

**AECOM Environment**  
1220 Avenida Acaso, Camarillo, CA 93012  
T 805.388.3775 F 805.388.3577 [www.aecom.com](http://www.aecom.com)

AECOM

July 31, 2009

CALIFORNIA ENERGY COMMISSION  
Attn: Docket No. 08-AFC-9  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

<b>DOCKET</b>	
<b>08-AFC-9</b>	
DATE	Jul 31 2009
RECD.	Aug 03 2009

**Re: City of Palmdale Hybrid Power Project – Docket No. 08-AFC-9**

Dear Sir/Madam:

Pursuant to the California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find **Palmdale Hybrid Power Project: Final Arroyo Toad Survey Report**.

As shown in the attached email, this report has previously been filed with the U.S. Fish and Wildlife Service.

Please note that the attached submittal was filed today via electronic service to all parties on the attached proof of service list, along with 13 copies sent via first class mail service to the dockets units.

Very Truly Yours.



Sara J. Head  
Applicant's Consultant, Project Manager

Enclosure

## Amalong, Matt L

---

**From:** Amalong, Matt L  
**Sent:** Thursday, July 23, 2009 1:12 PM  
**To:** 'carl\_benz@fws.gov'  
**Subject:** Arroyo Toad Report  
**Attachments:** PHPP AT FINAL 07-20-09.pdf

Hi Carl,

I am attaching our Arroyo Toad Survey Report for this past season at Little Rock Creek (intersection of Lake Emma and Cheseboro). I will mail you a hard copy. Let me know if you have any questions.

Thanks,  
Matt

***Matt Amalong***  
Wildlife Biologist  
AMEC Earth & Environmental, Inc.  
3120 Chicago Avenue, Suite 110  
Riverside, CA 92507  
(C) 949.233.2134  
(T) 951.369.8060  
(F) 951.369.8035  
<mailto:matt.amalong@amec.com>

## **PALMDALE HYBRID POWER PROJECT**

***FINAL***

### **ARROYO TOAD SURVEY REPORT LOS ANGELES COUNTY, CALIFORNIA**

Prepared for:

**City of Palmdale, California and Inland Energy**

Under subcontract to

**AECOM Environment**

1220 Avenida Acaso

Camarillo, California 93012-8738

Office: (805) 388-3775

Fax: (805) 388-3577

Contact: Ms. Sara Head

[sara.head@aecom.com](mailto:sara.head@aecom.com)

Prepared by:

**AMEC Earth & Environmental, Inc.**

3120 Chicago Avenue, Suite 110

Riverside, California 92507

Office: (951) 369-8060

Fax: (951) 369-8035

Principal Investigator:

Matt Amalong, Wildlife Biologist

[matt.amalong@amec.com](mailto:matt.amalong@amec.com)

July 2009

AMEC Project No. 6554000247

---

## TABLE OF CONTENTS

---

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	Purpose and Need.....	1
1.2	Project Location and Description.....	1
1.3	Arroyo Toad Background.....	1
<b>2.0</b>	<b>METHODS.....</b>	<b>2</b>
2.1	Literature Review and Records Search.....	2
2.2	Field Surveys.....	2
<b>3.0</b>	<b>RESULTS.....</b>	<b>3</b>
3.1	Literature Review and Records Search.....	3
3.2	Field Surveys.....	3
<b>4.0</b>	<b>DISCUSSION.....</b>	<b>4</b>
<b>5.0</b>	<b>REFERENCES.....</b>	<b>5</b>

## LIST OF TABLES

---

Table 1	2009 Arroyo Toad Survey Details
---------	---------------------------------

## LIST OF FIGURES

---

Figure 1	PHPP Vicinity and Location
Figure 2	PHPP Arroyo Toad Survey Area and CNDDDB Records

## LIST OF APPENDICES

---

Appendix 1	Qualifications of Individuals Conducting Surveys
Appendix 2	Site Photographs
Appendix 3	Vertebrate Species Observed During Arroyo Toad Surveys

## **1.0 INTRODUCTION**

---

### **1.1 Purpose and Need**

AMEC Earth & Environmental, Inc. (AMEC) was contracted by AECOM Environment (AECOM) to prepare a Biological Resources Technical Report (BRTR) for the development of the proposed Palmdale Hybrid Power Project (PHPP or Project), a nominal 570-megawatt (MW) hybrid combined-cycle/solar thermal electrical generation facility. Arroyo toad (*Bufo californicus*), a species listed as endangered under the federal Endangered Species Act (ESA), was identified in the BRTR as a species known from the Project region, but suitable habitat was not present on the Project Site during 2008 surveys. In early 2009, the arrival of flowing water to a section of Little Rock Creek where the Project's transmission line is proposed to cross provided suitable arroyo toad habitat downstream of known arroyo toad populations. AMEC conducted breeding season protocol surveys in 2009. This report provides the results of those surveys.

### **1.2 Project Location and Description**

The Project is located in the City of Palmdale (City) and unincorporated areas of Los Angeles County, California (the power plant site and most linear facilities are within the City of Palmdale; portions of the transmission line route are within unincorporated areas), and includes a 333-acre power plant site, 50-acre construction laydown area, 35.6-mile transmission line, 7.4-mile reclaimed water pipeline, 8.7-mile natural gas supply pipeline, 1-mile sanitary wastewater pipeline, and 0.5-mile potable water pipeline (Figure 1).

The southern segment of the transmission line (segment 2) crosses Little Rock Creek near the intersection of Mt. Emma Road and Cheseboro Road. This section of Little Rock Creek is approximately 1.5 miles north of Little Rock Dam/Reservoir, which restricts water flow to the north (downstream). The only water that flows north from the Reservoir is due to seepage and/or rainfall. Because of the limited water flow, this section of Little Rock Creek has an intermittent flow.

### **1.3 Arroyo Toad Background**

The arroyo toad is a small toad (5-8 cm) found in very restricted areas in southern California. Many of the remaining populations exist on U.S. Forest Service land. The Los Padres National Forest and Angeles National Forest support the majority of southern California's remaining intact large river systems, and probably maintains the only extant viable populations of arroyo toads in Los Angeles County (Federal Register 1993).

Arroyo toads have specific requirements for breeding habitat. Habitat features include: 1) quiet parts of clear streams or shallow ponds for egg deposition; 2) open stream side-sand or gravel flats, especially those bordering the breeding pools; 3) the margins of old flood channels on low terraces, particularly on sand and in association with dense clumps of willows, cottonwoods, and sycamores in valley-foothill and desert riparian habitats.

Arroyo toads typically breed in pools whose average depth is 30 cm or less at the time of egg deposition. These pools have extensive areas of their bottoms covered by sand or well-sorted gravel deposits with a minimum of embedded silt. The late breeding season and long periods of dependence on surface water of arroyo toad larvae and juveniles (65-85 days) restrict them from occurring in areas where the riverbed dries out by early summer. Nightly or near nightly emergence seems to occur from late March to mid June when the males are calling and females are foraging intensively. The peak of male calling activity begins in early to mid April and extends through late May, with some males calling sporadically as late as the end of June. The advertisement call is a clear, whistling trill. Males generally select a calling area on the open shoreline of a pool where the slope is low and little or no vegetation breaks the horizon line (Sweet 1992).

The arroyo toad is currently listing as endangered by the U.S. Fish and Wildlife Service (FWS). Threats to the survival of this species include habitat degradation (*i.e.*, urbanization, dam construction, etc.), drought, predation, and small population sizes (Federal Register 1993). It has been extirpated from an estimated 75% of its former range (Sweet 1992). On April 13, 2005, the FWS designated critical habitat for the arroyo toad (Federal Register 2005).

## **2.0 METHODS**

---

### **2.1 Literature Review and Records Search**

A literature review was conducted to identify known records of arroyo toads from the vicinity of the Project Site. For the purpose of assessing the occurrence potential of arroyo toads, vicinity in this context is defined as areas within 10 miles of the Project. The literature review included:

- California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDDB) version 3.1.0 RAREFIND application (CDFG 2009). This review included all elements within the following USGS 7.5' Quadrangles: Lancaster West, Lancaster East, Alpine Butte, Hi Vista, Ritter Ridge, Palmdale, Littlerock, Lovejoy Buttes, Acton, Pacifico Mountain, Juniper Hills, and Valyermo.
- Knowledge of the area by AMEC Biologists.
- Pertinent documents from the AMEC library.

### **2.2 Field Surveys**

The biological resource and habitat assessment conducted in 2008 did not identify the Little Rock Creek crossing (transmission line segment 2) as suitable arroyo toad habitat because (1) there was no flowing water present in April 2008; (2) it is over 1 mile downstream from a 1970 CNDDDB record; and (3) it is over 3 miles downstream from a 2001 CNDDDB record. However, flowing water was observed in March 2009 while conducting follow-up surveys for some minor transmission line pole location changes. This development created potentially suitable arroyo toad habitat downstream of known populations, so focused breeding season surveys were conducted (see Figure 2 for survey area).

AMEC biologists (see Appendix 1 for surveyor qualifications) conducted six protocol surveys (FWS 1999) from April 21, 2009 to June 25, 2009 (see Table 1 for dates). At least one survey was conducted per month during April, May, and June. Surveys included both daytime and nighttime components conducted within the same 24-hour period.

Daytime surveys were conducted by walking slowly along stream margins and in adjacent riparian habitat, visually searching for (but not disturbing) eggs, larvae, and juveniles. Nighttime surveys were conducted between one hour after dusk and midnight, when air temperature at dusk was 55 degrees Fahrenheit or greater, by walking slowly and carefully on stream banks. Flashlights were used to visually locate and identify frog and toad species present. Surveyors stopped periodically and remained still and silent for approximately 15 minutes at appropriate sites to wait for arroyo toads to begin calling. Caution was exercised during daytime and nighttime surveys to avoid disturbing, injuring, or killing frog and toad species present.

### **3.0 RESULTS**

---

#### **3.1 Literature Review and Records Search**

Two CNDDDB (2009) records of arroyo toad have been reported from the vicinity of the Project based on the literature review (Figure 2). These include:

- 1970: approximately 1.2 miles south of transmission line crossing. At least one arroyo toad observed north of Little Rock Reservoir.
- 2001: approximately 3.4 miles south of transmission line crossing. Up to 17 arroyo toads observed, first recorded in 1996.

#### **3.2 Field Surveys**

Marginal arroyo toad habitat was present (low gradient side pools, few areas of sandy margins for burrowing). The majority of the creek's substrate was large rocks covered with algae. Water flow during the first survey (April 21) extended just north of the transmission line crossing (see site photos in Appendix 2). The water level slowly receded south (upstream) as the breeding season progressed. By the last survey (June 25), the water flow had receded south of the transmission line crossing by a few hundred feet (dry at the transmission line crossing) (see site photos in Appendix 2).

No arroyo toad adults, juveniles, eggs, or larvae were observed during focused surveys. Two amphibian species, the Pacific treefrog (*Pseudacris regilla*) and the western toad (*Bufo boreas*), were observed (adults, juveniles, and tadpoles) (see site photos in Appendix 2). Incidental wildlife species observed during surveys are listed in Appendix 3.



**Table 1. 2009 Arroyo Toad Survey Details**

Date (2009)	Surveyors <sup>1</sup>	End Civil Twilight Temp. at Dusk (°F)	Moon Showing? Moon Phase Percent Illuminated	Time	Wind (mph)	Temp. (°F)
Apr 21	MA, NM	19:56 81	No	17:00 – 18:00 21:00 – 21:45	0-15 0-10	88-90 75-80
May 28	MA, NM	20:27 78	Yes Waxing crescent 24	17:30 – 18:30 21:30 – 22:15	0-20 0-15	87-92 75-78
Jun 04	MA, MW	20:31 62	Yes Waxing gibbous 91	18:00 – 19:00 21:30 – 22:15	0-10 0-15	67-72 55-59
Jun 11	MA, MW	20:35 62	No	17:45 – 18:45 21:30 – 22:15	0-15 0-15	66-68 60-61
Jun 18	MA, ZK	20:37 79	No	15:30 – 16:15 21:30 – 22:15	0-10 0-10	89-91 76-79
Jun 25	MA, MW	20:39 75	Yes Waxing crescent 13	18:00 – 19:00 21:30 – 22:30	0-15 0-5	79-87 70-73

<sup>1</sup> Surveyor Initials: MA = Matt Amalong, Wildlife Biologist, AMEC  
 ZK = Zsolt Kahancza, Wildlife Biologist, AMEC  
 NM = Nathan Moorhatch, Wildlife Biologist, AMEC  
 MW = Michael Wilcox, Wildlife Biologist, AMEC

#### 4.0 DISCUSSION

Designated critical habitat, which potentially supports arroyo toad populations, is located 2-3 miles south (upstream) of where transmission line segment 2 crosses Little Rock Creek. During years of favorable rainfall, arroyo toads, larvae, and egg masses could potentially move downstream when water is present. However, the most recent recorded sighting was in 2001 (CDFG 2009), approximately 3 miles upstream from the Project's crossing of Little Rock Creek. To reach the transmission line crossing location, an arroyo toad individual, larva, or egg mass would need to navigate across Little Rock Reservoir and Little Rock Dam.

