DOCKETED	
Docket Number:	25-OPT-02
Project Title:	Prairie Song Reliability Project
TN #:	264407
Document Title:	App 3-2 A-F Biological Resources Appendices
Description:	N/A
Filer:	Erin Phillips
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	6/20/2025 12:44:54 PM
Docketed Date:	6/20/2025

Section 3.2
Biological Resources
Appendices

Appendix 3.2A
Resumes of Applicant's Biologists

Callie Amoaku

BIOLOGICAL RESOURCES TASK ORDER LEAD

Callie Amoaku (*KAL-ee AUHM-wa-koo; she/her*) is a biologist with 19 years' experience as an environmental analyst specializing in field surveys and report preparation. Callie is committed to professional management of environmental resources, including land conservation. As a biologist with Dudek, she has coordinated large baseline survey efforts and researched and prepared biological sections for environmental impact reports (EIRs), biological resources technical reports (BTRs), resource management plans (RMPs), biological assessments, low-effect habitat conservation plans, and focused survey reports. She has also performed wildlife and plant surveys, vegetation mapping, and jurisdictional delineations throughout California.

Relevant Project Experience

Ivanhoe Ranch, Pv Ivanhoe LLC, El Cajon, California. Serving as lead biologist for this County of San Diego project located in the South County Multiple Species Conservation Program (MSCP). Performed baseline surveys for a variety of species and resources. Prepared BTR and appendices. Also attends County of San Diego meetings and assists client with mitigation planning.

Confidential Solar Project, Confidential Client, San Diego County, California. Served as the lead biologist for a solar project within the County of San Diego in the East County MSCP. Conducted and/or managed baseline biological surveys for various species. Prepared a BTR and the RMP following the county's reporting guidelines and attended meetings with county staff and resource agencies. Assisted with preparation of the project's EIR, which was approved by the County of San Diego Board of Supervisors in August 2021.

Confidential Solar Project, Confidential Client, San Diego County, California. As lead field biologist, conducted and/or managed baseline biological surveys for various species and resources for a 420-acre solar development site located within an unincorporated section of San Diego County in the East County MSCP. Prepared the BTR in accordance with the County of San Diego's guidelines and attended public outreach meetings.

Multiple Projects, San Diego County Water Authority, San Diego County, California. Currently serving as the project biologist for various projects. Conducts and/or manages baseline biological surveys for various species; prepares Aquatic Resources Delineation Reports; and prepares or provides senior review for BTRs.

Education

California Polytechnic State University,
San Luis Obispo,
BS, Environmental Management and Protection/GIS Minor, 2006

Certifications

County of San Diego Biologist
(Issued 2/11/2019, No Expiration)
USFWS Federal 10a Survey Permit, No. ES 36118B-2
(Issued 11/9/2022; Expires 11/8/2025)

- *Quino Checkerspot Butterfly Surveys*
- *Casey's June Beetle*

CDFW Scientific Collecting Permit, No. 221820002-22332-001
(Issued 9/1/2017; Expires 5/16/2026)

- *Western bumble bee (B. occidentalis)*
- *Crotch's bumble bee (B. crotchii)*
- *Suckley's cuckoo bumble bee (B. suckleyi)*
- *Franklin's bumble bee (B. franklini)*

Professional Affiliations

The Western Section of the Wildlife Society – Board Member
Xerces Society

San Diego State University – Mission Valley Campus Master Plan Project, City of San Diego, California. Serving as the lead biologist. Conducted and/or managed baseline biological surveys for various species and resources. Prepared a BTR and appendices per California Environmental Quality Act (CEQA) guidelines and attended meetings with resource agencies and the public. Assisted with preparation of the project's award-winning EIR. Assisted with the preparation and implementation of the mitigation and monitoring reporting program.

Multiple Projects, Department of Water Resources, California. Leading the jurisdictional delineation efforts for multiple large DWR projects totaling approximately 20,000 acres that span numerous counties and ecoregions in California. Prepared Aquatic Resource Delineation Reports for submittal to USACE and for state agencies.

Ocean Creek Project, JPI, City of Oceanside, California. Serving as the lead biologist for the Ocean Creek Project in the City of Oceanside. Conducted and/or managed baseline biological surveys for various species, and prepared the BTR, RMP, survey reports, and a low-effect habitat conservation plan. As lead biologist, attended meetings with staff from the City of Oceanside, U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW).

Nirvana Project, OnPoint Development, Chula Vista, California. Serving as lead biologist for the Nirvana Project within the City of Chula Vista's Subarea Plan. Conducted and/or managed baseline biological surveys for various species, prepared the BTR, survey reports, and mitigation planning.

Bear Valley Parkway Project, Spieth-Wohlford, Escondido, California. As lead biologist, conducted and/or managed baseline biological surveys for this project in the North County MSCP. Prepared the BTR and other related reports.

Bonita Glen Drive Project Studies, Silvergate Development, Chula Vista, California. As project manager and lead biologist, prepared a BTR in accordance with the City of Chula Vista's Subarea Plan.

Confidential Solar Energy Project, Confidential Client, Kern County, California. Served as field lead for the formal jurisdictional delineation. Specifically, the wetland delineation included mapping waters defined in the Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants in addition to the USACE methods. Also conducted vegetation mapping and focused rare plant surveys.

Confidential Solar Project, Confidential Client, San Diego County, California. As lead field biologist, conducted a formal wetland delineation and determination based on the regulations of USACE, RWQCB, and CDFW for a 765-acre solar development site located within an unincorporated section of San Diego County. Conducted vegetation mapping, prepared the BTR in accordance with the County of San Diego's guidelines, and attended public outreach meetings.

Grapevine Project, Tejon Ranch, Kern County, California. Served as project task manager and field lead to conduct and/or manage baseline biological surveys for various species and resources for a 15,315-acre study area. Prepared of a detailed BTR and 20 associated reports and appendices, data management and review, and project management.

Newhall Biological and Environmental Documentation, Newhall Land and Farming Company, Santa Clarita, California. As project assistant, conducted various baseline surveys, assisted in writing numerous BTRs and biological sections of EIRs with detailed information about special-status wildlife species, and assisted in preparing the Comprehensive Mitigation Implementation Plan.

East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Project EIR/Environmental Impact Statement (EIS), San Diego Gas and Electric, San Diego County, California. As project assistant, assisted with review of environmental and focused survey reports for multiple years and various project sites. Assisted in the preparation of EIR/EIS biological resources section.

Luz Badillo

BIOLOGIST

Luz Badillo (*LOOS bah-DEE-yo; she/her*) is a biologist with professional experience in the environmental field. She has experience conducting various fieldwork, including but not limited to habitat assessments/biological reconnaissance surveys, rare plant surveys, formal aquatic resources delineation, nesting bird surveys, and focused presence/absence surveys for least Bell's vireo (*Vireo bellii pusillus*), Mojave desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), Crotch's bumble bee (*Bombus crotchii*), and mountain yellow-legged frog (*Rana muscosa*). Luz has assisted in the preparation of biological technical reports, memorandums, permitting applications, and other technical documents in compliance with federal, state, and local regulations such as the federal Endangered Species Act, Migratory Bird Treaty Act (MBTA), California Environmental Quality Act, Western Riverside Multiple Species Habitat Conservation Plan (WR MSHCP), and Coachella Valley Multiple Species Habitat Conservation Plan.

Education

California State Polytechnic University, Pomona
BS, Animal Science

Certifications

Basic Wetland Delineation, Wetland Training Institute

Professional Affiliations

Xerces Society

Project Experience

Newhall, Newhall Land and Farming Company, Santa Clarita, California. Performed aerial extent population mapping for the state-endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*). Surveys focused on where past populations were observed; patches were flagged and mapped using a GPS unit to determine and record any population changes. Assisted with conducting a formal jurisdictional aquatic resources delineation. Mapped the vegetation communities and land cover types on site as well as any rare plants including slender mariposa-lily (*Calochortus clavatus* var. *gracilis*). Assisted in a bat emergence survey with the use of an echo meter to identify bat species on site. Conducted a limited Crotch's bumble bee survey by photographing foraging bumble bees to facilitate identification and concurrently recording a general inventory of other pollinators.

Inland Empire North Logistics Center, FGFW IV LLC, Victorville, California. Performed focused protocol presence/absence desert tortoise surveys by walking 10-meter-wide transect lines and looking for any evidence of desert tortoise and categorizing the condition of the sign using the U.S. Fish and Wildlife (USFWS) 2009 field manual.

Apple Valley 84, Covington Development Partners LLC, Apple Valley, California. Performed focused burrowing owl surveys in accordance with the California Department of Fish and Wildlife (CDFW) 2012 protocols by walking 20-meter-wide transects and performed focused protocol presence/absence desert tortoise surveys by walking 10-meter-wide transects. Assisted with updating an existing vegetation map to confirm the alliances found within the project site. Assisted International Society of Arboriculture (ISA) Certified Arborists with mapping and tagging western Joshua trees (*Yucca brevifolia*) in various life stages.

Whitewater, Desert Water Agency, Whitewater, California. Conducted protocol-level focused surveys for least Bell's vireo in accordance with the USFWS 2001 guidelines and compiled cumulative species list for the site.

Falls Creek, Desert Water Agency, Palm Springs, California. Conducted a burrowing owl habitat assessment, protocol-level focused surveys for least Bell's vireo, and focused presence/absence surveys for mountain yellow-legged frogs. Compiled cumulative species lists for the site.

Santa Fe Wash, Albert A. Webb Associates, Victorville, California. Performed focused burrowing owl surveys in accordance with the CDFW 2012 protocols by walking transect lines and looking for any sign of burrowing owl and suitable burrows. Assisted with conducting a formal jurisdictional aquatic resources delineation.

Aquabella, Highland Fairview Operating Co., Moreno Valley, California. Conducted protocol-level surveys for least Bell's vireo.

Ladera Golf Course, Ladera Golf Club, Thermal, California. Conducted pre-construction nesting bird surveys and nest checks to determine if they were active. Performed a pre-construction burrowing owl survey to clear the area for impact.

Palm Canyon, Agua Caliente Band of Cahuilla Indians, Palm Springs, California. Conducted protocol-level surveys for least Bell's vireo. Performed protocol presence/absence desert tortoise survey using the USFWS 2009 field manual. Also conducted pre-construction nesting bird surveys and pre-construction burrowing owl surveys to clear the area for impact.

Confidential Energy Project, Moreno Valley, California. Performed a focused burrowing owl survey by walking 20-meter-wide transect lines and looking for any evidence of burrowing owls.

Confidential Solar Project, Twentynine Palms, California. Assisted with a formal jurisdictional aquatic resources delineation by filling out the ordinary high water mark form, taking reference photos for the report, and taking note of any special-status species on site. Conducted a reconnaissance survey to identify biological resources, including desert native plants as required by the California Desert Native Plants Act, and mapped the vegetation communities and land cover types on site. Performed focused protocol presence/absence desert tortoise surveys by walking 10-meter-wide transect lines, looking for any evidence of desert tortoise, and categorizing the condition of the sign using the USFWS 2009 field manual.

San Gabriel Reservoir, County of Los Angeles, Azusa, California. Served as a biological monitor within the construction site during the removal of sediment while remaining vigilant for new or established nesting bird activity as well as any compliance concerns that can arise with the use of heavy machinery within a reservoir. Assisted in the capture and relocation of native fish in the reservoir including the federally threatened Santa Ana sucker (*Catostomus santaanae*).

Vineyard I Shopping Center, Retail Development Advisors, Murrieta, California. Conducted a pre-construction burrowing owl survey in accordance with the WR MSHCP (Species-Specific Objective 6).

Avenue 42 Self-Storage, Johnson Development Associates Inc., Indio, California. Assisted in the excavation and collapse of a confirmed inactive burrowing owl burrow with the use of an endoscope camera and hand tools.

Confidential Solar Project, Newberry Springs, California. Performed focused protocol presence/absence desert tortoise surveys by walking 10-meter-wide transect lines and looking for any evidence of desert tortoise and categorizing the condition of the sign using the USFWS 2009 field manual.

I-5 Industrial Park, Covington Group Inc., Hesperia, California. Assisted ISA Certified Arborists with mapping and tagging western Joshua trees in various life stages per the Western Joshua Tree Conservation Act.

Yucca Terrace 13, Yucca Terrace Investors LLC, Hesperia, California. Assisted ISA Certified Arborists with mapping and tagging western Joshua trees in various life stages per the Western Joshua Tree Conservation Act.

Phelan 20, Cambria 60 Partners LLC, Hesperia, California. Assisted ISA Certified Arborists with mapping and tagging western Joshua trees in various life stages per the Western Joshua Tree Conservation Act.

Business Park Drive, Kakkar, Perris, California. Conducted a reconnaissance survey to identify biological resources, mapped the vegetation communities and land cover types on site, and performed a burrowing owl habitat assessment in accordance with the WR MSHCP.

Bluff Street, New Leaf Energy Inc., Banning, California. Conducted a reconnaissance survey to identify biological resources and mapped the vegetation communities and land cover types on site.

Mojave Industrial Park, Mojave 80 Gray LLC, Victorville, California. Assisted ISA Certified Arborists with mapping and tagging western Joshua trees in various life stages.

Apple Valley Stoddard Wells Warehouse, Covington Investments LLC, Apple Valley, California. Assisted ISA Certified Arborists with mapping and tagging western Joshua trees in various life stages.

Hesperia Commercial Center II, Main Hesperia LLC, Hesperia, California. Assisted ISA Certified Arborists with mapping and tagging western Joshua trees in various life stages. Performed a general burrow search looking for any evidence of burrowing owls taking residence on site. Conducted a pre-construction nesting survey for Crotch's bumble bee in accordance with the CDFW 2023 protocol. Conducted a pre-construction survey for desert kit fox (*Vulpes macrotis arsipus*) and American badger (*Taxidea taxus*). Monitored the removal and relocation of western Joshua trees to the on-site relocation area as approved by CDFW (Permit No. 1927-ITP-2023-033-06) and monitored ground-disturbing construction activities to minimize incidental take of western Joshua trees and impacts to other sensitive biological resources.

Meadow Valley, D.R. Horton, Moreno Valley, California. Conducted a reconnaissance survey to identify biological resources and mapped the vegetation communities and land cover types on site.

Silverwood Lake, California Department of Water Resources, Hesperia, California. Conducted creel surveys by interviewing anglers at shoreline areas where fishing efforts were observed and accessible, as well as boat anglers when they returned to the launch ramp, to determine angler fishing success and catch rates of stocked rainbow trout (*Oncorhynchus mykiss*).

Confidential Solar Project, Firebaugh, California. Performed focused burrowing owl surveys in accordance with the CDFW 2012 protocols by walking 20-meter-wide transect lines. Assisted with a rare plant survey for special-status plants, including those with a California Rare Plant Rank 1–4. Conducted a habitat assessment evaluating the likelihood of bumble bees occurring within and adjacent to the project area while concurrently photographing foraging bumble bees, with a focus on Crotch's bumble bees, to facilitate identification in accordance with the CDFW 2023 protocol. Assisted with conducting a formal jurisdictional aquatic resources delineation.

World Logistics Center, Moreno Valley, California. Conducted a pre-construction burrowing owl survey and a pre-construction nesting bird survey in accordance with the MBTA and Fish and Game Code.

Agua Mansa, Santa Ana Watershed Project Authority, Bloomington, California. Conducted a pre-construction least Bell's vireo survey and a pre-construction nesting bird survey in accordance with the MBTA and Fish and Game Code.

Confidential Energy Project, Adelanto, California. Performed focused burrowing owl surveys in accordance with the CDFW 2012 protocols by walking 20-meter-wide transect lines and focused protocol presence/absence desert tortoise surveys by walking 10-meter-wide transect lines looking for suitable burrows and active sign. Performed winter burrowing owl surveys by walking 20-meter-wide transect lines, visiting previously recorded burrows, and recording additional burrowing owl sign and individuals.

Moreno Valley College, Riverside Community College District, Moreno Valley, California. Conducted a pre-construction burrowing owl survey and a pre-construction nesting bird survey in accordance with the MBTA and Fish and Game Code.

Rancho Mission Viejo, Rancho Mission Viejo LLC, Mission Viejo, California. Assisted with a diurnal presence/absence survey for arroyo toad (*Anaxyrus californicus*) by focusing on identifying eggs, larvae, and juveniles in accordance with the USFWS 1999 guidelines. Assisted with coastal sage scrub avian point count surveys by recording birds within a 10-minute period and mapping target species using ArcGIS. Collected grass in randomized locations within grazing pastures to quantify how grazing affects growth.

Confidential Energy Project, Fallbrook, California. Conducted a focused least Bell's vireo presence/absence survey in accordance with the USFWS 2001 protocol.

Whittaker-Bermite, Blue Ox Holdings LLC, Santa Clarita, California. Assisted with a rare plant survey for special-status plants, including those with a California Rare Plant Rank 1–4, focusing on Peirson's morning-glory (*Calystegia peirsonii*), Plummer's mariposa-lily (*Calochortus plummerae*), and Island mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*).

Desert Valley Hospital, Prime Healthcare, Victorville, California. Performed focused burrowing owl surveys in accordance with the CDFW 2012 protocols by walking 20-meter-wide transect lines looking for suitable burrows and active sign.

