

Project Manager/Senior Biologist for the following projects based in California: **City of Murrieta, Sports Complex – Murrieta (2003-2007); Las Virgenes Unified School District, A.C. Stelle Middle School – Calabasas (2003-2007); Las Virgenes Unified School District, Yerba Buena Elementary School – LA County (2003-2007); Murrieta Valley Unified School District, Vista Murrieta High School – Murrieta (2003-2007); St. Kilian Church, Second Access Driveway – Mission Viejo (2003-2007); Calvary Chapel, Church and Recreation Facility – Murrieta (2005-2006); Murrieta Valley Unified School District, High School #3 – Murrieta (2006); Murrieta Valley Unified School District, High School #4 – Murrieta (2006); Robert Mitchell & Associates, Oak Demonstration Garden – Bakersfield (2003-2006); Friess Construction, Shea Riding Center, San Juan Capistrano (2005); City of Mission Viejo, Youth Athletic Park – Mission Viejo (2003-2004). Also: Plantlife International – Wiltshire, U.S. (Assistant Project Manager: 1998-1999)**

Dr. Williams-Dodd was responsible for regulatory permitting and compliance; and mitigation plans, monitoring and reporting as described under **Residential Developments** above.

Pipeline, Power, Mining and Infrastructure Projects

Burlington Northern Santa Fe Railway, 5 Bridge Renewal Project – San Bernardino County, CA (Project Manager: 2007 - ongoing)
Dr. Williams-Dodd is responsible for overseeing biological surveys and reporting, preparation and submittal of regulatory permits, and biological monitoring.

Burlington Northern Santa Fe Railway, Microwave Cell Tower Project – San Bernardino County, CA (Senior Project Biologist: 2007 - ongoing)
Dr. Williams-Dodd is responsible for coordinating with the County of San Bernardino and overseeing biological surveys and reporting, and preparation of environmental documents.

Castaic Lake Water Agency, Sand Canyon Water Pipeline Project – Santa Clarita, CA (Project Manager: 2007 – ongoing)
Dr. Williams-Dodd is responsible for biological monitoring of a restoration site and associated surveys and reporting.

Granite Construction, Granite Esparto Mining – Yolo County, CA (Senior Project Biologist: 2007)
Dr. Williams-Dodd was responsible for overseeing biological surveys, conducting a jurisdictional waters and wetland delineation, and preparing a biological assessment.

J-Power USA, Orange Grove Power Plant Project – San Diego County, CA (Senior Project Biologist: 2007 – ongoing)
Dr. Williams-Dodd is responsible for overseeing biological surveys and reporting, conducting jurisdictional waters and wetlands delineations, and responding to County and California Energy Commission Data Requests.

Power Engineers, Riverside Transmission Reliability Project – City of Riverside, CA (Project Manager: 2007 – February 2008)
Dr. Williams-Dodd was responsible for coordinating biological survey requirements, reports and MSHCP compliance

WesPac, LAX Jet Fuel Pipeline – LA vicinity, CA (Senior Project Biologist: 2007-ongoing)
Dr. Williams-Dodd is assisting with the CEQA process, including coordinating and compiling technical reports for biological, hazardous materials, land use and cultural resources.

Native Habitat Maintenance and Plant Propagation

***Biological Consultant for the following*: Horticultural Specialists, Inc. – San Juan Capistrano, CA (2005-2007); Native Grow Nursery – Brea, CA (2006-2007); SunCal, Marblehead Project – San Clemente, CA (2006-2007)**
Dr. Williams-Dodd trained and supervised a field crew to maintain a variety of riparian and coastal sage scrub mitigation habitats in Murrieta, Wildomar and Chino Hills pursuant to Habitat Mitigation and Monitoring Plans. She has also provided biological consulting on native plant propagation methods and species selection, plant inspections, pest control, and general nursery management issues. Dr. Williams-Dodd was also responsible for coordinating, advising, and supervising native plant propagation pursuant to a Habitat Mitigation Plan.

TEACHING EXPERIENCE
Cardiff University School of Biosciences – Cardiff, UK (Assistant Teacher: 1999-2003)
Dr. Williams-Dodd was an assistant teacher for undergraduate biology courses in advanced statistics, computing, ecology, genetics, laboratory protocol and safety training.

SPECIALIZED TRAINING
- Wetland Delineation Course, 2005
- Plant Identification for Coastal Southern California Course, 2005
- Identifying and Appreciating Native Grasses Workshop, 2005
- CEQA Basics Workshop, 2003
- CEQA Advanced Workshop, 2007

PROFESSIONAL AFFILIATIONS

- Institute of Biology, London, U.K.

SELECTED PUBLICATIONS AND PRESENTATIONS

Williams, H.C., Ormerod, S.J., & Bruford, M.W. (2006). Molecular systematics and phylogeography of the cryptic species complex *Baetis rhodani* (Baetidae, Ephemeroptera). *Molecular Phylogenetics and Evolution* 40: 370-382.

Williams, H.C., Wilcock, H.R., & Bruford, M.W. (2002). Microsatellite loci for the mayfly *Baetis rhodani* (Baetidae, Ephemeroptera). *Molecular Ecology Notes* 2: 411-412.

Manel, S., Williams, H.C., & Ormerod, S.J. (2001). Evaluating presence-absence models in ecology: the need to account for prevalence. *Journal of Applied Ecology*, 38, 921-931.

Williams, H.C., Ormerod, S.J., & Bruford, M.W. (in progress). Chapters 4 to 6 from PhD thesis: "The Genetic Structure and Dispersal of the Mayfly *Baetis rhodani* in relation to acidification and inter-catchment distance". *Molecular Phylogenetics and Evolution* and *Molecular Ecology*.

KAREN D. WILSON

EDUCATION
M.A., Botany, Humboldt State University, California, 1991
B.A., Biology, University of California, Los Angeles, 1982

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS
U.S. Fish and Wildlife Service permit to survey for Quino checkerspot butterfly (TE-037508-1), 2002 (re-permitted 2006)
California Department of Fish and Game (CDFG) Scientific Collecting Permit (SC-006505), expires May 9, 2007

AREAS OF EXPERTISE
Ms. Karen Wilson has technical experience in the following general areas:

- Botany
- Biological Resource Surveys and Monitoring
- Wetland Delineations

REPRESENTATIVE EXPERIENCE
Ms. Wilson is a highly skilled botanist and biologist with more than 17 years of experience throughout California. Her proven capabilities extend from initial route surveys to final seeding and restoration activities on small- to large-scale projects. Ms. Wilson's background includes complex, multi-jurisdictional projects requiring coordination with a diverse range of agency, owner, and contractor personnel. She is well versed in identifying and delineating jurisdictional wetlands, as well as, in federal, state, and local regulatory requirements.

San Diego Gas & Electric, Silvergate Substation Project – San Diego County, CA (Biologist/Lead Planner: 2006-Present)
Ms. Wilson has performed initial/preconstruction plant surveys and is coordinating initial/preconstruction sensitive wildlife species surveys and associated report documentation for the construction of a 138 kilovolt (kV) transmission line—a portion of which will be placed beneath the Sweetwater Marsh National Wildlife Refuge via a horizontal directional drill—demolition of a decommissioned power plant, and construction of a new substation near downtown San Diego.

San Diego Gas & Electric, Wetland Permitting Services – San Diego and Imperial Counties, CA (Biologist/Lead Planner: 2005-Present)
Ms. Wilson performs wetland delineations and prepares application packages for CDFG 1600 permits, U.S. Army Corps of Engineers (Corps) Section 404 Nationwide Permits, Regional Water Quality Control Board (RWQCB) 401 Certificates, and California Coastal Commission (CCC) coastal development permits for access road crossings,

and pole and anchor repairs and replacements associated with electric distribution and transmission lines and natural gas pipelines.

Otay River Constructors, State Route South Toll Road Project – Chula Vista, CA (Project Manager: 2003-Present)
Ms. Wilson is supervising and coordinating biological monitoring and reporting of construction activities for a 12-mile, partially controlled access facility. She also coordinates yearly protocol-level surveys for nesting coastal California gnatcatcher and least Bell's vireo in appropriate habitat adjacent to the project. Ms. Wilson conducted preconstruction biological surveys for the nine-mile toll road portion of the project, and identified and recorded select plant species and environmentally sensitive areas, including vernal pools, for salvage. She coordinated preconstruction surveys for the Quino checkerspot butterfly and supervised salvaging activities of select plant species and vernal pool soil, San Diego fairy shrimp inoculum, and plants. Ms. Wilson also provided direction and confirmation of the quality and quantity of materials salvaged, and recorded daily sign-off sheets documenting materials salvaged. Additionally, she provides monthly, semi-annual, and annual reports documenting construction activities in and adjacent to environmentally sensitive areas of the project.

San Diego County Water Authority, Olivenhain Pipelines-East and Dam and Reservoir Revegetation – Escondido, CA (Project Manager: 2002-Present)
Ms. Wilson is overseeing monitoring, reporting, and providing remediation efforts to meet revegetation mitigation compliance for permit requirements associated with construction of the Olivenhain Dam and Reservoir and a three-mile-long pipeline from the dam to the Second San Diego Aqueduct.

San Diego Gas & Electric, On-Call Biological Services – San Diego and Orange Counties, CA (Biologist/Lead Planner: 2001-Present)
Ms. Wilson performs biological surveys and provides reports for the operation, maintenance, and construction of electric distribution and transmission lines and natural gas pipelines under Sempra's 50-year Natural Community Conservation Plan (NCCP) permit. She prepares application packages for CDFG 1600 permits, Corps 404 permits, RWQCB 401 Certificates, and CCC permits for electric and gas transmission activities. Ms. Wilson provides environmental documentation to support National Environmental Policy Act (NEPA) compliance for U.S. Marine Corps (Camp Pendleton and Miramar) operation and maintenance, and she provides environmental documentation to support NEPA compliance for the Bureau of Indian Affairs resulting in the issuance of Categorical Exclusions. She works in areas with wetlands, jurisdictional drainages, and the potential to support 110 sensitive wildlife and plant species, and coordinates with the client on survey results, responds to customer-related projects and issues, and assists with agency reports.

Arcadis, San Diego Gas & Electric Sunrise Powerlink Project – San Diego, CA (Lead Botanist: 2006)
Ms. Wilson conducted reconnaissance-level botanical surveys within the proposed Inland Valley Link right-of-way for a proposed 500 kV transmission line project. She identified, documented, and mapped special-status plants, habitat to support special-status species, and jurisdictional wetlands and waters along the route.

Southern California Gas Company, Line 85 Permanent Repairs – Los Angeles County, CA (Lead Botanist: 2006)
Ms. Wilson conducted botanical surveys for the development of a biological assessment in preparation for the permanent relocation of approximately 6,371 feet of 26-inch-diameter pipeline within the Angeles National Forest.

Sierra Pacific Power Company, Tracy to Silver Lake 120 kV Transmission Line Project – Washoe County, NV (Botanist: 2005)
Ms. Wilson conducted biological surveys along a 36-mile-long route for a proposed 120 kV transmission line between the Tracy Power Plant and the Silver Lake Substation. She conducted special-status plant surveys and identified plant communities, wetlands, and waters along the route.

San Diego Gas & Electric, Otay Mesa Power Purchase Agreement Transmission Line Project – San Diego County, CA (Biologist/Lead Planner: 2004-2005)
Ms. Wilson performed two seasons of focused plant surveys for the construction of 38 miles of overhead and 10 miles of underground 230 kV transmission line. The project included a horizontal directional drill beneath the Sweetwater Marsh National Wildlife Refuge.

Southern California Edison, Oak Valley Substation Project – Riverside County, CA (Botanist: 2004)
Ms. Wilson conducted biological surveys for a proposed 115 kV substation and a 220 kV substation on two separate substation sites of approximately three acres and 10 acres, respectively, or on one site of approximately 15 acres that would accommodate both substations. She also conducted sensitive resource surveys and surveys for special-status plants, and contributed to the habitat assessment report.

Southern California Edison, Summit Substation Project – San Bernardino County, CA (Botanist: 2003-2004)
Ms. Wilson conducted biological surveys for a proposed 3.5-mile transmission line and substation upgrade. She conducted sensitive resource surveys and surveys for special-status plants, and contributed to the habitat assessment report.