Focused breeding season surveys were conducted in 2009, and no arroyo toad adults, juveniles, eggs, or larvae were detected. Based on the intermittent flow at this location (drying out by early summer; dry throughout some years), marginal habitat (lack of suitable stream and burrowing substrate), and the absence of arroyo toads during focused surveys, it is highly unlikely arroyo toads utilize this section of Little Rock Creek and the Project therefore will have no effect on the arroyo toad. No additional avoidance and minimization measures (beyond what the Project is already proposing to avoid and minimize impacts to Little Rock Creek Significant Ecological Area) are necessary. A preconstruction survey will be conducted to verify arroyo toads have not established themselves in this section of Little Rock Creek. Additionally, a qualified Project biologist knowledgeable about arroyo toads will be present during all construction-related ground-disturbing activities within 500 feet of the wash.

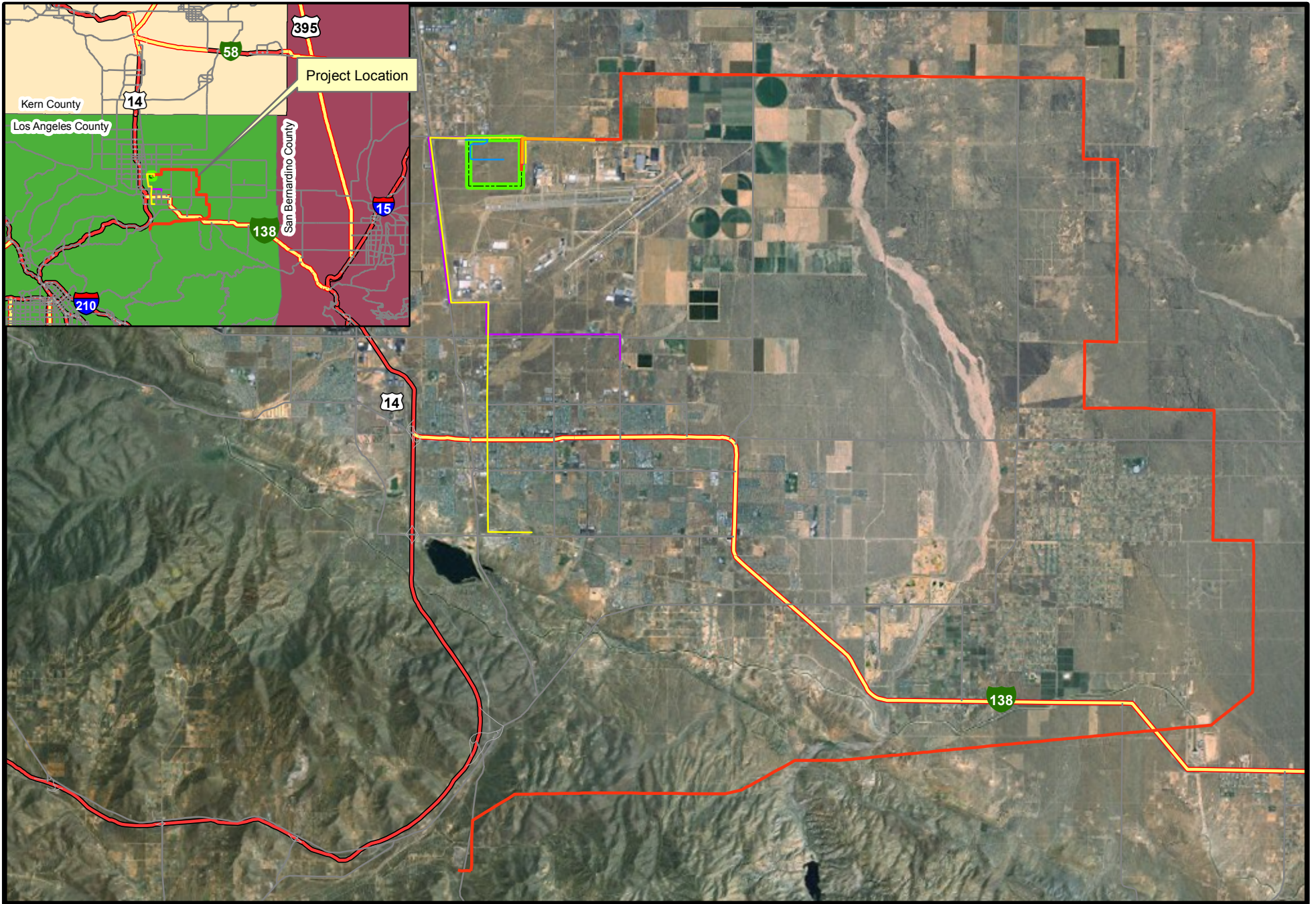


## 5.0 REFERENCES

---

- California Department of Fish and Game (CDFG). 2009. California Natural Diversity Database (CNDDDB), RareFind, Version 3.1.0.
- Federal Register. 2005. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Arroyo Toad; Final Rule. Federal Register 70 (70): 19562-19633.
- Federal Register. 1993. Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Arroyo Southwestern Toad; Proposed Rule. Federal Register 58 (147): 41231-41237.
- Sweet, S.S. 1992. Initial report on the ecology and status of the arroyo toad (*Bufo microscaphus californicus*) on the Los Padres National Forest of southern California, with management recommendations. U.S.D.A. Forest Service, Contract report, Goleta, California.
- United States Fish and Wildlife Service (FWS). 1999. Survey Protocol for the Arroyo Toad. May 19, 1999. 3 pp.

## FIGURES



- Legend**
- Power Plant Site Survey Area
  - Transmission Line
  - Potable Water
  - Sanitary Wastewater Pipeline
  - Natural Gas Pipeline
  - Reclaimed Water Pipeline

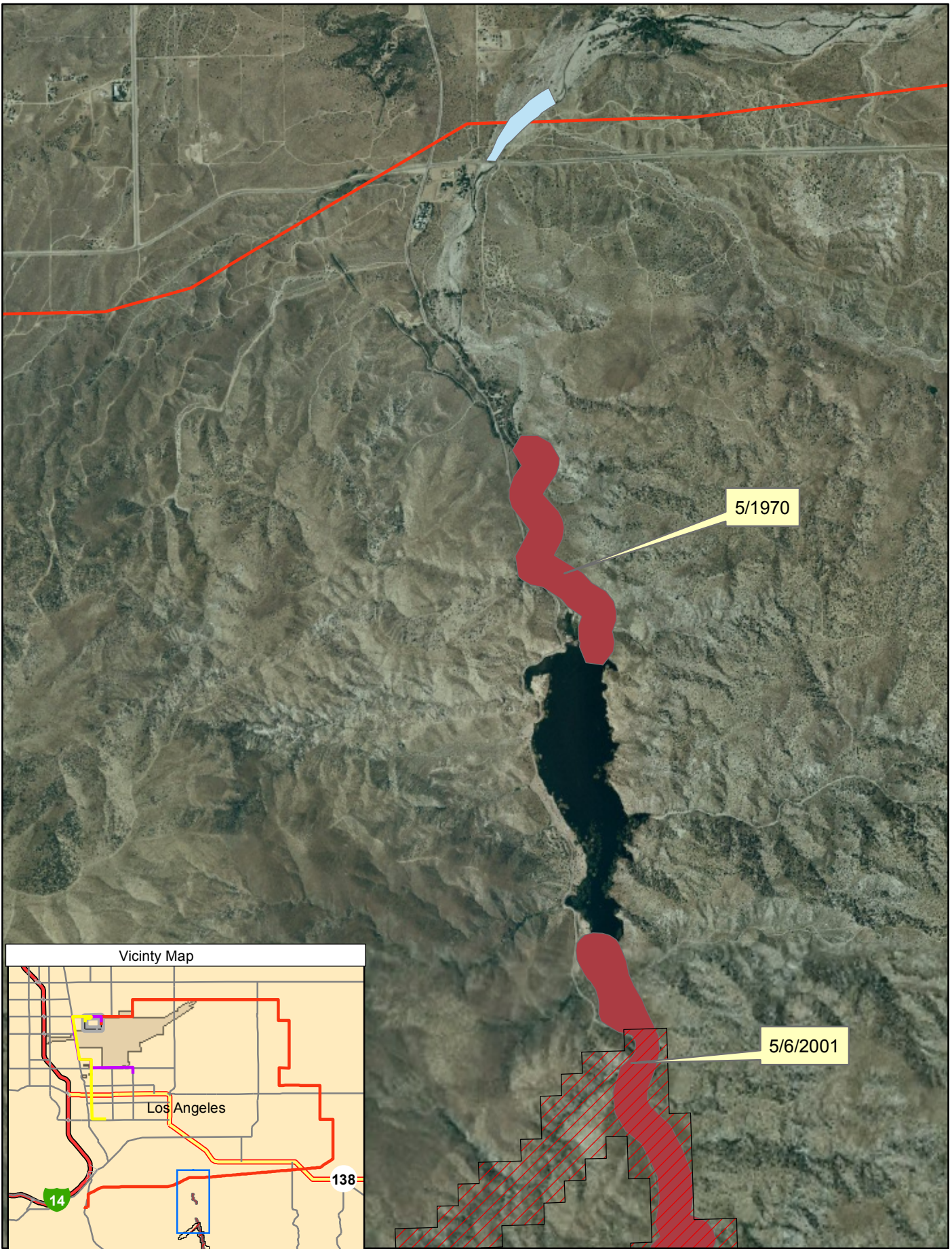
**Palmdale Hybrid Power Project**  
 Figure 1  
 Vicinity & Location

0 1 2 3 4 Miles  
 1:125,000

**Map Notes:**  
 Projection: NAD 83, Zone 11  
 Path: S:\active projects\Palmdale  
 Power Plant Bio 6554000247\graphics\mxd\2009  
 Date: 04/10/09







**Legend**

- Transmission Line Route
- Critical Habitat
- Survey Area
- CNDDDB Record

**Palmdale Hybrid Power Project**  
 Arroyo Toad Survey Area & CNDDDB Records  
 Figure 2

0 0.1 0.2 0.4 0.6 0.8  
 Miles

1:24,000

**Map Notes:**

Projection: NAD 83, Zone 11  
 Path: S:\active projects\Palmdale  
 Power Plant Bio 6554000247\graphics\mxd\2009  
 15.28  
 Date: 06/30/09


## **APPENDIX 1**

### **QUALIFICATIONS OF INDIVIDUALS CONDUCTING SURVEYS**

# Matt Amalong

Wildlife Biologist

## Professional summary

Nine years experience as an environmental consultant/biologist. Responsibilities have included: project management; preparation of FERC, BRAR, BRTR, EA, EIR, CIA, AFC and CEQA Biological Resource Reports; preparation of scopes, schedules, and budgets; desktop surveys (CNDDDB, internet, literature search, etc.); technical editing and report writing; proposed wind energy facilities surveys (avian, wildlife, plant); monitoring of threatened and endangered species; wetland delineation projects; restoration projects; wind energy projects; superfund site projects; coordinating and conducting field surveys (avian, herpetological, mammalian, vegetation); and construction monitoring.

## Professional qualifications

Basic Wetland Delineation, Wetland Training Institute, Aug 2007

Desert Tortoise Surveying, Monitoring, and Handling Techniques Workshop, Nov 2006

Avian/Bat Fatality Survey Training, Searcher Efficiency, and Carcass Removal Trials at Wind Farms, Aug 2006

Flat-tailed Horned Lizard Survey Certification, Jun 2006

Successful CEQA Compliance Workshop, Feb 2006

40-Hour HAZWOPER Training, Dec 2005

8-Hour HAZWOPER Refresher, Nov 2006

CDFG Scientific Collecting Permit

## Education

Graduate School, Biology/Ornithology, California State University, Long Beach, 2000-2003

B.S., Biology, Stetson University, 1999

## Memberships

The Wildlife Society, Western Section

National Wind Coordinating Collaborative

The Desert Tortoise Council

## Languages

English

## Summary of core skills

As Project Manager, responsible for scope, schedule, budget, and level of quality for a variety of projects.



**Detailed core skills or details by project**

**Inland Energy, Palmdale Hybrid Power Project, Los Angeles County, CA.** Coordinated and conducted biological surveys (rare plants, Desert Tortoise, Burrowing Owl) for a 570-MW solar/natural gas hybrid power plant and its associated linear components (36-mile transmission line, 9-mile reclaimed water pipeline, 7-mile natural gas pipeline) in Palmdale, CA. Prepared the Biological Resources Technical Report (BRTR) and the Biological Resources section of the Application For Certification (AFC) for the California Energy Commission.

