REPRESENTATIVE PROJECTS

Biological Assessment for California Red-legged Frog (CRLF) for the Carmel River Dam and Reservoir Project (CRDRP)

Services: Restoration, Conservation, Education
Client: Monterey Peninsula Water Management District, U.S. Army Corp of Engineers, California American Water Company
Project Location: Carmel & Monterey, CA
Date: 1999

Project Description: The (CRDRP) proposed to replace the existing 2 non- functioning sediment filled dams on the Carmel River with a 24,000 acre foot dam. This proposed dam would to be used to provide water to the greater Monterey community. The purpose of this Biological Assessment (BA) is to review the possible effects that this may have on the CRLF population in the existing flood plain of the Los Padres Dam which would be inundated, the additional area to be flooded, and downstream reaches.

Services Provided: Dawn Reis (working for EcoSystems West) Prepared the Biological Assessment for the U.S. Fish and Wildlife Service characterizing the habitat potential for CRLF within the "Project Area" and the "Action Area". The "Action Area" was defined as all areas downstream of the proposed dam between the levees to the mouth of the Carmel River at the Pacific Ocean. Project related short and long term beneficial and adverse impacts to habitat were assessed. The USFWS assisted in developing management strategies to determine whether or not the project would jeopardize the continued existence of CRLFs within the designated "Critical Habitat" areas.

Dawn Reis also conducted the field work which included CRLF habitat typing and mapping along 25 miles of the Carmel River from above the Los Padres Dam to the mouth of the Carmel River. Potential effects of proposed stream flow alterations and water temperature changes were assessed by field sampling during different flow releases.

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Special Status Wildlife and How to Conduct a Biological Assessment

Services: Restoration, Conservation
Client: Natural Resource Conservation District and City Employees within the natural resource departments. Hosted at the Watsonville Wetlands Watch Center.
Project Location: Watsonville, CA
Date: 2004

Project Description: Workshop training on How to conduct a Biological Assessment for Wildlife.

Services Provided: Developed and conducted a training for new resource personnel on special status wildlife and their basic ecology within the Watsonville Area. This workshop also included and how to conduct basic data searches and mapping of known occurrences for protected wildlife species using the CNDDB database searches.

Biological Assessment for the Whisler/Wilson Road Improvement Project

Services: Conservation
Client: Rana Creek Habitat Restoration Group
Project Location: Big Sur, CA
Date: 2004

Project Description: A biological Assessment was needed for permits to conduct road improvement project on a private parcel within a self-imposed Conservation and Scenic Easement Deed by the Wilson/Whistler families. The primary reasons for the road improvements, which included three bridges, bank stabilization and culverts as well as widening to meet fire safety codes, were to increase road safety for ranch personnel, farm equipment and cattle, and to allow year round access over San Jose Creek during high water flow.

Services Provided: Conducted the Biological Assessment portions of the project for Federally protected species including south-central steelhead (*Oncorhynchus mykiss*), California red-legged frog (*Rana aurora draytonii*), Smith's blue butterfly (*Euphilotes enoptes smithi*) and central coast California tiger salamander (*Ambystoma californiense*). Due to the number of permits required for this project, this project was submitted for review to the following agencies: Monterey County Planning Department, the US Army Corps of Engineers (ACOE), the US Fish and Wildlife Service (USFWS), the National Marine Fisheries Service/NOAA (NMFS), and the California Department of Fish and Game (CDFG).

General Jim Moore Boulevard Improvement Project

Services: Conservation
Client: Rana Creek Habitat Restoration Group for the Fort Ord Reuse Authority
Project Location: Big Sur, CA
Date: 2004

Project Description: Road widening project in ancient dune habitat with oak woodlands in Fort Ord, Monterey CA.

Services Provided: Pre-construction surveys were conducted for California legless lizards (*Anniella pulchra*), Monterey dusky-footed woodrats, (*Neotoma fuscipes luciana*) woodrat nests, and nesting birds. All ground vegetation was removed either by hand raking or with a mechanical rake on an excavator arm to find any legless lizards on or just below the soil surface. All woodrat nests were removed from the project site. During construction, monitors raked through all top soil moved by large machinery, (road graters, bull dozers, and scrapers) to a soil depth of 3 feet. All California legless lizards were captured, photographed, measured and relocated.