Prunuske Chatham, Inc. – Occidental, CA (Botanist: 1991-2001)
Ms. Wilson surveyed various types of chaparral habitat, and identified plant species and took cover values to determine the best method for ordnance removal in chaparral

vegetation at former Fort Ord military installation in Monterey County. She also provided photo documentation and collected, entered, and organized data. Ms. Wilson provided wetland delineations and assessed impacts on revegetation at Mayacama Golf Course in Santa Rosa. Additionally, she monitored erosion and sediment control measures to ensure compliance with the RWQCB Stormwater Pollution Prevention Plan. Ms. Wilson's other duties included scheduling maintenance, monitoring, installation, and inspection, and providing reports for the five years of restoration activities. She also monitored restored vernal pools impacted by construction during PGT-PG&E Pipeline Expansion Project in Northern California. Additionally, Ms. Wilson determined plant species' composition and cover, mapped the dimensions of each pool as defined by vegetation, and assessed the floristic and hydrologic condition of restored and constructed pools. She also monitored wetland mitigation restoration sites at jurisdictional wetlands, and recorded dominant native recruitment success. During the first phase of ecological restoration, Ms. Wilson provided topographic surveys, identification and collection of specific seed and soil inoculum, supervision of the inoculation, and documentation. During the second phase, she ensured quality control, provided biological and technical support for the installation and removal of geotextile fabric, and coordinated and supervised inoculation of vernal pools.

Williams Communications, Inc., Fiber Optic Project – CA (Environmental Inspector: 2000)
Ms. Wilson provided environmental inspection on a 90-mile spread during the installation of approximately 141 miles of underground fiber optic cable from Bakersfield to San Luis Obispo. She coordinated directly with cultural and paleontological specialists, as well as, with agency representatives from the California Public Utilities Commission. Ms. Wilson also conducted personnel training and provided daily compliance reports.

Sempra Energy/San Diego Gas & Electric, Vegetation Management Program – San Diego, CA (Biologist: 2000)
Ms. Wilson performed biological surveys for the vegetation management operation in accordance with Sempra's 50-year NCCP permit. She surveyed for 110 sensitive species prior to road maintenance and vegetation management activities. Ms. Wilson completed survey forms for areas with potentially sensitive natural resources, and coordinated with the client on survey results. She also assisted with agency reports.

Previous Employment
URS – Oakland, CA (Botanist: 1994-1999)
Ms. Wilson conducted rare plant surveys of vernal pools for a proposed University of California campus in Merced County. She assisted with delineation of the vernal pools, identification of special-status species, and mapped and recorded population information from surveys using global positioning system equipment. Ms. Wilson conducted several seasons of special-status plant surveys along a 165-mile-long route for a proposed Sierra Pacific Power Company 345 kV transmission line between Reno,

Nevada and Alturas, California. Additionally, she conducted a biological resource reconnaissance of 18 exploratory dig sites along a Kinder Morgan Energy Partners' petroleum pipeline on Morrow Island in Solano County. Ms. Wilson identified special-status plant and wildlife species, assessed impact potential to special-status species or their habitats, documented survey results, and recommended avoidance strategies. She conducted site surveys and determined biological resources for California Department of Transportation emergency repair projects in Northern California. Ms. Wilson also identified special-status plant and wildlife species and jurisdictional waters and wetlands, assessed impacts on natural resources, and provided impact avoidance strategies. She submitted Categorical Exemption/Exclusion documentation for each emergency repair site, in addition to site and biological assessments, and prepared CDFG Section 1601 Streambed Alteration Agreements, RWQCB Section 401 Water Quality Certification agreements, Coastal Development permits, and Corps preconstruction notification documentation.

Doug Parkinson & Associates – Sonoma County, CA (Botanist: 1998)
Ms. Wilson conducted rare plant surveys for special-status species as part of a plan to minimize or eliminate soil contamination. She documented survey results, including descriptions of the plant community types.

Biosystems Analysis, Inc. – CA (Botanist: 1990-1991)
Ms. Wilson conducted wetland surveys for the PGT-PG&E Pipeline Expansion Project in Central and Northern California. She identified wetland and upland plants, and surveyed, documented, and mapped special-status plants along pipeline right-of-way.

Humboldt Foundation – Humboldt, CA (Research Assistant: 1988-1990)
Ms. Wilson researched seed and seedling death of selected dune plants in native and nonnative habitats on the North Spit of Humboldt Bay. She established research plots, collected and analyzed data, and summarized results in quarterly reports.

SPECIALIZED TRAINING

- Basic Wetland Delineation Course, Wetland Training Institute, 2006
- 14th Annual Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council, 2005
- San Diego County Sensitive Butterfly Workshop, Nature Festivals of San Diego County, 2002/2004

PROFESSIONAL AFFILIATIONS

- Association of State Wetland Managers
- California Native Plant Society

EXHIBIT C.1
LEAST BELL'S VIREO SURVEY REPORT

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July 1, 2008

Ms. Sandra Marquez
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92011

SUBJECT: 2008 Least Bell's Vireo (*Vireo bellii pusillus*) Survey Report for the Proposed Orange Grove Project

Permit Number: TE-037508-1

Dear Ms. Marquez:

This letter report summarizes the methodology and findings of protocol-level surveys for the federally and state endangered least Bell's vireo (vireo). The surveys were conducted by TRC in 2008 (spring, breeding) for the proposed Orange Grove Energy Power Plant Project (project) located near Pala, in San Diego County, California. The areas surveyed are located in northeastern San Diego County east of Interstate 15, south of State Route 76, and west of the Pala Casino along the San Luis Rey River. Surveys were conducted to determine the presence/absences of vireo.

SURVEY LOCATIONS

Surveys were conducted on and up to 250 feet surrounding the proposed project site and on either side of the project linear routes (See Map 1 and Map 2). Only suitable vireo habitat was surveyed. Elevation in the survey areas was approximately 300 feet above sea level. Surveys were conducted in two separate areas where riparian habitat is located within 250 feet of the project route. According to the U.S. Fish and Wildlife Service's online Critical Habitat Mapper Portal (visited June 27, 2008 from http://criticalhabitat.fws.gov/) all of the areas surveyed for this project fall within designated least Bell's vireo critical habitat.

Survey Area 1 Location

Located south of State Route 76 and along the north side of the San Luis Rey River, the area surveyed included appropriate southern cottonwood-willow riparian forest within the survey corridor for the linear portion of the project route (see LBV Survey Area 1 – Map 1). This survey area is within T9S/T10s, R2W of the U.S. Geological Survey (USGS) Pala 7.5-minute quadrangle.

Survey Area 2 Locations
Survey Area 2 is located north of Survey Area 1 on the north side of the San Luis Rey River and along the southern shoulder of State Route 76 in more marginal habitat, consisting of southern coast live oak riparian forest with some elements of southern cottonwood-willow riparian forest found (see LBV Survey Area 2 – Map 2). This survey area is within T9S, R2W of the U.S. Geological Survey (USGS) Pala 7.5-minute quadrangle.

PLANT COMMUNITIES

All appropriate riparian vegetation found on and within the 250 feet of the proposed project site and linear routes was surveyed. Approximately 6.7 acres of good quality southern cottonwood-willow riparian forest was surveyed (Survey Area 1 – Map 1) and approximately 3.7 acres of moderate quality southern coast live oak riparian forest (with some elements of southern cottonwood-willow riparian forest) was surveyed (Survey Area 2 – Map 2). Dominant plant species observed within Survey Area 1 include western cottonwood (*Populus fremontii*), black willow (*Salix goodingii*), arroyo willow (*Salix lasiolepis*), mule-fat (*Baccharis salicifolia*), mugwort (*Artemisia douglasiana*), rageweed (*Ambrosia* sp.), cattails (*Typha* sp.), and poisoin oak (*Toxicodendron diversilobum*). Dominant plant species observed within Survey Area 2 include coast live oak (*Quercus agrifolia*), western cottonwood, black willow, toyon (*Heteromeles arbutifolia*), mule-fat, mugwort, rageweed, and poisoin oak.

METHODOLOGY

Paula Potenza (TRC Biologist) conducted eight presence/absence surveys at least ten days apart for least Bell's vireo from April 14, 2008 to June 23, 2008, according to the *USFWS Least Bell's Vireo Presence/Absence Survey Protocol* for non - NCCP areas (USFWS, 1992). Surveys were conducted on April 14 and 24, 2008; May 4, 14, and 24, 2008; and June 3, 13, and 23, 2008. Because Paula Potenza is not permitted to conducted vireo nest surveys, no taped calls were played and vireos were often not followed so that any nest or nesting behavior was not affected. Vireos were typically identified by calls/songs and by sight and were watched and followed only until identification and locations were confirmed.

All surveys were conducted between approximately 7:00 a.m. and 11:00 a.m. Weather conditions during the surveys consisted of temperatures from 58 to 76 degrees Fahrenheit, winds from 0 to 5 miles per hour, and cloud cover from 0 to 100 percent. Surveys were either not conducted or were halted during periods of excessive heat, wind, rain, fog, or other inclement weather. Taped vocalizations were not used to locate vireos. Surveys were conducted by slowly walking survey routes along the edges and through the riparian vegetation were possible and no more than 3 linear kilometers or 50 hectares of vireo habitat were surveyed on a single survey day.

RESULTS

Least Bell's vireo pairs exhibiting territorial behavior were observed in appropriate riparian habitat in Survey Area 1 (Map 1). No least Bell's vireos were observed in Survey Area 2 (Map 2). A total of eight vireos were observed; seven adult vireos (three pairs and one single male) and one juvenile vireo (with one of the adult pairs) were observed during the eight protocol-level surveys (see LBV Survey Area 1 – Map 1). However, no nests were located or searched for during the surveys and no leg bands or markers were observed on any of the vireos encountered. In addition, brown-headed cowbirds (*Molothrus ater*) were observed during all eight surveys of Survey Area 1.

Survey Area 1 Location
Two singing male least Bell's vireos were first heard and observed during the first survey, on April 14, within the southwestern end of Survey Area 1 along an old dirt road that parallels all and cuts through a small portion of the riparian survey area (see attached Map 1). Both of the two signing males were heard and/or observed during all subsequent surveys in the same general area. These two males were observed counter singing and exhibiting territorial behavior. On at least three different occasions during the surveys a female vireo was observed with each of the males; therefore, it was assumed that these were paired vireos. These two vireo pairs are labeled as Pair 1 and Pair 2 within LBV Survey Area 1 on the attached Map 1. No nest or juveniles were observed with Pair 1 or Pair 2 during the eight surveys. A rough approximation of Pair 1 and Pair 2 territories are depicted as "Area Observed" within LBV Survey Area 1 on the attached Map 1 based on observations of these two male's locations during all eight surveys.

During the second to last survey, on June 13, a third vireo pair was observed southwest of Pair 2 (see Pair 3 within LBV Survey Area 1 on Map 1) and during the last survey, on June 23, a vireo pair with one juvenile was observed near were Pair 3 had been observed on June 13. This pair was likely the same pair as observed on June 13 because of their observed locations; therefore, they were counted as the same pair in the total of vireos observed. Also during the last survey a single male vireo was observed singing within the northeastern end of the survey area (see LBV Survey Area 1 - Map 1). The single male was moving around and eventually moved to the southwest and was lost in heavy riparian vegetation.