**Oak Creek Energy Systems Inc., Wind Assessment Projects, southern CA and southern NV.** Coordinated cultural and biological field surveys for three-year renewable wind prospecting BLM right-of-way grants for the installation of meteorological towers at five project sites in southern CA (San Bernardino and Kern Counties) and southern NV (Clark County). Prepared Biological Resource Assessment Reports to support EA documents.

**Energy Unlimited Inc., Revised Commercial WECS 20 Permit Project, Riverside County, CA.** Provided biological support and prepared DEIR Response to Comments for a Repower Project in Desert Hot Springs, CA. The proposed Project will install eight new GE 1.5 MW wind turbine generators, remove sixteen existing smaller Bonus 65 kW wind turbine generators, construct a single-story storage building, and expand an existing outdoor storage area within the existing WECS 20 Wind Park.

**RES Energy, Granite Mountain Wind Project, San Bernardino County, CA.** Prepared biological study plan. Coordinated and conducted bi-weekly avian point-count surveys for proposed 46 MW Granite Mountain Wind Project in San Bernardino County. Analyzed avian point-count data and prepared mean use report providing results of those surveys. Identified species at risk by visual and aural observations. RES proposes to develop a new wind energy generation facility. This facility will include access roads, underground electrical lines, underground communication lines, concrete wind turbine foundations, tubular steel towers, 2.3-megawatt wind turbines, transformers, a communications system, and undisturbed open space. Project work required for preparation of an EIR for submission to the Bureau of Land Management (Barstow Field Office).

**Dillon Wind, LLC, Field Surveys and EIR, Riverside County, CA.** Coordinated and conducted field surveys for special-status species, including Desert Tortoise, Flat-tailed Horned Lizard, and Burrowing Owl. Wrote General Biological Assessment for County of Riverside and Biological Resources Technical Appendix for EIR. Dillon Wind, LLC is proposing to construct and operate an approximately 45 megawatt (MW) wind energy conversion system (WECS) project in the San Gorgonio Pass area of Riverside County. The Project will involve the installation of supporting facilities including on-site access roads, pad mount transformers, underground electrical transmission, and communication lines.

**Edwards Air Force Base, Common Raven Study, Lancaster, CA.** Developed and implemented a monitoring program to provide information on the population and behavior of Common Ravens and their interaction with Desert Tortoise within the Desert Tortoise Critical Habitat Area (DTCHA) on Edwards Air Force Base (EAFB). Factors investigated included Raven population densities, movement patterns, and diet characteristics. These three primary factors were evaluated both inside and outside the boundaries of the DTCHA and EAFB. Additional information collected included Raven nesting locations and staging areas. The study was also intended to establish point count locations where long-term comparative data can be collected to measure the status and impact of Raven populations within and adjacent to the DTCHA. Wrote biological report for Army Corps of Engineers.

**PPM Energy, Tule Wind Project, San Diego County, CA.** Prepared biological study plan. Coordinated and conducted bi-weekly avian point-count surveys, surveys for rare plant species, and surveys for refining vegetation community maps for proposed 177 MW Tule Wind Project in eastern San Diego County. Identified species at risk by visual and aural observations. The primary components of the proposed project are approximately 118 1.5-MW capacity wind turbines with a hub height of approximately 80 meters, a rotor diameter of 77 meters, and a total height of approximately 118 meters. Electrical power generated by the wind turbines would be collected on-site by underground 34.5kV transmission lines and ultimately delivered to an existing substation in Boulevard, approximately 3 mi. south of the project site via an overhead 230kV transmission line. Project work is required for preparation of an EIR.

**FPL Energy, LLC, Beverly and DeKalb & Lee Wind Resource Areas, IL.** Wrote Environmental Critical Issues Analysis (CIA) Report for two proposed wind energy conversion facilities in Beverly and DeKalb & Lee Counties, Illinois. These reports evaluated current environmental conditions and potential impacts on sensitive biological and cultural resources within the Wind Resource Areas (WRA). It also evaluated applicable land uses, zoning, and identified the types of permits, plans, and approvals that would likely be required for project development. Current plans for the Beverly WRA include the installation of 126 tubular-steel, 80 meter tall, 1.5 megawatt (MW) GE turbines (approximately 190 MW). Current plans for the DeKalb & Lee WRA include the installation of 129 tubular-steel, 80 meter tall, 1.5 megawatt (MW) GE turbines (approximately 194 MW). Infrastructure to be constructed or installed in conjunction with the turbine arrays and associated substations include access routes and both buried and overhead transmission lines.

**Salton Sea Authority, New & Alamo River Wetland Restoration Plan, Imperial County, CA.** Coordinated and implemented reconnaissance-level habitat and biota surveys along the New and Alamo Rivers in Imperial County, CA. The primary goal of the proposed surveys were to identify those flora and fauna that are currently present at the undeveloped sites and to help predict those species that may be present in any future wetlands scenario. Wrote biological report for Tetra Tech Divisions to be incorporated as a chapter in the Master Plan for New and Alamo Rivers.

**UPC Wind Energy, LLC, Mile High Ranch Wind Project, Hudspeth County, TX.** Analyzed avian point-count data and prepared mean use report providing results of those surveys for proposed wind energy conversion facility on an approximately 44.5 km<sup>2</sup> (11,000 acre) area of west-central Texas, approximately 50 km east of El Paso near the El Paso/Hudspeth County line. The proposed design includes GE 1.5 MW turbines, which have an 80-meter hub height and a rotor diameter of 77 meters, resulting in a rotor swept area (RSA) between 41.5 and 118.5 meters above ground level. Infrastructure to be constructed or installed in conjunction with the turbine array and associated substation includes access routes and transmission lines. The protocol for this analysis was similar to protocols used at the Condon, Maiden, Stateline, and Vansycle wind projects in Oregon and Washington, the Buffalo Ridge wind project in southwest Minnesota, and the Foote Creek Rim wind project in Wyoming.

**Luke Air Force Base, Barry Goldwater Tactical Range, Nevada.** Coordinated and conducted biological surveys for Sonoran Pronghorn Antelope. Utilized video camera surveillance to monitor wildlife activity at watering/revegetation plots. Included installation of cameras and DVR equipment.

**All-American Canal Lining Project, Imperial County, CA.** Prepared training and safety materials, including Worker's Environmental Education Program (WEEP) manual, special-status species identification cards, environmental signs, training documentation database, and



stickers. The purpose of the AAC Lining Project is to conserve seepage lost from the unlined AAC. The conserved water is needed in the southern California coastal area to offset a projected water shortage of 1.2 million acre-feet that is expected by the year 2010. The proposed project has the potential to conserve about 67,700 acre-feet per year.

**North Baja Expansion Project, Imperial and Riverside County, CA.** Prepared FERC Resource Report: Vegetation and Wildlife. The purpose of this report was to describe the existing fish, wildlife, and vegetation resources that would be affected directly and indirectly by the proposed North Baja Expansion (NBX) Project and to assess the potential impacts to these resources resulting from construction and operation of the proposed project. The report also identifies the mitigation measures that are proposed to reduce the impact to these resources. The proposed project consists of the following two components: the B-line, which is comprised of the North Baja Loop, the Blythe Lateral, and the SoCal Gas Lateral; and, the IID Lateral.

**Sempra Energy Resources, Imperial Valley Desert Restoration Project.** Compiled and edited the “As-built” baseline surveys and initial execution of Sempra’s restoration plan, including tamarisk, a non-native invasive shrub/small tree, removal and off-site mitigation for impacts.

**North Baja Pipeline Extension, Avian Surveys, AZ and CA.** Compiled and edited focused avian survey reports for southwestern willow flycatcher and clapper rail.

**South Coast Water District, Laguna Sur Sanitary Easement Natural Resources Evaluation, Orange County, CA.** Compiled and edited an assessment intended to determine potential environmental regulatory and compliance issues associated with regular and emergency maintenance activities needed to maintain operation of SCWD facilities within the Laguna Sur Sanitary Easement.

**South Coast Water District, Casden Properties, LLC, Los Angeles County, CA.** Compiled and edited focused avian survey reports for California Gnatcatcher and Burrowing Owl. Complied with California Environmental Quality Act (CEQA), state and federal Endangered Species Acts (ESA), Clean Water Act (CWA), California Department of Fish and Game (CDFG) Code Sections, and Migratory Bird Treaty Act (MBTA) associated with emergency maintenance activity requisite to maintain use and operation of SCWD facilities.

**Department of the Navy, Superfund Site, Hunters Point, CA.** Monitored biological resources on former Hunters Point Naval Shipyard superfund cleanup site. Maintained buffer zones to protect biological resources; prepared and filed daily field monitoring reports; interacted with construction staff to ensure compliance with established environmental protection measures.

**Rialto Municipal Airport, Phase I Environmental Site Assessments, Rialto, CA.** Compiled and edited Phase I Environmental Site Assessments for four properties in and around the Rialto Municipal Airport.

**Pacific Gas and Electric, North Baja Natural Gas Pipeline, California and Arizona.** Field compliance with NEPA, CEQA, FERC, and federal and state Endangered Species Acts for an 80-mile natural gas line extending from Ehrenberg, La Paz County, Arizona, through Riverside and Imperial Counties, California to an interconnection with Sempra International's proposed Gasoducto Bajanorte pipeline at the U.S./Mexico border west of Yuma, Arizona. Implemented field compliance with terms and conditions of formal consultation with the USFWS pursuant to Section 7 of the Endangered Species Act of 1973 (as amended) and CDFG 2081 Take Permit. Field executed desert restoration plan, field survey protocols, field survey schedules, and mitigation packages in accordance with local and federal agency standards. Assisted with

threatened and endangered species surveys for rare plants, Desert Tortoise, Flat-tailed Horned Lizard, Burrowing Owl, Gila Woodpecker, Southwestern Willow Flycatcher, and nesting bird surveys in accordance with the MBTA. Additional responsibilities included instructing, implementing, and maintaining compliance with various mitigation measures outlined in numerous project approvals and permits.

**Port of Los Angeles, Pier 400 California Least Tern Nesting Site, Los Angeles County, CA.** Monitored breeding biology of California Least Tern (CLT). Walked transects throughout nesting site to locate new nests and update status of existing nests. Conducted fledgling counts. Banded CLT, Caspian Terns, and Elegant Terns. Assisted with predator management (trapping and relocating) of Peregrine Falcons, American Kestrels, Burrowing Owls, feral cats, corvids, and gulls. Observed and monitored other sensitive species such as Western Snowy Plover, Burrowing Owl, Black Skimmer, and Caspian Tern. Prepared annual breeding reports.

**Army Corps of Engineers, Southern California.** Conducted California Least Tern (CLT) foraging surveys at the Port of Los Angeles and Camp Pendleton. Monitored Western Snowy Plover activity adjacent to CLT nesting sites. Compiled and analyzed data in an annual foraging report.

**Batiquitos Lagoon, Carlsbad, CA.** Managed five California Least Tern (CLT) and Western Snowy Plover (WSP) nesting sites. Monitored breeding biology of CLT and WSP. Walked transects throughout nesting sites to locate new nests and update status of existing nests. Installed protective enclosures over WSP nests. Conducted fledgling counts. Coordinated and communicated with predator management, CDFG, and others to optimize reproductive success. Prepared annual breeding report.

**Bolsa Chica Ecological Reserve, Huntington Beach, CA.** Assisted Dr. Charlie Collins with nest monitoring and banding of California Least Tern, Caspian Terns, Elegant Terns, and Black Skimmers. Monitored Western Snowy Plover activity while conducting graduate studies on Black-necked Stilts.

**City of Murrieta/USFWS, Southern California.** Monitored construction during Clinton Keith Roadway Ramp Interim Improvement Project in habitats containing the endangered California Gnatcatcher. Interacted with construction crews to ensure environmental compliance.

**Upper Newport Bay, Orange County, CA.** Conducted avian surveys at Big Canyon and West Bay. Monitored endangered California gnatcatcher. Compiled avian, mammalian, herpetological, and entomological species lists.

**Myra Frank, Southern California.** Monitored construction during I-5 highway construction in habitats containing endangered species (Willow Flycatcher, Least Bell's Vireo, Unarmored Threespine Stickleback). Interacted with CalTrans and construction crews to ensure environmental compliance.

**Alameda Corridor, Los Angeles County, CA.** Located and marked Killdeer nests, monitored breeding biology, interacted with construction crews during railroad construction to minimize disturbance to nests. Prepared annual breeding report.

**Cajalco Creek Dam and Detention Basin, Riverside County, CA.** Monitored construction in habitats containing endangered species (California Gnatcatcher, Stephens' Kangaroo Rat). Ensured construction crews were in compliance with environmental permits. Prepared annual report.

**Employment history**

Apr 2007 – present Wildlife Biologist, AMEC Earth & Environmental, Inc., Anaheim, CA

Aug 2005 – Apr 2007 Associate Biologist, Tetra Tech EC, Inc., Santa Ana, CA. Project Manager responsible for preparing and executing biological study plans.