Confidential Energy Project, Acton, California. Conducted a limited Crotch's bumble bee survey by photographing foraging bumble bees to facilitate identification in accordance with the CDFW 2023 protocol.

Wabash Day Street Lot Improvements, Wabash, Moreno Valley, California. Conducted a reconnaissance survey to identify biological resources and mapped the vegetation communities and land cover types on site.

Belcaro Sand Canyon, New Urban West, Santa Clarita, California. Conducted a foraging bumble bee survey for Crotch's bumble bee in accordance with the CDFW 2023 protocol by capturing, photographing, and identifying foraging bumble bees under the supervision of a permitted biologist.

Confidential Energy Project, Lompoc, California. Assisted with quantitative monitoring for the Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) by using meter transect tapes to delineate the sampling units and belt transects to count the individual plants in randomized 0.25- × 1-meter plots and collected non-Gaviota tarplant residual dry matter within the monitoring plots to quantify standing biomass.

Confidential Solar Project, Murrieta, California. Conducted a pre-construction burrowing owl survey and a pre-construction nesting bird survey in accordance with the MBTA and Fish and Game Code.

San Francisquito Canyon Road Bridges, County of Los Angeles, Santa Clarita, California. Assisted with conducting a formal jurisdictional aquatic resources delineation and mapping the vegetation communities and land cover types on site.

French Valley Childcare, County of Riverside, Winchester, California. Conducted a pre-construction burrowing owl survey.

Confidential Solar Project, North Las Vegas, Nevada. Performed clearance surveys for desert tortoise by walking 5-meter-wide transect lines, looking for sign of desert tortoise. Any suitable burrows were recorded and gated for collapse.

Mission Trails, Integral Communities, Lake Elsinore, California. Conducted a reconnaissance survey to identify biological resources, updated previously mapped vegetation communities and land cover types on site, and performed a burrowing owl habitat assessment in accordance with the WR MSHCP. Conducted a pre-construction nesting bird survey to clear the area for impact.

Relevant Previous Experience

Lead Keeper, Forever Wild Exotic Animal Sanctuary, Phelan, California. Co-directed a team and trained new keepers to complete daily tasks. Maintained clean enclosures and monitored animal behavior for signs of health issues. Followed specific dietary and medication schedules for different species. Offered enrichment to stimulate and improve the animals' quality of life. Provided interpretation for guests, highlighting the natural history and individual attributes of each animal.

Chelsea Bowers-Doerning

BIOLOGIST

Enthusiastic and talented research technician with excellent interpersonal skills and more than 5 years of experience. Highly effective and knowledgeable in research techniques in laboratory and field settings. Experience in marine and terrestrial ecology, water quality, and marine ecotoxicology. Ms. Bowers-Doerning has experience in field survey techniques, laboratory techniques, educational mentorship and data collection/management/analysis.

Education

California State University, Fullerton
Master of Science, Biological Sciences

California State University, Fullerton
Bachelor of Science, Marine Biology

Mount San Antonio College
Associate of Science

Relevant Previous Experience

California State University, Fullerton, Fullerton, California. Graduate Assistant. Instructed students in field survey techniques in various marine, aquatic and terrestrial habitats. Worked closely with professors to provide effective assistance for specific aspects of the classroom. Proctored and graded exams, maintained ichthyology specimens for laboratory studies. (August 2019–Present)

California State University Fullerton, Fullerton, California, Research Technician. Upper Newport Bay Living Shorelines Restoration Project – completed field surveys, processed field-collected samples, completed data entry for project funded by California State Coastal Conservancy that examined whether oyster and eelgrass habitats are more effectively restored individually or together. San Diego Bay Oyster Recruitment Project – maintained field arrays on project funded by Merkel & Associates Incorporated and Southwest Wetlands Interpretive Association that measured oyster recruitment as a function of tidal elevation and year. Identified oyster species via microscopy, completed data entry, data analysis and currently writing manuscript. Baycrete Rugosity Experiment – fabricated, deployed and maintained field arrays in project funded by the Port of San Diego that examined the effects of baycrete rugosity/texture on oyster recruitment. (July 2017–Present)

California State University Fullerton – Fullerton, California, Teaching Assistant. Instructed laboratory courses in evolution and organismal biology courses. Partnered with professors to plan and implement lessons following school's curriculum, goals and objectives. Tutored struggling students individually and in small groups to reinforce learning concepts. Supported classroom activities, tutoring, and reviewing work. (January 2020–June 2021)

Southern California Coastal Water Research Project, Costa Mesa, California, Laboratory Technician Intern
Deployed oysters in Newport Bay, CA over a six week period and assayed for accumulated pathogens. Assisted in water quality testing along southern California coast from Newport Bay, CA to Imperial Beach, CA. Assisted in fecal contamination testing in sewer lines throughout San Diego, CA to determine potential leaks in sewer lines. (June 2019–September 2019)

Awards

Awarded 2022 Stanley Hillman & Lon McClanahan Scholarship in Plant or Animal Physiological Ecology.

COAST Graduate Student Research Award 2021, Emeriti - Benson Memorial Scholarship 2021.

Coppel Graduate Science Award 2021.

Michael Cady

SENIOR BIOLOGIST

Michael Cady is a senior biologist with 21 years' experience with fieldwork and the application of environmental regulatory requirements for CEQA/NEPA compliance. Mr. Cady has worked extensively in a variety of habitats and jurisdictions throughout California. He has prepared biological technical reports in support for project and programmatic-level EIRs/EISs, IS/MND, and EAs. In addition, Mr. Cady has prepared permit applications and documentation to support federal ESA Section 7 and 10 consultations, CESA 2081 ITPs, CWA Section 401 and 404, and CFGC Section 1602 LSA.

Mr. Cady's field experience includes protocol surveys and habitat assessments for a variety of special-status wildlife species, rare plant surveys, general flora and fauna surveys, oak and general tree surveys, vegetation mapping, and nesting bird surveys. He has conducted wetland delineations in accordance with federal and State guidelines for a variety of aquatic resources in California. Mr. Cady's compliance monitoring experience includes both large-scale infrastructure projects and smaller projects within sensitive habitats.

Education

California State Polytechnic University, Pomona
BS, Environmental Biology

Project Experience

Energy Transmission and Storage

O&M On-Call Biological Services, Southern California Edison, California. At a previous firm, served as Biological Resources Technical Lead, QA/QC Lead, Project Manager, and Field Director in multiple counties throughout SCE's service area in California and into Arizona (transmission lines). Work completed included more than 2,000 survey, monitoring, and report production work authorization tasks in support of various utility projects including deteriorated pole replacements, grid reliability and maintenance, GO 131-D, emergency services, vegetation management, and transmission line rating remediation. Projects were located on land administered by numerous agencies including the United States Air Force, the Bureau of Land Management (Barstow, Needles, Bakersfield, Ridgecrest, Palm Springs/South Coast), United States National Forests, The National Park Service, and California State Parks. Projects involved special-status species surveys and habitat assessments, nesting bird surveys, jurisdictional waters delineation and permitting, monitoring, and emergency response work.

Fort Irwin Reliability Project, Southern California Edison, San Bernardino County, California. At a previous firm, served as senior wetland biologist for a transmission line improvement project located on lands administered by the BLM, Department of Defense, and private landowners. Provided oversight on the jurisdictional waters delineation and preparing the necessary permit packages.

Contra-Costa-Moraga 230 kV Reconductoring, Pacific Gas & Electric, Contra Costa County, California. At a previous firm, served as a field biologist for due diligence surveys for a 27-mile transmission line project. Provided Swainson's hawk and burrowing owl protocol surveys and prepared the technical reports.

Morgan Hills Wind Energy Transmission Line (Segments 1 and 2) and Access Roads, Kern County, California. At a previous firm, served as senior biologist for the proposed construction of transmission lines through a variety of

habitats in the Tehachapi Mountains. Lead the vegetation mapping, rare plant surveys, desert tortoise surveys, and burrowing owl surveys, and prepared the reports.

Suncrest Dynamic Reactive Power Support Project, NextEra San Diego County, California. At a previous firm, served as the senior biologist for the initial studies of a dynamic reactive device at the existing Suncrest Substation's 230 kilovolt bus. Provided vegetation mapping, habitat assessment, rare plant survey, and jurisdictional waters delineation, reporting, and permitting.

Kern River TLRR Project, Southern California Edison, Kern and Los Angeles Counties, California. At a previous firm, served as senior wetland biologist for an approximately 70-mile Southern California Edison transmission line improvement project. Provided jurisdictional waters delineation and rare plant surveys.

North Sky River Windhub Transmission Project, Southern California Edison, Kern County, California. At a previous firm, served as senior environmental monitor for the construction of interconnect transmission line. Ensured that there were no impacts to California condor and other sensitive species and implemented a worker's environmental plan for the project.

Los Angeles Department of Water and Power Victorville-Century 287 kV Transmission Lines, San Bernardino County, California. At a previous firm, served as senior biologist for the clearance of restoration sites on the Victorville-Century 287 kV Transmission Lines. Provided desert tortoise clearance surveys and updated the habitat assessment for the species in the area.

San Joaquin Cross Valley Loop Transmission Project, Southern California Edison, Tulare County, California. At a previous firm, served as a field biologist for initial studies for the construction of a new 19 mile double-circuit 220 kilovolt transmission line. Conducted rare plant surveys and verified jurisdictional waters/wetlands mapping.

Renewable Energy

Third-Party CEQA Consultant for Solar Energy Projects, County of Kern, Kern County, California. At a previous firm, served as a senior biologist that assisted Kern County with the review of natural resource reports that had been prepared for solar energy projects. Provided review of biological resources technical reports, jurisdictional waters delineation reports, and special-status focal survey reports for numerous solar energy projects.

Stateline Solar Farm Project, First Solar, San Bernardino County, California. At a previous firm, served as project manager and compliance manager/environmental compliance monitor for the third-party compliance management program representing the BLM during the construction of a 300-MW PV solar electricity generation project on 1,685 acres near the California-Nevada border. Services provided included review of preconstruction plan submittals, compliance management and daily monitoring, daily and weekly report preparation, variance preparation and management, and development of internal and public websites and periodic updates. Ensured that the SWPPP and all other BMPs were implemented correctly. Provided an interface between the client and BLM to expedite project needs and reduced delays to the project.

Valentine Solar Project, EDF, Kern County, California. At a previous firm, served as a senior biologist for the initial studies and permitting for a for a 2,000-acre solar project on natural lands. Conducted the jurisdictional waters delineation, vegetation mapping, and habitat assessments for sensitive plant and wildlife species. Also consulted with the regulatory agencies on the necessary permits and extent of impacts to jurisdictional waters.

San Gorgonio Wind Energy Center, NextEra, Riverside County, California. At a previous firm, served as a project biologist for the initial studies, reporting, permitting, and monitoring for an 800-acre wind energy project.

Conducted jurisdictional waters delineation, reporting, and acquisition of CWA 401 and 404, and CDFW SAA. Focused surveys for rare plants, flat-tailed horned lizard, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP and EA. Produced and implemented a burrowing owl mitigation and monitoring plan. Lead biologist for biological monitors during project construction. Assisted in post-construction bird/bat mortality study setup and habitat restoration monitoring.

Blue Sky Wind Generation Project, Los Angeles County, California. At a previous firm, served as a senior Biologist for a proposed 7,500 acres wind project located within a Los Angeles County-designated Significant Ecological Area. Provided natural resources support that included vegetation mapping, rare plant surveys, avian point counts, and burrowing owl surveys. Produced the biological constraints analysis and the biological resources technical report.

WPP-91 Wind Energy Generation Facility Decommissioning, NextEra, Riverside County, California. At a previous firm, served as a senior biologist for the decommissioning of a 200-acre wind energy facility project. Conducted jurisdictional waters delineation, reporting, and acquisition of CWA 401 and 404, and CDFW SAA. Focused surveys for rare plants, flat-tailed horned lizard, Coachella Valley fringe-toed lizard, and burrowing owl. BLM-approved Field Contact Representative and Designated Biologist during project activities.

Kramer Junction Solar Energy Center, NextEra, San Bernardino County, California. At a previous firm, served as a biologist for a proposed 300-acre solar energy facility. Provided surveys, reporting, and permitting. Focused surveys for rare plants, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP and CESA 2081. Also provided habitat assessment for 20 parcels in the project vicinity for potential mitigation.

Lucerne Valley Solar Energy Center, NextEra, San Bernardino County, California. At a previous firm, served as a biologist for the initial studies and permitting for a proposed 650-acre solar energy facility. Provided focused surveys for rare plants, desert tortoise, and burrowing owls. Prepared biological technical reports in support of EIR and CUP.

Dawn Solar Energy Center, NextEra, Kern County, California. At a previous firm, served as a biologist for the initial studies of a proposed 600-acre solar energy facility. Provided focused surveys for rare plants, desert tortoise, and burrowing owls; conducted a jurisdictional waters delineation; and prepared biological technical reports

SEGS X Expansion Project, NextEra, San Bernardino County, California. At a previous firm, served as a biologist for the initial studies for the proposed expansion of a solar energy facility located north of Harper Dry Lake. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and prepared the technical reports for the project.

Camino Solar Project, Iberdrola, Kern County, California. At a previous firm, served as the senior biologist for the initial studies for a proposed solar energy facility located within the Tylerhorse Wind Project. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and jurisdictional waters delineation, and prepared the technical reports for the project.

Dry Lake Solar Energy Center at Harry Allen, NV Energy, Clark County, Nevada. At a previous firm, served as field biologist for desert tortoise population assessment. Duties included conducting transect surveys; locating burrows; scat identification; health assessments, collecting morphometric data; attaching transmitters; and radio-telemetry.

El Centro Solar Energy Transmission Line Project, Imperial County, California. At a previous firm, served as lead field biologist conducting flat-tailed horned lizard studies. Technical experience included conducting transect surveys; scat identification; handling and collecting morphometric data; attaching transmitters.

Renewable Energy Projects, sPower, Los Angeles and Kern counties, California. At a previous firm, served as senior biologist for the initial studies for multiple small-scale solar energy facilities in the Antelope Valley. Provided general biological surveys, vegetation mapping, jurisdictional waters delineations, and reporting.

Wagner Wind Energy Project, WKN USA, Palm Springs, California. At a previous firm, served as a project biologist for the initial studies, reporting, permitting, and monitoring for a 20-acre wind energy project. Conducted surveys for rare plants, desert tortoise, Le Conte's thrasher, and burrowing owl. Reporting and permitting for MND/CUP. Lead biologist for biological monitors during project construction.

Graham Pass Wind Energy Facility, Riverside County, California. At a previous firm, served as the senior biologist for the initial studies for a proposed wind energy facility located south of Desert Center in critical habitat for desert tortoise. Provided vegetation mapping, habitat assessments, desert tortoise surveys, and the preparation of a Biological Assessment for desert tortoise.

Tehachapi Wind Repower Project, Kern County, California. At a previous firm, served as the senior biologist for the initial studies for a proposed repower of a wind energy facility. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and jurisdictional waters delineation, and prepared the technical reports for the project.

Willow Creek Native Species Monitoring, PG&E, Fresno County, California. At a previous firm, served as a field biologist for native species monitoring to keep the client in compliance with FERC regulations for upstream hydroelectric dams. Provided red-legged frog, western pond turtle, and native fish surveys (included electro-shocking).

Astoria Solar Project Vegetation Management Assistance, Kern County, California. At a previous firm, served as senior biologist for vegetation maintenance guidance that was needed to comply with North American Electric Reliability Commission requirements. Provided vegetation mapping and plant maintenance guidelines for plants beneath and adjacent to the project's gen-tie lines.

Oil and Gas

Third-Party EA Support for Gas Pipeline Maintenance, PG&E, San Bernardino County, California. At a previous firm, served as senior biologist for proposed maintenance of two PG&E gas pipelines in the Mojave Desert. Both pipelines are located on lands managed by the Bureau of Land Management that are regulated by the Desert Renewable Energy Conservation Plan. Provided review of special-status focal survey reports and preparation of biological resources technical reports and sections. The reporting includes impacts and mitigation analysis using the prescribed Conservation and Management Actions.

Jacalito 3D Seismic Survey, Geokinetics, Kern County, California. At a previous firm, served as lead biologist for inventory and monitoring for over 300 square miles in agricultural lands and sensitive native habitats for a seismic survey for oil and gas deposits. Special-status species surveys included blunt-nosed leopard lizard, San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and burrowing owl. The project resulted in zero take of special-status species and impacts to sensitive habitat were limited to the minimal extent possible.

Lake Mendocino 3D Seismic Survey, Geokinetics, Colusa County, California. At a previous firm, served as lead biologist for surveys, reporting, and compliance monitoring oversight for a 500-acre seismic survey project.

Conducted habitat assessments and focused surveys for Swainson's hawk and giant garter snake. Prepared Biological Resources Assessment report and assisted with FWS consultation, and preparation of an IS/MND. Provided oversight of the monitoring effort.

DFM-1815-02 Pipeline Replacement Project, PG&E, Monterey, County, California. At a previous firm, served as the senior biologist for the replacement of an approximately 11-mile natural gas replacement along State Route 68. Provided general surveys, habitat assessment, rare plant surveys, burrowing owl surveys, California red-legged surveys, and prepared the technical reports for the project.