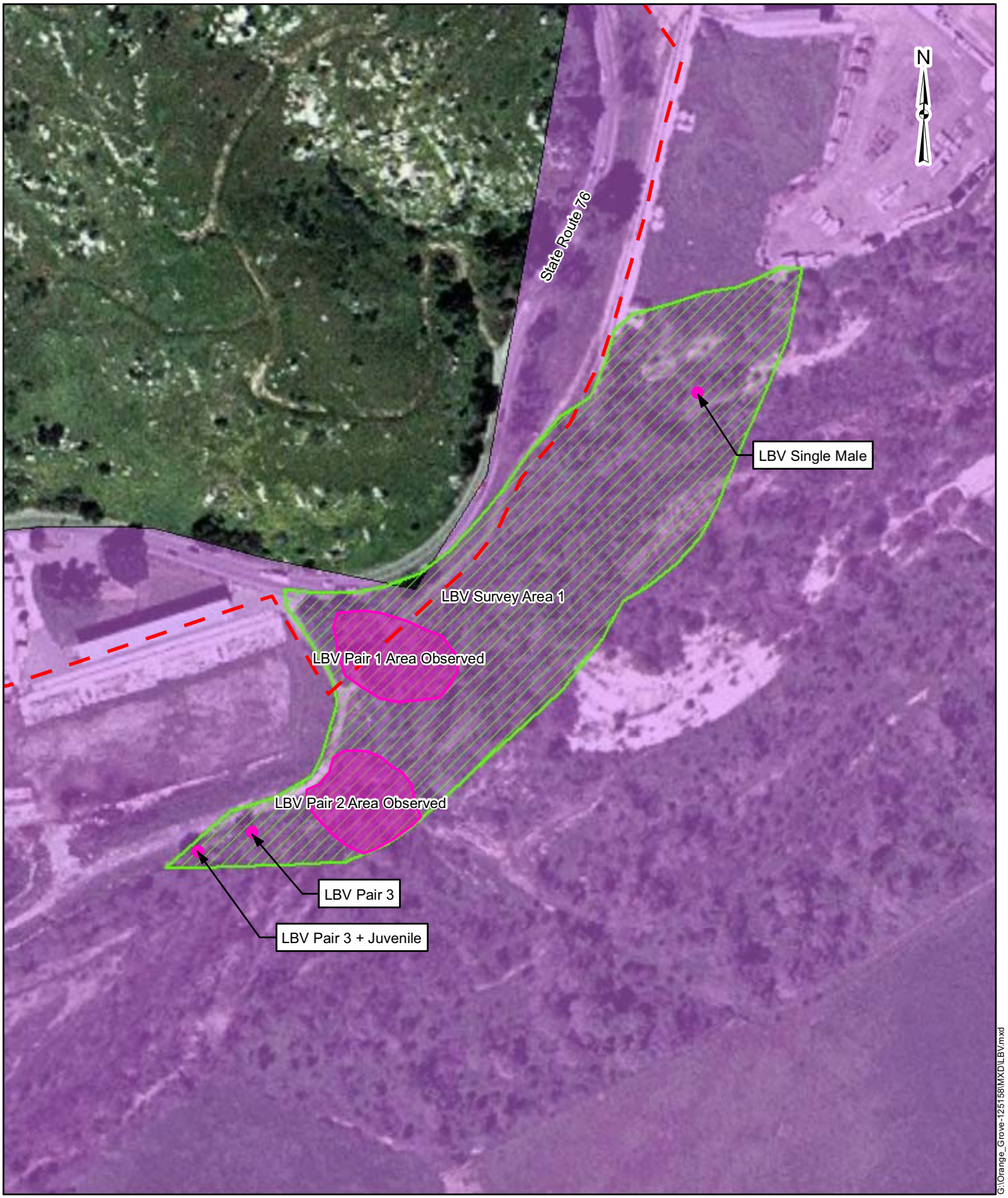
Survey Area 2 Location
No least Bell's vireos were observed during the eight surveys conducted in this survey location.

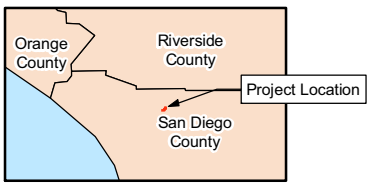
Please contact me at (760) 603-1740 if you have any questions or comments regarding this letter.

Sincerely,

Paula Potenza
Lead Biologist

Attachments





Proposed Gas Line

Least Bell's Vireo Individual Sightings

Least Bell's Vireo Survey Area

Least Bell's Vireo Critical Habitat

1" = 200'

200 100 0 200 400

Feet

LBV Survey Area 1

Map: 1

Orange Grove Project

TRC

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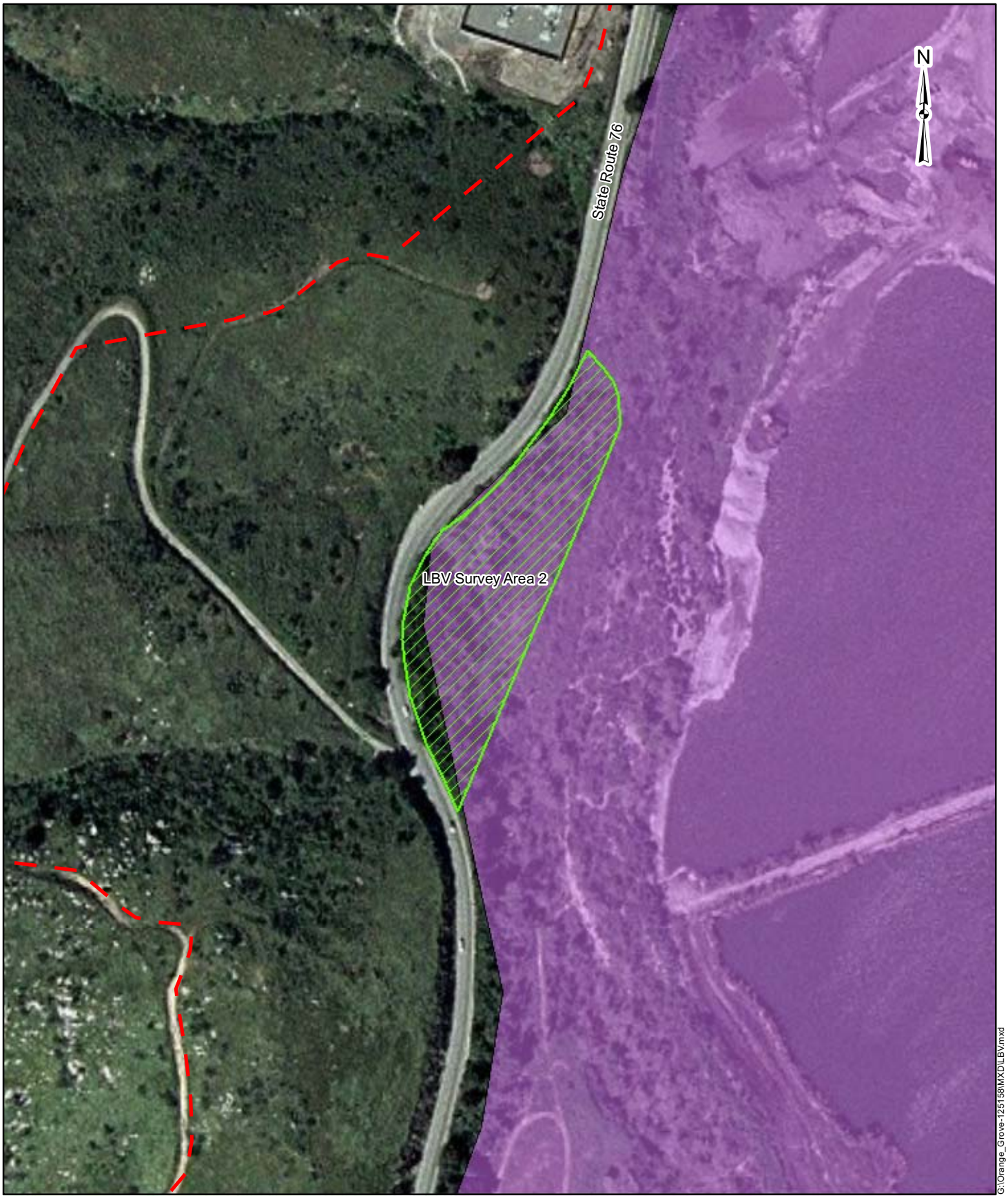
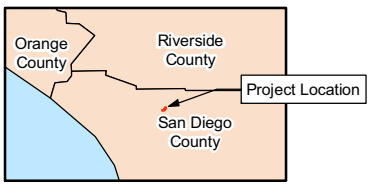
Source:
Aerial photography from ESRI_Imagery_World_2D





Proposed Gas Line

Least Bell's Vireo Individual Sightings

Least Bell's Vireo Survey Area

Least Bell's Vireo Critical Habitat

1" = 200'

200 100 0 200 400

Feet

LBV Survey Area 2

Map: 2

Orange Grove Project

TRC

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Source:
Aerial photography from ESRI_Imagery_World_2D

EXHIBIT C.2
SOUTHWESTERN WILLOW FLYCATCHER SURVEY REPORT

July 9, 2008

Ms. Sandra Marquez
U.S. Fish & Wildlife Service
Carlsbad Field Office
6010 Hidden Valley Way
Carlsbad, CA 92011

Dear Sandra;

The following is my 45 day Southwestern Willow Flycatcher (*Empidonax traillii extimus*) report (Permit TE- 787376) for the Orange Grove Energy Power Plant project located near Pala, in San Diego County, CA. No Southwestern Willow Flycatchers were found.

The proposed Orange Grove Energy Power Plant Project (Project) includes:

- a 96 megawatt (MW) electric generating plant located on an approximately 8.5 acre site (the "Site");
- an approximately 0.3 mile underground electric transmission line interconnection between the Site and the existing Pala substation;
- an approximately 2.4-mile natural gas pipeline lateral (the "gas pipeline") that will connect the Site to an existing San Diego Gas and Electric (SDG&E) regional gas transmission main;
- A fresh water pickup station where water trucks will be filled from an existing Fallbrook Public Utility District (FPUD) water main for hauling to the Site;
- a reclaim water pickup station where water trucks will be filled at an existing FPUD water reclamation plant for hauling to the Site; and
- Pala substation upgrades as required for interconnection and transmission system mitigation to be agreed upon with the California Independent System Operator (CAISO) and SDG&E.

The Project is located near Pala, in San Diego County, California (Vicinity Map). The areas surveyed are located in northeastern San Diego County east of Interstate 15, south of State Route 76, and west of the Pala Casino along the San Luis Rey River (Survey Maps 1 & 2).

PLANT COMMUNITIES

All appropriate riparian vegetation found on and within the 250 feet of the proposed project site and linear routes was surveyed. Approximately 6.7 acres of good quality southern cottonwood-willow riparian forest was surveyed (Survey Area 1 – Map 1) and approximately 3.7 acres of moderate quality southern coast live oak riparian forest (with some elements of southern cottonwood-willow riparian forest) was surveyed (Survey Area 2 – Map 2). Dominant plant species observed within Survey Area 1 include western cottonwood (*Populus fremontii*), black willow (*Salix goodingii*), arroyo willow (*Salix lasiolepis*), mule-fat (*Baccharis salicifolia*), mugwort (*Artemisia douglasiana*), ragweed (*Ambrosia* sp.), cattails (*Typha lattifolia*), and poison oak (*Toxicodendron diversilobum*). Dominant plant

species observed within Survey Area 2 include coast live oak (*Quercus agrifolia*), western cottonwood, black willow, toyon (*Heteromeles arbutifolia*), mule-fat, mugwort, ragweed, and poison oak.

SURVEY LOCATIONS

Surveys were conducted on and up to 250 feet surrounding the proposed project site and on either side of the project linear routes (See Map 1 and Map 2). Only suitable flycatcher habitat was surveyed. Elevation in the survey areas was approximately 300 feet above sea level. Surveys were conducted in two separate areas where riparian habitat is located within 250 feet of the project route.

Survey Area 1 Location

Located south of State Route 76 and along the north side of the San Luis Rey River, the area surveyed included appropriate southern cottonwood-willow riparian forest within the survey corridor for the linear portion of the project route (see Survey Area 1 – Map 1). This survey area is within T9S/T10s, R2W of the U.S. Geological Survey (USGS) Pala 7.5-minute quadrangle.

Survey Area 2 Locations

Survey Area 2 is located north of Survey Area 1 on the north side of the San Luis Rey River and along the southern shoulder of State Route 76 in more marginal habitat, consisting of southern coast live oak riparian forest with some elements of southern cottonwood-willow riparian forest found (see Survey Area 2 – Map 2). This survey area is within T9S, R2W of the U.S. Geological Survey (USGS) Pala 7.5-minute quadrangle.

METHODOLOGY

Peter Bloom conducted 5 presence/absence surveys occurring as follows; one survey between May 15 and May 31 (**May 23**), one survey between June 1 and June 21 (**June 3**), and 3 surveys between June 22 and July 17 (**June 28, July 3, and July 9**). All surveys were conducted according to the *USFWS Southwestern Willow Flycatcher Survey Protocol* (Sogge et al. 1997 and July 11, 2000 FWS amendment).