Apr 2000 – Aug 2006 Project Biologist, Keane Biological Consulting, Long Beach, CA. Project Manager responsible for coordinating biological surveys and maintaining compliance with mitigation measures.

Jan 2005 – Aug 2005 Assistant Biologist, LSA Associates, Inc., Irvine, CA. Conducted biological monitoring in habitats containing endangered, threatened, and/or species of special concern.

Apr 2004 – Nov 2004 Biological Monitor, CA Department of Fish and Game, Carlsbad, CA. Managed four California least tern and western snowy plover nesting sites.



# Zsolt Kahancza

## Biologist

### Professional summary

Specializing in herpetological and ornithological studies, Mr. Kahancza has studied California's wildlife in the field for over 10 years. Mr. Kahancza has conducted biological and environmental assessment work throughout Orange, Riverside, San Bernardino, San Diego, Imperial, and Los Angeles counties, including Catalina Island. Professional experience includes serving as lead biologist and managing medium size private and public development projects, as well as conducting jurisdictional delineations and focused surveys and monitoring of a variety of endangered, threatened, and/or otherwise sensitive species. In addition, Mr. Kahancza has authored biological assessment reports, focused species survey reports, habitat restoration reports and compliance reports for the western Riverside Multiple Species Habitat Conservation Plan.

Mr. Kahancza has worked with or surveyed for several listed/sensitive species including least Bell's vireo, coastal California gnatcatcher, burrowing owl, California arroyo toad, California red-legged frog, mountain yellow-legged frog, San Gabriel slender salamander, desert tortoise and Coachella Valley milk-vetch. Mr. Kahancza has also received Bureau of Land Management certification for conducting focused surveys for the flat-tailed horned lizard, and has taken part in the Desert Tortoise Council/Surveying, Monitoring, and Handling Techniques Workshop.

Other professional duties Mr. Kahancza has conducted include habitat restoration monitoring in upland and riparian habitats and jurisdictional delineation of waters of the U.S. at various study sites throughout Riverside and Los Angeles Counties. Mr. Kahancza has also assisted with the preparation of an aquatic permit package for an ephemeral drainage, as well as monitored riparian vegetation removal in Riverside County for three consecutive years for the Metropolitan Water District.

In order to comply with the Coachella Valley MSHCP like-exchange process, I conducted surveys in order to analyze the functions and values of potential exchange habitat. Collected vegetation data in San Diego County, San Bernardino National Forest lands, and on Santa Catalina Island utilizing point-intercept on line transects.

### Professional qualifications

Permits  
California Scientific Collection Permit

### Education

BA, Biology, California State University San Bernardino, Conferred 1994

Post-baccalaureate coursework, California State University San Bernardino, 1995-1996

Post-baccalaureate coursework, California State Polytechnic University Pomona, 1999-2000



## Zsolt Kahancsa

### Additional training

- Enrolled in Geographic Information Systems Certificate Program at UCR Extension
- BLM Flat-tailed Horned Lizard Monitor Training; May, 2007
- The Desert Tortoise Council/Surveying, Monitoring, and Handling Techniques Workshop; November, 2006
- Wilderness First Aid/CPR Certification, National Safety Council; April, 2003

### Location

Riverside, California, USA

### Languages

English (native)

### Summary of core skills

#### Experience with Sensitive Amphibian and Reptile Species

Has operated pit fall traps throughout southern California on a regular basis, which involved extensive handling of reptiles, amphibians and small mammals, including collection of tissue samples.

Has spent three seasons conducting daytime tadpole and nighttime adult surveys for California arroyo toads in the San Bernardino County foothills, and on Camp Pendleton Marine Corps Base during which the target species was heard and/or observed.

Has worked a major part of two field seasons surveying streams and drainages located throughout the San Bernardino and Angeles National Forests for all life stages of the federally listed mountain yellow-legged frog.

Has worked a major part of two field seasons surveying streams and drainages located throughout the San Bernardino and Angeles National Forests for all life stages of the federally listed mountain yellow-legged frog.

Spent a major part of three field seasons monitoring a known population of California red-legged frogs on Angeles National Forest lands.

Has surveyed canyons and springs in the San Bernardino Mountains for presence of sensitive slender salamander species.

Conducted desert tortoise surveys in San Bernardino and Imperial Counties during which old tortoise sign was observed.

#### Experience with Sensitive Bird Species

Has conducted focused burrowing owl surveys and/or pre-construction surveys throughout Riverside, Los Angeles and San Bernardino Counties, and prepared burrowing owl survey reports. Also supervised a passive burrowing owl relocation effort, conducted post relocation surveys and wrote relocation report.

Has worked as a summer intern on the Monitoring Avian Productivity and Survivorship (MAPS) project, during which he was responsible for the operation of mist nets, processing of captured birds, which included banding, sexing, and aging the birds, and conducting vegetation analysis at six different stations located throughout Orange County.



## Zsolt Kahancsa

Has volunteered approximately 400 hours helping to record the movements and behavior of threatened Coastal California Gnatcatchers at Lake Matthews Ecological Reserve in Riverside, as well as other sites throughout Southern California.

Has assisted in defining habitat of banded pairs through quadrant sampling centered at their nest locations, and by line transect sampling taken throughout the pairs' territories. Assisted in a coordinated effort to mist net and band gnatcatchers, as well as inspected and cataloged incidences of predation and parasitism on nest sites.

Has contributed to an intensive three-month study in Riverside County, on the edge effects and selection of breeding territories by the Rufus Crown Sparrow.

### Experience with Sensitive Invertebrates

Has conducted surveys in the Palm Springs areas for sensitive Casey's June beetles.

### Experience with Mammal Species

Has assisted in the capture and GPS/radio collaring of bobcats in Orange County.

Has utilized radio telemetry techniques to locate Desert Bighorn Sheep in the Palm Springs and Palm Desert areas.

### Experience with Sensitive Plants

## Employment history

2009 – Present	Biologist, AMEC Earth & Environmental, Inc., Riverside, CA
2006 – 2009	Biologist, HELIX Environmental Planning, Inc., Riverside, CA
2001 – 2005	Biological Science Technician (Wildlife), U.S. Geological Survey, Biological Resources Division, San Diego, CA
2000 – 2001	Biological Science Research Assistant III, San Diego State University Foundation, San Diego, CA
2000	Summer Field Biologist Intern, Institute for Bird Populations, Point Reyes Station, CA
1997 – 1999	High School Biology Teacher, Herbert Hoover High School, Glendale, CA
1993 – 1997	Volunteer, U.S. Fish and Wildlife Service, Carlsbad, CA



# Nathan T. Moorhatch

Wildlife Biologist/Herpetologist

## Professional summary

Mr. Moorhatch has over 11 years consulting experience performing a wide variety of biological surveys throughout California, spanning from the Sacramento Valley to the International Border. He has had a life-long interest in general biology, and obtained a degree in Zoology from the California State Polytechnic University at Pomona under Dr. Glen Stewart in 1991. Mr. Moorhatch has conducted biological and environmental assessments at project sites in Solano, Monterey, Tulare, Fresno, Inyo, Kern, Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego, and Imperial counties in California, as well as in Nevada. He has conducted the following types of assessments: rare plant species surveys; plant species inventory and vegetation mapping; revegetation plan preparation and implementation; general wildlife species surveys; focused sensitive wildlife species surveys and habitat quality assessments; sensitive wildlife species monitoring and relocations; small mammal trapping studies; Corps Section 404 waters/wetlands delineation and jurisdictional determination; CDFG 1601-3 stream and riparian habitat assessments and jurisdictional determinations; and preparation of biological assessment reports and sections of EIS and EIR documents for federal, state, and/or county agency CEQA and NEPA environmental review.

Mr. Moorhatch has extensive experience conducting herpetological studies including focused surveys and monitoring of endangered species. Mr. Moorhatch has performed surveys for a wide variety of sensitive amphibians and reptiles including: California Tiger Salamander, Tehachapi Slender Salamander, Large-blotched Ensatina, Arroyo Toad, California Red-legged Frog, Mountain Yellow-legged Frog, Western Spadefoot, Southwestern Pond Turtle, Desert Tortoise, Switak's Barefoot Gecko, Blunt-nosed Leopard Lizard, San Diego Horned Lizard, Coachella Valley Fringe-toed Lizard, Flat-tailed Horned Lizard, Orange-throated Whiptail, Southern Rubber Boa, and Two-striped Garter Snake. He has a deep personal interest in general Herpetology, and has undertaken numerous forays in the field in search of both common and rare amphibian and reptile species in California, Nevada, Arizona, Utah, Texas, Kansas, Maryland, Virginia, Florida, Hawaii and Costa Rica.

He also is an avid birder, and has assisted in conducting surveys for California Gnatcatcher, Least Bell's Vireo, Burrowing Owl, Le Conte's Thrasher, Snowy Plover, Least Tern, and various nesting raptor species in Riverside, Orange, Los Angeles, Kern, San Diego, and San Bernardino counties. Mr. Moorhatch has conducted Bird Air Strike Hazard (BASH) studies on the Edwards Air Force Base Main Base Flightline during 1998 and 1999, and is currently participating in a base-wide bird survey utilizing point counts to determine distribution and abundance of bird species on EAFB. He has also conducted bird use surveys of several landfill sites in San Bernardino and Tulare Counties in support of BASH studies related to local airports. Mr. Moorhatch is a member of the American Birding Association and the Audubon Society. His personal interest in birds has led him on numerous field searches in California, Arizona, Utah, Texas, Kansas, Florida, Hawaii, Baja California, and Costa Rica.

## **Nathan T. Moorhatch**

Mr. Moorhatch has conducted focused surveys for Delhi Sands Flower-loving Fly and Quino Checkerspot Butterfly; and has a Federal Endangered Species Permit [10(a)(1)(A)] for both of these insects. Mr. Moorhatch has also participated in “Fourth of July Butterfly Counts” sponsored by the North American Butterfly Association. He has a personal interest in Entomology and is a member of the Friends of the University of California, Riverside, Entomological Research Museum (FERM).

Mr. Moorhatch has assisted in trapping surveys for several sensitive small mammals including: San Bernardino Kangaroo Rat, Los Angeles Pocket Mouse, Tehachapi Pocket Mouse, and Short-nosed Kangaroo Rat. He has also participated in focused surveys for San Joaquin Kit Fox, San Joaquin Antelope Ground Squirrel, Mojave Ground Squirrel, and Peninsular Bighorn Sheep.

In addition to his experience with sensitive wildlife species, Mr. Moorhatch has conducted numerous surveys for sensitive plant species throughout California. He has conducted surveys for over 35 sensitive plant species, including limestone endemics, Big Bear Valley endemics, vernal pool species, and a wide variety of sensitive species in the San Joaquin Valley, Mojave and Colorado Deserts, and various coastal and inland valley habitats. Mr. Moorhatch has also assisted in the preparation of revegetation plans, and has conducted restoration/revegetation activities including site preparation, seeding/transplanting, and monitoring on Edwards Air Force Base. Additionally, he conducts general inventories of flora and fauna; and authors biological assessments and mitigation plans. Mr. Moorhatch also has a current California Department of Fish and Game Scientific Collector's Permit.

### **Professional qualifications**

California Department of Fish and Game Scientific Collectors Permit #801166-04

Federal Endangered Species Permit ("10a") for Quino Checkerspot Butterfly, #TE029414-0

Federal Endangered Species Permit ("10a") for Delhi Sands Flower-loving Fly, #TE029414-0

Authorized Individual for studies regarding the Desert Tortoise (Authorized to monitor, handle, and relocate desert tortoises when necessary for specific project implementation).

### **Education**

B.S. Zoology (cum laude), California State Polytechnic University, Pomona, 1991

University of California, Riverside – Extension Course Work: Ornithology – A Field Study of Birds

Victor Valley Community College: Ecology of Costa Rica, 2001

### **Location**

Riverside, California

### **Seminars, Workshops, and Symposia**

Desert Tortoise Council Symposium, 1992 - 1999

Desert Tortoise Council Field Techniques Workshop, 1992, 1994

Mojave Ground Squirrel “CHIEF” Workshop. 1992

Declining Amphibians in California I, San Diego Natural History Museum, 3/97.

Declining Amphibians in California II, San Diego Natural History Museum, 3/98.



## **Nathan T. Moorhatch**

Workshop on Year 2000 Draft Quino Checkerspot Butterfly Survey Protocol, Carlsbad, California, 1999.

Planning for Biodiversity: Bringing Research and Management Together. 2/29-3/2/00; Pomona, California.

Arroyo Toad Symposium (*Bufo californicus*): Natural History and Management Practices. 10/05/00; Marine Corps Air Station, Camp Pendleton, California.

Current Research on Herpetofauna of the Sonoran Desert II. 4/5-7/02; Tucson, Arizona.