PSEP Line 167-1 Pipeline Replacement, PG&E, Butte County, California. At a previous firm, served as environmental inspector and wildlife monitor for 2.2-mile pipeline replacement that crossed jurisdictional waters and habitat associated with special-status species. Duties included enforcing the SWPPP and other BMP measures to limit the environmental impact of the project and to avoid the take of giant gartersnake and nesting raptors. Provided daily and weekly reporting to the client.

Riverside Energy Resource Center, Unit 3 and 4, Riverside, California. At a previous firm, served as the biologist for the construction of a gas-fired peaking project. Developed a workers environmental awareness plan and provided preconstruction surveys for burrowing owl and nesting birds.

Meter Stations, Kinder Morgan, Kern County, California. At a previous firm, served as lead biologist for proposed meter stations located in the oil and gas fields near Taft. Provided biological surveys, habitat assessments, and reporting for reports required by DOGGR.

Natural Resources Regulation Training, Plains All American, San Bernardino County, California. At a previous firm, served as biologist for delivering natural resources regulation training to the company's California engineers and project managers. Prepared and delivered the training that focused on CEQA, State and federal ESA, and waters regulations.

Water/Wastewater

San Gabriel Reservoir Post-Fire Emergency Restoration Project, Los Angeles County Public Works, Los Angeles County, California. Serving as senior biologist for the emergency removal of sediment from the reservoir due to the potential increase in sediment caused by the Bobcat Fire. Dudek is currently conducting biological surveys for special-status species and has conducted an aquatic resources delineation, jurisdictional determination, and biological constraints report preparation. Also providing support for agency consultation for impacts to special-status species, critical habitat, and jurisdictional waters.

As-Needed Environmental Compliance Services, Los Angeles County Public Works, Los Angeles County, California. Served as senior biologist for multiple road and culvert repair projects that were damaged due to the aftereffects of the Woolsey Fire in the Santa Monica Mountains. Biological services have included biological constraints analysis, jurisdictional waters delineation, nesting bird surveys, and workers environmental awareness program preparation and implementation.

As-Needed Environmental Compliance Services for Federally Funded Projects, Los Angeles County Public Works, Los Angeles County, California. Served and serving as senior biologist for multiple projects that included bridge repairs and road widening, included bridge repair and emergency tree removal do to the effects of the Woolsey Fire in the Santa Monica Mountains. Biological services have included Natural Environment Study – Minimal Impact report preparation, jurisdictional waters delineations, and nesting bird surveys.

As-Needed Environmental Assessment and Air Quality Services Los Angeles County Department of Water and Power, California. Served and serving as senior biologist for multiple projects that included trunkline replacement, transmission line maintenance, and site mitigation analysis. Biological services have included vegetation mapping, habitat assessments, jurisdictional delineations, least Bell's Vireo surveys, Incidental Take Permit application preparation, biological resources technical report preparation, and MND/EIR section preparation.

Western San Bernardino County Distribution System Infrastructure Protection Program PEIR, Metropolitan Water District of Southern California, San Bernardino County, California. Served as a senior biologist for the technical studies and PEIR analysis of the design, construction, operation, and maintenance of Capital Investment Plan projects and preparation and implementation of an Operations and Maintenance Manual for the conveyance and distribution system within the Western San Bernardino County Operating Region. The program study area covers 9,106 acres.

Newport Back Bay Blow Off, Metropolitan Water District of Southern California, Newport Beach, California. Serving as Project Manager and senior biologist for the implementation of the FEIR and permit conditions for the rehabilitation of an existing blow-off structure adjacent to Upper Newport Bay and the San Diego Creek Channel. Oversaw preconstruction surveys, compliance monitoring, and HMMP implementation for onsite and offsite mitigation.

On-Call Biological Services, Los Angeles County Sanitation District, Los Angeles County, California. At a previous firm, served as project biologist for the construction of various water-supply infrastructure in the Antelope Valley and Los Angeles Basin. Duties included the jurisdictional waters delineation of various wetlands and non-wetlands. Also prepared multiple biological resource assessments for a variety of projects, including the vegetation management plan for the sensitive Piute Ponds. Lead the biological monitoring for the construction of the pipeline and reservoirs. Also provided pre-construction surveys for desert tortoise, burrowing owl, American badger, nesting birds and rare plants on over 1,000 acres of the project area.

Water System Master Plan Update, Palmdale Water District, Palmdale, California. At a previous firm, served as senior biologist for the technical studies for an EIR in support of a master plan update for a 43 square mile service area. Provided surveys, studies, and biological technical report preparation. Services provided also included providing CEQA impact-mitigation analysis for the project's EIR and cumulative impacts analysis.

Water Reclamation Facility, City of Morro Bay, Morro Bay, California. At a previous firm, served as senior biologist for a proposed wastewater collection system modifications, a new pumping station, a new force main to convey the raw wastewater to the site, advanced water treatment, recycled water storage and pumping facilities, and injection wells for groundwater replenishment. Provided review of biological resources technical reports, jurisdictional waters delineation reports, and special-status focal survey reports for water reclamation facility located within a local coastal plan. Prepared Biological Resources sections for EIRs, including providing appropriate mitigation measures, and cumulative impacts analysis.

Cogswell Dam Restoration Project, Los Angeles County Public Works, Los Angeles County, California. At a previous firm, served as senior biologist for the proposed sediment removal in the Cogswell Dam Reservoir. Provided jurisdictional waters delineation and reporting for Cogswell Reservoir and adjoining streams, along with rare plant and least Bell's vireo protocol surveys.

Eaton Wash Dam Spillway Access Ramp, Los Angeles County Public Works, Pasadena, California. At a previous firm, served as a field biologist that provided environmental clearance for the commencement of construction of a spillway access ramp. Provided nesting bird surveys and reporting.

Eaton Canyon Reservoir Vegetation Maintenance, Los Angeles County Public Works, Pasadena, California. At a previous firm, served as a field biologist that provided surveys and monitoring for the clearance of vegetation within the reservoir. Duties included least Bell's vireo surveys and monitoring of the vegetation removal.

Sheep Creek Channelization Project, County of San Bernardino Flood Control District, San Bernardino County, California. At a previous firm, served as the biologist for the channelization of a creek within the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, and jurisdictional waters delineation, reporting, and permitting.

Development

Sunridge Project, New Urban West, Santa Clarita, California. Senior biologist for a 980-acre mixed-use development. Overseeing California gnatcatcher surveys, Crotch bumble bee surveys rare plant surveys, western spadefoot surveys, jurisdictional delineations, vegetation mapping, and reporting.

Trails at Lyons Canyon Project Environmental Impact Report, New Urban West, Los Angeles County Department of Regional Planning, Stevenson Ranch, California. Currently serving as a Senior Biologist for a new residential community on approximately 233 acres of undeveloped hillside open space in unincorporated Los Angeles County and within the Santa Susana Mountains/Simi Hills Significant Ecological Area. Produced the Biota Report and guided it through the SEATAC process. Currently providing EIR support.

Clara Oaks Specific Plan Project EIR, Claremont, California. Currently serving as senior biologist for the EIR for the development of 40 custom home residences within an undeveloped portion of the City of Claremont's hillside area. A county-designated Significant Ecological Area is adjacent to the project site. Lead surveys and jurisdictional waters delineation effort, and prepared biological resources technical report and EIR section.

The Meadows at Bailey Canyon, New Urban West, Sierra Madre, California. Served as project biologist for a 17.30-acre residential development that required a Specific Plan and EIR. Provided biological surveys and reporting, and attended community meetings, planning commission meetings, and city council meetings.

Grand Estates Residential Subdivision Project, Glendora, California. Served as project biologist for a 27-acre residential development that required an MND. Provided biological surveys and reporting and attended city council meetings. Currently acting as senior biologist for the CWA 401 and 404

Ranch Storage and Temescal Canyon Road Improvement Project, Rancon Group, Riverside County, California. At a previous firm, served as the project manager and senior biologist for the initial studies of a proposed storage facilities and improvements to the adjacent road. Provided project management, jurisdictional waters delineation and reporting, and a Western Riverside County MSHCP Consistency Analysis and Determination of Biologically Equivalent or Superior Preservation.

Andora Subdivision Project Natural Resources Permitting, Los Angeles, California. At a previous firm, served as the project manager and senior biologist for the natural resources permitting for a proposed 33-lot residential subdivision with an open space lot that was used for mitigation for impacts. Provided project management, jurisdictional waters delineation, rare plant survey, and technical support for a CESA 2081 Incidental Take Permit for Santa Susana tarplant and jurisdictional waters permits. Also prepared the Habitat Mitigation and Monitoring Plan and Land Management Plan for the permits and coordination with agencies. Prepared a Property Analysis Record (PAR) and Land Management Plan in support of establishing a conservation easement on the open space lot.

Coastal Mission 316 West Subdivision Project, KB Homes, San Marcos, California. At a previous firm, served as senior biologist for 67 multifamily dwelling units on approximately 3.71 acres. Provided surveys, reporting, and impact analysis to support an EIR for the project. Consulted with the U.S. Fish and Wildlife Service (USFWS) to avoid California gnatcatcher take.

Faculty and Staff Housing Project, University of California-Irvine, Irvine, California. At a previous firm, served as project manager and biologist for the initial studies, reporting, permitting, and monitoring for a 20-acre wind energy project. Conducted general habitat assessment and vegetation mapping, and surveys for rare plants and burrowing owl. Prepared the biological resources technical report. Lead biologist for biological monitors during project construction.

Lakeshore Town Center, Lake Elsinore, California. At a previous firm, served as senior biologist for the initial studies and permitting for a 24.5-acre mixed-use development on the shore of Lake Elsinore. Conducted general habitat assessment and vegetation mapping, surveys for rare plants and burrowing owl, and jurisdictional waters delineation, reporting, and permitting.

Scholl Canyon Landfill Project, Glendale, California. At a previous firm, served as senior biologist for the initial studies of a new facility within developed and natural lands within the landfill. Provided vegetation mapping, habitat assessment, rare plant survey, protected tree mapping, and biological resources technical report preparation.

Copper Creek North and South, Los Angeles County, California. At a previous firm, served as a biologist for the initial studies of a proposed 484 home residential project that included public parks and an elementary school on 453 acres. Provided surveys and studies for biological technical report, environmental permitting, EIR preparation, and biological monitor Services provided included general and sensitive species surveys, vegetation mapping, rare plant surveys, jurisdictional waters delineation, oak tree surveys, oak tree permit, nesting bird surveys, Initial Study preparation, biological resource analysis, CUP/EIR preparation, agency consultation, and 404, 401, 202(p) permits preparation.

Fagan Canyon Housing Development and Open Space Plan, Centex Homes, Ventura County, California. Project biologist for proposed 2,176-acre housing development and open space plan. Lead the delineation of over five linear miles of perennial riparian, adjacent wetlands, and ephemeral drainages. Lead the oak tree assessment and survey. Conducted rare plant surveys and general biological surveys. Also developed a riparian and wetland restoration plan to mitigate project impacts. Surveyed undeveloped properties in the vicinity for potential mitigation sites.

Soledad Circle Estates, Santa Clarita, California. At a previous firm, served as the project biologist for a proposed 150 multifamily residential unit subdivision in natural lands. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, waters permit application preparation, and biological resources technical report preparation.

Spring Canyon Residential Subdivision, Santa Clarita, California. At a previous firm, served as the project biologist for a proposed 499 multifamily residential unit subdivision on 550 acres of natural lands. Provided vegetation mapping, habitat assessment, rare plant survey, prepared a rare plant translocation plan, oak tree survey, jurisdictional waters delineation and reporting, waters permit application preparation, and biological resources technical report preparation. Also provided a wildlife corridor-habitat linkage analysis along the Interstate 14 in the vicinity of the project and conducted extensive surveys for an 80-acre mitigation parcel located in Violin Canyon.

Stephenson Canyon Residential Project, Los Angeles County, California. At a previous firm, served as a biologist for the initial studies for a proposed residential development in natural lands in the foothills of the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, rare plant survey, oak tree survey, jurisdictional waters delineation and reporting, and biological resources technical report preparation.

Verdugo Ranch Riparian Mitigation, Los Angeles County, California. At a previous firm, served as project manager and biologist for the mitigation plan design, implementation, and monitoring for creation of two acres of riparian habitat within a residential development. Monitored the project for five years and helped meet agency criteria for success.

Gordon Mull Subdivision Project, Glendora, California. At a previous firm, served as the senior biologist for a 71-acre residential project located in natural lands in the foothills of the San Gabriel Mountains. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, and biological resources technical report preparation.

Transportation

Interstate 210 Soundwalls Improvement Projects, City of La Cañada, La Cañada, California. Served as project biologist for several phases of the validation of previously completed Noise Barrier Sound Study Report. Conducted surveys, prepared several NES-Mis, and collaborated with Caltrans biologists.

LOSSAN CP San Onofre to CP Pulgas Double Track Upgrade Project, San Diego County, California. At a previous firm, served as the project biologist for the surveys and reporting for a six-mile portion of CP San Onofre to CP Pulgas railway. Services provided included sensitive and general species surveys, habitat assessments for sensitive species (arroyo toad, quino checkerspot butterfly, and San Diego ambrosia), vegetation mapping, and Biological Assessment preparation for ESA Section 7 consultation.

Riverside Municipal Airport Expansion Project, Riverside, California. At a previous firm, served as the biologist for the proposed expansion of the airport. Provided general biological surveys, rare plants surveys, and burrowing owl surveys. Prepared a biological resources technical report in support of an EIR that provided an impact analysis for sensitive biological resources.

Lynwood Urban Bicycle Trail Project, Los Angeles, California. At a previous firm, served as the senior biologist for a proposed 2-mile bike path that was located on undeveloped Caltrans land adjacent to the 105 Freeway. Provided a biological survey and NES-MI report preparation.

Burbank Bike Path Project, Los Angeles, California. At a previous firm, served as the project manager and biologist for a proposed 3-mile bike path that was located on undeveloped Caltrans land adjacent to the 5 Freeway. Provided a biological survey and NES-MI report preparation.

Azusa Intermodal Parking Facility Project, Azusa, California. At a previous firm, served as the senior biologist for the initial studies for a proposed parking structure. Provided general biological surveys, assisted with the tree survey, and prepared the biological technical report to support the project's EIR.

Los Alamitos Road Interchange Project, Murrieta, California. At a previous firm, served as the biologist for a proposed interchange project on Interstate 15. Provided a biological survey and NES-MI report preparation.

Santa Ysabel Roadway Project, San Diego County, California. At a previous firm, served as senior biologist for roadway improvement project within the Santa Ysabel Reservation. Provided general surveys, habitat assessment, rare plant surveys, vegetation mapping, and prepared the technical reports for the project.

Regional Connector Transit Corridor, Los Angeles County Metropolitan Transportation Authority, Los Angeles, California. At a previous firm, served as senior biologist for the QA/QC of project technical documents and prepared the Biological Resources section of the EIR.

Municipal

Third-Party Review Support, County of Los Angeles Regional Planning, Los Angeles County, California. Serving as a senior biologist that reviews natural resource reports that had been prepared for projects in unincorporated portion of the county. Conducts field visits to some of the projects with the County Biologist.

South Bay Area Plan Program EIR, County of Los Angeles Regional Planning, County of Los Angeles, California. Served as Senior Biologist for the Program EIR for the Los Angeles County South Bay Area Plan, which would guide regional-level growth within the seven unincorporated communities in the South Bay Planning Area. The Program EIR assesses the impacts of the Area Plan and the applicable portion of the Housing Element Update and amendments to Title 22 (Planning and Zoning) of the County Code. The Program EIR analyzed land use and zone changes to facilitate 9,951 new dwelling units and approximately 785,000 square feet of new commercial building area, including neighborhood-scale commercial use within residentially zoned parcels.

Metro Area Plan Program EIR, County of Los Angeles Regional Planning, County of Los Angeles, California. Served as Senior Biologist for the Program EIR for the Los Angeles County Metro Area Plan, which would guide regional-level growth within the seven unincorporated communities in the Metro Planning Area. The Program EIR assesses the impacts of the Area Plan and the applicable portion of the Housing Element Update and amendments to Title 22 (Planning and Zoning) of the County Code. The Program EIR analyzed land use and zone changes to facilitate the development of 30,968 dwelling units and 1,124,731 additional square feet of industrial building area, including neighborhood-scale commercial use within residentially zoned parcels.

Third-Party Review Support, City of Calabasas, Los Angeles County, California. Serving as a senior biologist that reviews natural resource reports that had been prepared for projects in the city. Conducts field visits when needed.

Los Rancho Los Amigos South Campus Project, Los Angeles County Public Works, Downey, California. At a previous firm, served as the senior biologist for the construction of three new County administrative buildings on the Rancho Los Amigos Campus. Provided general surveys and habitat mapping, assisted with bat acoustic surveys, prepared the biological resources technical report, and prepared the Biological Resources section of the EIR for the project.

Adelanto North 2035 Comprehensively Sustainable Plan, City of Adelanto, Adelanto, California. At a previous firm, served as project manager and senior biologist to provide biological support for the development of a community plan for 55 square miles in the City of Adelanto and unincorporated San Bernardino County. Provided biological surveys, vegetation mapping, and reporting.

Park and Recreation Vegetation Maintenance Support, City of Los Angeles, Los Angeles, California. At a previous firm, served as project manager and senior biologist for the maintenance of vegetation within the City of Los Angeles parks. Coordinated with the City to provide nesting bird surveys, nesting bird plans, and monitoring for numerous parks.