Amphibian & Reptile Habitat Assessment and Management Plan for Big Dipper Ranch

Services: Education, Conservation
Client: MidPeninsula Regional Open Space District
Project Location: Pacifica, CA
Date: 2005

Project Description: The Big Dipper Ranch was a acquired by the MidPeninsula Open Space District. In order to ensure that this resource both protects wildlife and is managed well for public use, the development of a management plan was solicited.

Services Performed: Development of management recommendations based on habitat assessments and preliminary surveys of the project area for California red-legged frog (*Rana aurora draytonii*), California tiger salamanders (*Ambystoma californiense*), Western pond turtles (*Clemmys marmorata*), San Francisco garter snakes (*Thamnophis sirtalis tetrataenia*) and Foothill yellow-legged frogs (*Rana boylii*). Current land use activities and proposed activities were assessed.

California State Parks Carmel River Lagoon Enhancement Project

Services: Restoration, Conservation, Education
Client: California Department of Recreation (State Parks, Monterey Division)
Project Location: Carmel & Monterey, CA
Date: 2006

Project Overview: California State Parks and Recreation Department conducted a lagoon enhancement project to both increase and improve habitat especially for the "threatened" steelhead trout and the "threatened" California red-legged frog (CRLF) as well as to aid in flood prevention by lowering barriers to the flood plain by the Carmel River in high water.

Description: Conducted focused protocol level surveys for CRLF adults, sub-adults and tadpoles. Supervised the biological monitoring staff working with Western Pond Turtles and CRLF adults and tadpoles. Dawn Reis provided the training for Rana Creek Consulting Staff Biologist on CRLF and other common amphibian identification, capture and translocation methods, and permit need. Rescues and handling of CRLF was conducted under USFWS Permit No 1-8-03-F-43.

Wetlands Restoration Design and Management Recommendations for Special-Status Wildlife at ALBA's Triple M Ranch

Services: Restoration, Conservation
Client: Agriculture and Land-based Training Association (ALBA)
Project Location: Pajaro, Monterey, CA
Date: 2007

Project Description: ALBA farm wanted to provide a working model of where wildlife restoration could be designed to be compatible with an active working farm. A Restoration Design and Management Recommendation Plan was developed.

Services Provided: In this document, Dawn Reis Ecological Studies provided restoration designs explanations for amphibian and bird use of ponds, grasslands and riparian areas of the Triple M Ranch. Physical target parameters and management recommendations where developed specific

to three special status amphibians: California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*) and Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum)*. This document was done in collaborated with Bryan Largay Hydrology LTD, who provided restoration design plan sheets and peer review.

Biological Assessment for Special-Status Wildlife at ALBA's Triple M Ranch

Services: Restoration, Conservation
Client: Agriculture and Land-based Training Association (ALBA)
Project Location: Monterey, CA
Date: 2007

Project Description: ALBA farm wanted to provide a working model of where wildlife restoration could be designed to be compatible with an active working farm. Therefor a Biological Assessment of special-status species at the existing Triple M Ranch Farm was requested.

Services Provided: Dawn Reis s Ecological Studies provided habitat assessments for specific to California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*) and Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum*) at the Triple M Ranch. This document was prepared for ALBA to submit to USFWS and CDFW for guidance and consultation requirement with a restoration plan.

Conceptual Ecosystems Restoration Plan and Feasibility Assessment for Laguna Salada

Services: Restoration, Education, Conservation
Client: Wild Equity Institute and PWA ESA
Project Location: Pacifica, CA
Date: 2011

Project Description: The purpose of this document was to provide an alternative plan that addressed how to restore the Laguna Salada Lagoon back to a naturally functioning ecosystem that is both compatible with flood control on the neighboring urban area and endangered species needs (San Francisco Garter Snake, *Thamnophis sirtalis tetrataenia* and California red-legged frog, *Rana draytonii*) as opposed to continuing to manage the lagoon via a failing artificial seawall and pumping system. This document and its corresponding presentations was an educational piece to encourage and foster future restoration and conservation of the lagoon.