### **Memberships**

American Birding Association

Friends of the University of California, Riverside, Entomological Research Museum

Desert Tortoise Council

National Audubon Society

Southwestern Herpetologist's Society

### **Detailed Core Skills by Project**

Domestic Water Development and Supply

**Cadiz Land Company Inc. Exploratory Drilling and Proposed Water Line Surveys and Monitoring.**

Conducted presence/absence surveys and monitoring for Desert Tortoise and sensitive plants during exploratory drilling and surveys for proposed water line system right-of-ways, Danby and Cadiz, Fenner Valley, San Bernardino County, California.

Oil and Gas Development and Supply

**Kramer Junction Line 6905 Expansion Project.** Acted as an assistant Lead Biologist supervising a team of 30+ biologists and biological monitors for the installation and development of a 33-mile natural gas pipeline project in the Mojave Desert. Conducted general and focused (for Desert Tortoise, Burrowing Owl, and sensitive plant species) biological surveys; Desert Tortoise burrow excavation, artificial burrow construction, processing, and relocation; Burrowing Owl burrow excavation, artificial burrow construction, and passive relocation; mitigation monitoring; personnel awareness training, yucca and cacti transplantation, and vertical mulching; San Bernardino County; Southern California Gas Company.

**All American Pipeline Project.** Conducted general and focused biological surveys and mitigation monitoring for the Desert Tortoise for exploratory geotechnical drilling activities in support of the All American Pipeline Project; San Bernardino County; All American Pipeline Company.

**Four Corners Pipeline Company (ARCO).** Conducted Desert Tortoise Monitoring for two oil line leak repairs at Danby and Sheephole Pass, San Bernardino County, California.

**Four Corners Pipeline Company (ARCO).** Conducted Desert Tortoise Monitoring for anode bed installation, San Bernardino County, California.

Renewable Energy Resources

**Whitewater Wind Energy Conversion Systems.** Acted as a Lead Biologist for the development, installation, and implementation of a wind energy park located in the San Gorgonio Pass area, on the northwestern outskirts of the Coachella Valley. Conducted general and focused (for Desert Tortoise, Burrowing Owl, and sensitive plant species) biological surveys; Desert Tortoise burrow excavation,

## Nathan T. Moorhatch

artificial burrow construction, processing, and relocation; Burrowing Owl burrow excavation, artificial burrow construction, and passive relocation; mitigation monitoring; personnel awareness training for the life of the project; Shell Oil Corporation; Riverside County.

**Cabazon Wind Energy Conversion Systems.** Lead Biological manager for the development, installation, and implementation of a wind energy park located in the San Geronio Pass area. Conducted general and focused biological surveys (for Desert Tortoise, Burrowing Owl, and Coachella Valley Fringe-toed Lizard), mitigation monitoring, and personnel awareness training for the life of the project; Cannon Power; Riverside County.

### Electrical Power

**Otay Mesa Generating Plant.** Conducted habitat assessments and focused surveys for the Quino Checkerspot Butterfly the proposed generation plant site and throughout the associated transmission line easements on Otay Mesa from the U.S./Mexican border north to Chula Vista; San Diego Gas and Electric Company; San Diego County.

**Valley to Auld Electrical Substation and Transmission Line Upgrade Project.** Conducted mitigation monitoring for the Valley to Auld transmission line and electrical substation upgrade project. Significant biological issues included the California Gnatcatcher, Burrowing Owl, Stephens' Kangaroo Rat, Quino Checkerspot Butterfly, Belding's Orange-throated Whiptail, San Diego Coast Horned Lizard, and Southwestern Pond Turtle; Southern California Edison Company; Riverside County.

### U.S. Forest Service

**Arroyo Toad Surveys.** Conducted habitat assessments and focused surveys for the Arroyo Toad throughout drainage systems containing potentially suitable and historically occupied habitat within the San Bernardino National Forest (including San Jacinto Range).

**Mountain Yellow-legged Frog Surveys.** Conducted habitat assessments and focused surveys for the Mountain Yellow-legged Frog throughout drainage systems in historically occupied habitat within the San Bernardino National Forest.

### Transportation and Infrastructure

**State Highway 138.** Conducted habitat assessments and focused protocol surveys for the Arroyo Toad for the proposed realignment of SR 138 between Interstate 15 and State Highway 18; San Bernardino County; Caltrans.

**Interstate 215 Seismic Retrofit Project.** Conducted habitat assessments and focused protocol surveys for the Arroyo Toad for the proposed Interstate 215 seismic retrofit project in the City of Riverside; Riverside County; Caltrans.

**Interstate 15 Bridge Widening Project.** Conducted habitat assessments and focused protocol surveys for the Arroyo Toad for the proposed Interstate 15 Bridge Widening Project over the Mojave River in the City of Victorville; San Bernardino County; Caltrans.

**State Highway 18 Seismic Retrofit Project.** Conducted habitat assessments and focused protocol surveys for the Arroyo Toad for the proposed seismic retrofitting of SR 18 at the crossing of the Mojave River in the town of Apple Valley; San Bernardino County; Caltrans.

**State Highway 79/371 Interchange Realignment Project.** Conducted habitat assessments and focused protocol surveys for the Quino Checkerspot Butterfly for the proposed SR 79/371 Interchange Realignment Project in the community of Aguanga; Riverside County; Caltrans.

**Big Bear Dam/State Highway 18 Improvement Project.** Conducted habitat assessments and focused protocol surveys for the Mountain Yellow-legged Frog for the proposed improvements of SR 18 at the

## **Nathan T. Moorhatch**

crossing of the dam at the southwest end of Big Bear Lake in the San Bernardino Mountains; San Bernardino County; Caltrans.

**Opah Ditch Mining Reclamation Project.** Conducted focused protocol surveys for the Desert Tortoise for the proposed Opah Ditch Mining Reclamation Project located south of Baker; San Bernardino County; Caltrans.

Department of Defense.

**Edwards AFB Main Base Flightline BASH study.** Conducted Bird Air Strike Hazard (BASH) studies on the EAFB Main Base Flightline during 1998 and 1999. Responsibilities included seasonal field inventories of bird species diversity and population size, coordination and management of experimental use of falconry as method to deter bird use, and preparation of documentation summarizing the effectiveness of bird control measures.

**Edwards AFB Base-wide Bird Inventory.** Base-wide surveys utilizing point counts to determine distribution and abundance of bird species on EAFB, 2000 to present (ongoing).

**Edwards AFB Desert Tortoise Monitoring.** Conducted Desert Tortoise presence/absence surveys and monitoring throughout EAFB for a variety of projects including: Historic Homestead Well destruction, Monitoring Well Drilling, site restoration, and Joshua Tree transplantation.

**Edwards Air Force Base Revegetation Efforts.** Has participated in revegetation/habitat rehabilitation on over 270 acres of desert scrub on Edwards AFB. These largely successful efforts have incorporated a wide-variety of seeding methodologies including imprinting and hand seeding. Efforts have also included planting of nursery stock, transplanting of numerous desert shrub species, Joshua tree transplanting, and long-term viability monitoring.

**Nellis AFB Desert Tortoise and Rare Plant Survey.** Conducted presence/absence surveys for Desert Tortoise and rare plants for proposed road construction and residential expansion projects.

**Travis AFB Vernal Pool and Rare Plant Inventory.** Conducted field surveys to inventory vernal pools and rare plant species on Travis AFB. Responsibilities included identification and mapping of vernal pools and rare plants (including the federal Endangered Contra Costa Goldfields *Lasthenia conjugens*).

### **Employment history**

**Wildlife Biologist/Herpetologist, AMEC Earth and Environmental, Inc. November 2000-present.** Conducts field inventories of fauna and flora, performs literature reviews, prepares biological assessment reports emphasizing impact analysis, mitigation measures, and mitigation monitoring. Specializes in herpetological and entomological field studies, and also conducts ornithological field studies. Authorized by U.S. Fish and Wildlife Service to conduct focused surveys for the following Endangered or Threatened species: Quino Checkerspot Butterfly and Delhi Sands Flower-loving Fly.

**Wildlife Biologist/Herpetologist, Ogden Environmental and Energy Services, March 2000-November 2000.**

**Wildlife Biologist/Herpetologist, Tierra Madre Consultants, Inc., August 1999-March 2000.**

**Wildlife Biologist/Herpetologist, Earth Tech, August 1997 – August 1999**

**Nathan T. Moorhatch**

**Assistant-Associate Biologist, Lilburn Corporation, November 1991 - August 1997**

**Languages**

**Spanish - Fair**

# Michael D. Wilcox

Wildlife Biologist / Ecologist

## Professional Summary

Specializing in herpetological and entomological studies, Mr. Wilcox has studied California's wildlife in the field for over 15 years. Mr. Wilcox has conducted biological and environmental assessment work throughout Imperial, Inyo, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura counties in California, as well as in the states of Arizona and Nevada. Personal field experience also includes studies of wildlife and ecology in Arizona, Florida, Louisiana, Kansas, Montana, New Mexico, Virginia, Wyoming, the Yucatan (Mexico), Baja California, Belize, Guatemala, Costa Rica, Peru and Bolivia. Professional experience includes serving as the lead biologist, supervising and managing biological compliance monitoring and sensitive species survey efforts for a variety of large-scale projects, as well as conducting focused surveys and monitoring of a variety of endangered, threatened, and/or otherwise sensitive species. In addition to fieldwork, Mr. Wilcox authors environmental and biological assessments, habitat conservation plans, habitat suitability evaluations for sensitive species, mitigation and revegetation plans, and comprehensive field inventories of flora and fauna.

Mr. Wilcox has been authorized by the U.S. Fish and Wildlife Service to perform focused surveys for the federally endangered Delhi Sands Flower-loving Fly, Quino Checkerspot Butterfly, and threatened California Gnatcatcher. Mr. Wilcox has also been authorized to assist other permitted biologists with focused surveys for the Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, and Mojave Ground Squirrel. He has also received both federal and state agency authorization for specific projects to capture, handle, process, and relocate the Desert Tortoise; and to capture, handle, and release the Mountain Yellow-legged Frog, Panamint Alligator Lizard, and sensitive salamander species. Mr. Wilcox has also received Bureau of Land Management certification for conducting focused surveys for the Flat-tailed Horned Lizard.

Other protected species Mr. Wilcox has worked with include the Arroyo Toad, California Red-legged Frog, Coachella Valley Fringe-toed Lizard, Gila Monster, San Diego Coast Horned Lizard, Belding's Orange-throated Whiptail, Southwestern Pond Turtle, Two-striped Garter Snake, Southern Rubber Boa, Least Bell's Vireo, hibernating bat species, and various sensitive plant species.

Mr. Wilcox also works part-time as an adjunct biology instructor at Victor Valley Community College, teaching Biology 128: "Identification and Study of the Amphibians and Reptiles of the Mojave Desert and Adjacent Mountains" and has served as an assistant instructor for "Jungles and Peaks: Ecology of Belize and Guatemala" and "Natural History of Peru" travel courses. He has also served as a field instructor and technical advisor for several symposia and workshops including the Desert Tortoise Council Survey Techniques Workshop and the Riverside Land Conservancy's Land Stewards School. Additionally, Mr. Wilcox has also participated in the annual U.S. Forest Service Lake Silverwood Winter Bald Eagle Census and several annual Fourth of July San Bernardino Mountains Butterfly Counts sponsored by the North American Butterfly Association.

**Professional Qualifications**

United States Fish and Wildlife Service Endangered Species Permit (PRT-836491-4) to take the Delhi Sands Flower-loving Fly and Quino Checkerspot Butterfly.

Bureau of Land Management certified Flat-tailed Horned Lizard surveyor # 6840 (CA-067.20).

California Department of Fish and Game Memorandum of Understanding (MOU) authorizing take of the Desert Tortoise (Permitted to capture, handle, and relocate Desert Tortoises for the Southern California Gas Company Kramer Line 6905 Project).

Lead Biologist for California Department of Fish and Game 2081 Incidental Take Permit No. 2081-2001-008-6 authorising incidental take of the Desert Tortoise, Mojave Ground Squirrel, and Burrowing Owl for the Southern California Gas Company Kramer Line 6905 Project.

California Department of Fish and Game Memorandum of Understanding (MOU) authorizing take of the Mountain Yellow-legged Frog (Permitted to capture, handle, and release tadpoles, juvenile, and adult frogs for identification purposes).

California Department of Fish and Game Scientific Collectors Permit # 801024-03, amended to allow the capture of the Panamint Alligator Lizard and salamander species in Pleasant Canyon, Panamint Mountains, CA.

Authorized Individual for various Desert Tortoise studies (Authorized to monitor, handle, process and relocate Desert Tortoises when necessary for specific project implementation).

Authorized Individual for United States Fish and Wildlife Service Endangered Species Permit (TE-804203-5) to conduct activities with the California Gnatcatcher, Southwestern Willow Flycatcher, Stephens' Kangaroo Rat, and San Bernardino Kangaroo Rat (Permitted to conduct focused gnatcatcher and flycatcher surveys, and assist with trapping, handling, and processing for the kangaroo rats under the direct, on-site supervision of Stephen J. Myers).