RESULTS

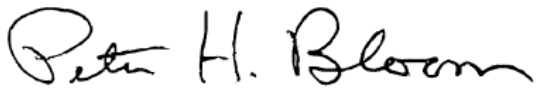
No Southwestern Willow flycatchers were found. A list of avian species detected during the protocol surveys is provided in Appendix A - Species Compendia.

APPENDIX A – SPECIES COMPENDIA

COMMON NAME	SCIENTIFIC NAME
MALLARD	*Anas platyrhynchos*
RED-SHOULDERED HAWK	*Buteo lineatus elegans*
AMERICAN KESTREL	*Falco sparverius*
CALIFORNIA QUAIL	*Callipepla californica*
COOPER'S HAWK	*Accipiter copperii*
BARN OWL	*Tyto alba*
WESTERN SCREECH OWL	*Otius kennicottii*
GREATER ROAD RUNNER	*Geococcyx californianus*
RUDDY DUCK	*Oxyura jamaicensis*
MOURNING DOVE	*Zenaida macriura*
NORTHERN MOCKINGBIRD	*Mimus polyglottos*
COMMON RAVEN	*Corvus corax*
AMERICAN CROW	*Corvus brachyrhyncos*
LEAST BELL'S VIREO	*Vireo bellii*
GOLDEN EAGLE	*Aquila chrysaetos*
RED-WINGED BLACKBIRD	*Ageliaus phoeniceus*
PACIFIC SLOPE FLYCATCHER	*Empidonax difficilis*
ASH-THROATED FLYCATCHER	*Myiarchus cinerascens*
WESTERN SCRUB JAY	*Aphelocoma californica*
BUSHTIT	*Psaltriparus minimus*
COMMON YELLOW-THROAT	*Geothlypis trichas*
BLACK-HEADED GROSBEAK	*Pheucticus melanocephalus*
BLUE GROSBEAK	*Guiraca caerulea*
SPOTTED TOWHEE	*Pipilo maculatus*
CALIFORNIA TOWHEE	*Toxostoma redivivum*
BROWN HEADED COWBIRD	*Molothrus ater*
BREWERS BLACKBIRD	*Euphagus cyanocephalus*
HOUSE FINCH	*Carpodacus cassinii*
LESSER GOLDFINCH	*Carduelis psaltria*
AMERICAN GOLDFINCH	*C. tristis*
GREAT BLUE HERON	*Ardea herodias*
BLACK-CROWNED NIGHT HERON	*Nycticorax nycticorax*
RED-TAILED HAWK	*Buteo jamaicensis*

SONG SPARROW	*Melospiza melodia*
CALIFORNIA THRASHER	*Toxostoma redivivum*
CLIFF SWALLOW	*Petrochelion pyrrhonota*
BULLOCK'S ORIOLE	*Icterus bullockii*
LARK SPARROW	*Chondestes grammacus*
CALIFORNIA GULL	*Larus californicus*

Should you have any questions or comments, please do not hesitate to ask.



Peter H. Bloom
Zoologist

G:\Orange_Grove-125158\MXD\Vicinity Map.mxd

N
W E
S

1" = 15 Miles

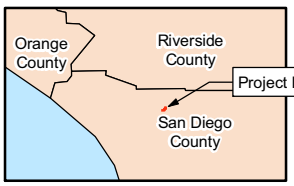
Vicinity Map

Orange Grove Project

Source:
Data obtained from ESRI Generic Base
Data included with ArcMap 9.2

15 7.5 0 15 30
Miles

TRC



Proposed Gas Line

Southwestern Willow Flycatcher Survey Area

1" = 200'

200 100 0 200 400

Feet

SWF Survey Area 1

Map: 1

Orange Grove Project

TRC

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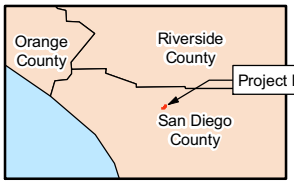
Source:
Aerial photography from ESRI_Imagery_World_2D



Proposed Gas Line

Southwestern Willow Flycatcher Survey Area

1" = 200'

200 100 0 200 400

Feet

SWF Survey Area 2

Map: 2

Orange Grove Project

TRC

Source:
Aerial photography from ESRI_Imagery_World_2D

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EXHIBIT D
SUPPLEMENTAL INFORMATION FOR FOUNDATIONS, FACILITY STRUCTURES, AND MAJOR MECHANICAL AND ELECTRICAL EQUIPMENT

Exhibit D
Supplemental Information for Foundations, Facility Structures, and Major Mechanical and Electrical Equipment

There will be three types of foundations utilized on the site, they include reinforced concrete mat foundations, reinforced concrete spread footings, and pier foundations. Mat foundations will be utilized for all equipment, spread footings will be used for buildings, and pier foundations will be used to support sound walls and the bridge.

STRUCTURAL ENGINEERING DESIGN CRITERIA

Introduction

The following provides supplemental information related to the codes and standards and standard design criteria and practices that will be used in the design and construction of the structural engineering portions of the project. These criteria form the basis of the design for the structural components and systems of the project. More specific design information will be developed during detailed design to support equipment procurement and construction specifications.

Design Codes and Standards

The design and specification of work shall be in accordance with all applicable laws and regulations of the federal government, the state of California, and with the applicable local codes and ordinances. Codes and industry standards to be used in the design and construction include:

- California Building Code (CBC) 2007
- International Building Code (IBC) 2006
- American Society of Civil Engineers (ASCE) 7-05
- American Concrete Institute (ACI) 318-05
- American Concrete Institute (ACI) 301-05
- American Concrete Institute (ACI) 315-99
- American Institute of Steel Construction (AISC) Steel Construction Manual, 13th Addition
- American Society for Testing and Materials (ASTM)
- The American National Standards Institute (ANSI).
- Concrete Reinforcing Steel Institute (CRSI)
- American Welding Society (AWS)
- Steel Structures Painting Council (SSPC)
- Federal and California Occupational Safety and Health Administration (OSHA and CALOSHA).
- National Fire Protection Association Standards (NFPA).

Datum

The finished grade of the facility will be approximately 420 ft. above MSL.

Frost Penetration
The site is located in an area free of frost penetration. Bottom elevation of all foundations for structures and equipment, however, will be maintained at a minimum of 2'-0" below the finished grade.

DESIGN LOADS

Design loads for all structures will be determined according to the criteria described below, unless the applicable building code requires more severe design conditions.

Dead Loads
Dead loads will consist of the weights of the structure and all equipment of a permanent or semi-permanent nature including tanks, bins, wall panels, partitions, roofing, piping, drains, electrical trays, bus ducts, and the contents of tanks and bins measured at full operating capacity.

Live Loads
Live loads will consist of uniform live loads and equipment live loads. Uniform live loads are assumed unit loads which are sufficient to provide for movable and transitory loads, such as the weight of people, portable equipment and tools, planking and small equipment. Equipment live loads are calculated loads based upon the actual weight and size of the Uniform live loads will be in accordance with CBC, but will not be less than the following:

a. Roofs 20 psf
   All roof areas will be designed for wind loads as indicated by the CBC. All roof areas will be designed for a minimum of 20 psf live load in addition to calculated dead loads.

b. Floors and Platforms (Steel grating) 100 psf
   In addition, a uniform load of 20 psf will be used to account for piping and cable tray.

c. Pipe Racks 100 psf
   Pipe racks are designed using the actual pipe loads.

g. Hand Railings
   Hand railings will be designed for 200 pound concentrated load applied at any point and in any direction, whichever governs.

h. Slabs on Grade 100 psf
   Ground floor slabs will not be subject to large equipment loads. Any equipment located on the ground floor will be supported by a separate foundation.

Wind Loads
The design wind speed will be 85 miles per hour based on CBC. This design wind speed will be used to determine wind loads for all structures.

Seismic Loads
The plant site is located in Site Class D, as determined from the Geotechnical Report dated December 17, 2007 by Professional Service Industries INC. Seismic loads will be determined in accordance with the requirements of the CBC.

Earth Pressures
Earth pressures will be in accordance with the recommendations contained in the project-specific "Final Geotechnical Investigation" prepared by Professional Service Industries Inc. dated December 17, 2007.

Groundwater Pressures
Hydrostatic pressures due to groundwater or temporary water loads will be considered.

Load Combinations
Load combinations used in design are per the CBC and AISC.

CONCRETE

Concrete Materials
The materials described below will be specified and used as a basis for design.
• Reinforcing Steel.
Reinforcing steel shall meet the requirements of ASTM A615 Grade-60. Welded wire fabric for concrete will conform to ASTM A185.
• Cement.
Cement used in all concrete mixes will be Portland type V cement meeting the requirements of ASTM C150.
• Aggregates.
Fine aggregates will be clean natural sand. Coarse aggregates will be crushed gravel or stone. All aggregates shall meet the requirements of ASTM C33.
• Admixtures.
Plasticizers and retarders will be used to control setting time and to obtain optimum workability. Air entrainment of 5 to 7 percent by volume will be used in all concrete mixes.
• Water.
Clean water of potable quality shall be used in all concrete.

Mixes
The design compressive strength (f'c) of concrete and grout, as measured at 28 days, will be as follows:
Structural concrete and nonstructural concrete 4500 psi
Grout 5000 psi

Concrete Tests
Quality control testing of concrete will be performed by an independent laboratory and will consist of the following.

• Preliminary Review. Before concrete mixes are designed, the source and quality of materials will be determined and the following reports will be submitted.
− The type, brand, manufacturer, composition, and method of handling (sack or bulk) of cement.
− The type, source, and composition of fly ash.
− The classification, brand, manufacturer, and active chemical ingredients of all admixtures.
− The source of coarse aggregates and test reports to verify compliance with ASTM C33.
− The source of fine aggregates and test reports to verify compliance with ASTM C33.
− The results of tests to determine compliance of admixtures with appropriate ASTM requirements.
• Design Mix Tests.
Concrete will be proportioned to provide an average compressive strength as prescribed in the CBC. Documentation that proposed concrete proportions will produce an average compressive strength equal to or greater than required average compressive strength will be established based on trial mixtures in accordance with CBC.
• Field Control Tests.
Field control tests will include the following.
− Aggregate gradation. Each 500 tons of fine aggregate and each 1,000 tons of coarse aggregate will be sampled and tested in accordance with ASTM D75 and C136.
− Slump.
A slump test will be made from each of the first three batches mixed each day. An additional test will be made for each 50 cubic yards placed in any one day.
− Air content. An air content test will be made from one of the first three batches mixed each day and from each batch of concrete from which compression test cylinders are made. Air content tests will be in accordance with ASTM C231.
− Compression tests. One set of four concrete test cylinders will be made each day. Additional sets will be made depending on the amount of concrete placed each day. For each additional 100 cubic yards of each class, or major fraction thereof, placed in any one day, four additional sets of cylinders will be made. One cylinder of each set will be tested at an age of seven days, two cylinders of each set will be tested at 28 days, and one cylinder shall be stored until otherwise directed. Compression tests will be in accordance with ASTMC39.

Reinforcing Steel Test
Mill test reports certifying that reinforcing steel is in accordance with ASTM and project specifications will be required.

STRUCTURAL STEEL

Steel framed structures will be designed in accordance with the CBC and the AISC Steel Constructions Manual. In addition, steel framed structures will be designed in accordance with the criteria discussed in the following subsections.

Steel Materials
Structural steel shapes, plates, and appurtenances for general use will conform to ASTM A36 or A992 grade 50. Connection bolts will conform to ASTM A325. Connections will conform to AISC. Welding electrodes will be as specified by the AWS. All structural steel will be shop primed after fabrication. Exterior structural steel may be hot dipped galvanized in lieu of prime painted.

Tests
Mill test reports or reports of tests made by the fabricator will be required certifying that all material is in conformance with the applicable ASTM specification. In addition, the fabricator will provide an affidavit stating that all steel specified has been provided at yield stresses in accordance with the drawings and the specification.

Design
All steel framed structures will be designed as “rigid frame” or “simple” space frames, utilizing single span beam systems, vertical diagonal bracing at main column lines, and horizontal bracing at the roof and major floor levels. Connections will be in accordance with AISC. Connections will be designed with bolts for bearing type joints with threads in shear plane except where connections are required to be slip-critical.
Larger diameter bolts may be used to develop larger capacity connections or elsewhere as determined by the engineer.