Services Provided: Dawn Reis collaborated with the other report authors to develop a conceptual restoration design to restore the natural function of the lagoon, flood control and recover of endangered of San Francisco garter snake and California red-legged frog populations. This document was developed as an educational piece for decision makers and land managers. Dawn wrote the report sections and provide the presentation specific to San Francisco garter snake and California red-legged frog restoration and recovery at the Sharp Park and Laguna Salada.

Co-management of Food Safety Risks and Riparian/Wetland Habitats for Central Coast California Agriculture

Services: Research, Education
Client: Dr. Michele Jay-Russell, DMV and Project Director, Western Center for Food Safety,

University of California Davis
Project Location: Carmel Valley, CA
Date: 2013 to April of 2014

Project Description: Dr. Russell was the PI conducting research that will provide a science-based approach that would reduce or eliminate bacterial contamination of fresh produce by amphibians and reptiles while minimizing negative impacts on native wildlife and their habitat. Specifically, the project goals were to:

1) Determined if wild amphibians (frogs, salamanders) and reptiles (lizards, snakes, turtles) were reservoirs of *E. coli* O157:H7 and *Salmonella* in Central Coast California agriculture regions
2) Identify natural and man-made risk factors associated with pathogen shedding and elevated commensal *E. coli* in ponds and riparian habitats that support common amphibians and reptile species in the central coast
3) Use a combination of environmental sampling, field biology, bacteriologic analyses, source tracking by DNA fingerprinting, and statistical analyses to examine the molecular relationships of *E. coli* O157 and *Salmonella* in these environments.
4) Assist growers and ranchers in using information from this study to promote a science-based, co-management approach to food safety and environmental stewardship.

Services Provided: Dawn Reis was retained Dr. Russell to adviser in the field study design, field sampling techniques, and field protocols and sampling limitations due to endangered species. Duties included aiding Dr. Russell with outreach and enrollment of land owners in the Monterey and Santa Cruz Agricultural Community. Duties also included staff training of Dr. Russell's DMV and Field Biologist on coastal California amphibian and reptile species identification, ecology and sampling protocols.

California Red-legged Frog (CRLF) Rescues San Clemente Reservoir Drawdown Project

Services: Conservation, Restoration, Education
Client: California American Water Company
Project Location: Carmel Valley, CA
Date: 2003-2013

Project Description: The California Division of Safety of Dams determined that the San Clemente Dam on the Carmel River is both seismically unsafe and could be compromised in weight of the water behind the dam. However, the lowering of the water level behind the dam could only occur during the spring when the river flow was low, and therefor needed to be done annually. As a result the California American Water Company, the dam owner, reduced the level of water behind the dam when possible to reduce the seismic safety risk until a long term permanent solution to the seismic safety was approved that also included beneficial solutions to the existing populations of steelhead and California red-legged frog (CRLF) within the project area. Until a permanent solution was approved, steelhead and CRLFs must be captured from the affected dry down areas and relocated to non-effected areas. Mitigation for the annual loss of CRLF habitat was also required, including enhancement measures of ponds and non-native bullfrog removals.

Services Provided: Conducted focused protocol level surveys for CRLF adults, sub-adults and tadpoles. Conducted focused surveys and removals for non-native bullfrog adults and tadpoles. Rescued and relocated CRLF adults and tadpoles. Ecological Studies (ES) also provided the client with guidance and recommendations for CRLF reproductive habitat enhancement goals at historic locations. In addition, ES monitored the CRLF enhancement and relocations areas as part of the

mitigation for the annual loss of reproductive habitat, and provided the environmental training to project personnel and visitors on site. Rescues were conducted under USFWS Permit No 1-8-03-F-1.