Authorized Individual for United States Fish and Wildlife Service Endangered Species Permit (PRT-836517-4) to assist with focused surveys of the California Gnatcatcher (Permitted to conduct focused gnatcatcher surveys under the direct, on-site supervision of Chet McGaugh).

Authorized Individual for California Department of Fish and Game Memorandum of Understanding dated April 30, 1997 regarding studies of the Mojave Ground Squirrel (Authorized to trap, handle, and process trapped squirrels).

Authorized Individual for California Department of Fish and Game Memorandum of Understanding dated July 29, 1998 regarding studies of Stephens' Kangaroo Rat and San Bernardino Kangaroo Rat (Authorized to assist permitted biologist, Stephen J. Myers, with trapping, handling, and processing of trapped specimens).

**Education**

Bachelor of Arts, University of Redlands, Redlands, 1991

University of California, Riverside, 1994-1995

Relevant extension course work included: Methods of Habitat Restoration and Ornithology: A Field Study of Birds.

Crafton Hills College, Yucaipa, 1996

Course work included: Psychology.



## Michael D. Wilcox

San Bernardino Valley College, San Bernardino, 1996  
Course work included: Child Development

Victor Valley Community College, Victorville, 2000-Present  
Course work included: 1) Jungles & Peaks; A Study of the Ecology of Costa Rica (2000), 2) Belize and Guatemala (2003)\*, and 3) Natural History of Peru (2006)\*. \*Served as assistant instructor.

### Additional training

Mojave Ground Squirrel Workshop. 4/16-17; Ridgecrest, CA.

Biology of the Rattlesnakes Symposium. 1/15-18/05; Loma Linda University, Loma Linda, CA

28th annual Southern California Botanists Symposium: Rare Plants of Southern California. 10/19/02  
California State University, Fullerton, CA

27<sup>th</sup> Annual Western Field Ornithologists Conference. 10/12/02; Costa Mesa, CA

3<sup>rd</sup> North American Ornithological Conference. 9/24-28/02; Tulane University, New Orleans, LA

South Coast Missing Linkages Projects: Restoring Connectivity to California's South Coast Ecoregion.  
8/07/02; University of Redlands, Redlands, CA

27<sup>th</sup> Annual Southern California Botanists Symposium: Shifting Sands - Conservation and Biology of  
California's Dune Habitats. 10/20/01; California State University, Fullerton, CA

Wetland Delineation & Management Training Seminar & Workshop. 2/5-10/01; San Diego, CA

Arroyo Toad Symposium (*Bufo californicus*): Natural History and Management Practices. 10/5/00; Marine  
Corps Air Station, Camp Pendleton, CA

Planning for Biodiversity: Bringing Research and Management Together. 2/29-3/2/00; Pomona, CA

Workshop on Year 2000 Draft Quino Checkerspot Butterfly Survey Protocol. 11/30/99; Carlsbad, CA

Current Research on Herpetofauna of the Sonoran Desert. 4/9-10/99; Phoenix Zoo, Phoenix, AZ

Status and Biology of the Quino Checkerspot Butterfly. 12/3/98; Carlsbad, CA

Herpetology of the Californias: First Annual Symposia in honor of Lawrence Klauber. 5/15/98; San Diego  
Natural History Museum, San Diego, CA

Desert Tortoise Council Symposium. 3/94-95,4/98; Las Vegas, Nevada and Tucson, AZ

Declining Amphibians and Reptiles in California II. 3/13/98; San Diego Natural History Museum, San  
Diego, CA

Quino Checkerspot Butterfly Seminar. 1/6/98; Temecula, CA

The Quino Checkerspot/Butterfly Identification Workshop. 11/15/97; Riverside Land Conservancy,  
Riverside, CA

Declining Amphibians and Reptiles in California. 3/14/97; San Diego Natural History Museum, San  
Diego, CA

*Empidonax trailii extimus* in California: The Willow Flycatcher Workshop. 11/95; San Diego, CA

Desert Lands Rehabilitation Workshop. 11/95; Barstow, CA

## **Michael D. Wilcox**

Desert Tortoise Council Techniques Workshop. 10/93-99; Ridgecrest, CA (Training included survey methods, handling procedures for tortoises and eggs, burrow excavation, and artificial burrow construction)

Biology and Management of Sensitive Amphibians and Reptiles of Central and Southern California. 6/11-12/94; Goleta, CA

Second Annual Horned Lizard Conference. 6/1/94; San Diego, CA

Second Annual Tropical Deciduous Forest Symposium. 5/22-23/94; Tucson, AZ

### **Memberships**

The Wildlife Society— Member: 2005-present

Southwestern Herpetologists Society, Inland Empire Branch – Member: 2001-present, Secretary: 2001-2004

National Audubon Society, Inland Empire Branch – Member: 1999-present

Friends of the University of California, Riverside Entomological Research Museum – Member: 1998-present

California Botanical Society - Member: 1996-present

Riverside Land Conservancy - Land Stewards School Instructor/Technical Advisor: 1995-1997

Society for the Study of Amphibians and Reptiles - Member: 1994-present

Desert Tortoise Council - Member: 1993-present

American Federation of Herpetoculturists - Member: 1988-1995

Inland Empire Reptile and Amphibian Society – Member: 1985-2000, President: 1996-1998, Vice President: 1992-1996, Secretary: 1990-1992

### **Summary of Core Skills**

#### **Experience with Sensitive Amphibian and Reptile Species**

Has managed, supervised, and conducted general herpetological inventories, as well as focused field surveys, habitat assessments and/or mitigation monitoring for the following Threatened, Endangered, and sensitive herpetofauna: California Red-legged Frog, Mountain Yellow-legged Frog, Arroyo Toad, Western Spadefoot, Slender Salamanders, Desert Tortoise, Southwestern Pond Turtle, Flat-tailed Horned Lizard, San Diego Coast Horned Lizard, Belding's Orange-throated Whiptail, Coachella Valley Fringe-toed Lizard, Panamint Alligator Lizard, Gila Monster, and Southern Rubber Boa.

#### **Experience with Sensitive Invertebrates**

Has managed, supervised, and conducted general entomological inventories, as well as focused field surveys and habitat assessments for the following Threatened, Endangered, and sensitive invertebrates: Delhi Sands Flower-loving Fly, Quino Checkerspot Butterfly, Coachella Valley Jerusalem Cricket, and Mojave Desert Spring Snails. Has also co-authored and participated in Habitat Conservation Plans for the Delhi Sands Flower-loving Fly as well as participated in a life history study of the species.

#### **Experience with Sensitive Bird Species**

Has assisted with focused field surveys and conducted habitat assessment and mitigation monitoring for the following Threatened, Endangered, and sensitive avifauna: Bald Eagle, Coastal California Gnatcatcher, Least Bell's Vireo, Southwestern Willow Flycatcher, Le Contes' Thrasher, Burrowing Owl,



## Michael D. Wilcox

raptors, and various riparian-nesting bird species. Has assisted permitted biologists with mist netting and color-banding of California Horned Larks for Bird Air-Strike Hazard (BASH) studies and common raven capture, pit-tagging, and release at Edwards Air Force Base. Has also participated in passive relocation and artificial burrow construction for Burrowing Owls.

### Field Experience with Sensitive Mammals

Has conducted focused field surveys, habitat assessments and/or mitigation monitoring for the following Threatened, Endangered, and sensitive mammals: Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, Los Angeles Pocket Mouse, Palm Springs Pocket Mouse, Pacific Pocket Mouse, Mojave Ground Squirrel, Palm Springs Round-tailed Ground Squirrel, and various large carnivores. Has also assisted with live trapping surveys for Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, Mojave Ground Squirrel, Palm Springs Pocket Mouse, and Los Angeles Pocket Mouse. Has also assisted with focused bat surveys.

### Field Experience with Sensitive Plants

Has conducted general botanical inventories, habitat assessments and focused field surveys for the following Threatened, Endangered, and sensitive plant species: Coachella Valley Milk Vetch, Booth's Evening Primrose, and Mojave Monkeyflower. Has also assessed the health, selection of, and supervised the transplantation of Joshua trees, Mojave Yucca, and various species of cacti for various desert restoration projects. Has also participated in the restoration of riparian, wetlands, and coastal sage scrub vegetation communities.

## Detailed Core Skills by Project

### Renewable Energy Resources

**Victorville 2 Hybrid Power Project, ENSR, Victorville, CA.** Conducted and prepared comprehensive Biological Resources Assessment Report and Biological Assessment for a 400+ acre hybrid power plant site and associated transmission lines and pipeline easements. Other tasks included overseeing an/or participating in focused Desert Tortoise surveys, focused Burrowing Owl surveys, focused surveys for rare plants, focused trapping surveys for Mojave ground Squirrel, vegetation and sensitive species mapping, identification and delineation of jurisdictional water courses, and identifying potential mitigation strategies. Regulatory agencies involved included California Energy Commission, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and California Department of Fish and Game.

**Whitewater Wind Energy Conversion Systems, Shell Oil Corporation, San Geronio Pass, Riverside Co., CA.** Conducted general and focused (for Desert Tortoise, Burrowing Owl, and sensitive plant species) biological surveys; Desert Tortoise burrow excavation, artificial burrow construction, processing, and relocation; Burrowing Owl burrow excavation, artificial burrow construction, and passive relocation; mitigation monitoring; personnel awareness training for the development, installation, and implementation of a wind energy park located in the San Geronio Pass area, on the northwestern outskirts of the Coachella Valley.

**Cabazon Wind Energy Conversion Systems, Cannon Power, Cabazon, CA.** Conducted general and focused biological surveys (for Desert Tortoise, Burrowing Owl, and Coachella Valley Fringe-toed Lizard), mitigation monitoring, and biological resources awareness training for the development, installation, and implementation of a wind energy park located in the San Geronio Pass area for the life of the project.

### Domestic Water Development and Supply

**Coachella Canal Lining Project, Coachella Valley Water District, Niland, CA.** Conducted and prepared detailed assessments of wildlife (specifically Desert Tortoise) accessibility for a 36-mile segment of the Coachella Canal in support of the preparation of FEIS/R, ESA Section 7 Informal

## Michael D. Wilcox

Consultation, NEPA Record of Decision, and CEQA Finding of Fact and Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program processes and document preparation; Imperial and Riverside counties; Coachella Valley Water District, Bureau of Reclamation, and the San Diego Water Authority. Conducted preconstruction and clearance surveys for special-status species (i.e., Desert Tortoise, Burrowing Owl, Flat-tailed Horned Lizard) prior to site disturbance and served as lead biological monitor during the canal construction phase. Other duties included biological awareness training to on site personnel, performing ecological values assessments, preparing mitigation monitoring plan, environmental protection plan, and construction monitoring plan.

**Lake Skinner Filtration Plant Expansion Project, Metropolitan Water District, Riverside Co., CA.** Conducted general biological surveys, prepared Biological Assessment and authored the Biological Resources Section of an EIR in support of ESA Section 7 Formal Consultation, Section 404 and 1601 permits, NEPA Record of Decision, and CEQA Finding of Fact and Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program processes and document preparation. Significant biological issues included nesting Bald Eagle, California Gnatcatcher, Stephens' Kangaroo Rat, Quino Checkerspot Butterfly, and jurisdictional wetlands and waters of the U.S.

**Morongo Basin Pipeline Project, Joshua Basin Water District, Mojave Desert, CA.** Conducted general biological surveys, focused surveys for sensitive species (i.e., Desert Tortoise, LeConte's Thrasher, Burrowing Owl), mitigation monitoring, revegetation, conducting biological resources awareness training for a 68-mile pipeline installation project in the Mojave Desert. Significant biological issues included Desert Tortoise, Burrowing Owl, LeConte's Thrasher, and native cacti and yucca.

**Mojave River Pipeline**, 1994. Conducted focused surveys for the Desert Tortoise from Adelanto to Helendale for the development of the Mojave River Pipeline Project, San Bernardino County, CA

### Oil and Gas Development and Supply

**Kramer Junction Line 6905 Expansion Project, Southern California Gas Company, Adelanto-Kramer Junction, San Bernardino County, CA.** Served as lead biologist, supervising a team of 30+ biologists and biological monitors, for the installation and development of a 33-mile natural gas pipeline project in the Mojave Desert. Conducted general and focused biological surveys (for Desert Tortoise, Burrowing Owl, and sensitive plant species); Desert Tortoise burrow excavation, artificial burrow construction, processing, and relocation; Burrowing Owl burrow excavation, artificial burrow construction, and passive relocation; mitigation monitoring; personnel awareness training, yucca and cacti transplantation, and vertical mulching.