Seismic Design Criteria
This section provides the general criteria and procedures that will be used for seismic design of structures, equipment, and components.
The project site is located in Site Class D according to the CBC. The seismic performance objectives for this facility are as follows.
• Resist minor levels of earthquake ground motion without damage.
• Resist moderate levels of earthquake ground motion without structural damage, but possibly experience some nonstructural damage.
• Resist major levels of earthquake ground motion without collapse, but possibly with some structural as well as nonstructural damage. To achieve these objectives and to meet the requirements of the CEC and local codes, the facility will be designed in accordance with the CBC. All structures, equipment internals, and components will be separated from adjoining structures.

Buildings and Structures
The seismic class used for this site will be Class D as determined from the CBC using an Importance Factor of 1.25.

STRUCTURAL DESIGN METHODOLOGY

This section describes the structural aspects of the design of the proposed facility.
Each major structural component of the plant is addressed by defining the design criteria and analytical techniques that will be employed.

Combustion Turbine Foundations
The combustion turbine foundations will be designed to support the turbine and generator components. The foundation will be designed to resist the loadings furnished by the manufacturer and will be constructed of reinforced concrete.

Foundation loads will be furnished by the combustion turbine manufacturer and will be superimposed with loads for the foundation itself. Typical loading data supplied by the manufacturer include the following.
• Dead loads
• Live loads
• Wind loads from project specific criteria
• Seismic loads from project specific criteria
• Temperature and pressure loads
• Dynamic operating loads
• Emergency loads such as turbine accident loads
The combustion turbine and associated equipment will be securely anchored to the foundation using cast-in-place steel anchor bolts or sleeved through-bolts designed to resist the equipment forces. The foundation will be designed and constructed as a monolithic reinforced concrete mat. The foundation design will address the following considerations:
• Soil bearing capacities and earth pressures
• Allowable settlements
• Equipment, structure, and environmental loads
• Natural frequencies of rotating equipment
• Access and maintenance
• Equipment performance criteria
• Dynamic effects of the rotating machinery

Exhaust Duct and SCR Foundation
The exhaust duct and SCR foundation will be designed to support the exhaust duct and SCR catalyst structures and associated equipment. The foundation will be designed to resist the loadings furnished by the manufacturer and will be constructed of reinforced concrete.

Foundation loads will be furnished by the exhaust duct manufacturer and will be superimposed with loads for the foundation itself. Typical loading data supplied by the manufacturer include the following:
• Dead loads
• Live loads
• Wind loads
• Seismic loads
• Temperature and pressure loads

The exhaust duct and SCR and associated equipment will be securely anchored to the foundation using cast-in-place steel anchor bolts designed to resist the equipment forces. The foundation will be designed and constructed as separate reinforced concrete mat foundations for each component of the exhaust duct and SCR. The foundation design will address the following considerations:

- Soil bearing capacities and earth pressures
- Allowable settlements
- Equipment, structure, and environmental loads
- Access and maintenance
- Equipment performance criteria

Stack and Foundation

The stacks will be carbon steel stacks supported on a reinforced concrete mat foundation. The height of the stacks will be approximately 80 feet and each will be approximately 12 feet in diameter.

Foundation loads will be determined using project specific design criteria.
The design of the stack and foundation will include the following loads:

- Dead loads
- Live loads
- Wind loads
- Seismic loads
- Temperature and pressure loads

The stack will be securely anchored to the foundation using cast-in-place steel anchor bolts designed to resist the foundation and stack induced forces. The steel stack will resist lateral loading as a fixed base cantilevered structure. The foundation will be designed and constructed as a monolithic reinforced concrete mat. The foundation design will address the following considerations.

- Soil bearing capacities and earth pressures
- Allowable settlements
- Structure and environmental loads

Buildings

The various plant site buildings will provide support, enclosure, protection, and access to the systems contained within its boundaries. Prefabricated metal buildings (packaged to include exterior doors, windows, and related enclosure components) will be furnished for building enclosures.

Building enclosures will be of manufacturer's standard modular rigid frame construction with tapered or uniform depth rafters rigidly connected at ends to pinned-base tapered or uniform depth columns. Purlins and girts will be cold-formed "C" or "Z" sections conforming to "Specifications for Design of Cold-Formed Steel Structural Members" of American Iron and Steel Institute. All primary structural steel shall be fabricated from 50 ksi steel, all other members will be of ASTM A36 hot rolled shapes. Roof slopes will be

approximately 1-inch rise per 12 inches of run. Metal roof coverings will be of prefinished standing seam panels of 26-gauge.
Building foundation loads will be determined from the analysis and design of the superstructure and from the support of the equipment contained within the structure. The following loads will be considered.
• Dead loads
• Live loads
• Equipment and piping loads
• Wind loads
• Seismic loads

Each building and associated major equipment will be securely anchored to the foundation using cast-in-place steel anchor bolts designed to resist any induced forces. The foundation system will likely be comprised of spread footings at the column locations with grade beams around the perimeter of the building. The foundation design will address the following considerations.
• Soil bearing capacities and earth pressures
• Allowable settlements
• Equipment, structure, and environmental loads
• Access and maintenance
• Equipment performance criteria

Gas Compressor Foundations
The gas compressor foundations will be designed to support the gas compressor and its components. The foundation will be designed to resist the loadings furnished by the manufacturer and will be constructed of reinforced concrete.

Foundation loads will be furnished by the gas compressor manufacturer and will be superimposed with loads for the foundation itself. Typical loading data supplied by the manufacturer include the following.
• Dead loads
• Live loads
• Wind loads from project specific criteria
• Seismic loads from project specific criteria
• Temperature and pressure loads
• Dynamic operating loads
• Emergency loads such as turbine accident loads
The gas compressor and associated equipment will be securely anchored to the foundation using cast-in-place steel anchor bolts designed to resist the equipment forces. The foundation will be designed and constructed as a monolithic reinforced concrete mat. The foundation design will address the following considerations:
• Soil bearing capacities and earth pressures
• Allowable settlements
• Equipment, structure, and environmental loads
• Natural frequencies of rotating equipment

• Access and maintenance
• Equipment performance criteria
• Dynamic effects of the rotating machinery

Vertical, Cylindrical Field Erected Water Storage Tanks
The vertical, cylindrical, field erected water storage tanks will generally be of carbon steel construction with a protective interior coating. The tank roof will be of the self-supported dome type. The tank bottom will be ground supported, flat bottomed. The tank will be provided with ladders, landing platforms, and handrails as required to provide access to all working areas. Vents, manholes, overflow piping, and grounding lugs will also be provided as necessary. The foundation will be designed to resist the loadings furnished by the manufacturer and will be constructed of reinforced concrete.

Foundation loads will be determined using project specific design criteria. The design of the tank and foundation will include the following loads:
• Dead loads
• Live loads
• Wind loads
The storage tanks will be securely anchored to the foundation using epoxy steel anchor bolts. The storage tanks will resist lateral loading through shear in the tank walls. Overturning will be resisted by anchor bolts connecting the tank wall to the foundation. The foundation will be designed and constructed as a monolithic reinforced concrete mat foundation. The foundation design will address the following considerations:
• Soil bearing capacities and earth pressures
• Allowable settlements
• Tank structure and environmental loads
• Access and maintenance

Horizontal, Cylindrical, Shop Fabricated Storage Tanks
Construction and material are yet to be determined. The foundation will be designed to resist the loadings furnished by the manufacturer and will be constructed of reinforced concrete.

Foundation loads will be furnished by the tank manufacturer and will be superimposed with loads for the foundation itself. Typical loadings supplied by the manufacturer include the following:
• Dead loads
• Live loads
• Wind loads
• Seismic loads
• Temperature and pressure loads
The tanks will be securely anchored to the foundation using cast-in-place steel anchor bolts designed to resist all induced forces. The foundation will be designed and constructed as a monolithic reinforced concrete mat. The foundation design will address the following considerations:
• Soil bearing capacities and earth pressures

• Allowable settlements
• Tank structure and environmental loads
• Access and maintenance

Transformers

The foundation will be designed to resist the loading furnished by the manufacturer and will be constructed of reinforced concrete.

Foundation loads will be furnished by the transformer manufacturer and will be superimposed with loads for the foundation itself. Typical loadings supplied by the manufacturer include the following.
• Dead loads
• Live loads
• Wind loads
• Seismic loads

Transformers will be securely anchored to the foundation using cast-in-place steel anchor bolts designed to resist all induced forces. The transformer will be regarded as a rigid body for foundation design purposes. The foundation will be designed and constructed as a monolithic reinforced concrete mat. The foundation design will address the following considerations:
• Soil bearing capacities and earth pressures
• Allowable settlements
• Tank structure and environmental loads
• Access and maintenance

The foundations will incorporate an interconnected integral containment basin capable of holding 125 percent of the transformer coolant contents.

Miscellaneous Equipment

Where possible, all miscellaneous equipment will be designed to project specific criteria. This miscellaneous equipment includes, but is not limited to, motor control centers, batteries, low voltage power and lighting systems, isolated bus ducts, pumps, lube oil cooling units, fire detection and protection systems, and switchgear. Standardized components such as motors, pumps, small fans, and other similar products that represent manufacturers' standard stock items will not be designed to meet project specific seismic loading criteria. Miscellaneous equipment will meet all applicable codes and standards as well as the individual manufacturer's standards. All equipment foundations and supports will be designed to resist project specific loading and the loading furnished by the equipment manufacturer.

Foundation loads will be furnished by the equipment manufacturers and will be superimposed with loads for the foundation itself. Typical loadings supplied by the manufacturer include the following.
• Dead loads
• Live loads
• Wind loads

• Seismic loads
• Temperature and pressure loads (as applicable)

All miscellaneous equipment will utilize steel anchor bolts, fasteners, welds, and other equipment anchorage devices to resist equipment induced forces. Each individual piece of equipment will have its own unique structural system, and it is the responsibility of each manufacturer to assure its adequacy. The foundation will be designed and constructed as a monolithic reinforced concrete mat. The foundation design will address the following considerations:

• Soil bearing capacities and earth pressures
• Allowable settlements
• Tank structure and environmental loads
• Access and maintenance

EXHIBIT E
DIMENSIONS, SURFACE AREA REQUIREMENTS, AND DESIGN CRITERIA FOR THE POWER GENERATION SYSTEM, THE HEAT DISSIPATION SYSTEM, ATMOSPHERIC EMISSION CONTROL SYSTEM, AND SWITCHYARDS/TRANSFORMERS

Exhibit E
Dimensions, Surface Area Requirements, and Design Criteria for the Power Generation System, the Heat Dissipation System, Atmospheric Emission Control System, and Switchyards/Transformers

FACILITY/ SYSTEM	DIMENSIONS	SURFACE AREA REQUIREMENTS	DESIGN CRITERIA
Power Generation System	Dimensions for the combustion turbine generator skid enclosures are provided in Table 1 in AFC Appendix 6.13-A.	The power generation system layout is provided in Drawings C100 in Appendix 2-A of the AFC. Each of the two generating units will have a footprint of approximately 3,500 square feet, including auxiliary and SPRINT skid and other associated equipment for each unit.	The Power Generation System is described in AFC Section 2.0, with design drawings provided in AFC Appendix 2-A. Typical operating data and design criteria are provided in AFC Appendix 2-C and AFC sections 2.1, 2.2, 2.2.1, 2.3. 2.3.1, 2.4.1, 2.6, 2.6.1, 2.6.2.1, 2.6.2.2, 2.6.2.3, 2.9.1, 2.10.1 and 2.12. Additional design criteria are identified in AFC Section 2.14 and Tables 2.14-1, 2.14-2, 2.14-3 and 2.14-4.
Heat Dissipation System	Dimensions for the chiller system and other head dissipation system components are provided in Table 1 in AFC Appendix 6.13-A.	The heat dissipation system layout is provided in Drawings C100 in Appendix 2-A of the AFC. The two generating units will have a common chiller system with a footprint of approximately 1,500 square feet, including the cooling tower. The location and footprint of the combustion turbine fin-fan coolers are also shown in Drawing C100.	The heat dissipation system is described in AFC Section 2.0 and design drawings are provided in AFC Appendix 2-A. Typical operating data and design criteria are provided in AFC Appendix 2-C and AFC sections 2.3.1, 2.6.1, 2.6.2, 2.6.2.1, 6.5.1.3,.2 and 6.5.1.3.3. Additional design criteria are identified in AFC Section 2.14 and Tables 2.14-1, 2.14-2, 2.14-3 and 2.14-4.