Compton Creek Master Plan, City of Compton, Compton, California. Biologist for a master plan for revitalizing Compton Creek. Provided general surveys, habitat assessment, and vegetation mapping, and prepared the biological resources technical report.

Resource Management

Arroyo Toad Study, California Department of Water Resources, Ventura County, California. Served for two years (one at a previous firm) as the senior biologist for an arroyo toad population study in Piru Creek and its tributaries. Conducted a breeding season study to determine the population dynamics of arroyo toad as part of the mitigation for Pyramid Lake. Arroyo toads observed in all life stages and nighttime adult male vocal surveys conducted.

Bixby Marshland Restoration Monitoring, Los Angeles County Sanitation District, Carson, California. Served as project manager and senior biologist over a 14-year span for a 17 acres wetland and upland habitat restoration project. Set up a scientific study to provide statistical analysis of the project's progress in meeting agencies' criteria for success. Provided annual reporting over seven years that included recommended measures to counter any losses of established plants. Prepared and provided a nesting bird-training program to the maintenance crew.

Piute Ponds Maintenance, Los Angeles County Sanitation District, Los Angeles County, California. At a previous firm, served as project biologist for the long-term maintenance of district facilities at the Piute Ponds. Provided surveys, reporting, and impact mitigation analysis for the highly sensitive habitat located within the Mojave Desert.

Desert Tortoise Population and Threat Analysis, Bureau of Land Management, Arizona and Nevada. At a previous firm, served as a field biologist for an assessment of threats on the Gold-Butte Pakoon (Arizona and Nevada) desert tortoise population. Technical experience included conducting transect surveys; locating burrows; scat identification; collecting morphometric data; attaching transmitters; and radio-telemetry.

Fort Irwin Desert Tortoise Headstarting Project, Department of Defense, San Bernardino County, California. At a previous firm, served as a field biologist for the study of juvenile desert tortoises that had been raised in protected pens before being released. Technical experience included conducting health assessments; collecting morphometric data; attaching transmitters; and radio-telemetry.

Communication

Third-Party Review for Verizon Cellular Towers NEPA Compliance, Bureau Veritas, California. At a previous firm, served as senior biologist for the review of No Effect Findings reports for more than 100 proposed cell towers throughout California. For tower locations that were determined to have potential to have an effect on a sensitive biological resource, additional surveys and reporting was conducted, including jurisdictional waters delineations, burrowing owl surveys, desert tortoise surveys, and rare plant surveys.

Cajon Wash Permitting, Verizon, San Bernardino, California. At a previous firm, served as senior biologist for after-the-fact permitting for impacts to the Cajon Wash. Provided vegetation mapping, habitat assessment, rare plant survey, jurisdictional waters delineation and reporting, waters permit application preparation, and agency consultation.

Specialized Training

- Desert Tortoise Health Assessment Training. USFWS. (2015)
- Flat-tailed Horned Lizard Survey Training. Bureau of Land Management

Anna Cassady

BIOLOGICAL RESOURCES | GENERAL

Anna Cassady (*she/her*) has 12 years' experience as a biologist in Southern California specializing in general biological habitat assessments, wildlife surveys, botanical surveys, waters and wetland delineations, and vegetation mapping. She has experience conducting waters and wetland delineation in accordance with methods listed in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the 2008 Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Arid West Region. She has experience with habitat assessments and focused surveys for a variety of special-status species, including least Bell's vireo (*Vireo bellii pusillus*), burrowing owl (*Athene cunicularia*), blunt-nosed leopard lizard (*Gambelia sila*), Crotch's bumble bee (*Bombus crotchii*), and special-status plants.

Anna has experience preparing Western Riverside Multiple-Species Habitat Conservation Plan (MSHCP) consistency documentation and is familiar with the Participating Special Entity (PSE) process. She additionally prepares biological constraints reports, aquatic resource delineation reports, biological resource technical reports, and other documents that support the California Environmental Quality Act (CEQA) process, as well as biological assessments and incidental take permit applications in support of compliance with the federal and California Endangered Species Act.

Education

University of California, Riverside
MS, Evolution, Ecology, and Organismal Biology, 2021

University of California, San Diego
BS, Environmental Systems, Environmental Chemistry, 2014

Certifications

CDFW Scientific Collecting Permit, No. 233100001-23310-001 (issue 2/19/2025, exp 2/20/2028):

- *Western bumble bee (B. occidentalis)*
- *Crotch's bumble bee (B. crotchii)*
- *Suckley's cuckoo bumble bee (B. suckleyi)*
- *Franklin's bumble bee (B. franklini)*

Wetland Delineation I, 40 Hours of Basic Training, Wetland Training Institute (2/10/2017, no expiration)

Professional Affiliations

Western Section of The Wildlife Society, Southern California Chapter

Society for Freshwater Science

Relevant Project Experience

Master Stormwater System Maintenance Program, San Bernardino County Flood Control District, County of San Bernardino, California. Serving as deputy project manager in support of the San Bernardino Flood Control District's Master Stormwater System Maintenance Program. The objective of this program is to receive long-term routine maintenance permits for waters and species impacts for 502 flood control facilities, totaling over 8,000 acres. Following extension-of-staff services provided for the District in 2014 and 2015, assisted with BTR and Environmental Impact Report preparation in support of the District's programmatic permit application for routine maintenance activities. Since 2019, Ms. Cassady has assisted the District with waters and species permitting. This includes preparation of permit applications for an Individual 404 Permit, 401 Certification, and Master Streambed Alteration Agreement; preparation of a biological assessment in support of Section 7 Consultation; preparation of an Incidental Take Permit Application in support of Section 2081; and associated agency coordination. Responsibilities include authoring various technical documents that support the waters and species permitting process; participation in internal, District, and/or agency meetings; conducting complex, technical analysis to characterize the nature of the program's impacts; and bridging communication between support staff and project management.

San Joaquin Field Division Habitat Conservation Plan, California Department of Water Resources, California. Serving as analyst assisting with preparation of an HCP pursuant to Section 10 of the federal Endangered Species Act and state California Endangered Species Act permitting pursuant to Section 2081 of the California Fish and Game Code for the operations and maintenance of the California Aqueduct and associated facilities within the California Department of Water Resources' San Joaquin Field Division. Prior to assistance with the HCP, served as a survey team lead and a survey coordinator for baseline wildlife surveys along a 6,400-acre and 170-linear mile segment of the California Aqueduct. Served as a lead and Level II surveyor for protocol-level surveys for BNLL. Responsibilities included providing logistical guidance at the start of the survey, ensuring that the protocol guidelines were followed, and reporting results and concerns to the survey coordinator following survey completion. In addition, served as the survey coordinator for protocol-level surveys for burrowing owl. Responsibilities included development of a field guide with project and species information, strategy and planning for survey assignments/logistics, writing daily emails with survey information, tracking survey completion and results, and bridging communication between survey teams, support staff, and project management.

Mockingbird Canyon Wash Restoration Project, Riverside County Flood Control and Water Conservation District, Woodcrest, California. Served as a project biologist for this flood control project within the City of Riverside. Conducted a habitat assessment, vegetation mapping, jurisdictional waters delineation, Western Riverside MSHCP consistency, focused least Bell's vireo surveys, and focused special-status plant surveys. Assisted in preparing various environmental reports in support of this project, including the BTR.

Operations and Maintenance Environmental Impact Reports, Metropolitan Water District of Southern California, Orange and San Bernardino Counties, California.

- **Orange County:** Served as project biologist. Conducted a routine jurisdictional waters delineation update and prepared a jurisdictional delineation report.
- **Western San Bernardino County:** Served as a project biologist. Conducted a jurisdictional waters delineation and focused least Bell's vireo surveys. Prepared a jurisdictional delineation report.

Assistance to Regional Conservation Authority in MSHCP Implementation, Western Riverside County Regional Conservation Authority, Riverside, California. Providing extension-of-staff services to the Regional Conservation Authority (RCA), a joint-powers authority that is responsible for implementation of the Western Riverside County MSHCP, an HCP pursuant to Section 10 of the federal Endangered Species Act and a Natural Community Conservation Plan (NCCP) under California's NCCP Act of 2001. The MSHCP is a comprehensive, multijurisdictional HCP focusing on the permanent conservation of 500,000 acres and the protection of 146 species, including 33 that are currently listed as threatened or endangered. Served as contract staff to RCA since 2017, providing ongoing project reviews and consultation on implementation procedures and policies. Responsibilities include review of all development applications within the MSHCP "Criteria Area" pursuant to the MSHCP "Joint Project Review" process; meeting attendance and coordination with project applicants, permittees (17 cities and the County of Riverside), participating special entities (PSE), and other government agencies; and research and consultation in concert with RCA to provide guidance on how projects can achieve MSHCP consistency.

Aida Castro

URBAN FORESTER

Education

Humboldt State University, BS, Environmental Science and Management, 2018

Certifications

International Society of Arboriculture (ISA) Certified Arborist with a Tree Risk Assessment Qualification, No. WE-133396A

Aida Castro (*she/her*) is an urban forestry specialist and certified arborist with 5 years' experience. Aida has knowledge of large-scale inventorying, tree risk assessment, arborist reports, construction monitoring, and field data collection and evaluation utilizing GPS and geographic information system (GIS) technology. She has provided species identification and inspection, as well as evaluation of vegetation along utility power lines. Additionally, she has led teams conducting tree identification and inventory and coordinated with clients and agencies on utility vegetation management projects. Aida utilizes GIS software such as Field Maps, Collector, and Survey123 to analyze collected data.

Project Experience

Joshua Tree Inventory and Evaluations, Various Clients, Southern California. Performed large- and small-scale evaluation of Joshua trees (*Yucca brevifolia*) in communities throughout Southern California. The Joshua tree inventories have been used to produce preservation and relocation plans to meet local jurisdictional and California Department of Fish and Wildlife policies for development impacts.

Oak Tree Inventory and Evaluations, Various Clients, Southern California. Performed large- and small-scale evaluation of oak trees (*Quercus* spp.) in communities throughout Orange, Los Angeles, San Diego, Santa Barbara, and Riverside Counties. Collaborated on arborist reports that included tree data, City regulations, and mitigation requirements for client submittal.

P1&P2, Los Angeles Department of Water and Power, Santa Clarita, California. Responsible for species identification, mapping, and tagging. Identified and marked tree protection zones.

Lake Forest II – The Woods Eucalyptus Health and Structural Assessment, The Woods Homeowner's Association, Lake Forest, California. Evaluated approximately 5,162 eucalyptus trees (*Eucalyptus* spp.) using Level 1 and 2 tree risk assessments.

Summerwind Commons, Calimesa, California. Identified and inventoried all on-site trees that are subject to regulation by the Calimesa Municipal Code for a private development project. Collaborated on an arborist report that included the tree data, City regulations, and mitigation requirements for the client to submit to the City.

Apple Valley Stoddard Wells Warehouse, Covington Investments LLC, Apple Valley, California. Identified and evaluated trees to create an inventory of existing trees for construction development. Collected data such as height, width, health, and structural condition. Results of inventory were used to determine removals, impacted trees, and required mitigation efforts.

Castaic Lake Drawdown Study, California Department of Water Resources, Castaic, California. Identified and evaluated trees near ordinary high-water mark to contribute to ongoing study of effects of lake drawdown on nearby vegetation. Trees are to be evaluated annually to study the long-term change in vegetation.

Tree Inventory and Evaluations, Various Clients, California. Performed large- and small-scale evaluation of trees in communities throughout California. The trees have typically been on City-owned and City-managed rights-of-way, parks, and open space. Provided maintenance specifications and tree-by-tree recommendations for improving tree health.

Eucalyptus Windrow Internal Decay Evaluations, City of Irvine Public Works, Orange County, California. Evaluated the internal tree decay in the City of Irvine's historic eucalyptus windrow trees using PiCUS 3 Sonic Tomography.

Streetscape, Park, and Windrow Tree Inventory and Mapping, City of Irvine Public Works, Orange County, California. Conducted a City-wide tree inventory for more than 50,000 City-owned trees. Recorded attribute information and tree locations using Field Maps paired with an external Bluetooth antenna (EOS Arrow 100) for increased mapping accuracy.

Josh Elson

BIOLOGIST

Josh Elson is a biologist with 5 years' professional experience specializing in wildlife and nesting bird surveys, biological construction monitoring, permitting, and report preparation.

In addition, Josh has worked as a planner with the East Contra Costa County Habitat Conservancy and has experience permitting and implementing land management and habitat restoration projects in parks, preserves, and grazing lands.

Education

Cal Poly San Luis Obispo BS, Environmental Management and Protection, Minor in Spanish, 2017

Project Experience

Development

HCC2 Project, Main Hesperia LLC, San Bernardino County, California. Conducted focused survey for American badger (*Taxidea taxus*) and desert kit fox (*Vulpes macrotis arsipus*) for a development project in Hesperia, California. (2024)

Double Springs Battery Energy Storage Project, Calaveras County, California. Prepared aquatic resources delineation report for battery energy storage project near Valley Springs, California. (2024)

Solstice Solar Project, Fresno County, California. Conducted mapping of burrows potentially suitable for burrowing owl (*Athene cunicularia*), San Joaquin kit fox (*Vulpes macrotis mutica*), and giant kangaroo rat (*Dipodomys ingens*). Conducted rare plant surveys for species including palmate-bracted bird's beak (*Chloropyron palmatum*), recurved larkspur (*Delphinium recurvatum*), and San Joaquin spearscale (*Atriplex joaquinana*). (2024)

Spikes Peak Renewable Energy Project, EDF Renewables, Merced County, California. Assisted in preparation of biological technical report for a solar development project in San Joaquin valley. Special-status species for which impacts were assessed included American badger, burrowing owl, San Joaquin kit fox, Crotch's bumble bee, Swainson's hawk (*Buteo swainsoni*), California tiger salamander (*Ambystoma californiense* pop. 1), and California red-legged frog (*Rana draytonii*). (2024)

Belcaro Sand Canyon Project, New Urban Wests Inc., Santa Clarita, California. Conducted focused native and rare plant surveys for a housing development in Santa Clarita. Target species included Plummer's mariposa-lily (*Calochortus plummerae*), Peirson's morning-glory (*Calystegia peirsonii*), island mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*) and hollyleaf cherry (*Prunus ilicifolia* ssp. *Ilicifolia*). Assisted in conducting focused coastal California gnatcatcher (*Polioptila californica californica*) surveys. (2024)

Hidalgo Solar Project, San Bernardino County, California. Conducted burrowing owl and desert tortoise (*Gopherus agassizii*) presence/absence surveys for solar development project. (2024)

Newhall Ranch Project, Newhall Land and Farming Company, Santa Clarita, California. Participated in conducting continued vegetation mapping and focused native and rare plant surveys for a large-scale housing development in Los Angeles County. Species surveyed for included slender mariposa-lily (*Calochortus clavatus* var. *gracilis*), island mountain mahogany, and hollyleaf cherry. Participated in conducting aquatic resources delineation for potentially jurisdictional water features on site. Participated in focused American badger and burrowing owl surveys. Assisted in preparation of rare plant survey reports, vegetation mapping reports, and aquatic resources delineation reports. (2024)

Equinox Solar Project, NextEra, Clark County, Nevada. Conducted rare plant surveys for large-scale solar development in the Mojave Desert. Species surveyed for included forked buckwheat (*Eriogonum bifurcatum*), blue diamond cholla (*Cylindropuntia multigeniculata*), and Goodding's phacelia (*Phacelia pulchella* var. *gooddingii*). (2024)

Twentynine Palms Solar Project, K&L Gates LLP, San Bernardino County, California. Assisted in conducting general biological reconnaissance survey, vegetation mapping, and desert tortoise presence/absence surveys. Prepared associated letter reports. (2024)

Palmdale 61 Industrial Project, Pacific Industrial, Palmdale, California. Conducted non-breeding season burrowing owl surveys for an industrial development in Palmdale, California. (2024)

Pasadena USD Workforce Housing, Pasadena Unified School District, Pasadena, California. Conducted a general biological reconnaissance survey and prepared the associated biological constraints analysis report for educational workforce housing at site of former elementary school in Pasadena. (2024)

KISS Logistics Center, CH Reality Partners CM LLC, San Bernardino County, California. Conducted Joshua tree (*Yucca brevifolia*) census mapping in accordance with the Western Joshua Tree Conservation Act. (2023)

Fleetwood Drive Development Project, Riverside County, California. Conducted a general biological reconnaissance survey, vegetation mapping, and habitat assessments for special-status plant and wildlife species identified in the Western Riverside County Multiple Species Habitat Conservation Plan. Species habitats for which the site was assessed included burrowing owl, San Bernardino kangaroo rat (*Dipodomys merriami parvus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), San Diego ambrosia (*Ambrosia pumila*), Brand's star phacelia (*Phacelia stellaris*), San Miguel savory (*Clinopodium chandleri*), and listed riparian bird species. (2024)

Strauss Wind Energy Project, BayWa, Santa Barbara County, California. Participated in conducting Gaviota tarplant (*Deinandra increscens* ssp. *villosa)* quantitative monitoring developed for implementation of wind energy project's Incidental Take Permit. (2024)

Rosemead Development Project, City Ventures, Rosemead, California. Conducted a general biological reconnaissance survey and habitat assessment for Crotch's bumble bee and burrowing owl for in-fill development project. Prepared associated biological constraints assessment memorandum. (2024)