Carmel River Reroute and San Clemente Dam Removal Project (CRRDR)

Services: Restoration, Education, Conservation
Client: Granite Construction
Project Location: Carmel Valley, CA
Date: 2013 to April of 2014

Project Description: The goals of the Carmel River and San Clemente Dam Removal Project (CRRDR) are to find and implement a solution to correct the seismic safety issue of the dam to the public and to improve fish passage for federally protected Steelhead trout. The dam was deemed unsafe do to both age, structure and accumulated the sediment load captured behind the dam. The agreed upon solution was to both remove the dam in its entirety and to reroute the Carmel River such that it bypasses large amounts of sediment accumulation. To achieve these two major goals, both the a restoration and monitoring plan was required to be fully developed for the federally protected California red-legged frogs, also known to occur at the project site, along with the steelhead trout. In addition, numerous native wildlife species including state protected species such as bats and nesting birds needed to be addressed so that the implementation of the project would not result in direct harm to them. Therefore, wildlife surveys, wildlife relocations and wildlife monitoring was/is required.

Services Provided: Ecological Studies was involved from the beginning and assisted the client with proposal needs and wildlife species planning. After the contract was awarded, Dawn Reis continued to provide guidance and training to the client in regards to wildlife survey needs, wildlife survey protocols, developed project specific plans for California red-legged frog compliance with USFWS, and helped the client with needed approvals from CDFW by providing project specific protective buffer recommendations for nesting birds, and approvals from CDFW for bat exclusion plans to meet special status wildlife permit compliance. .Ecological Studies also conducted surveys for wildlife including species of special concern and endangered species. Surveys were conducted for bats, birds, mammals, and all other amphibians and reptiles. All animals were removed from harm's way where permits to do so were allowed. Protective buffers were established for nesting birds until nesting activities were complete. Focused surveys conducted included roosting bats, California red-legged frog (CRLF; *Rana draytonii*), California tiger salamander (CTS; *Ambystoma californiense*), dusky footed woodrat (*Neotoma fuscipes luciana*) and nesting birds. Night and daylight surveys were conducted for amphibians including CRLF, CTS and non-native bullfrogs. All CRLF were removed from the project site. Seine netting was conducted for CRLF tadpoles and they were also relocated off site. Ecological Studies helped assemble wildlife experts to assist with bat exclusion and Dusky footed exclusions and plan. In addition, ES developed and provided the wildlife presentation of the required environmental training to project personnel and visitors on site.

California Red-legged Frog (CRLF) Tadpole Rescues for the Carmel River Operations Project

Services: Conservation
Client: California American Water Company
Project Location: Carmel Valley, CA
Date: 2003 through 2014

Project Description: The California-American Water Company draws water from the Carmel River Alluvial Aquifer to supply its customers. This results in the drying of portions of the river channel and the associated off channel wetland areas that are required by California red-legged frog (*Rana aurora draytonii*) as reproductive habitat. In order to reduce the possibility of "take" of California red-legged frog reproduction, the Carmel River is surveyed for potential tadpole habitat and actual California red-legged frog reproduction.

Services Provided: Each year the Ecological Studies conducts Habitat Typing of 18 miles of river for CRLF tadpoles, monitored tadpole locations, and conducted tadpole rescues. All tadpoles that are in danger are captured and to safe areas. Part of a conservation effort to aid CRLF tadpoles in the project area included developing a rearing facility to grow out some of tadpoles rescued on the river. The objective was to provide some predator free areas were tadpoles known to mature and metamorphose before returning them back to the river in areas with year round flow. Rescues were conducted under USFWS Permit No 1-8-99-FW-7 and later the rescues and rearing was conducted under Dawn Reis' 10(a)(1)(A) Permit No. TE-057714-0.

Salinas Watershed Invasive Non-native Plant Control Project (RCDMC)

Services: Restoration, Education, Habitat Assessments, Focused Surveys
Client: Resource Conservation District, Monterey County
Project Location: Salinas Watershed, CA
Date: Oct 2014 to present

Project Description: The California Department of Fish & Game has executed a Routine Maintenance Agreement to the Resource Conservation District of Monterey County that involves a watershed-based, invasive, non-native plant control, and riparian restoration program within the Salinas River watershed. The primary target species for control is giant reed (*Arundo donax*), although other non-native species will be removed depending upon local conditions. All areas where non-natives are removed will be restored using native vegetation. The project occurs entirely in Monterey County, in and adjacent to the Salinas River, from the mouth of the Pacific Ocean upstream to the border of Monterey and San Luis Obispo counties.