**Kinder Morgan Energy Partners On-call Biological Services, Kinder Morgan Energy Partners, Victorville CA to Jean NV.** Conducted, managed and supervised others conducting focused preconstruction/clearance surveys and mitigation monitoring for two different multiple product pipeline anomaly repair projects, CalNev 14" and 8", from the vicinity of Victorville, CA north to Jean, NV.

**Habitat Conservation Plan for Delhi Sands Flower-loving Fly, SFPP, L.P., Operating Partnership for Kinder Morgan Energy Partners and CalNev Pipeline Company, L.L.C., Colton to Ontario, San Bernardino Co., CA.** Developed and co-authored a draft HCP for the Delhi Sands Flower-loving Fly at the Colton Terminal and associated pipeline facilities totalling approximately 50 miles of linear pipeline easements in Colton, Rialto, and Ontario. Managed and conducted focused surveys for the Delhi Sands Flower-loving Fly, general biological assessments, mitigation monitoring, and habitat restoration activities for SFPP, L.P.'s facilities located at the Colton Terminal and within the Colton Dunes.

**All American Pipeline Project, All American Pipeline Company, San Bernardino Co., CA.** Coordinated and managed general and focused biological surveys and mitigation monitoring for the Desert Tortoise for exploratory geotechnical drilling activities in support of the All American Pipeline Project; San Bernardino County; All American Pipeline Company.

## Michael D. Wilcox

### Electrical Power

**SCE Habitat Conservation Plan, Southern California Edison Company, Inland Empire, San Bernardino and Riverside Counties, CA.** Supervised and managed a team of up to 12 biologists for a two-year period conducting habitat assessments and focused surveys for the Delhi Sands Flower-loving Fly in support of the development of a multi-species HCP for Southern California Edison's transmission line easements and associated properties throughout the Colton Dunes in the Inland Empire.

**Otay Mesa Generating Plant, San Diego Gas and Electric Company, Otay Mesa, San Diego County, CA.** Conducted habitat assessments and focused surveys for the Quino Checkerspot Butterfly the proposed generation plant site and throughout the associated transmission line easements on Otay Mesa from the U.S./Mexican border north to Chula Vista.

**Valley to Auld Electrical Substation and Transmission Line Upgrade Project, Southern California Edison Company, Riverside County, CA.** Conducted mitigation monitoring for the Valley to Auld transmission line and electrical substation upgrade project. Significant biological issues included the California Gnatcatcher, Burrowing Owl, Stephens' Kangaroo Rat, Quino Checkerspot Butterfly, Belding's Orange-throated Whiptail, San Diego Coast Horned Lizard, and Southwestern Pond Turtle.

### U.S. Forest Service

**GST and Level 3 Fiber Optic Installation Project, U.S. Forest Service, San Bernardino Ranger District, San Bernardino Co., CA.** Authored a comprehensive Environmental Assessment (EA) and a Biological Assessment/Biological Evaluation (BA/BE) for a joint GST/Level 3 fiber optic conduit installation project throughout a 13-mile segment of the San Bernardino National Forest. Also conducted habitat assessments for the San Bernardino Kangaroo Rat, Quino Checkerspot Butterfly, Least Bell's Vireo, Southwestern Willow Flycatcher and participated in focused surveys for the California gnatcatcher.

**Angeles National Forest Arroyo Toad Surveys, U.S. Forest Service, Angeles National Forest Ranger District, Los Angeles County, CA.** Conducted habitat assessments and focused surveys for the Arroyo Toad throughout 9 drainage systems containing potentially suitable and in historically occupied habitat within the Angeles National Forest. The focused survey efforts resulted in the detection of the species in one of the drainages surveyed and the discovery of a previously unknown population of the California Red-legged Frog.

**San Bernardino National Forest Mountain Yellow-legged Frog Surveys, U.S. Forest Service, San Bernardino Ranger District, San Bernardino County, CA.** Conducted habitat assessments and focused surveys for the Mountain Yellow-legged Frog throughout 14 drainage systems in historically occupied habitat within the San Bernardino National Forest resulting in the rediscovery of the species in the San Bernardino Mountains where they had been previously reported to be extirpated.

**San Bernardino National Forest Arroyo Toad Surveys, U.S. Forest Service, San Bernardino Ranger District, San Bernardino County, CA.** Conducted habitat suitability assessments and protocol focused surveys for the endangered arroyo toad in selected drainages, totaling approximately 6 miles, in the San Bernardino National Forest, San Bernardino County, California. Methodologies employed included diurnal and nocturnal eye-shine visual encounter surveys, diurnal larval and egg mass searches, and periodic silent listening for calling individuals. The survey efforts resulted in the detection of arroyo toads within several of the focused survey areas and the rediscovery of the species in the Mojave River.

### Department of Defense

**Vandenberg Air Force Base Missile Transport Bridge Project.** Participated in focused surveys, capture, and relocation of California Red-Legged Frogs and Two-striped Garter Snakes, seine netting and relocation of the Unarmored Three-spine Stickleback, exclusion fence construction and

## Michael D. Wilcox

maintenance, construction monitoring, environmental compliance training for the construction of a Missile Transport Bridge over an environmentally sensitive creek, wetlands, and riparian habitat.

**Edwards Air Force Base Inventory of Reptiles and Amphibians, Edwards Air Force Base, CA.** Participated in a two-year base-wide inventory of the reptiles and amphibians of Edwards Air Force Base. Survey methodologies included diurnal visual encounter surveys, cover boards, night driving, and nocturnal eye-shine searches for amphibians, Edwards Air Force Base.

**Camp Pendleton Marine Corps Air Station Road Improvement Project, Kinder Morgan Energy Partners, Camp Pendleton, CA.** Provided biological monitoring for the improvement of base road infrastructure. Sensitive biological resources monitored included the Pacific Pocket Mouse and California Gnatcatcher.

**March Air Force Base Wetland Mitigation Project, March Air Force Base, Moreno Valley, CA.** Designed, implemented, and monitored the development of a wetland (pond 6B') as mitigation for impacts to other on-base wetlands.

**Leuhman Ridge Rocket Test Site, Edwards Air Force Base, San Bernardino County, CA.** Conducted focused surveys, handling, processing, artificial burrow construction, and relocation of Desert Tortoises at Edwards Air Force Base, San Bernardino County, CA.

### Transportation and Infrastructure

**CalTrans State Route 138, Segments 10 & 11, CalTrans District 7, Los Angeles County, CA.** Coordinated and conducted biological monitoring of the widening of two different, approximate 3-mile sections of State Route 138 in the vicinity of Pearblossom, Los Angeles County, CA. Duties included scheduling monitoring activities, conducting focused preconstruction/clearance surveys for Desert Tortoise and Mojave Ground Squirrel, monitoring, supervision and inspection of exclusion fence installation. Other duties included meeting, communicating, and coordinating with CalTrans inspectors, Granite Construction Company personnel, and revegetation contractors.

**Ontario Airport Master Plan, P&D, Ontario, CA.** Conducted habitat assessments, mapping, and focused surveys for the Delhi Sands Flower-loving Fly on vacant lands owned and operated by Los Angeles World Airports in support of the Ontario Airport Master Plan, Ontario, San Bernardino County, CA.

**CalTrans On-call Biological Services, CalTrans, District 8, Riverside and San Bernardino Counties, CA.** Conducted habitat suitability assessments and protocol focused surveys for the Arroyo Toad, Mountain Yellow-legged Frog, California Red-legged Frog, Southern Rubber Boa, and Desert Tortoise for various CalTrans projects throughout portions of Riverside and San Bernardino counties, California. Projects included SR-138 realignment project between I-15 and Summit Valley (Arroyo Toad), I-15 bridge widening project at the Mojave River crossing near Victorville (Arroyo Toad, Red-legged Frog) , SR-18 seismic retrofit at the Mojave River crossing in Apple Valley (Arroyo Toad, Red-legged Frog) , Opah Ditch Mining Reclamation Project near Baker (Desert Tortoise), I-40 widen project between Barstow and Newberry Springs (Desert Tortoise), and Big Bear Dam/SR-18 realignment (Mountain Yellow-legged Frog, Southern Rubber Boa). Methodologies employed included diurnal and nocturnal eye-shine visual encounter surveys, diurnal larval and egg mass searches, periodic silent listening for calling individuals, and linear transects. Sensitive species detected during the course of the contract included the Arroyo Toad, Southwestern Pond Turtle, Desert Tortoise, Silvery Legless Lizard, San Diego Coast Horned Lizard, Belding's Orange-throated Whiptail, and Coastal Western Whiptail.

**Bautista Canyon Road Widening Project, Riverside County Transportation Department, Hemet, CA.** Supervised, managed, and conducted habitat suitability assessments for sensitive herpetofauna



## Michael D. Wilcox

and the Quino Checkerspot Butterfly, conducted a general herpetological inventory, and protocol focused surveys for the Arroyo Toad and Quino Checkerspot Butterfly throughout the suitable areas of the project site, a 13-mile segment of Bautista Canyon Road for a proposed road paving and improvement project. The surveys resulted in the positive detection of the Arroyo Toad and Quino Checkerspot Butterfly throughout various areas of the site.

### Parks and Recreation

**Arroyo Seco Master Plan General Herpetological Inventory and Focused Sensitive Species Surveys, City of Pasadena Parks & Recreation District, Pasadena, CA.** Supervised, managed, and conducted habitat suitability assessments for sensitive herpetofauna, a general herpetological inventory, and protocol focused surveys for the Arroyo Toad, Mountain Yellow-legged Frog, California Red-legged Frog, Southwestern Pond Turtle and San Diego Coast Horned Lizard within the Arroyo Seco, a tributary of the Los Angeles River, Los Angeles County, California. Methodologies employed included diurnal and nocturnal eye-shine visual encounter surveys, diurnal larval and egg mass searches, periodic silent listening for calling individuals, and night driving. Although the survey efforts for the target species ended with negative results, a total of 14 species including 3 sensitive species (i.e., Coast Range Newt, Coastal Western Whiptail, and Two-striped Garter Snake) have been detected on the project site.

**San Bernardino National Forest/California State Park Parcel Exchange Project, The Wildlands Conservancy, San Bernardino National Forest, San Bernardino Co., CA.** Conducted comprehensive wildlife surveys and habitat evaluations of several parcels considered for exchange from/to the U.S. Forest Service and California State Parks system.

### Private Sector

**Rio Vista Specific Plan, Albert A. Webb Associates, Rubidoux, Riverside Co., CA.** Conducted, supervised and managed a comprehensive general biological resources assessment, habitat suitability assessments, and follow-up focused surveys for the Delhi Sands Flower-loving Fly, Burrowing Owl, and delineation of jurisdictional areas for the above referenced 909.4-acre project site proposed for residential and commercial development. Documents were submitted in coordination and compliance with U.S. Fish and Wildlife, California Department of Fish and Game, Western Riverside County Multiple Species Habitat Conservation Plan, and the U.S. Army Corps of Engineers.

**Desert Dunes Development Project, Terra Nova Planning and Research, Inc., Desert Hot Springs, Riverside Co., CA.** Coordinated, managed, and conducted a general biological resources assessment and follow-up focused surveys for Desert Tortoise, Flat-tailed Horned Lizard, Burrowing Owl, Le Conte's Thrasher, Crissal Thrasher, and Coachella Valley Milk Vetch for the proposed residential development of a 450-acre project site located in the Colorado Desert. A delineation and mapping of jurisdictional areas throughout the site was also conducted.

**Santa Fe Ranch Biological Resources Inventory and Assessment, Santa Fe Ranch Conservancy, Riverside Co., CA.** Conducted, supervised and managed a comprehensive general biological resources assessment, habitat suitability assessments, and follow-up focused trapping surveys for rodents, focused bat surveys, a general wildlife inventory and vegetation mapping for a 2,845.36-acre site.

**Religious Center for the Carmelite Sisters of the Most Sacred Heart, Lake Los Angeles, CA.** Conducted a general biological assessment, habitat suitability assessments, and follow-up focused surveys for the Desert Tortoise and trapping for the Mojave Ground Squirrel for the proposed development of the above referenced project near Lake Los Angeles, Los Angeles County, CA

**World Beater Mine Herpetological Inventory, and Focused Sensitive Herpetological Species Surveys, World Beater Mine, Panamint Mountains, Inyo Co., CA.** Conducted a general herpetological inventory and focused surveys for the Panamint alligator lizard and salamander species

## Michael D. Wilcox

throughout Pleasant Canyon in the Panamint Mountains, Inyo County, California. Methods used for the survey included diurnal visual encounter surveys, the use of cover boards, and cover plastic stations. Sensitive species detected during the course of the contract included the Panamint Alligator Lizard and Chuckwalla.