Resource Management

Initial Management Action Plan, Rancho Mission Viejo Land Trust, Orange County, California. Assisted with long-term coastal sage scrub vegetation monitoring surveys. Assisted in conducting avian point-count survey for coastal sage scrub, grassland, and riparian bird species for the project. Target species surveyed for during point-count surveys include Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), grasshopper sparrow (*Ammodramus savannarum*), least Bell's vireo (*Vireo bellii pusillus*), coastal California gnatcatcher, yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), and San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), among others. (2024)

Newhall Ranch Spineflower Preserves, Newhall Land and Farming Company, Santa Clarita, California. Conducted annual areal extent and abundance monitoring of San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) at spineflower preserves within the ranch. (2024)

Public Works and Municipal

Ivanhoe Reservoir Repairs, Los Angeles Department of Water and Power, Los Angeles, California. Performed nesting bird checks on great blue heron (*Ardea herodias*) rookery during repairs to the Ivanhoe Reservoir to prevent disturbance to birds and to document nesting activity. Performed pre-construction nesting bird surveys in other parts of project area and served as biological monitor during work activities to prevent disturbance to documented nests. (2024)

Routine Line Clearing, Los Angeles Department of Water and Power, Los Angeles, California. Performed pre-construction nesting bird surveys and served as biological monitor during power line clearing activities within Sennett Creek in Forest Lawn Memorial Park. (2024)

San Francisquito Canyon Road Bridges 518 and 519 Repairs, Los Angeles Department of Water and Power, Los Angeles County, California. Conducted an aquatic resources delineation and vegetation mapping for a bridge repair project adjacent to San Francisquito Creek in Los Angeles County. (2024)

Rio de Los Angeles Field Maintenance Improvements Project, Ohno Construction, Los Angeles, California. Conducted checks to document continued presence of least Bell's vireo within vicinity of park improvements project adjacent to Los Angeles River and to confirm effectiveness of noise barriers implemented for project. Conducted a pre-construction nesting bird survey for tree removal within project area. (2024)

Mojave River Bridge Deck Overlay Maintenance Project, California Department of Transportation, Victorville, California. Prepared bird habitat suitability report to assess suitability of habitat for special-status bird species adjacent to Mojave River bridge maintenance project. (2024)

Tijuana River Trash Booms, Rural Community Assistance Corporation, San Diego County, California. Prepared regulatory and permitting documents to acquire Clean Water Act Section 401 Water Quality Certification/Waste Discharge Requirement from the Regional Water Quality Control Board and a Streambed Alteration Agreement from the California Department of Fish and Wildlife for a garbage remediation project in the Tijuana River. Prepared aquatic resources delineation report update. (2024)

Municipal Waterways Maintenance Plan, City of San Diego Transportation & Stormwater Department, San Diego, California. As part of Dudek's as-needed environmental services contract with the City of San Diego Stormwater Department, drafted various documents to ensure maintenance and repair activities of Municipal Waterways Maintenance Plan flood control facilities. Tasks include drafting aquatic resource delineation reports, agency notifications, and final monitoring reports in conformance with the U.S. Army Corps of Engineers, State Water Resources Control Board/Regional Water Quality Control Board, California Department of Fish and Wildlife, California Coastal Commission, and City of San Diego regulatory requirements, as applicable. (2024–2025)

Benson Reservoir Improvements, City of Chino, Chino, California. Conducted a general biological reconnaissance survey for a municipal water reservoir replacement project in the City of Chino. Prepared biological resources impact analysis in associated California Environmental Quality Act document. (2024)

Relevant Previous Experience

Development

North Richmond Logistics Warehouse Facility, Scannell Properties, Contra Costa County, California. Served as biological/waters monitor for construction activities associated with the development of a logistics warehouse. Construction activities included vegetation removal, grading, and foundation laying. Ensured avoidance of impacts to special-status species with potential to occur such as the federally endangered salt-marsh harvest mouse (*Reithrodontomys raviventris*) and the California Department of Fish and Wildlife fully protected/species of special concern white-tailed kite (*Elanus leucurus*) and northern harrier (*Circus hudsonius*). (2021–2022)

Transmission Right-of-Way Emergency Service Road Repairs, Southern California Edison, Various Locations, California. Served as biologist responsible for conducting pre-construction nesting bird surveys and biological/ waters construction monitoring of crews conducting road maintenance activities on Southern California Edison right-of-way access roads. Construction-monitoring activities included conducting morning and evening sweeps of the construction areas and monitoring crews for compliance during vegetation removal, grading, and slope repair activities. Other activities included establishing environmentally sensitive areas for active nests and monitoring and updating active nests. Reported new nests observed. Field Reporting Environmental Database reports were completed each day to discuss daily monitoring activities and nest updates. Work locations included Ventura County, San Bernardino County, and Fresno County. (2023)

Routine Line Clearing, Southern California Edison, Various Locations, California. Served as biological/waters monitor and conducted pre-construction surveys for tree trimming activities along transmission lines in biologically sensitive areas. Ensured avoidance of impacts to special-status plant species and jurisdictional waters. Work locations included Santa Barbara County and Los Angeles County. (2023)

Habitat Restoration

Grand Cypress Preserve, TI Capital, Oakley, California. Assisted in conducting pre-construction nesting bird and special-status species surveys for large scale wetland creation project along the Sacramento–San Joaquin Delta shoreline. Species surveyed for included northwestern pond turtle (*Actinemys marmorata)*, giant gartersnake (*Thamnophis gigas*), burrowing owl, and Swainson's hawk. Served as biological/waters monitor for construction activities, including vegetation removal, grubbing, grading, excavation, and coffer dam installation. (2021)

Cayetano Creek Mitigation Bank, Collier Creek Mitigation Land LLC, Contra Costa and Alameda Counties, California. Served as biological monitor for construction activities associated with establishment of a wetland mitigation bank. Species monitored for included California tiger salamander and California red-legged frog. (2021–2022)

Eagle Ridge Preserve, Water Hole Land Company, Alameda County, California. Assisted in conducting burrowing owl surveys as part of an annual monitoring event of an annual grassland habitat preserve. Documented positive observations in the California Natural Diversity Database. (2021)

Resource Management

Habitat Conservation Plan/Natural Communities Conservation Plan, ECCCHC, Contra Costa County, California. Implemented the East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan. Responsible for reviewing permit applications and associated biological reports within the plan area, preparing materials for Governing Board and Public Advisory Committee meetings, preparing permitting materials for the preserve management activities of East Contra Costa County Habitat Conservancy (ECCCHC), and coordinating with biologists, contractors, and East Bay Regional Park District to implement preserve management and habitat restoration projects. (2022–2023)

Hess Creek Restoration Project Channel Repair, ECCCHC, Concord, California. Prepared and submitted permitting materials for temporary impacts to water associated with the repair of a drop structure within the channel of the ECCCHC's Hess Creek Restoration Project. Coordinated with project hydrologists, biologists, and contractors to implement repair. Served as biological/waters monitor during project construction to ensure avoidance of impacts to biologically sensitive areas and that all conditions from project permits were met. (2022)

Lower Owens River Project Rapid Assessment Survey, Inyo County Water Department, Independence, California. Served as part of a biological team conducting the annual Rapid Assessment Survey of the Lower Owens River Project. Documented and mapped impacts to the river, including invasive salt cedar (*Tamarix* spp.) and perennial pepper weed (*Lepidium latifolium*) populations, garbage, and evidence of unauthorized recreation or road building. Documented woody recruitment. (2020)

Water/Wastewater

Inyo County/Los Angeles Department of Water and Power Long-Term Water Agreement Vegetation Monitoring, Inyo County Water Department, Independence, California. Served on a team monitoring long-term trends in the vegetation community composition of the Owens Valley pursuant to the Inyo County/Los Angeles Department of Water and Power Long-Term Water Agreement. Conducted line-point transects on vegetation within parcels throughout the Owens Valley and entered data into database. (2020)

Specialized Training

- Basic Wetland Delineation, Wetland Training Institute Inc. 2023.
- Birds of Southern California, Sea and Sage Audubon Society. 2024.

DUDEK

Valerie Goodwin

BIOLOGIST

Valerie Goodwin (*VA-luh-ree GUUD-win; she/her*) is a biologist with seven years professional experience as a marine biologist with an emphasis on oyster restoration. She has provided both biological surveys and technical studies and has monitored construction. Ms. Goodwin is a proficient data analyst with experience using R, PRIMER, JMP, and geographic information systems (GIS).

Education

California State University, Fullerton
MS, Biology, 2023
BS, Biology, 2015

Dudek Project Experience

Crafton Hills Dam Emergency Pipe Repair Project, Department of Water Resources, San Bernardino County, California. Prepared emergency permit applications for the Regional Water Quality Control Board, U.S. Army Corps of Engineers, and California Department of Fish and Wildlife for impacts to jurisdictional resources associated with emergency pipe repair adjacent to the Crafton Hills dam. (2024)

Grand Estates Project, Dreamland Investments LLC, Los Angeles County, California. Assisting with jurisdictional permitting for a residential development project in Glendora, California. Prepared the aquatic resources delineation report (ARDR), coordinated with agencies to determine the appropriate permitting process, and conducted site visits to update the ARDR. (2023–2024)

Delta-San Joaquin Habitat Conservation Plan Wildlife Movement Study, Department of Water Resources, Multiple Locations, California. Developing integrated species distribution models using R statistical software to predict the presence of 11 wildlife species throughout the California Department of Water Resources (DWR) study area. Models integrate presence-only, presence-absence, and count data and predict movement based on known home ranges and a suite of environmental covariates. Assisted in developing a decision-making tool to determine where to recommend implementation of additional wildlife crossings throughout the aqueduct. (2023–2024)

Municipal Waterways Maintenance Plan Project, City of San Diego, California. Prepared the ARDR for three stormwater facilities in San Diego, California ahead of planned maintenance activities. (2023).

Crafton Hills Dam Repair Regulatory Project, DWR, San Bernardino County, California. Currently assisting with Regional Water Quality Control Board, U.S. Army Corps of Engineers, and California Department of Fish and Wildlife permitting applications for impacts to jurisdictional resources associated with improvements to the Crafton Hills dam. (2023)

Ivanhoe Reservoir Great Blue Heron Rookery Nest Checks, Los Angeles Department of Water and Power, Los Angeles, California. Conducted nest checks at a known great blue heron (*Ardea Herodias*) rookery adjacent to construction activities at Ivanhoe reservoir in Silverlake, California. Observed nests and updated the status in the BioCapture application. Incidentally observed yellow warbler (*Setophaga petechia*) visually and auditorily at the project site. (2023)

Whittaker-Bermite Specific Plan, Atlantis Group, Santa Clarita, California. Conducted rare plant surveys at the undeveloped project site. Observed and mapped slender mariposa lily (*Calochortus clavatus var. gracilis*) throughout the project site. (2023)

Foothill Basins Riparian Bird Surveys, Orange County Public Works, Orange County, California. Assisted with riparian bird surveys in three basins in Orange County, California. Auditorily observed Least Bell's Vireo (*Vireo bellii pusillus*), yellow warbler (*Setophaga petechia*), and yellow-breasted chat (*Icteria virens*). Incidentally observed red diamond rattlesnake (*Crotalus ruber*) at the project site. (2023)

Inland Empire North Logistics Center Project, Synergy Consulting, Victorville, California. Conducted protocol desert tortoise (*Gopherus agassizii*) and protocol burrowing owl (*Athene cunicularia*) surveys. (2023)

5th and Victoria Warehouse Project, Patriot Development Partners, Highland, California. Prepared the biological technical report to assess biological resources and potential impacts at the proposed project site. (2023)

Ben Clark Training Center Project, County of Riverside, California. Performed burrowing owl surveys for a law enforcement training center development project in Riverside, California. Detected multiple mating pairs and juveniles. (2022–2023)

Newhall Ranch Spineflower Preserves, Newhall Land and Farming Company, Santa Clarita, California. Currently performing monthly inspections of a three-string fence surrounding two San Fernando spineflower (*Chorizanthe parryi* var. *Fernandina*) preserves adjacent to a residential development project in Santa Clarita, California. Preserves were previously surrounded by chain-link fencing, and inspections are for monitoring the integrity of the new fencing, preserve signage, and signs of trash and trespassing within the preserves. (2022–Ongoing)

Rancho Residence Project, City of Los Angeles, California. Assisted with the general biological reconnaissance survey for a single-family residence project in Los Angeles, California. (2022)

Port of Hueneme Temporary Outdoor Vehicle Storage Facility, City of Oxnard, California. Prepared wildlife and plant potential to occur tables as part of the Environmental Impact Report to assess potential impacts of construction of a temporary outdoor vehicle storage facility in Port Hueneme, California. (2022)

Los Peñasquitos Lagoon Restoration, City of San Diego, California. Provided kayak surface support for a team of SCUBA divers during subtidal habitat surveys in La Jolla, California. Collected water quality data using the YSI multimeter and recorded completed survey extents in the ArcGIS mapping application. (2022)

San Joaquin Habitat Conservation Plan, DWR, California. Prepared the full species account for the endangered Kern mallow (*Eremalche parryi* spp. *kernensis*) as part of the baseline biology report for the San Joaquin Habitat Conservation Plan. (2022)

World Logistics Center Project, Highland Fairview Properties, Riverside County, California. Assisted the agency-approved biologist with small-rodent trapping for the purpose of detecting Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) for a development project in Moreno Valley, California. (2022)

Newhall Ranch Project, Newhall Land and Farming Company, Santa Clarita, California. Participated in focused slender mariposa lily surveys for a residential development project in Santa Clarita, California. Flowers were flagged and counted so that the bulbs could be detected and relocated at a later date. (2022)

Talbert Regional Park Master Plan Project, Orange County Parks Department, Newport Beach, California. Assisted in the general biological reconnaissance survey and vegetation mapping for a habitat restoration and park enhancement project in Costa Mesa, California. (2022)

The Heights of Calimesa Specific Plan, Aspire Homes LLC, Riverside County, California. Performed the burrowing owl survey for a residential development project in Calimesa, California. (2022)

Marquette Residence Project, City of Los Angeles, California. Assisted with the general biological reconnaissance survey for a single-family residence development project in Los Angeles, California. (2022)

San Gabriel Reservoir Post Fire Emergency Restoration Project, Los Angeles County Public Works, Los Angeles County, California. Currently assisting with the relocation of special-status aquatic species as a part of impact avoidance and minimization for the San Gabriel Reservoir Post Fire Emergency Restoration Project, a state-declared emergency project for the removal of 4.9 million cubic yards of sediment from the San Gabriel Reservoir. Relocated species have included the federally listed Santa Ana sucker (*Catostomus santaanae*), California species of Special Concern Santa Ana speckled dace (*Rhinichthys osculus* ssp.) and arroyo chub (*Gila orcutti*), and rainbow trout (*Oncorhynchus mykiss*) under the supervision of an agency-approved biologist. Fish relocation methods have been in accordance with a relocation plan approved by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife and have included electro fishing, seining, and dip netting, with fish released at resource-agency-approved release sites in the upper San Gabriel River watershed. Conducting biological monitoring of construction activities and water quality monitoring to assist in the avoidance and minimization of impacts to biological resources. Incidentally observed juvenile and adult bald eagles (*Haliaeetus leucocephalus*). (2021–Ongoing)

State Water Project, DWR, California. Performed focused adult and juvenile blunt-nosed leopard lizard (*Gambelia sila*) surveys in the California Central Valley. (2021)

Mission Bay Supplemental Environmental Project, City of San Diego, California. Prepared the technical report assessing the feasibility of restoring native Olympia oysters *(Ostrea lurida*) in Mission Bay in San Diego, California as part of restoration efforts associated with the Mission Bay Park Master Plan. Reviewed relevant literature and all additional planned restoration projects , and a multi-parameter water quality data collector was deployed to determine restoration feasibility and the cost of multiple oyster restoration approaches. In addition, a pilot restoration plan was proposed to study restoration success *in situ*. (2021)

Relevant Previous Experience

San Diego Bay Living Shorelines Project, Port of San Diego, California. Co-lead field surveys to assess native Olympia oyster and non-native Pacific oyster densities and tidal distribution on recently restored concrete reef balls in San Diego Bay.

Upper Newport Bay Living Shorelines Restoration Project, California State University-Fullerton, Newport Bay, California. Collaborated with scientists and stakeholders to monitor the Living Shorelines project in Upper Newport Bay using restored native Olympia oyster beds and eelgrass meadows. Conducted human activity surveys and

monitored oyster density and recruitment on restored oyster beds and adjacent sedimentation as a metric of shoreline stabilization.

Smithsonian Tropical Research Institute, Bocas del Toro, Panama. As a research technician, conducted an experiment to analyze the cold temperature tolerance of various tropical sea urchin species. Assisted in the laboratory rearing of sea urchin larvae to analyze development at various temperatures.

California State University Long Beach, Laboratory Technician. Quantified belowground biomass from sediment cores prior to sediment augmentation in Seal Beach, California. Assisted in live and dead invertebrate core sorting, beach seining, and sediment characteristic surveys. Conducted an experiment to analyze burrowing behavior of an invasive marine isopod.

Southern California Coastal Water Research Project, Costa Mesa. As a research technician, provided data support to the staff freshwater ecologist. Assisted in management and analysis of large data sets using Microsoft Access, Microsoft Excel, PRIMER, SAS, and R, and ArcGIS software.