Services Provided: Ecological Studies (ES) conducts pre-construction surveys looking for suitable habitat for Federally-protected amphibians, particularly California red-legged frogs, California tiger salamanders, and spade-foot toads and nesting birds. Dawn Reis (ES) served as the Lead Biologist managing a team of both Ecological Studies staff and Recourse Conservation District (RCD) staff biologists to oversee and conduct the wildlife surveys prior to and during implementation of the invasive plant removal program. ES conducted wildlife habitat evaluations of the project areas, reports of the assessments, focused preconstruction surveys, and the "Worker's Education Trainings" for protected wildlife. Dawn Reis conducted staff trainings for both the ES and RCD biologists, who worked as the onsite Biological Monitors during the vegetation removal. These trainings included Biological Monitor protocols and methodologies, permit conditions, best management practices, as well as project-specific species identification and ecology.

Wildlife considered and surveyed for included: California red-legged frog (CRLF) (*Rana draytonii*), foothill yellow-legged frog (FYLF) (*Rana boylii*), California tiger salamander (CTS) (*Ambystoma californiense*), western pond turtle (WPT) (*Actinemys* sp.), legless lizards (*Anniella pulchra*), western spadefoot toad (*Spea hammodii*), American badger (*Taxidea taxus*), San Joaquin kit fox (*Vulpes macrotis mutica*), California newt (*Taricha torosa torosa*), burrowing owl (*Athene cunicularia*), coast horned lizard

(*Phrynosoma coronatum*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), nesting or roosting bats, nesting birds, two-striped gartersnake (*Thamnophis hammondii*).

Salinas River Stream Maintenance Project

Services: Habitat Evaluations & Assessments, Focused Surveys, Education, and Staff Trainings for Agency Biologist
Client: Monterey County Resource Conservation District and Monterey County
Project Location: Salinas River from San Ardo to Salinas, CA
Date: 2014 through 2016

Project Description:
This project is a 90-mile section of the Salinas River riparian corridor extending from San Ardo downstream to the Highway 1 Bridge in Monterey. Project goals are to help restore some of the river's natural flow conditions and meanders (low-flow channels) so that farmers gain flood relief. The channel maintenance areas focused restoring meanders in areas with dense patches of non-native invasive plants (mostly giant reed) by removing the non-native plants with excavation. The project provides opportunities for agricultural landowners who want to remove non-native plants and restore native vegetation in exchange for some flood relief. The program provides state and federal permitting to those who choose to participate.

Services Provided: Dawn Reis, principal of Ecological Studies (ES), served as the Lead Biologist managing a team of both Ecological Studies staff and Recourse Conservation District (RCD) staff biologists to oversee and conduct the wildlife surveys prior to and during implementation of flood control measures within the Salinas River floodplain. ES conducted wildlife habitat evaluations of the project areas and provided reports of the assessments. ES also conducted focused pre-construction surveys, and the "Worker's Education Trainings" for protected wildlife. Dawn Reis conducted staff trainings for both the ES and RCD staff biologists, who worked as the onsite Biological Monitors during the initial vegetation removal and ground disturbance. These trainings included Biological Monitor protocols and methodologies, permit conditions, best management practices, as well as project species-specific identification and ecology. These RCD biologists and monitors were trained and mentored prior to construction monitoring activities. Senior ES staff served as the on-call biologists (approved by both state and federal agencies), and mentors to the RCD Biological Monitors. Dawn Reis also prepared and provided separate trainings for landowners, operators, subcontractors of the project.