FACILITY/ SYSTEM	DIMENSIONS	SURFACE AREA REQUIREMENTS	DESIGN CRITERIA
Cooling Water Supply System Tanks	The cooling water supply system storage tank will be a carbon steel tank approximately 30 feet in diameter and 30 feet high. .	The water supply tanks layout and footprint are provided in Drawing C100 in Appendix 2-A of the AFC. The cooling water supply system storage tank will have a footprint of approximately 800 square feet.	Cooling water supply was a key consideration for the Project and is described in AFC Sections 2.0, 5.0, and 6.5 and design drawings are provided in AFC Appendix 2-A. Typical operating data and design criteria are provided in AFC Appendix 2-C and 2-D, and AFC sections 2.1, 2.2, 2.3, 2.3.1, 2.6.1, 2.6.2, 2.6.2.1, 2.6.2.4, 2.6.2.4.1, 2.7.1, 2.10.1, 5.3, 6.5.1.3.2, 6.5.1.3.3, 6.5.1.4, 6.5.1.4.1, 6.5.2.2.1 and 6.5.2.4. Additional design criteria are identified in AFC Section 2.14 and Tables 2.14-1 and 2.14-2.
Atmospheric Emission Control System	Dimensions for the emission control system are provided in Table 1 in AFC Appendix 6.13-A.	The emission control system layout is provided in Drawing C100 in Appendix 2-A of the AFC. Each generating unit will have an emission control system on a foundation with a footprint of approximately 4,500 square feet for ammonia injection, SCR and the exhaust stack.	The emission control system is described in AFC Section 2.0 and 6.2 and design drawings are provided in AFC Appendix 2-A. Typical operating data and design criteria are provided in AFC Appendix 2-C and AFC sections 2.3, 2.3.1, 2.3.2, 2.4, 2.4.1, 2.4.2, 2.4.4, 6.2, 6.2.2.1, 6.2.4.3, 6.2.4.4, 6.2.4.6, 6.2.5.3 and 6.2.6. Additional design criteria are identified in AFC Section 2.14 and Tables 2.14-1, 2.14-2, 2.14-3, 2.14-4, and 6.2-18.

FACILITY/ SYSTEM	DIMENSIONS	SURFACE AREA REQUIREMENTS	DESIGN CRITERIA
Switchyards/ Transformers	Dimensions for switchyard equipment and transformers are provided in Table 1 in AFC Appendix 6.13-A.	The location and footprint of the switchyard and transformers are provided in Drawing C100 in Appendix 2-A of the AFC. The fenced switchyard will be approximately 15,000 sq ft. The 13.8kV to 69 kV transformers will be within the fenced switchyard. Auxiliary transformers and switchgear will be located adjacent to the switchyard in an area comprising approximately 4,000 square feet.	The switchyard and transformers are described in AFC Sections 2.1, 2.2.1, Table 2.3-1, 2.11, 2.13.2, 3.1 and 3.3. Design drawings are provided in AFC Appendix 2-A. Additional design criteria are provided in AFC Section 2.14 and Tables 2.14-1, 2.14-2, 2.14-3, 2.14-4, and 3.3-1.

EXHIBIT F
POTABLE WATER OPTION AGREEMENT

POTABLE WATER OPTION AGREEMENT

This Option Agreement (this "Agreement"), dated as of July 3, 2008, is between **FALLBROOK PUBLIC UTILITY DISTRICT**, a public utility district, with offices and principal place of business located at 990 East Mission Road, Fallbrook, California 92088 ("Optionor"), and **ORANGE GROVE ENERGY, L.P.**, a Delaware limited partnership, with offices and a principal place of business located at 1900 East Golf Road, Suite 1030, Schaumburg, Illinois 60173 ("Optionee"). Optionor and Optionee shall sometimes be referred to herein individually as a "Party" and collectively as the "Parties".

RECITALS

A. Optionee is a Delaware limited partnership that currently is developing a power plant project (the "Project") outside of the District's service area. As part of this Project, Orange Grove requires potable water for cooling water, and other activities within the boundary of the Project.

B. Optionor is a public agency treating and serving water, potable water and wastewater within a 28,000 acre service area in northwestern San Diego County. Optionor owns and operates a Water Reclamation Facility which treats wastewater and serves tertiary treated recycled water ("Recycled Water") within the Optionor's service area and by contract to customers outside the district.

C. Orange Grove has requested to purchase up to 62 acre-feet per year of potable water from the District with supply to Orange Grove provided trucks at the District's Potable Water Filling Station site ("Delivery Site") near the intersection of Mission Road and Live Oak Park Road for a term of 25 years and 2 months. The 62 acre-feet of potable water allows for an adequate supply of potable water for the Project.

D. Optionor has agreed to grant to Optionee, and Optionee has agreed to acquire from Optionor, an exclusive option to purchase Potable Water on the terms and conditions set forth in the Potable Water Agreement attached as Exhibit A (the "Potable Water Agreement") for the purpose of constructing, operating, using and maintaining the Project (the "Option"), on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Optionor and Optionee hereby agree as follows:

1. Definitions. The following terms, as used in this Agreement, shall have the definitions set forth below:

"*Agreement*" shall have the meaning set forth in the preamble to this Agreement.

"*Applicable Laws*" shall mean any and all applicable laws, ordinances, codes, statutes, rules, regulations, orders, decisions, decrees, edicts, directives, permits and approvals issued by any Governmental Authority.

"*Business Day*" shall mean any day other than (a) a Saturday or Sunday, or (b) a day on which banking and savings and loan institutions in San Diego, California are authorized or obligated by law or executive order to be closed.

"*Commencement Date*" shall have the meaning set forth in Section 6(a) of this Agreement.

"*Delivery Site*" shall have the meaning set forth in Recital C of this Agreement

"*Effective Date*" shall have the meaning set forth in Section 2 of this Agreement.

"*Exercise Date*" shall have the meaning set forth in Section 7(a) of this Agreement.

"*Option*" shall have the meaning set forth in Recital D of this Agreement.

"*Option Consideration*" shall have the meaning set forth in Section 4(a) of this Agreement.

"*Optionee*" shall have the meaning set forth in the preamble to this Agreement.

"*Optionee Default*" shall have the meaning set forth in Section 14(a) of this Agreement.

"*Optionor*" shall have the meaning set forth in the preamble to this Agreement.

"*Optionor Default*" shall have the meaning set forth in Section 13(a) of this Agreement.

"*Party*" or "*Parties*" shall have the meaning set forth in the preamble to this Agreement.

"*Project*" shall have the meaning set forth in Recital A of this Agreement.

"*Potable Water Agreement*" shall have the meaning set forth in Recital D of this Agreement.

"*Term*" shall have the meaning set forth in Section 6(a) of this Agreement.

2. Effectiveness of Agreement. This Agreement shall be effective as of the time that this Agreement shall have been duly executed by both Optionor and Optionee. The date that this Agreement shall have become effective in accordance with this Section 2 shall be referred to herein as the "Effective Date".

3. Grant of Option.

(a) Optionor hereby grants to Optionee, and Optionee hereby acquires from Optionor, the Option, on the terms and conditions set forth in this Agreement.

(b) Upon Optionee's exercise of the Option in accordance with this Agreement, Optionor and Optionee shall execute the Potable Water Agreement.

4. Option Consideration.

(a) Optionee shall pay to Optionor the sum of [redacted] No/100 Dollars [redacted] in immediately available funds (the "Option Consideration"), as consideration for the Option.

(b) All Option Consideration paid to or for the benefit of Optionor shall be refunded by Optionor to Optionee in the event of an Optionor Default, as defined in Section 13.

5. Deposit of Option Consideration into Optionor's Account. No later than five (5) Business Days after the Effective Date, Optionee shall deposit the Option Consideration into the following Optionor's account:

Account Name Fallbrook Public Utility District Depository Account
Account Number #: [redacted]
Routing Number #: [redacted]
Attention: [redacted]

6. Term of Option.

(a) The term of the Option ("Term") shall commence as of the date that Optionor receives the Option Consideration. The date upon which the Term actually commences shall be referred to herein as the "Commencement Date".

(b) The Term shall expire as of 5:00 p.m. Pacific time on the date that is one (1) year after the Commencement Date (the "Expiration Date", as may be extended pursuant to Section 6(c)), provided, however, that before the Expiration Date, the Term shall terminate immediately upon the occurrence of any of the following: (i) Optionee's exercise of the Option in accordance with this Agreement, (ii) the occurrence of any Optionee Default, or (iii) Optionee's delivery of written notice to Optionor that Optionee is declining to exercise the Option. In the event that the Expiration Date occurs as a result of the event set forth in this Section 6(b)(iii), Optionee's sole liability to Optionor shall be the forfeit of the Option Consideration.

(c) At Optionee's election, the Term may be extended for one additional one (1) year period upon the payment of an additional [redacted] and No/100 Dollars [redacted] in immediately available funds by Optionee to Optionor at any time prior to the one year anniversary of the Commencement Date.

7. Exercise of Option.

(a) Optionee shall be conclusively deemed to have irrevocably exercised the Option, without condition or qualification, upon the occurrence of all of the following (the "Exercise Date"):

(i) Optionee shall have delivered to Optionor written notice of Optionee's exercise of the Option which notice shall be effective on a date set forth therein and no later than the Expiration Date; and

(ii) Optionee shall have delivered to Optionor a signed copy of the Potable Water Agreement for Optionor's execution.

8. Optionee Covenants. Optionee agrees for the benefit of Optionor that:

(a) It shall not seek to obtain Potable Water from any other third party during the Term; and

(b) [It agrees to submit the Potable Water Agreement and description of the facilities contained therein in its Application for Certification to the California Energy Commission].

9. Optionor Covenants. Optionor agrees for the benefit of Optionee that:

(a) It shall reserve the capability to provide Potable Water or if Potable Water is unavailable, recycled water to Optionee in the amounts and pursuant to the conditions contemplatedunder the Potable Water Agreement for the term contemplated under the Potable Water Agreement; and

(b) Upon exercise of the Option by the Optionee, it shall execute the Potable Water Agreement within three (3) Business Days after the Exercise Date.

10. Optionor's Representations and Warranties. Optionor hereby represents and warrants, as of the Effective Date and the Exercise Date:

(a) Organization; Standing; Power; Authority. Optionor is a public utility district, duly organized and existing in the State of California, and has the requisite right, power and authority to execute, deliver and perform the terms and conditions of this Agreement and to consummate the transactions contemplated in the Agreement. Optionor has taken all corporate action necessary to authorize the execution, delivery and performance of the terms and conditions of the Agreement. The individual executing the Agreement has been duly authorized to do so. The performance by Optionor of Optionor's obligations and responsibilities under the Agreement will not violate or constitute a default under the terms and provisions of Optionor's bylaws or any material agreement, document or instrument to which Optionor is a party or by which Optionor. All proceedings required to be taken by or on behalf of Optionor to authorize Optionor to execute, deliver and perform the terms and conditions of the Agreement have been duly and properly taken. No further consent of any person or entity, except the San Diego Regional Water Quality Control Board, is required in connection with the execution and delivery of, or performance by Optionor of its obligations under the Agreement

(b) Enforceability. The Agreement constitute or shall constitute the valid and binding obligation of Optionor, enforceable against Optionor in accordance with their terms, except as such enforcement may be limited by (i) the effect of bankruptcy, insolvency, reorganization, receivership, conservatorship, arrangement, moratorium or other Applicable Laws affecting or relating to the rights of creditors generally, or (ii) the rules governing the availability of specific performance, injunctive relief or other equitable remedies and general principles of equity, regardless of whether considered in a proceeding in equity or at law.

11. Optionee's Representations and Warranties. Optionee hereby represents and warrants, as of the Effective Date and the Exercise Date:

(a) Organization; Standing; Power; Authority. Optionee is a Delaware limited partnership duly organized and existing in the State of Delaware, and has the requisite right, power and authority to execute, deliver and perform the terms and conditions of this Agreement, and to consummate the transactions contemplated in this Agreement. Optionee has taken all corporate action necessary to authorize the execution, delivery and performance of the terms and conditions of the Agreement. The individual executing the Agreement has been duly authorized to do so. The performance by Optionee of Optionee's obligations and responsibilities under the Agreement will not violate or constitute a default under the terms and provisions of Optionee's partnership agreement or any material agreement, document or instrument to which Optionee is a party or by which Optionee is bound or affected. All proceedings required to be taken by or on behalf of Optionee to authorize Optionee to execute, deliver and perform the terms and conditions of the Agreement have been duly and properly taken. No further consent of any person or entity is required in connection with the execution and delivery of, or performance by Optionee of its obligations under the Agreement.