Specialized Training

- Birding 101, March 2022. Los Angeles Birders.
- Basic Wetland Delineation Course, February 2022. Wetland Training Institute Inc.

Publications

Goodwin, V. 2023. "Interacting effects of recruitment, eelgrass (*Zostera marina*), and human activity on restored Olympia oyster (*Ostrea lurida*) beds and their provision of ecosystem services." Master's Thesis; California State University, Fullerton. https://zenodo.org/records/10426465

Collin, Rachel; Redina, Francesco; Goodwin, Valerie; McCabe, Samantha. 2018. "Do tropical specialist sea urchins have higher thermal tolerances and optimal temperatures than their more widely distributed relatives?" *Marine Ecology Progress Series* 589: 153-166. https://www.int-res.com/abstracts/meps/v589/p153-166

Presentations

Goodwin, Valerie. "Bivalve bodyguards: eelgrass *Zostera marina* meadows buffer high energy boat wakes and reduce degradation to Olympia oyster *Ostrea lurida* beds constructed for a Living Shorelines project." Oral presentation delivered at Aquaculture: Triennial Meeting of the National Shellfisheries Association, San Diego, CA, March 2022.

Goodwin, Valerie. "High energy boat wakes negatively impact Olympia oyster (*Ostrea lurida*) beds constructed for a Living Shorelines project." Poster presented at the Annual Meeting of the Western Society of Naturalists, Virtual, November 2020.

Goodwin, Valerie. "Habitat selection by invasive isopod." Poster presented at the Annual Meeting of the Western Society of Naturalists, Sacramento, CA, November 2015.

Goodwin, Valerie. "Relationships between invasive isopod *Sphaeroma quoyanum* and burrow density." Poster presented at the Annual Meeting of the Southern California Academy of Sciences, Los Angeles, CA, May 2015.

Sunamita Leming

BIOLOGIST

Sunamita Leming (*SUE-nah-MEE-tah LEH-ming; she/her*) has 3 years' professional experience as a biologist specializing in general biological habitat assessments, wildlife surveys, botanical surveys, jurisdictional aquatic resource delineations, and vegetation community classification and mapping throughout Southern and Central California. Sunamita has conducted focused and protocol-level surveys for burrowing owl (*Athene cunicularia*), Crotch's bumble bee (*Bombus crotchii*), and special-status plants. Sunamita has experience in research and writing biological technical documents in accordance with the California Environmental Quality Act/ National Environmental Policy Act process.

Education

Point Loma Nazarene University
BS, Biology

Mira Costa College
AS, Sustainable Landscape and Agriculture

Professional Affiliations

California Native Plant Society

The Nature Conservancy

Pollinator Partnership

Nature Collective

Project Experience

Development

Indian Creek Associates, Valley Center, California. Served as a field biologist. Conducted vegetation mapping, jurisdictional aquatic resources delineations, and rare plant surveys. Assisted in preparation of biological resources technical report and aquatic resources delineation report.

Newhall Ranch Surveys Project, Newhall Land and Farming Company, Santa Clarita, California. Served as a field biologist. Conducted annual vegetation relevè surveys, vegetation mapping, and rare plant surveys for San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*). Assisted in preparation of technical reports.

Rancho del Otay LLC, Otay Mesa, California. Served as a field biologist. Assisted in field surveys for various species of butterfly, including the endangered quino checkerspot butterfly (*Euphydryas editha quino*) and its host plants under the supervision of permitted biologists in preparation for ongoing host plant mapping.

Whittaker-Bermite Specific Plan, Atlantis Group and New Urban West, Santa Clarita, California. Served as a field biologist. Assisted with focused Crotch's bumble bee surveys.

Energy

San Pasqual AT&T New Fiber Construction Service Project, Pechanga Indian Tribe, San Bernardino County, California. Served as field biologist. Assisted in field reconnaissance and vegetation mapping. Assisted in drafting technical reports.

Confidential Project, Confidential Client, San Bernardino County, California. Served as field biologist. Assisted in conducting rare plant surveys for sensitive species, including Parish's phacelia (*Phacelia parishii*), small-flowered androstephium (*Androstephium breviflorum*), and Mojave monkeyflower (*Diplacus mohavensis*).

Confidential Project, Confidential Client, San Diego County, California. Served as project biologist. Organized and led biological resource baseline surveys for a variety of species. Authored due diligence memorandum in support of the project.

Communication Tower, County of San Diego, AJM Ecological Solutions LLC, Otay Mesa, California. Performed habitat assessment and associated protocol surveys for burrowing owl. Authored a burrowing owl technical report.

Natural Resource Management

Coastal Sage Scrub Vegetation Monitoring, Rancho Mission Viejo Land Trust, Orange County, California. Assisted with field surveys and residual dry matter monitoring for a large-scale coastal sage scrub vegetation monitoring effort within the Rancho Mission Viejo preserve to characterize and document species' presence and abundance for long-term tracking of coastal sage scrub health.

Nelson Sloan Quarry Restoration, California Department of Parks and Recreation, San Diego, California. Served as field biologist. Assisted with focused plant surveys to detect quino checkerspot butterfly host-plant populations, including dot-seed plantain (*Plantago erecta*).

Temecula Mitigation Project, County of Riverside, California. Served as field biologist. Assisted with vegetation mapping and jurisdictional aquatic resources delineations. Authored biological resources constraints report.

Recreation

Otay Valley Regional Park Active Recreation Area 3, County of San Diego Department of Parks and Recreation, San Diego, California. Served as a field biologist. Assisted in field reconnaissance, vegetation mapping, jurisdictional aquatic resource delineations, and focused Crotch's bumble bee surveys. Assisted in preparation of the biological resources technical report and authored the aquatic resources delineation report.

Dilip Mahto

ENVIRONMENTAL COMPLIANCE MONITOR

Education

Mumbai University

MS, Botany (Plant Physiology and Biochemistry)

MS, Botany

Dilip Mahto has more than 12 years of environmental consulting experience in Southern California. Mr. Mahto has experience conducting nesting bird surveys in various habitats, including coastal sage scrub, chaparral, riparian, and desert vegetation communities. He also has experience with sensitive bird species, including California gnatcatcher (*Polioptila californica*), least Bell's vireo (*Vireo bellii pusillus*), least tern (*Sternula antillarum*), and snowy plovers (*Charadrius nivosus*). Mr. Mahto has training and experience working with desert species such as desert tortoise, flat tailed horned lizard, San Joaquin kit fox and desert kit fox. Mr. Mahto also has extensive experience in supporting environmental compliance for construction, renewable energy, and transmission projects.

Project Experience

Development

El Moro Campground and Beach, Crystal Cove State Park, California. As a biological monitor, performed biological construction monitoring for the El Moro Campground construction project to ensure compliance with CEQA/NEPA regulations and permits. Project included campsite construction next to lifeguard tower construction at Crystal Cove State Park and beach. Worked closely with the construction and labor crew, reporting project progress and concerns to the project inspector on a daily and monthly basis. Assisted with planning and managing habitat restoration programs for the project. (2009–2011)

Historic District Cottages Construction Project, Laguna Beach, California. As an avian monitor, performed pre-construction nesting bird surveys and monitored a Cooper's hawk (*Accipiter cooperii*) and a raven (*Corvus corax*) nest during construction renovation of historic district cottages. The Cooper's hawk had three hatchlings, and the raven nest had two hatchlings. Monitored the hatchlings until the Cooper's hawk nest fledged. (2010)

Lifeguard Tower Construction, Crystal Cove State Park, California. As a biological monitor, surveyed and monitored snowy plovers daily at Crystal Cove State Beach during a beach concrete foundation removal and lifeguard tower construction. Project lasted for eight months and was under the guidance of Orange Coast District Senior Scientist David Pryor. (2010–2011)

Energy

Solar Project, Confidential Client, Kern County, California. Approximately 760 MW of Photovoltaic Solar. Wildlife Biologist/Biological Monitor. Conducted line transect and clearance surveys for sensitive species including desert tortoise, kit foxes, and burrowing owl prior to construction activities. Monitored and recorded breeding/nesting behavior of avian species during construction activity according to the Migratory Bird Treaty Act and associated permit requirements. Monitored known desert tortoise habitat during construction activities to minimize and avoid adverse impacts to sensitive species and associated habitat. Facilitated construction personnel compliance with federal, state, and local environmental regulations and associated permits.

Solar Power Project, Confidential Client, Riverside County, California. Conducted clearance surveys for desert tortoise and desert kit fox in accordance with USFWS protocol. Performed biological monitoring during ground-disturbing construction activities. Advised construction personnel on specific mitigation requirements pertaining to desert tortoise (Gopherus agassizii) and desert kit fox (Vulpes macrotis), conducted wildlife and nesting bird surveys, relocated wildlife from the construction area, and completed daily monitoring reports. Implemented protective measures for sensitive resources on site, including no-disturbance buffers, passive relocation of desert kit foxes during the non-natal season, and den excavation.

Tehachapi Renewable Transmission Project (TRTP) Segments 7 and 8, Southern California Edison (SCE), Los Angeles County, California. As a biologist, performed biological construction monitoring, nesting bird surveys, and nest monitoring in occupied habitats of California gnatcatcher, least Bell's vireo, burrowing owl (*Athene cunicularia*), desert kit fox (*Vulpes macrotis*) and Bakersfield cactus (*Opuntia treleasei*). The power line construction consisted of activities such as vegetation clearing, drilling, sheet piling, excavation, foundation excavation, foundation pouring, road grading, tower erection, wire pull, and best management practice (BMP) installation and maintenance. Equipment used was excavators, backhoe, front loaders, sheep foot compactors, D9 scrapers, bucket trucks, cranes, drills, hauling trucks, and work trucks. (2013–2016)

TRTP Segments 6 and 11, SCE, Angeles National Forest, California. As a biologist, performed biological construction monitoring at segments 6 and 11 in the Angeles National Forest. The construction consisted of drilling, foundation excavation, road grading, tower assembly, tower erecting, and BMP installation and maintenance. Equipment used were sky cranes, K-max helicopters, backhoe, front loader, sheep foot compactors, bulldozers, scrapers, bucket trucks, cranes, drills, hauling trucks, and work trucks. (2014)

Chino Hills Underground Civil/Cable Project (CHUG)–TRTP, SCE, Chino Hills, California. Served as biologist and performed biological construction monitoring, nesting bird surveys, and nest monitoring on Chino Hills UG Civil/Cable project. The Chino Hill Underground power line project is the first of its kind in the United States and is a 3.9-mile underground cable installation project. The construction comprised of underground drilling, excavation, trenching, road grading, compaction, concrete pouring, and BMP installation and maintenance. Equipment used were underground drilling equipment, backhoe, front loader, sheep foot compactors, bulldozers, D9s, scrapers, bucket trucks, cranes, drills, hauling trucks, and work trucks. (2014–2016)

East Kern Wind Resource Area (EKWRA), SCE, Kern County, California. As a biologist, performed biological construction monitoring and pre-construction surveys in occupied habitats of desert tortoise, Mohave ground squirrel (*Xerospermophilus mohavensis*), burrowing owl, desert kit fox and Bakersfield cactus. The construction mostly consisted of pole installation/removal and activities such as drilling, underground drilling, grading, tower erection, wire pull, and BMP installation and maintenance. Equipment used was backhoe, bucket trucks, cranes, drills, hauling trucks, and work trucks. (2013–2014)

Devers–Palo Verde 2 (DPV2) Power Line, SCE, Devers, Riverside County, California. Served as monitor and was responsible for monitoring construction compliance, writing daily reports, and conducting daily clearance sweep in occupied and model habitat of desert tortoise, desert kit fox, burrowing owl, Coachella Valley fringed-toed lizard (*Uma inornata),* Stephens' kangaroo rat (*Dipodomys stephensi*), and Coachella Valley milk vetch (*Astragalus lentiginosus var. coachellae*). Construction activities involved trenching, vegetation removal, drilling, tower concrete pouring, tower erection, tower assembly, road and pad grading, and BMP installation in desert tortoise model and occupied habitat. The heavy equipment used were backhoes, cranes, bull dozers, scrapers, brush hogs, drills, cement trucks, skid steers/bobcats. (2012)

Sunrise Powerlink, San Diego Gas & Electric (SDG&E), San Diego and Imperial Counties, California. Served as biologist and performed construction monitoring in accordance with California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) regulation in occupied habitat of endangered and listed species, including bighorn sheep (*Ovis canadensis*), flat-tail horned lizard (*Phrynosoma mcallii*), golden eagle (*Aquila chrysaetos*), California gnatcatcher, arroyo toad (*Bufo californicus*), legless lizard, Coronado skink (*Plestiodon skiltonianus interparietalis*), coast horned lizard (*Phrynosoma coronatum*), barefoot banded gecko (*Coleonyx switaki*), rosy boa (*Lichanura trivirgata*), red diamond rattlesnake (*Crotalus ruber*), loggerhead shrike (*Lanius ludovicianus*), and burrowing owl. The construction activity included grading, drilling, vegetation clearing, concrete pouring, and tower assembly, as well as tower erection on ground and with the help of helicopters. (2011–2012)

Downs Substation, SCE, Ridgecrest, California. As a biologist, performed biological construction monitoring in occupied habitats of desert tortoise, burrowing owl and desert kit fox. The construction comprised of substation reconstruction and activities such as drilling, grading, tower erection, wire pull, and BMP installation and maintenance. Equipment used were backhoe, bucket trucks, cranes, drills, haul trucks, and work trucks. (2015)
EMT Retrofit project, SCE, Lucerne Valley, California. As a biologist, performed protocol survey for nesting birds, desert tortoise, American badger (*Taxidea taxus*), and burrowing owl with positive desert tortoise burrows and scat along with multiple nests. (2015)

Transportation

Interstate (I)-405 Sepulveda Pass Widening Project, Los Angeles County, California. As a biological monitor, completed safety training and performed construction monitoring. Chambers Group provided environmental services for the Kiewit Infrastructure West I-405 widening project. The project was comprised of 10 miles of road widening, bridge structure demolitions, and utility relocations through the Sepulveda overpass in Los Angeles, from the I-10 freeway to the US-101 Freeway. The environmental tasks associated with this project included coordination with the California Department of Fish and Wildlife (CDFW) and the California Department of Transportation (Caltrans) for surveys including sensitive plants, vegetation communities, native trees, nesting birds, bats (day and night), and sensitive species constraints mapping on both sides of the I-405 freeway. Daily memo reports were submitted to CDFW. (2011)

Resource Management

California Pocket Mouse (*Chaetodipus californicus*) Habitat Enhancement Project, San Clemente State Beach, California. Served as nesting bird monitor approved and assigned by CDFW. Performed presence/absence survey and monitoring for state-listed species California gnatcatcher at San Clemente State Beach during habitat enhancement of California pocket mouse. Project involved brush-clearing to create breeding and foraging space for federally endangered species California pocket mouse. The project was approved by CDFW and executed by California State Parks using state prison fire crews. (2009–2011)

California Gnatcatcher Survey, Crystal Cove State Park, California. As nesting bird surveyor, performed nest monitoring, surveying and bird count by bird call with visual sighting along the coast of Crystal Cove State Park for consecutive seasons. Found 36 nesting pairs of California gnatcatcher in one survey season and 96 individuals in second season along the Laguna Beach coast and inland. Served under the guidance of David Pryor, Senior Scientist, Orange Coast District.

Parcel One Weed Abatement, San Onofre State Beach, California. As a biological monitor, performed audio/visual bird count surveys and monitored weed abatement activity for state endangered species California Gnatcatcher at

San Onofre State Beach, Parcel One. As biologist, observed and recorded two nesting pairs during the three-day monitoring. (2011)

Least Tern Habitat Enhancement and Management, Huntington Beach, California. As nest surveyor/avian monitor, performed habitat management operations such as chick fencing and fence enhancement monitoring and maintenance during nesting season. Duties included adding preventive and protective measures for least tern chicks from predators. As biologist, monitored nests and bird activity during fencing and habitat enhancement operations.

Specialized Training

- California red-legged from (*Rana draytonii*) workshop. 2014.
- Flat-tail horned lizard biological monitoring handling workshop. 2014.
- Desert tortoise surveying, monitoring, and handling techniques workshop, Desert Tortoise Council.
- Certificate course in CEQA, University of San Diego Extension. Held by ICF International.
- Identification training for barefoot banded gecko on Sunrise Powerlink Project. San Diego, California.
- Identification training for bighorn sheep on Sunrise Powerlink Project. San Diego, California.
- Identification training for quino checkerspot butterfly (*Euphydryas editha quino*) larvae, habitat, and dependent plant species on Sunrise Powerlink project. San Diego, California.
- Environmental awareness training, including biological resources, water and air quality, fire management, hazardous materials, environmental sensitive areas (ESAs) on Sunrise Powerlink project. San Diego, California.
- Helicopter passenger boarding trained

Max Murray

BIOLOGICAL RESOURCES | HERPETOLOGY LEAD

Max Murray is a fisheries and wildlife biologist with 10 years' experience specializing in technical surveys and reporting for projects in California and Arizona. Max's experience includes conducting habitat assessments and biological resources impact analyses for native and special-status species. Max specializes in conducting surveys for native freshwater fishes utilizing active and passive techniques. Additionally, he has extensive experience working with amphibians, reptiles, nesting birds, marine mammals, and water quality monitoring.