Wildlife considered and surveyed for included: California red-legged frog (CRLF) (*Rana draytonii*), foothill yellow-legged frog (FYLF) (*Rana boylii*), California tiger salamander (CTS) (*Ambystoma californiense*), western pond turtle (WPT) (*Actinemys sp.*), legless lizards (*Anniella pulchra*), western spadefoot toad (*Spea hammodii*), American badger (*Taxidea taxus*), San Joaquin kit fox (Vulpes macrotis mutica), California newt (*Taricha torosa torosa*), burrowing owl (*Athene cunicularia*), coast horned lizard (*Phrynosoma coronatum*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), nesting or roosting bats, nesting birds, two-striped gartersnake (*Thamnophis hammondii*), Monterey spineflower (*Chorizanthe pundgens* var. *pundgens*) and Robust spineflower (*Chorizanthe robusta* var. *robusta*).

Trout Unlimited's Little Arthur Creek Storage and Forbearance Project Nesting Bird Surveys and Amphibian Site Assessments

Services: Habitat Evaluations & Assessments Focused Surveys, Education, Biological Monitoring
Client: Trout Unlimited

Project Location: Gilroy, CA
Date: 2016

Project Description: The Little Arthur Creek Storage and Forbearance Project was a program to improve dry season flow in Little Arthur Creek for the benefit of South-Central California Coast Steelhead, which are listed as threatened under the federal Endangered Species Act. The project also improved the water security of rural residents who rely on streamflow for domestic water. The program consists of a series of up to ten storage and forbearance sub-projects at individual residences that draw domestic water from the creek, either from surface diversions or from streamside wells. Each sub-project called for the installation of sufficient water storage to meet the landowner's needs for the annual four-month period when stream flows are lowest (June 15 – October 15). In return, each landowner agreed to not divert water from the creek during this period, and to rely on stored water instead. Storage systems range from 25,000 gallons to 50,000 gallons, depending on the needs and constraints at each individual parcel. Trout Unlimited contracted Ecological Studies (ES) to conduct amphibian and nesting bird evaluations for the five water tank replacements for this project.

The Project is funded by the California Department of Fish and Wildlife, State Coastal Conservancy, and the Santa Clara Valley Water District, and is being implemented by the nonprofit organizations Trout Unlimited and Coastal Habitat Education and Environmental Restoration (CHEER).

Services Provided: ES conducted wildlife habitat evaluations of the project areas and provide reports of the assessments. ES also conducted focused pre-construction surveys, the "Worker's Education Trainings" for protected and likely wildlife, and provided the onsite Biological Monitors during the initial ground disturbance. Wildlife considered and surveyed for included: California red-legged frog (CRLF) (*Rana draytonii*), foothill yellow-legged frog (FYLF) (*Rana boylii*), California tiger salamander (CTS) (*Ambystoma californiense*), western pond turtle (WPT) (*Actinemys* sp.) and nesting birds.

California Red-legged Frog (*Rana draytonii*) Post-construction Monitoring Plan for the Carmel River Reroute and San Clemente Dam Removal Project (CRRDR)

Services: California Red-legged Frog Monitoring Plan
Client: Granite Construction
Project Location: Carmel Valley, CA
Date: 2016

Project Description: The California Red-legged Frog (CRLF) Post-construction Monitoring Plan is a specific component for the CRRDR project to evaluate habitat and use of restoration areas specific designed for CRLF. The purpose of the CRRDR project was to restore the Carmel River for both steelhead trout (*Oncorhynchus mykiss*) and for CRLF. This project included the demolition of the San Clemente Dam and reservoir, and designing and restoring the Carmel River specific to steelhead. It also included designing and restoring CRLF breeding ponds and upland habitat that meet the USFWS criterial as "primary constituent elements" for CRLF.

Services Provided: Dawn Reis developed and wrote the California red-legged frog (*Rana draytonii*) Post-construction Monitoring Plan for the CRRDR. This five year plan provides methods and goals for assessing CRLF habitat that was created on the CRRDR, as well as assessing CRLF populations over five years of monitoring. The plan includes seasonal survey timings, frequency and datasheets for CRLF populations at each life stage as well as measuring habitat parameters that meet the USFWS predefined "primary constituent elements" for CRLF. The plan includes

focused surveys for non-native species removals, and recommendations for interdisciplinary team communications between the client, the plant restoration specialist, and the wildlife monitoring staff, for both ongoing communications and adaptive management. This plan was approved and supported by the USFWS office.