### Employment History

**Wildlife Biologist / Ecologist– AMEC Earth & Environmental, Inc.:** December 2000 – present

Prepares habitat conservation plans (HCP), environmental assessments (EA), biological assessments (BA), and focused sensitive species' surveys and habitat assessments for both the public and private sectors. Conducts focused presence/absence surveys for rare and endangered flora and fauna including the Desert Tortoise, Southwestern Pond Turtle, Arroyo Toad, California Red-legged Frog, Mountain Yellow-legged Frog, Western Spadefoot, Coast Horned Lizard, Delhi Sands Flower-loving Fly, Quino Checkerspot Butterfly, California Gnatcatcher, and Southwestern Willow Flycatcher. Participates in habitat restoration projects and mitigation monitoring programs for the California Gnatcatcher, Least Bells' Vireo, Stephens' Kangaroo Rat, Desert Tortoise, Flat-tailed Horned Lizard, and California Red-legged Frog.

**Adjunct Faculty– Victor Valley Community College:** March 2002 – present

Serves as part time, adjunct instructor for Biology 128: Identification and Study of the Amphibians and Reptiles of the Mojave Desert and Adjacent Mountains.

**Wildlife Biologist / Ecologist– Ogden Environmental & Energy Services:** March – December 2000

Prepared HCPs, EAs, BAs, and focused sensitive species' survey reports for a variety of projects for both the public and private sectors. Conducted focused presence/absence surveys for rare and endangered flora and fauna including the Desert Tortoise, Arroyo Toad, Delhi Sands Flower-loving Fly, and Quino Checkerspot Butterfly. Participated in mitigation monitoring programs for the California Gnatcatcher, Least Bells' Vireo, Stephens' Kangaroo Tat, Desert Tortoise, and Flat-tailed Horned Lizard. Assisted permitted biologists with focused surveys for the California gnatcatcher.

**Wildlife Biologist - Tierra Madre Consultants, Inc.:** 1993 – March 2000

Prepared biological and environmental assessments, evaluations, and other documents for both the public and private sectors. Performed focused presence/absence surveys for rare and endangered fauna and flora; including the Desert Tortoise, Southwestern Pond Turtle, Southern Rubber Boa, Flat-tailed Horned Lizard, San Diego Coast Horned Lizard, Orange-throated Whiptail, Coachella Valley Fringe-toed Lizard, Panamint Alligator Lizard, California Red-legged Frog, Mountain Yellow-legged Frog, Arroyo Toad, Western Spadefoot, Mojave Ground Squirrel, Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, Los Angeles Pocket Mouse, hibernating bats, Burrowing Owl, Delhi Sands Flower-loving Fly, and Quino Checkerspot Butterfly. Assists in the preparation of Habitat Conservation Plans; field studies of the California Gnatcatcher; habitat restoration projects, rare plant surveys; small mammal trapping; and wetland delineations.

**Wildlife Biologist - Thomas Olsen Associates, Inc.:** 1995

Performed focused Delhi Sands Flower-loving Fly presence/absence surveys daily at 15 different locations within the City of Fontana. Also performed mitigation monitoring and behavioral studies of the Delhi Sands Flower-loving Fly for San Bernardino County Medical Center throughout the duration of the species' activity period.

**Science Teacher - Shandin Hills Middle School:** 1993

Long-term substitute science teacher, replacing former instructor mid-term, teaching natural sciences (biology, astronomy, geology, etc.) to approximately 250 eighth grade students. Responsible for creating

## Michael D. Wilcox

class/home assignments and projects, examinations, parent conferences, disciplinary actions, grading and a variety of other educational activities.

### Presentations/publications

Wilcox, M.D. 2006. *Snakes of Hesperia and Adjacent Areas*. OSHA training provided to the City of Hesperia on 9 August 2006, Hesperia, CA.

Wilcox, M.D. 2006. *Snakes of Cismontane Southern California*. OSHA training provided to the Cities of Norco, Corona, and Riverside on 8 August 2006, Norco, CA.

Van Dam, M., A. Van Dam, and M.D. Wilcox. 2006. **Description of the 3<sup>rd</sup> Instar Larva and Adult Male of *Megasoma sleeperi*** Hardy (Scarabaeidae: Dynastinae). *Coleopterists Bulletin* 60(1), p.59-67.

Goodward David M., B. Cummings and M. D. Wilcox. 2005. **Geographic Distribution: *Hemidactylus turcicus* (Mediterranean House Gecko)**. *Herpetological Review*. 36 (2):199.

Wilcox, M.D. 2004. *Reptiles and Amphibians of Kansas*. Lecture presented to the California Turtle and Tortoise Club, San Bernardino Chapter on 15 October 2004.

Wilcox, M.D. 2004. *Herpetofauna of the Mojave Desert and Adjacent Mountains*. Lecture presented to the Mojave Desert Bird Club on 10 June 2004.

Wilcox, M.D. 2003. *Reptiles and Amphibians of Kansas*. Lecture presented to the Southwestern Herpetologists Society, Inland Empire Branch on 1 October 2004.

Wilcox, M.D., D.A. Wilcox, K.R. Beaman, and C. Painter. 1999. **Geographic Distribution: *Tantilla yaquia***. *Herpetological Review* 31(3), p.187.

White, S.D., A.C. Sanders, and M.D. Wilcox. 1996. **Noteworthy Collections: California**. *Madrono* 43(2), p. 334-338.

Wilcox, M.D., S.J. Myers, K.R. Beaman, and R. McKernan. 1995. **Geographic Distribution: *Xantusia henshawii***. *Herpetological Review* 26(2), p.109.

Wilcox, M.D. (Ill.) 1991. **The ABC's of Geography**. Slofoot Publishing, San Bernardino, California.

**APPENDIX 2**  
**SITE PHOTOGRAPHS**





Photograph 1. Little Rock Creek survey area, April 21, 2009: looking north. Wooden H-Frames are proposed location of Transmission Line Segment 2.



Photograph 2. Little Rock Creek survey area, June 25, 2009: looking north. Wooden H-Frames are proposed location of Transmission Line Segment 2.





Photograph 3. Little Rock Creek survey area, April 21, 2009: looking south towards Mt. Emma Road.



Photograph 4. Little Rock Creek survey area, June 25, 2009: looking south towards Mt. Emma Road.





Photograph 5. Little Rock Creek survey area. Algae-covered stream bed.



Photograph 6. Adult Pacific treefrog (*Pseudacris regilla*) observed in the Little Rock Creek survey area.



Photograph 7. Adult western toad (*Bufo boreas*) observed in the Little Rock Creek survey area.

### **APPENDIX 3**

#### **VERTEBRATE SPECIES OBSERVED DURING ARROYO TOAD SURVEYS**

**REPTILIA**

**Bufonidae**

*Bufo boreas*

**Hylidae**

*Pseudacris regilla*

**Phrynosomatidae**

*Sceloporus occidentalis*

*Uta stansburiana*

**AVES**

**Anatidae**

*Anas platyrhynchos*

**Odontophoridae**

*Callipepla californica*

**Ardeidae**

*Ardea alba*

**Accipitridae**

*Buteo jamaicensis*

**Charadriidae**

*Charadrius vociferus*

**Columbidae**

*Zenaida macroura*

**Tyrannidae**

*Sayornis nigricans*

**Corvidae**

*Aphelocoma californica*

*Corvus corax*

**Hirundinidae**

*Stelgidopteryx serripennis*

**Paridae**

*Baeolophus inornatus*

**Troglodytidae**

*Salpinctes obsoletus*

**REPTILES**

**True Toads**

Western Toad

**Treefrogs, Allies**

Pacific Treefrog

**Zebra-tailed, Earless, Fringe-toed, Spiny,  
Tree, Side-blotched, and Horned Lizards**

Western Fence Lizard

Side-blotched Lizard

**BIRDS**

**Ducks, Geese, Swans**

Mallard

**New World Quail**

California Quail

**Hérons, Bitterns, Allies**

Great Egret

**Hawks, Kites, Eagles, Allies**

Red-tailed Hawk

**Lapwings, Plovers**

Killdeer

**Pigeons, Doves**

Mourning Dove

**Tyrant Flycatchers**

Black Phoebe

**Crows, Jays**

Western Scrub-Jay

Common Raven

**Swallows**

Northern Rough-winged Swallow

**Chickadees, Titmice**

Oak Titmouse

**Wrens**

Rock Wren



**Ptilonotidae**

*Phainopepla nitens*

**Icteridae**

*Sturnella neglecta*

*Agelaius phoeniceus*

*Euphagus cyanocephalus*

*Icterus bullockii*

**Fringillidae**

*Carpodacus mexicanus*

*Carduelis lawrencei*

**Silky-flycatchers**

Phainopepla

**Blackbirds and Allies**

Western Meadowlark

Red-winged Blackbird

Brewer's Blackbird

Bullock's Oriole

**Fringilline and Cardueline Finches, Allies**

House Finch

Lawrence's Goldfinch

**STATE OF CALIFORNIA  
ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION**

***In the Matter of:***  
**APPLICATION FOR CERTIFICATION**  
**for the *PALMDALE HYBRID POWER***  
***PROJECT***

---

**Docket No. 08-AFC-9**

**PROOF OF SERVICE**

*(Revised 6/30/2009)*

**APPLICANT**

Thomas M. Barnett  
Executive Vice President  
Inland Energy, Inc.  
3501 Jamboree Road  
South Tower, Suite 606  
Newport Beach, CA 92660  
[tbarnett@inlandenergy.com](mailto:tbarnett@inlandenergy.com)

Antonio D. Penna Jr.  
Vice President  
Inland Energy  
4390 Civic Drive  
Victorville, CA 92392  
[tonypenna@inlandenergy.com](mailto:tonypenna@inlandenergy.com)

Laurie Lile  
Assistant City Manager  
City of Palmdale  
38300 North Sierra Highway, Suite A  
Palmdale, CA 93550  
[llile@cityofpalmdale.org](mailto:llile@cityofpalmdale.org)

**APPLICANT'S CONSULTANTS**

Sara Head, Vice President  
AECOM Environment  
1220 Avenida Acaso  
Camarillo, CA 93012  
[Sara.Head@aecom.com](mailto:Sara.Head@aecom.com)

**COUNSEL FOR APPLICANT**

Michael J. Carroll  
Marc Campopiano  
Latham & Watkins, LLP  
650 Town Center Drive, Ste. 2000  
Costa Mesa, CA 92626  
[michael.carroll@lw.com](mailto:michael.carroll@lw.com)  
[marc.campopiano@lw.com](mailto:marc.campopiano@lw.com)

**INTERESTED AGENCIES**

Michael R. Plaziak, Manager  
Lahontan Regional  
Water Quality Control Board  
14440 Civic Drive, Suite 200  
Victorville, CA 92392-2306  
[mplaziak@waterboards.ca.gov](mailto:mplaziak@waterboards.ca.gov)

Rick Buckingham  
3310 El Camino Avenue, LL-90  
State Water Project  
Power & Risk Office  
Sacramento, CA 95821  
*E-mail preferred*  
[rbucking@water.ca.gov](mailto:rbucking@water.ca.gov)

Manuel Alvarez  
Robert J. Tucker  
SoCal Edison  
1201 K Street  
Sacramento, CA 95814  
[Manuel.Alvarez@sce.com](mailto:Manuel.Alvarez@sce.com)  
[Robert.Tucker@sce.com](mailto:Robert.Tucker@sce.com)

California ISO  
[e-recipient@caiso.com](mailto:e-recipient@caiso.com)

Christian Anderson  
Air Quality Engineer  
Antelope Valley AQMD  
43301 Division St, Suite 206  
Lancaster, CA 93535  
*E-mail preferred*  
[canderson@avaqmd.ca.gov](mailto:canderson@avaqmd.ca.gov)

**ENERGY COMMISSION**

JEFFREY D. BYRON  
Commissioner and Presiding Member  
[jbyron@energy.state.ca.us](mailto:jbyron@energy.state.ca.us)

ARTHUR H. ROSENFELD  
Commissioner and Associate Member  
[pflint@energy.state.ca.us](mailto:pflint@energy.state.ca.us)

Paul Kramer  
Hearing Officer  
[pkramer@energy.state.ca.us](mailto:pkramer@energy.state.ca.us)

Felicia Miller  
Project Manager  
[fmiller@energy.state.ca.us](mailto:fmiller@energy.state.ca.us)

Caryn Holmes  
Staff Counsel  
[cholmes@energy.state.ca.us](mailto:cholmes@energy.state.ca.us)

Elena Miller  
Public Adviser  
[publicadviser@energy.state.ca.us](mailto:publicadviser@energy.state.ca.us)

**DECLARATION OF SERVICE**

I, Sara Head, declare that on, July 31, 2009, I served and filed copies of the attached Palmdale Hybrid Power Project: Arroyo Toad Survey Report. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

**[<http://www.energy.ca.gov/sitingcases/palmdale/index.html>]**. The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

**(Check all that Apply)**

**For service to all other parties:**

sent electronically to all email addresses on the Proof of Service list;

by personal delivery or by depositing in the United States mail at Camarillo, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

**AND**

**For filing with the Energy Commission:**

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (preferred method);

**OR**

depositing in the mail an original and 12 paper copies, along with 13 CDs, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 08-AFC-9  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_