Max Murray is an experienced project manager with a strong background in engaging with clients, managing tasks, leading field efforts, and coordinating with regulatory agencies. He has prepared biological technical reports for projects requiring compliance with local, regional, and federal regulatory agencies. Max's unique experiences have enabled him to build teams that solve complex problems and deliver solutions to project challenges.

Education

University of California, Los Angeles
MS, Biology (2019)

California State University Long Beach
BS, Marine Biology (2012)

Permits

CDFW Scientific Collecting Permit, No. S-213140001-24016-001, S-213140001-22263-001

(issued: 9/19/2024, expires: 9/19/2027)

Electrofishing Principles and Safety Certification (issued: 8/2024, no expiration)

Professional Affiliations

Board Member of the Southern California Academy of Sciences (2023–Present)

Member of the American Fisheries Society (2022–Present)

Member of the Desert Fishes Council (2016–Present)

Relevant Experience

Whittaker–Bermite Specific Plan, Atlantis Group and New Urban West, Santa Clarita, California. Led and conducted a wildlife and herpetological survey for a 1,000-acre property in Santa Clarita Valley. Western spadefoot (*Spea hammondii*) larvae were observed throughout the site. (2023–Present)

Monitoring Activities for the Management Action Plan, Rancho Mission Viejo Land Trust, San Jauan Capistrano, California. The 2024-2029 Management Action Plan (MAP) has been prepared pursuant to the Southern Subregion Habitat Conservation Plan (Southern HCP) and the San Juan Creek/Western San Mateo Creek Special Area Management Plan (SAMP) to demonstrate its compliance with the terms of the Southern HCP Conservation Strategy, the Implementation Agreement, Incidental Take Permit (TE144140-0), and the SAMP Long Term 404 Permit (SPL-1999-16236). Dudek is contracted to perform monitoring activities in the Rancho Mission Viejo Habitat Reserve lands as described in the MAP. Mr. Murray led and conducted focused surveys for special status wildlife and assisted in the preparation of the Annual MAP monitoring Report.

- **Western Spadefoot Survey.** Conducted western spadefoot habitat assessments in San Juan Creek, Los Patrones Parkway and Chiquita Canyon basins and Verdugo Canyon. Led diurnal survey efforts focused on monitoring breeding activities, and tadpole presence in breeding pools throughout the Habitat Reserve. (2024)
- **Arroyo Toad Monitoring.** Conducted breeding initiation surveys to confirm arroyo toad (*Anaxyrus californicus*) breeding activity. Led arroyo toad monitoring efforts in accordance with the Marine Corps Base (MCB) Camp

Pendleton protocol which was developed and described in Brehme et al. 2006 and subsequent annual reports prepared for MCB Camp Pendleton by the U.S. Geological Survey. (2024–Present)

- **Southwestern Pond Turtle Survey.** Conducted eDNA sampling to confirm presence/absence of southwestern pond turtle within San Juan Creek. Additional presence/absence surveys were conducted at reference populations that are known to be occupied by southwestern pond turtles. (2024–Present)

San Gabriel Reservoir Post-Fire Emergency Restoration Project, Los Angeles County Public Works, Los Angeles County, California. Authorized Biologist (2022-0020323-S7-F) and Principal Investigator (S-213140001-22263-001) currently leading the relocation and translocation of special-status aquatic species as a part of impact avoidance and minimization for the San Gabriel Reservoir Post-Fire Emergency Restoration Project, a state-declared emergency project for the removal of 4.9 million cubic yards of sediment from the San Gabriel Reservoir. Relocated species have included the federally listed Santa Ana sucker (*Catostomus santaanae*), California species of Special Concern Santa Ana speckled dace (*Rhinichthys osculus* ssp.) and arroyo chub (*Gila orcutti*), rainbow trout (*Oncorhynchus mykiss*), two-striped gartersnake (*Thamnophis hammondii*) and southwestern pond turtle (*Actinemys pallida*). Relocation methods have been in accordance with a U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) approved relocation plan and have included electroshocking, seining, and dip-netting, with animals released at resource agency–approved release sites in the upper San Gabriel River. Translocation activities have focused on the capture of Santa Ana sucker from the San Gabriel Reservoir in order to establish a population in previously unoccupied habitat upstream of Cogswell Dam in the Upper West Fork of the San Gabriel River. Genetic samples were collected from a sample of the translocated suckers and delivered to U.S. Geological Survey (USGS) geneticists to help evaluate the genetics of the translocated population. (2022–2024)

Focused Surveys and Construction Monitoring, Orange County Public Works Environmental On-Call, Orange County, California. Orange County Public Works (OCPW) has various projects that require planned vegetation maintenance, sediment removal, and other ground-disturbing activities. OCPW Operations and Maintenance crews removed vegetation and sediment from Peter's Canyon Channel, the Lower Santa Ana River, and various flood control basins within Orange County to restore flood capacity. Conducted pre-construction surveys and monitoring before and during maintenance activities. (2022–2024)

- **Southwestern Pond Turtle Survey.** Conducted a pre-construction southwestern pond turtle habitat assessment and trapping within the Peter's Canyon Channel. No native species were observed or captured during the surveys.
- **Least Bell's Vireo and Nesting Bird Surveys.** Conducted focused surveys for least Bell's vireo and nesting bird surveys for various flood control basins along the Santa Ana Mountains, for the Prima v-ditch replacement, and for the Santa Ana River sediment removal efforts. Least Bell's vireo, yellow warbler (*Setophaga petechia*), and yellow-breasted chat (*Icteria virens*) were observed during focused surveys.
- **Construction Monitoring.** Conducted biological monitoring during maintenance activities. Coordinated with maintenance foreman and OCPW staff regarding the on-site biological resources. Also acted as lead monitor and coordinated additional monitors to monitor construction and maintenance activities and assist the crews in reducing impacts to sensitive biological resources.

Specialized Training

- Master-level California Red-legged Frog Workshop, The Wildlife Project, 2025
- Rare Pond Species Survey Techniques Workshop, Laguna de Santa Rosa Foundation, 2025
- Mojave Desert Tortoise Workshop, 2014

Kimberly Narel

BIOLOGICAL RESOURCES | GENERAL

Kimberly Narel (*KIM-ber-lee na-REL*; *she/her*) is a biologist with 9 years' professional experience in biological environmental consulting. She conducts avian nest surveys, habitat assessments, biological monitoring, and protocol-level special-status species surveys. Kimberly has experience coordinating with state and federal agencies throughout the United States on behalf of the Federal Communications Commission and in support of Section 7 Endangered Species Act consultation pursuant to the National Environmental Policy Act (NEPA). She prepares various biological resources technical reports and documents in accordance with California Environmental Quality Act (CEQA) and NEPA processes.

Kimberly has strong field skills, with experience conducting habitat assessments and avian nesting surveys throughout the Pacific Northwest and the Southwest. She specializes in marine and terrestrial wildlife with a concentration on Southern California species. She has professional training and volunteer experience with special-status species, including Mojave desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), arroyo toad (*Anaxyrus californicus*), blunt-nosed leopard lizard (*Gambelia sila*), California red-legged frog (*Rana draytonii*), Crotch's bumble bee (*Bombus crotchii*), marine mammals, rare plants, and least Bell's vireo (*Vireo bellii pusillus*), as well as trapping for southwestern pond turtle (*Actinemys pallida*) and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), throughout California.

Kimberly is also experienced with Habitat Conservation Plan (HCP) processes. She has worked under the Western Riverside County Multiple Species HCP on Joint Project Reviews, the County of Orange Central/Coastal Natural Community Conservation Plan and Southern Subregion HCP, the County of San Diego (South County) Subarea Plan, and the City of San Diego Multiple Species Conservation Subarea Plan.

Relevant Project Experience

Municipal

Bedford Canyon Channel Project, Riverside County Flood Control District, Corona, California. Conducted focused burrowing owl surveys per Western Riverside County Multiple Species HCP protocols and drafted the California Department of Fish and Wildlife (CDFW) burrowing owl survey report. Assisted in conducting a bat presence/absence survey using visual and acoustic (sonar) analysis. Prepared the determination of biologically equivalent or superior preservation (DBESP) report. (2022–2024)

Education

University of California, San Diego
BS, Biology: Ecology, Behavior and Evolution; Minor, Environmental Systems; 2014

Certifications

Wetland Delineator (issued: 2022, no expiration)

SCUBA Autonomous Diver (issued: 2010, no expiration)

Occupational Safety and Health Administration (OSHA) 40-Hour HAZWOPER

(issued: 2016, refreshed annually)

Cetacean Naturalist (issued: 2019, no expiration)

Marine Corps Base Camp Pendleton Range Safety Officer (issued: 2024, expires: 2027)

Professional Affiliations

The Wildlife Society

American Cetacean Society

The Xerces Society for Invertebrate Conservation

Big Dalton Dam and San Dimas Dam Helipad and Access Road Improvement Projects, Los Angeles County Department of Power and Water, Los Angeles, California. Conducted a biological reconnaissance and prepared a biological constraints due diligence memorandum detailing existing biological resources, recommended focused species surveys, mitigation measures, and applicable local, regional, state, and federal policies. (2021)

Effluent Transmission Main Air Valve Replacement Project, South Orange County Wastewater Authority, Orange County, California. Conducted a biological reconnaissance and prepared the biological technical report. (2024)

El Toro Water District Pump Station and Joint Transmission Main Project, El Toro Water District, Laguna Woods, California. Completed a biological reconnaissance and prepared the biological resources section of the initial study (IS)/mitigated negative declaration (MND) to incorporate survey results and analyze proposed project impacts under Appendix G of the CEQA Guidelines. (2022)

Moulton Niguel Water District Salinity Management Project, Laguna Niguel, California. Conducted a biological reconnaissance and prepared the biological resources section of the IS/MND. (2024)

North Coast Interceptor Reach 5 Replacement Project, City of Laguna Beach, Laguna Beach, California. Conducted a biological reconnaissance and focused least Bell's vireo surveys, and assisted in preparing the biological letter report and biological resources section of the IS/MND. (2024)

Peters Canyon Wash Maintenance Project, Orange County Public Works, Irvine, California. Conducted biological monitoring, active acoustic bat presence/absence surveys, and trapping for western pond turtles. Conducted biological monitoring during vegetation maintenance and sediment removal activities. Prepared biological survey and monitoring results reports. (2022–2024)

Regional Treatment Plant Salinity Management System, Moulton Niguel Water District, California. Conducted the biological reconnaissance and prepared the biological resources section of an IS/MND pursuant to CEQA Appendix G Guidelines. (2023–2024)

Wastewater Treatment Facility and Utility infrastructure Project, Sycuan Band of the Kumeyaay Nation, San Diego, California. Assisted in conducting focused diurnal and nocturnal arroyo toad surveys in Sweetwater River in support of a proposed utility corridor and sewer collection system in the Sycuan Reservation. (2023)

Well 25 Treatment Site Project, Western Municipal Water District, Riverside, California. Conducted a biological reconnaissance and prepared a NEPA-compliant biological technical memorandum to analyze biological constraints for municipal groundwater well and treatment plant improvements. (2023)

Planning

Regional Conservation Authority, Western Riverside County Multiple Species HCP–Joint Project Review, Riverside, California. Assisted in reviewing projects located within a Criteria Area of the Western Riverside County Multiple Species HCP for project consistency on behalf of the Regional Conservation Authority. (2023–2024)

Tracy Park

BIOLOGICAL RESOURCES | GENERAL

Tracy Park (*she/her*) is a biologist with 9 years' experience with focused wildlife and botanical surveys, jurisdictional delineation (JD) of aquatic resources, construction monitoring, vegetation mapping, environmental research, and report preparation. Tracy enjoys working with a broad range of floral and faunal taxa, with significant experience surveying for desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), arroyo toad (*Anaxyrus californicus*), least Bell's vireo (*Vireo bellii pusillus*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), Gaviota tarplant (*Deinandra increscens* ssp. *villosa*), southern tarplant (*Centromadia parryi* ssp. *australis*), and slender mariposa lily (*Calochortus clavatus* var. *gracilis*). As a mid-level biologist with Dudek, she coordinates field surveys and prepares a broad range of biological reporting such as biological constraints analyses, biological technical reports (BTRs), focused survey reports, aquatic resources delineation reports, and biological sections of environmental impact reports (EIRs) and mitigated negative declarations (MNDs).

Education

University of California, San Diego

BS, Environmental Systems, Ecology Behavior and Evolution, 2014

Permits

CDFW Plant Voucher Collecting Permit, No. 2081(a)-25-108-V (issued: 4/14/2025, expires: 12/31/2027)

Relevant Project Experience

On-Call Environmental Services, Los Angeles Department of Water and Power (LADWP), California. Under the LADWP on-call contract, performs a wide variety of tasks for several projects and facilities, including implementation of a post-construction plan within sensitive salt marsh and scrub habitat in support of a coastal development permit for the Haynes Inlet Channel project; focused bat surveys for Valley Generating Station demolition project; rare plant surveys, formal JDs, and arroyo toad surveys for the Power Plant 1 and Power Plant 2 transmission line upgrade project; habitat assessments and biological constraints analysis for the Encino Reservoir Fire Break project; vegetation mapping, habitat assessments, least Bell's vireo surveys, and brown-headed cowbird trapping for the Van Norman Complex routine maintenance project; habitat assessments, focused burrowing owl surveys, and rare plant surveys for the De Soto Tanks project; rare plant surveys, reference population checks, JDs, vegetation mapping, and vernal pool mapping within the 1,092-acre Chatsworth Reservoir facilities; preparation of an EIR for the McCullough-Victorville transmission line project, which extends from San Bernardino County to the California-Nevada border; conducted a JD and California red-legged frog (*Rana draytonii*) monitoring for the Power Plant 1 bank stabilization project. Other on-call tasks include nesting bird surveys, vegetation mapping, general biological reconnaissance surveys, habitat assessments, construction and vegetation removal monitoring, wildlife camera monitoring, hawk extractions, and biological constraints analyses for various LADWP projects and facilities. (October 2017–Present)

Middle Piru Creek Arroyo Toad Monitoring Project, California Department of Water Resources, Los Angeles County, California. Conducted focused arroyo toad surveys in occupied habitat within Middle Piru Creek and Agua Blanca Creek, Los Angeles County, California. Documented evidence of arroyo toad breeding (i.e., egg strands, larvae, metamorphosed juveniles, amplexus) and all observations of arroyo toad adults. Other sensitive species documented include two-striped garter snake (*Thamnophis hammondii*) and western pond turtle (*Actinemys pallida*). (March–June 2020)

Old Road over Castaic Creek Bridge Repair Project, LA County DPW, Los Angeles County, California. Conducted focused arroyo toad and focused bat surveys for a bridge seismic retrofit project over Castaic Creek in Santa Clarita Valley. Focused bat surveys included a roost assessment, emergence survey, and active and passive acoustic monitoring for sensitive bat species. Common bat species detected during the surveys include Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), canyon bat (*Parastrellus hesperus*), and Mexican free-tailed bat (*Tadarida brasiliensis*). Led field coordination and prepared the California Department of Transportation Natural Environment Study. (April 2019–June 2019)

San Gabriel Canyon Reservoir Post-Fire Emergency Restoration, LA County DPW, Los Angeles County, California. Conducted vegetation mapping, habitat assessments, construction monitoring, and focused least Bell's vireo surveys for an emergency reservoir sediment removal project in unincorporated Los Angeles County. (December 2020–September 2021)

Confidential Project, BayWa, Santa Barbara County, California. Conducted raptor and eagle point-count surveys of proposed turbine locations, vegetation mapping, a formal JD of aquatic resources, native grassland mapping, rare plant surveys, and focused Gaviota tarplant surveys in 2018–2023. Other sensitive species documented include paniculate tarplant (*Deinandra paniculata*), black-flowered figwort (*Scrophularia atrata*), globe-fruited La Purissima manzanita (*Arctostaphylos purissima* ssp. *globosa*), Humboldt's lily (*Lilium humboldtii*), American badger (*Taxidea taxus*), grasshopper sparrow, and golden eagle (*Aquila chrysaetos*), among others. Approved as a Designated Botanist for monitoring of Gaviota tarplant and other rare plant species under the California Endangered Species Act Incidental Take Permit for the project. Led field efforts for Gaviota tarplant quantitative monitoring developed for implementation of the Incidental Take Permit in 2022, 2023, and 2024. (June 2018–August 2024)

Newhall Ranch Residential, Newhall Land and Farming Company, Santa Clarita, California. Serves as field lead, coordinating survey efforts for preserves within the development. Conducts quarterly photo-documentation visits, annual vegetation relevé surveys, and annual Newhall sunflower census surveys for the Middle Canyon Spring at Newhall Ranch. Prepares the botanical section of the annual monitoring reports. Conducted annual areal extent and quantitative monitoring of San Fernando Valley spineflower at spineflower preserves within the ranch in 2018, 2019, and 2020. Conducted spineflower pollination surveys in 2019. Conducted vegetation mapping and focused native and rare plant surveys for an 1,870-acre development. Also updated vegetation mapping for other proposed developments within the ranch. Served as field lead for slender mariposa lily mapping survey in support of lily salvage efforts at several proposed developments. Conducted a formal JD of the Santa Clara River for the Commerce Center Drive Bridge Project. (June 2018–Present)

Whittaker–Bermite Specific Plan, Atlantis Group and New Urban West, Santa Clarita, California. Led and conducted vegetation mapping and rare plant surveys for a 1,000-acre property in Santa Clarita Valley. Assisted with focused Crotch bumblebee (*Bombus crotchii*) surveys. Sensitive species encountered during surveys include slender mariposa lily, Plummer's mariposa lily (*Calochortus plummerae*), Peirson's morning glory (*Calystegia peirsonii*), and western spadefoot (*Spea hammondii*). (March 2023–July 2024)

Conejo Summit Project, Thousand Oaks, California. Led and conducted rare plant surveys for an approximately 50-acre property in Thousand Oaks. Sensitive species encountered during surveys include Catalina mariposa lily (*Calochortus catalinae*) and Conejo dudleya (*Dudleya parva*). Also conducted the plant population reference checks for species encountered during surveys, as well as other target species such as Lyon's pentachaeta (*Pentachaeta lyonii*), Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*), Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*), Conejo buckwheat (*Eriogonum crocatum*), and Verity's dudleya (*Dudleya verityi*). (March–July 2023)

Zarina Pringle

BIOLOGIST I

Zarina Pringle (*she/her*) is a biologist with 5 years' experience in terrestrial biology specializing in botanical surveys, soil characterization, and technical writing and research. Ms. Pringle has experience in a wide variety of subjects including focused rare plant surveys; wetland delineations; focused burrowing owl (*Athene cunicularia*), desert tortoise (*Gopherus agassizii*) , and Crotch's bumble bee (*Bombus crotchii*) surveys; identifying plants to the species level using a dichotomous key and knowledge of California plant taxa; invasive plant management; vegetation mapping; geographic information system (GIS) mapping; data management; and wildlife game camera photo tagging. Ms. Pringle has assisted in the preparation of biological technical reports, aquatic resources delineation reports, and other technical documents in support of the California Environmental Quality Act and National Environmental Policy Act processes.