(b) Enforceability. The Agreement constitute or shall constitute the valid and binding obligation of Optionee, enforceable against Optionee in accordance with their terms, except as such enforcement may be limited by (i) the effect of bankruptcy, insolvency, reorganization, receivership, conservatorship, arrangement, moratorium or other Applicable Laws affecting or relating to the rights of creditors generally, or (ii) the rules governing the availability of specific performance, injunctive relief or other equitable remedies and general principles of equity, regardless of whether considered in a proceeding in equity or at law.

12. Conditions Precedent to Exercise of Option. All of the following shall be conditions precedent to Optionee's exercise of the Option in accordance with this Agreement (any of which conditions Optionor may waive in its sole discretion):

(a) Optionor shall have received the Option Consideration; and

(b) No Optionee Default shall have occurred, and Optionee shall have performed, in all material respects, all covenants and obligations to be performed by Optionee under this Agreement.

13. Optionor Default.

(a) The occurrence of any of the following shall constitute an "Optionor Default" under this Agreement:

(i) The failure to perform any obligation or responsibility of Optionor set forth in this Agreement, provided that Optionor does not cure such failure within thirty (30) days after delivery of written notice of such failure to Optionor or, if such failure is not capable of being cured within said thirty (30) day period, then Optionor does not commence to cure such failure within thirty (30) days after delivery of written notice of such failure to Optionor or thereafter does not diligently prosecute such cure to completion.

(b) Upon the occurrence of any Optionor Default, Optionee shall have the right to pursue any and all remedies at law or in equity that are available to Optionee as a result of such Optionor Default, including but not limited to the right to pursue injunctive relief or specific performance of this Agreement and the Potable Water Agreement.

14. Optionee Default.

(a) The occurrence of any of the following shall constitute an "Optionee Default" under this Agreement:

(i) The failure to pay the Option Consideration when due; or

(ii) The failure to perform any other obligation or responsibility of Optionee set forth in this Agreement, provided that Optionee does not cure such failure within thirty (30) days after delivery of written notice of such failure to Optionee or, if such failure is not capable of being cured within said thirty (30) day period, then Optionee does not commence to cure such failure within thirty (30) days after delivery of written notice of such failure to Optionee or thereafter does not diligently prosecute such cure to completion.

(b) Upon the occurrence of any Optionee Default, Optionor shall have the right to pursue any and all remedies at law or in equity that are available to Optionor as a result of such Optionee Default.

15. Assignment. Except as otherwise permitted herein, neither Party shall assign any right, title, interest or obligation under this Agreement to any person without the prior written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed. In connection with Optionee's collateral assignment of this Agreement to

Optionee's financing parties, Optionor agrees to execute a consent to collateral assignment and provide legal opinions in form and substance reasonably satisfactory to Optionor, Optionee and Optionee's financing parties.

16. Waiver of Performance. Either Party may waive the satisfaction or performance of any terms or conditions of this Agreement that have been included in this Agreement for its benefit, so long as such waiver is in writing, specifies the waived term or condition and delivered to the other Party.

17. Notices. All notices under this Agreement shall be in writing and shall be effective upon actual receipt whether delivered by personal delivery, legible facsimile or reputable overnight courier or sent by United States registered or certified mail, return receipt requested, postage prepaid, addressed to the Parties as follows:

If to Optionor:
Fallbrook Public Utility District
P.O. Box 2290
Fallbrook, California 92088-2290
Attention: General Manager
Telephone: [redacted]
Facsimile: [redacted]

If to Optionee:
Orange Grove Energy, L.P.
1900 East Golf Road, Suite 1030
Schaumburg, Illinois 60173
Attention: Vice President of Asset Management
Telephone: [redacted]
Facsimile: [redacted]

With a copy to:
Morgan, Lewis & Bockius LLP
300 South Grand Avenue, Suite 220
Attention: [redacted]
Telephone: [redacted]
Facsimile: [redacted]

18. Amendments. This Agreement may be amended only by written agreement signed by both of the Parties.

19. Time of the Essence. Time and each of the terms and conditions of this Agreement are hereby expressly made of the essence.

20. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which shall constitute one and the same agreement.

21. Governing Law and Venue. This Agreement shall be governed by the laws of the State of California, without reference to its choice of law provisions. By execution and

delivery of this Agreement, each of Optionor and Optionee hereby irrevocably and unconditionally accepts and submits to the personal jurisdiction of said courts.

22. Attorneys' Fees and Costs. In any action between the Parties seeking the enforcement of any of the terms or conditions of this Agreement, the prevailing Party in such action shall be awarded, in addition to any damages or equitable relief, its reasonable attorney's fees and costs.

23. Prior Agreements. This Agreement supersedes any and all oral or written agreements between the Parties which are prior in time to this Agreement. Neither Optionor nor Optionee shall be bound by any prior understanding, agreement, promise, representation or stipulation, express or implied, not specified herein.

24. Further Assurance. Optionee and Optionor agree to execute all documents and instruments reasonably required in order to consummate the transactions contemplated in this Agreement.

25. Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties.

26. Severability. If any portion of this Agreement is held to be unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall remain in full force and effect. In the event any such provision of this Agreement is so held unenforceable, the Parties shall promptly renegotiate in good faith new provisions to restore this Agreement as near as possible to its original intent and effect.

27. Construction of Agreement. The language in all parts of this Agreement shall be in all cases construed simply according to its fair meaning and not strictly for or against either of the Parties. The language of this Agreement and all documents and instruments referred to in this Agreement have been prepared, examined, negotiated and revised by each Party and its legal counsel, and no implication shall be drawn and no provision shall be construed against any Party by virtue of the purported identity of the drafter of this Agreement. The section headings of this Agreement are for purposes of reference only and shall not be used for limiting or interpreting the meaning of any section of this Agreement. When required by the context, whenever the singular is used in this Agreement, the same shall include the plural, and the plural shall include the singular, the masculine gender shall include the feminine and neuter genders, and vice versa. As used in this Agreement, the term "Optionor" shall include the respective successors and assigns of Optionor, and the term "Optionee" shall include the successors and permitted assigns of Optionee.

28. No Partnership or Joint Venture. Optionor and Optionee shall not be partners or joint venturers with each other and nothing in this Agreement shall create or be deemed to create any partnership or joint venture between Optionor and Optionee.

[Signatures appear on following page.]

IN WITNESS WHEREOF, Optionor and Optionee hereby execute this Agreement as of the date first above written.

OPTIONOR

FALLBROOK PUBLIC UTILITY DISTRICT,
a public utility district

By: Keith Lewinger
Name: Keith Lewinger
Title: G.M.

OPTIONEE

ORANGE GROVE ENERGY, L.P.., a Delaware limited partnership

By:
Name: Stephen T. Thome
Title: Vice President

EXHIBIT A TO OPTION AGREEMENT
POTABLE WATER AGREEMENT

[See attached.]

ORANGE GROVE ENERGY, L.P. POTABLE WATER AGREEMENT

This Potable Water Agreement (this "Agreement") is entered into by and between the **FALLBROOK PUBLIC UTILITY DISTRICT**, a public utility district organized and operating pursuant to California Public Utility Code §15501 et seq. (hereinafter "District") and **ORANGE GROVE ENERGY** (hereinafter referred to as "Orange Grove"). This Agreement shall become effective execution by the parties.

R-E-C-I-T-A-L-S

A. Orange Grove is a limited partnership that currently is developing a power plant project (the "Project") outside of the District's service area. As part of this Project, Orange Grove requires potable water for equipment operation, and other activities within the boundary of the Project.

B. The District is a public agency treating and serving water, potable water and wastewater within a 28,000 acre service area in northwestern San Diego County. The District owns and operates a Water Reclamation Facility which treats wastewater and serves tertiary treated water within the District's service area and by contract to customers outside the District.

C. Orange Grove has requested to purchase up to 62 acre-feet per year of potable water from the District via trucks provided by Orange Grove at the District's Water Filling Station (Primary Delivery Site) near the intersection of Mission Rd. and Live Oak Park Road in Fallbrook. The 62 acre-feet of potable water will provide an adequate supply of potable water for the Project.

D. Orange Grove and the District are parties to an existing agreement for the purchase and sale of 45 acre-ft of tertiary treated recycled water from the Districts' waste water treatment facility (the "Recycled Water Supply Agreement").

E. The District has agreed to sell potable water to Orange Grove in accordance with all terms of this Agreement.

F. Orange Grove has agreed to purchase the potable water from the District in accordance with all terms of this Agreement.

G. The term of this Agreement is twenty-five (25) years from the Agreement Start Date (as defined below).

C-O-V-E-N-A-N-T-S

1. Sale of Potable Water by District. The District agrees to sell and Orange Grove agrees to purchase, commencing on the Agreement Start Date, up to 62 acre feet per year of potable water for a term of 25 years and 2 months. The District shall bill Orange Grove on a monthly basis for actual water used, plus monthly fixed charges. A late charge equivalent to one and one half percent (1½ %) per month shall be levied for each day invoiced amounts are not paid following the due date.

2. Fees Paid to District and the Price For Potable Water and Future Price Increases. The commodity price for the potable water sold by the District to Orange Grove shall be at the published rate for construction meters set by the District Board of Directors from time to time, in its sole discretion. The construction rate for customers inside the District as of June 23rd, 2008 is $2.95 per thousand gallons. The District makes no guarantee about future price increases and intends to sell potable water to Orange Grove at a rate established for customers inside the District's formal boundaries. The potable water commodity rate to be paid by Orange Grove shall include a capacity charge/premium charge for payment to acquire new capacity equal to [redacted] of the commodity rate for customers inside the District. Orange Grove's total commodity rate shall therefore be [redacted] of the commodity rate paid by customers with construction meters inside the District's boundaries. Orange Grove will also pay a monthly system access charge for the meter which is set for their use at the Delivery Site, currently $373.50 per month for a 6-inch meter. This monthly system access charge is subject to increases in the future and shall be at the rate set by the District Board of Directors, in its sole discretion and is payable regardless of the quantity of potable water delivered. The monthly system access fee shall be paid in advance on the date of execution of this agreement and invoiced on a monthly basis thereafter. A late charge equivalent to one and one half percent (1½ %) per month shall be levied for each day (pro rated) the fee is paid following the due date.

   In addition to the price for the potable water set by the District, an additional monthly independent fixed fee equal to Orange Grove's cost for [redacted] gallons [redacted] x construction rate x [redacted]) shall be paid by Orange Grove to the District above and beyond the rate charged for the potable water. Both parties agree that this monthly fee is an independent fee paid to District for the guarantee of a long term supply and is payable upon execution of this agreement and on an monthly basis thereafter. This payment shall be paid upon execution of this agreement and invoiced monthly thereafter by the District. A late charge equivalent to one and one half percent (1½ %) per month shall be levied for each day (pro rated) the fee is paid following the due date.

3. Responsibility and Indemnity for Potable Water after Delivery. Orange Grove recognizes that by entering into this Agreement, Orange Grove is solely

responsible for the use and transportation of all potable water once it is supplied to Orange Grove at the Point of Delivery, which is defined as Orange Grove water trucks at the District's Potable Water Filling Station site near the intersection of Mission Rd. and Live Oak Park Rd. Once the potable water is delivered at the Point of Delivery, the District shall have no liability for the transportation and use of the potable water by Orange Grove. All liability for the transportation and use of the potable water after receipt at the Delivery Site shall be assumed by Orange Grove. Orange Grove agrees to indemnify and hold the District harmless and defend the District and its directors, officers, employees, agents, and representatives from and against any and all claims, causes of action, suits, actions, damages, losses, costs, fees, expenses, fines, and penalties, of whatever type or nature, including all costs of defense and attorney fees, caused in whole or in part, or claimed to be caused in whole or in part by the action, inaction, passive or active negligence, or intentional misconduct of Orange Grove in the receipt, use and transportation of the potable water after receipt at the Delivery Site.

For acts in the exclusive control of the District and occurring prior to delivery to Orange Grove, the District agrees to indemnify and hold Orange Grove harmless and defend Orange Grove and its directors, officers, employees, agents, and representatives from and against any and all claims, causes of action, suits, actions, damages, losses, costs, fees, expenses, fines, and penalties, of whatever type or nature, including all costs of defense and attorney fees, caused in whole or in part, or claimed to be caused in whole or in part by the action, inaction, passive or active negligence, or intentional misconduct of the District with respect to the District's obligations under this Agreement.

4. Term of Agreement and Termination. Unless either of the parties is in breach of any term or provision of this Agreement, this Agreement shall remain in full force and effect for a term of 25 years and 2 months after the Agreement Start Date. "Agreement Start Date" shall commence after the completion of the facilities or four months after the execution of this agreement, whichever occurs last. Orange Grove's obligations to purchase the potable water under this Agreement shall commence on the Agreement Start Date and continue for a period of 25 years and 2 months thereafter. Regardless of whether Orange Grove takes delivery of any potable water in a given month, Orange Grove must still pay the system access fees and the independent monthly fee and any and all fees owed for potable water used in that year by Orange Grove. Orange Grove's choosing not to take delivery of potable water for any period of time whatsoever, does not terminate the agreement nor the obligation to pay the monthly service charges nor the independent fee each month for the full 25 years and 2 months of the term of this agreement. Failure to pay the independent monthly fee within 45 calendar days of being invoiced shall be construed as a breach of this agreement by Orange Grove and subject the agreement to cancellation by the District in its sole discretion, as well as remedies for breach in paragraph 6 below.

5. Drought, Water supply shortage, water emergency and Incremental Recycled Water Reservation. In the event a drought, a water supply shortage or a water emergency [as determined by the District in its reasonable discretion] limits the District's ability to deliver potable water, the District may prohibit access to the potable water Point of Delivery. At any time that the District prohibits annexations to the District due to water supply concerns, the District will prohibit access to the potable water Point of Delivery. The District shall notify Orange Grove of any restrictions at least 24 hours in advance of their taking effect. For every day or partial day that the District restricts potable water access, Orange Grove shall receive an incremental increase in the reservation of tertiary treated recycled water under its Recycled Water Supply Agreement. The incremental increase in the reservation of tertiary treated recycled water shall be 62 acre-ft less the amount of potable water that has already been delivered in a calendar year.

6. Remedies for Breach. In the event of a breach of any term or provision of this Agreement by either party, both parties shall have all rights and remedies granted by California law. Nothing contained in this Agreement shall be construed as limiting any of the rights and remedies of either parties upon any breach of a term or provision of this Agreement.

7. Installation of Improvements, Priority of Use. As a material term of this Agreement, Orange Grove shall pay for all new capital facilities that will be necessary to fill Orange Grove's trucks at the Delivery Site. These improvements include at a minimum, but are not limited to approximately 200' feet of 14' wide asphalt road way, water handling facilities including 6-inch meter necessary to fill the trucks, concrete loading pad, and other ancillary appurtenances as may be required by the District in its sole discretion (collectively, the "New Facilities"). It is anticipated that the 14' wide road would provide sufficient width for trucks transporting the potable water for Orange Grove. These improvements are currently estimated to cost _____ dollars ($_____), however in no case are the costs for the improvements limited to this amount. The District shall be responsible for constructing the New Facilities. The District shall construct the New Facilities within four (4) months after the date of this Agreement. All improvements determined necessary by the District must be completed prior to commencing deliveries, and no hauling will be allowed until all necessary regulatory permits (if any) are acquired by Orange Grove. Orange Grove shall deposit the engineer's estimate of the aforementioned facilities within 90 days in advance of construction of the facilities. Such deposits shall solely be used for the costs of constructing the New Facilities. Upon completion of construction of the New Facilities, any amounts remaining will be returned to Orange Grove within thirty (30) days after the completion of construction and payment of all invoices relating to construction. If construction costs exceed the amount deposited by Orange Grove, Orange Grove shall pay such additional costs after being notified by the District of any such additional costs. Orange Grove shall have exclusive use of the water filling station and meter and

acknowledges and agrees that the District shall be entitled to use the New Facilities. The District agrees that no third party shall have any right to use such New Facilities if such use would interfere in any way with Orange Grove's access. The District shall notify Orange Grove of any proposed third party use and obtain Orange Grove's acknowledgment and agreement that the proposed used will not interfere with Orange Grove's access. Such agreement shall not be unreasonably withheld. The Parties agree that the District shall own the New Facilities and the District agrees to pay for on-going maintenance and any further improvements of the New Facilities. The District shall construct the New Facilities and the Delivery Site to include a meter and secure access to the spigot.

8. Completion of CEQA Review and Other Permits. Orange Grove shall be solely responsible for complying with all California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) requirements necessary for Orange Grove's receipt, use and transportation of the potable water under this agreement, if applicable. Orange Grove shall also be solely responsible for any and all permits required under any state, federal or local law for its receipt, use and transportation of potable water under this agreement. No potable water will be delivered to Orange Grove until all CEQA and NEPA certifications are complete and all necessary permits have been obtained by Orange Grove.

9. District's Representations and Warranties. District hereby represents and warrants, as of the Effective Date and the Exercise Date:

(a) Organization; Standing; Power; Authority. District is a public utility district, duly organized and existing in the State of California, and has the requisite right, power and authority to execute, deliver and perform the terms and conditions of this Agreement and to consummate the transactions contemplated in the Agreement. District has taken all corporate action necessary to authorize the execution, delivery and performance of the terms and conditions of the Agreement. The individual executing the Agreement has been duly authorized to do so. The performance by District of District's obligations and responsibilities under the Agreement will not violate or constitute a default under the terms and provisions of District's bylaws or any material agreement, document or instrument to which District is a party or by which District. All proceedings required to be taken by or on behalf of District to authorize District to execute, deliver and perform the terms and conditions of the Agreement have been duly and properly taken. No further consent of any person or entity, except the San Diego Regional Water Quality Control Board, is required in connection with the execution and delivery of, or performance by District of its obligations under the Agreement.

(b) Enforceability. The Agreement constitute or shall constitute the valid and binding obligation of District, enforceable against District in accordance with their terms, except as such enforcement may be limited by (i) the effect of bankruptcy,

insolvency, reorganization, receivership, conservatorship, arrangement, moratorium or other Applicable Laws affecting or relating to the rights of creditors generally, or (ii) the rules governing the availability of specific performance, injunctive relief or other equitable remedies and general principles of equity, regardless of whether considered in a proceeding in equity or at law.

10. Orange Grove's Representations and Warranties. Orange Grove hereby represents and warrants, as of the Effective Date and the Exercise Date:
(a) Organization; Standing; Power; Authority. Orange Grove is a Delaware limited partnership duly organized and existing in the State of Delaware, and has the requisite right, power and authority to execute, deliver and perform the terms and conditions of this Agreement, and to consummate the transactions contemplated in this Agreement. Orange Grove has qualified to do business in the state of California with the California Secretary of State and is in good standing with the California Corporation's Commission. Orange Grove will provide to District a copy of its current qualification letter. Orange Grove has taken all corporate action necessary to authorize the execution, delivery and performance of the terms and conditions of the Agreement. The individual executing the Agreement has been duly authorized to do so. The performance by Orange Grove of Orange Grove's obligations and responsibilities under the Agreement will not violate or constitute a default under the terms and provisions of Orange Grove's partnership agreement or any material agreement, document or instrument to which Orange Grove is a party or by which Orange Grove is bound or affected. All proceedings required to be taken by or on behalf of Orange Grove to authorize Orange Grove to execute, deliver and perform the terms and conditions of the Agreement have been duly and properly taken. No further consent of any person or entity is required in connection with the execution and delivery of, or performance by Orange Grove of its obligations under the Agreement.

(b) Enforceability. The Agreement constitute or shall constitute the valid and binding obligation of Orange Grove, enforceable against Orange Grove in accordance with their terms, except as such enforcement may be limited by (i) the effect of bankruptcy, insolvency, reorganization, receivership, conservatorship, arrangement, moratorium or other Applicable Laws affecting or relating to the rights of creditors generally, or (ii) the rules governing the availability of specific performance, injunctive relief or other equitable remedies and general principles of equity, regardless of whether considered in a proceeding in equity or at law.

11. Miscellaneous Provisions.

A. California Law. California law shall govern all terms of this Agreement.

B. Venue. In the event any arbitration or litigation is commenced to enforce, interpret or invalidate any terms or provisions of this Agreement, the parties

agree that venue shall lie only in the Superior Court for the North County Judicial District, County of San Diego, State of California.

C. Modification. This Agreement may not be altered in whole or in part except by a modification, in writing, executed by all the parties to this Agreement.

D. Attorney's Fees. In the event of any arbitration or legal or equitable proceeding to invalidate, enforce, challenge, or interpret any terms of this Agreement, the prevailing party shall be entitled to all attorney's fees and costs in addition to any other relief granted by law. The prevailing party shall also be entitled to recover all such fees and costs during any appeals and during any bankruptcy proceedings.

E. Entire Agreement. This Agreement, together with all exhibits attached to this Agreement contains all representations and the entire understanding between the parties with respect to the subject matter of this Agreement. Any prior correspondence, memoranda, or agreements, whether or nor such correspondence, memoranda, or agreements are in conflict with this Agreement, are intended to be replaced in total by this Agreement and its exhibits. The parties mutually declare there are no oral understandings or promises not contained in this Agreement which contains the complete, integrated, and final agreement between the parties.

F. Binding Effect. This Agreement shall inure to the benefit of and be binding upon the parties and their respective purchasers, successors, heirs, and assigns.

G. Unenforceable Provisions. The terms and conditions and covenants of this Agreement shall be construed whenever possible as consistent with all applicable laws and regulations. To the extent that any provision of this Agreement, as so interpreted, is held to violate any applicable law or regulation, the remaining provisions shall nevertheless be carried into full force and effect and remain enforceable.

H. Representation of Capacity to Contract. Each party to this Agreement represents and warrants that he or she has the authority to execute this Agreement on behalf of the entity represented by that individual and that this Agreement is final and binding upon both parties.

I. Opportunity to be Represented by Independent Counsel. Each of the parties to this Agreement warrant and represent that they have been advised to consult independent legal counsel of their own choosing and have done so prior to executing this Agreement.

J. No Waiver. The failure of either party to enforce any term, covenant, or condition of this Agreement on the date it is to be performed shall not be

construed as a waiver of either party's right to enforce this, or any other term, covenant, or condition of this Agreement. No waiver shall occur unless the waiver is stated expressly in writing and signed by the party waiving the right. No oral waivers shall be effective for any purpose.

K. Effective Date. The effective date of this Agreement executed in counterparts within the North County Judicial District, County of San Diego, State of California, is _____.

L. Counterparts and Facsimile Signatures. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Facsimile signatures shall be permitted and shall be treated as original signatures for all purposes.

M. Assignment. Neither party shall assign its rights to this Agreement without the prior written consent of the other party; provided that Orange Grove shall be permitted to collaterally assign its rights under this Agreement to the lenders providing financing to Orange Grove with respect to the Project and District shall execute consents to collateral assignment as may be reasonably requested by Orange Grove's lenders.

N. Further Documents and Acts, Financing Cooperation. Each of the parties hereto agrees to cooperate in good faith with each other, and to execute and deliver such further documents and perform such other acts as may be reasonably necessary or appropriate to consummate and carry into effect the transactions contemplated under this Agreement The District agrees that such cooperation to execute further documents hereunder includes executing consents to collateral assignment and providing opinions of counsel as may be requested by the lenders providing financing to Orange Grove with respect to the Project.

Dated: _____, 2008

FALLBROOK PUBLIC UTILITY DISTRICT,
a Public Utility District

By:_____
Keith Lewinger, General Manager

Dated: _____, 2008

ORANGE GROVE ENERGY, L.P.,
a Delaware limited partnership

By:_____
Stephen Thome, Vice President

Orange Grove Energy Potable Water Agreement
List of Exhibits

1. Exhibit "A" Map of Orange Grove Energy "Project" Site
2. Exhibit "B" Plot of Location of the Proposed Birdcage Tank Truck Filling Site, (Primary Delivery Site)