Education

University of California, Santa Cruz
BS, Ecology and Evolution
2020

Certifications

Basic Wetland Delineation, the Wetland Training Institute, 2023

California Red-legged Frog Level II workshop, California, The Wildlife Project-in progress

Professional Affiliations

The Wildlife Society

Dudek Project Experience

Energy

Confidential Energy Storage Project, Confidential Client, California. Scheduled and conducted all 2023 fieldwork for the project, including a biological reconnaissance survey, vegetation mapping, and burrowing owl surveys. Coordinated with Dudek staff to complete all fieldwork and communicated all pertinent information and biological survey findings to the project manager. (2023)

Confidential Solar Energy Project, Confidential Client, California. Assisted Phil Scoles, a wetland delineation expert, and Dudek biologists with the extensive wetland and jurisdictional delineation on site. This included implementing soil and hydrology characterization and hydrophytic plant identification methods to delineate wetland boundaries in a complex site with problematic soils. Assisted in field data collection and the data quality assurance/quality control process. (2023)

Confidential Solar Energy Project, Confidential Client, Nevada. Assisted in the extensive wetland and jurisdictional delineation on site. This included implementing soil and hydrology characterization and hydrophytic plant identification methods to delineate wetland boundaries in a complex site with problematic soils. Assisted with field data collection and daily fieldwork coordination. (2023)

Confidential Wind Power Mitigation Project, Confidential Client, Lompoc, California. Assisted in ongoing quantitative monitoring efforts for the federally endangered Gaviota tar plant (*Deinandra increscens* ssp. *villosa*) at the mitigation project site. Surveys included establishing new plots, monitoring existing plots, and collecting quantitative data including cover estimates, invasive plant documentation, vegetation community characterization, and residual dry matter. (2023)

Confidential Solar Energy Project, Confidential Client, California. Assisted with rare plant surveys. (2022)

Confidential Solar Energy Project, Confidential Client, Nevada. Assisted with vegetation/invasive species mapping, and rare plant surveys. (2022)

Housing

HumanGood Affordable Housing, HumanGood Affordable Housing, Vista, California. Took the lead in completing the biological technical report and the aquatic resources delineation report for the project. Coordinated with GIS, other Dudek biologists, and the senior reviewer to address all comments and submit the deliverables in a timely manner. (2023)

Aquabella, Highland Fairview Operating Company, Moreno Valley, California. Assisted with field surveys for burrowing owl and Crotch's bumble bee, including burrow mapping and collecting qualitative and quantitative floral resources data on site. (2023)

On-Call Professional Environmental Services, City of Yucaipa, California. Conducted focused rare plant surveys for the Wine County Specific Plan and Yucaipa Freeway Corridor Specific Plan. Conducted research and literature review for the potential of special-status plant and wildlife species to occur within the project area and provided general writing support for the baseline technical report for the Wine County Specific Plan. (2022–2023)

Mesa Verde Biological Services, Mesa Verde Owner LLC, Mesa Verde, California. Assisted with rare plant surveys and preparing the biological technical report. (2022)

Industrial

Inland Empire North Logistics Center, FGFW IV LLC, Apple Valley/Victorville, California. Conducted focused rare plant, desert native plant, desert tortoise, burrowing owl, and Crotch's bumble bee surveys for the Inland Empire North Logistics Center Project. Assisted in preparing the existing biological conditions report, which involved synthesizing survey data for this project and a related adjacent project, Apple Valley 143, into a concise and informative document. (2023)

Yucca Terrace, Yucca Terrace Investors LLC, Hesperia, California. Conducted the rare plant survey for the site, identifying species in the field when possible, and collecting specimens to be identified in the office using dissecting tools and dichotomous keys when necessary. Assisted in the preparation of the biological technical report. (2023)

Phelan 20 Acres, Cambria 60 Partners LLC, Hesperia, California. Assisted in the biological reconnaissance, vegetation mapping, jurisdictional delineation, and focused desert tortoise surveys for the project. Additionally, assisted in preparing the biological technical report and aquatic resources delineation report. (2023)

NW Apple Valley Due Diligence, Uncommon Developers, Apple Valley, California. Assisted with technical writing and background research for the aquatic resources delineation report. Conducted research and literature review for the potential of special-status plant and wildlife species to occur within the project area as part of the preparation of the biological technical report. (2022)

Siemen's Pomona Project, City of Pomona, California. Performed field reconnaissance for sensitive plant and wildlife resources within the project area. Assisted with background literature review in support of biological reports. (2022)

World Logistics Center-Jurisdictional Delineation and Permitting, Highland Fairview Operating Co., Moreno Valley. Provided research and technical writing support for the alternatives analysis report as part of the wetlands regulatory permitting phase. (2022)

Ranchero Road Warehouse, Covington Group Inc., Hesperia, California. Assisted with rare plant surveys. (2022)

Resource Management

Slender Horned Spineflower Restoration Program, San Bernardino Valley Water Conservation District, Redlands, California. Assisted Dudek restoration specialists in surveys to collect data on existing populations of the federally endangered slender horned spineflower (*Dodecahema leptoceras*) within the San Bernardino Valley Water Conservation District preserve. Identified and mapped a new, previously unknown, population of slender horned spineflower and identified and mapped areas with high restoration potential. (2023)

Salton Sea North Lake Pilot Demonstration, County of Riverside, California. Assisted in a wetland delineation and vegetation mapping on the north shore of the Salton Sea in support of the Dudek engineering group's North Shore Beach and Yacht Club restoration pilot project. The wetland delineation was a critical step in moving forward with geotechnical studies necessary for the project. (2023)

Kern County Mitigation Site Evaluation, California Department of Water Resources, Multiple Locations, California. Provided research and writing support for the biological opportunities and constraints report. (2022)

Roblar Road Quarry, John Barella, Cotati, California. Assisted with rare plant surveys. (2022)

Tribal

Federated Indians of Graton Rancheria Learning Center at Fairfield Osborn Preserve, Sonoma State University, Penngrove, California. Conducted a focused rare plant survey prior to the start of construction and conducted construction monitoring during the preserve renovation. This included daily pre-construction surveys to identify any wildlife hazards and sensitive biological resources, including California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylii*) special-status plants, roosting bats, and nesting birds. Identified and relocated foothill yellow-legged frogs and non-special status frogs and toads present on site and instructed crew on best management practices. Coordinated with construction crew members, job foreman, project manager, and the California Department of Fish and Wildlife to develop avoidance and minimization measures to protect foothill yellow-legged frog during construction activities. Assisted in preparing the compliance report. (2022–2023)

Waste Management

California Environmental Quality Act Analysis for the Turlock Organics Facility, Divert Inc., Turlock, California. Conducted research and literature review for the potential of special-status plant and wildlife species to occur within the project area as part of the preparation of the biological technical report. (2022)

Water

Upper Wildwood Creek Basin Groundwater Recharge and Water Management Project, City of Yucaipa, California. Conducted the rare plant survey for the site, identifying species in the field when possible, and collecting specimens to be identified in the office using dissecting tools and dichotomous keys when necessary. Prepared a botanical letter report. (2023)

San Joaquin Habitat Conservation Plan, California Department of Water Resources, Multiple Locations, California. Conducted focused rare plant surveys within the project area, accurately identifying both common and rare plant species in the field to collect high quality field data; conducted research on rare plant species and listed wildlife found within the project area and wrote detailed technical species accounts to be included in the San Joaquin Habitat Conservation Plan and Baseline Biology Report; assisted with a San Joaquin kit fox (*Vulpes macrotis mutica*) study and a general wildlife movement study by reviewing wildlife photos captured by game cameras, accurately identifying a wide variety of bird, mammal, and lizard species and tagging photos accordingly. (2022)

El Camino Real/Encinitas Creek Channel Maintenance, City of Encinitas, California Assisted with vegetation mapping and a jurisdictional delineation of aquatic features in the restored wetland in support of long-term monitoring efforts. (2022)

Delta Habitat Conservation Plan, California Department of Water Resources, Multiple Locations, California. Conducted focused rare plant surveys within the project area; assisted with dry season branchiopod surveys within the project area and helped coordinate daily team efforts to ensure efficiency and accuracy of survey methods covering large areas. Contributed to the project's successful completion of deliverables by conducting research and technical writing for the vegetation communities section of the biological resources report. (2022)

Crossover Pipeline Realignment Project, San Diego County Water Authority, Escondido, California. Conducted research and literature review for the potential of special-status plant and wildlife species to occur within the project area in support of biological technical reports for the project. (2022)

Relevant Previous Experience

Field Data Specialist, Bureau of Land Management, Remote. Worked closely with Bureau of Land Management (BLM) Nevada state leads to generate summaries of Assessment, Inventory and Monitoring (AIM) ecological data. Responsibilities required the use of database queries and ArcMap functions to extract specific land health indicator data from larger datasets and Microsoft Excel spreadsheets to compile, organize, and summarize data into succinct, usable formats. This process is designed to make AIM data more accessible and aid BLM project leads in making decisions regarding grazing and mining permit renewals and land restoration projects. (2021–2022)

Assessment Inventory and Monitoring Program, BLM, Various Locations, Nevada. Collected ecological field data using BLM AIM survey techniques. Consistently stayed ahead of monitoring deadlines while adapting to changing timelines and field conditions. Duties required navigation to and from sample plots using GPS, driving, and hiking on rugged terrain, and collecting high quality ecological data under extreme high desert field conditions. Became proficient in all core and many supplemental AIM data collection methods for vegetation and soils, including written assessments of rangeland health indicators. Conducted thorough botanical surveys and grouped species into their respective functional groups. Wildlife survey duties included identifying and reporting evidence of small mammals, grazing herbivores, reptiles, birds, and insects. Office duties included accurate data entry and data quality assurance and control. (2021)

Land Management, LandPaths, Rosa, California. Assisted in the Land Stewardship program on LandPaths preserves across Sonoma County. Duties included working in sensitive habitats, removing invasive plant species to preserve the engendered Pennell's bird's-beak (*Cordylanthus tenuis* ssp. *capillaris*) and to help restore native grasslands and oak woodlands. Identified and removed invasive plant species using both manual and mechanical means and used a hand-held GPS unit to gather positional data to create maps tracking invasive species removal progress over time. Additional duties included trail maintenance, reviewing wildlife game camera footage, animal identification, and game camera data entry and management. (2019)

Specialized Training

- **Basic Wetland Delineation, The Wetland Training Institute, Orange County, California, 2023.** The course included 24 hours of lecture material and 16 hour of fieldwork that satisfies the requirements for basic wetland delineation training as specified by the U.S. Army Corps of Engineers. The course covered the technical guidelines for wetland delineations; field indicators of hydrophytic vegetation, hydric soils, and wetland hydrology; methods for making jurisdictional determinations; and methods to apply in difficult situations.
- **California Compositae, The Jepson Herbarium, Berkeley, California, 2023.** The course included 16 hours of lecture and plant keying practice. Material covered the morphological characteristics of composites (the Asteraceae family), including a review of terms used in descriptions and keys, a synopsis of diversity within Compositae, and recognition of tribes. Additionally, the course included hands on identification of a wide diversity of spring-flowering composites, thereby gaining familiarity with the different group keys in the Jepson eFlora treatment and diving deeper into characteristics of the family.
- **California Red-Legged Frog Level II Workshop, The Wildlife Project, Various Locations, California, 2022-2023.** This is a field-based workshop in which biologists meet in four locations in California over a 12-month period. Workshop covered techniques for identification of California red-legged frog (*Rana draytonii)* at all life stages and safe survey and handling techniques. Also covers California red-legged frog habitat, life cycle, and latest research. As part of this workshop, Ms. Pringle performed successful dipnet surveys for larvae and eye-shine surveys for adults, including successful identification, catching, and handling of adult California red-legged frog. Other species encountered during this workshop include California tiger salamander (*Ambystoma californiense*), western pond turtle (*Actinemys marmorata*), and California fairy shrimp (*Linderiella occidentalis*). The workshop covered identification techniques, safe handling, and life history and habitat information about these species as well.
- **Alameda Whipsnake Identification, Ecology, and Mitigation Protocols, WRA Inc., Remote, 2022.** Attended a training that covered identification, ecology, and mitigation protocols for Alameda whipsnake (*Masticophis lateralis euryxanthus*).
- **Assessment Inventory and Monitoring, BLM, Reno, Nevada, 2021**. This training conducted by the Great Basin Institute in partnership with the BLM included both quantitative and qualitative standardized monitoring techniques for assessing natural resources on BLM public lands. Some of these techniques include line point intercept, canopy gap, plant species richness, and soil characterization.

Presentations

Pringle, Z. 2022. "Identifying the Most Common Types of Sagebrush in Nevada using Blacklight." Presented at the Great Basin Institute as part of the Spring 2022 Assessment Inventory and Monitoring field season training. Reno, Nevada.

Jacob A. Rogers

BIOLOGICAL RESOURCES | BATS

Jacob Rogers (*he/him*) is a biologist with 9 years' professional experience specializing in bats. Jacob is experienced in special-status species surveys, habitat assessments, wetland delineations, and SCUBA diving. He has worked in diverse environments including consulting, government, and academia, in 10 different states. Jacob is also an experienced desktop biologist utilizing statistical analysis, bioacoustic technology, and geographic information system (GIS).

Education

Texas State University, MS, Wildlife Ecology, 2020

Eastern Michigan University, BS, Environmental Biology, 2016

Certifications

National Wetland Institute Basic Wetland Delineator (issued: 3/4/2022; no expiration)

Professional Affiliations

North American Society for Bat Research

The Wildlife Society

California and Western Bat Working Group

Association of Environmental Professionals

Merlin Tuttle's Bat Conservation

Southeastern Bat Diversity Network

Bat Conservation International

AmeriCorps

Relevant Previous Experience

Bats and Other Sensitive Species Surveys

Confidential Solar Project, Confidential Client, Northern Nevada. Served as task manager and bat biologist. Conducted pre-construction roost assessments, bat emergence surveys, and acoustic monitoring surveys for a potential solar field in Nevada. The results of the survey were analyzed using Sonobat 4 software and included in a report of findings, including any minimization measures to reduce potential project-related impacts (2025).

Confidential Solar Project, Confidential Client, Western Nevada. Served as task manager and bat biologist. Conducted pre-construction roost assessments, bat emergence surveys, and acoustic monitoring surveys for a potential solar field in Nevada. The results of the survey were analyzed using Sonobat 4 software and included in a report of findings, including any minimization measures to reduce potential project-related impacts (2024).

Plaster City Mine Expansion, United States Gypsum Company, Ocotillo Wells, California. Served as task manager and bat biologist. Conducted roost assessments, bat emergence surveys, and acoustic monitoring surveys for a to expand a gypsum mine. The results of the survey were analyzed using Sonobat 4 software and included in a report of findings, including any minimization measures to reduce potential project-related impacts (2024).

Pomona Corporate Yard Facility, City of Pomona, Los Angeles County, California. Served as task manager and bat biologist. Conducted pre-construction roost assessments, bat emergence surveys, and acoustic monitoring surveys for a potential solar field in Nevada. The results of the survey were analyzed using Sonobat 4 software and included in a report of findings, including any minimization measures to reduce potential project-related impacts (2024).

Newhall Land and Farm Trust Project, Five Point, LLC, Los Angeles County, California. Served as task manager and bat biologist. Conducted a series of pre-construction roost assessments, bat emergence surveys, and extensive acoustic monitoring surveys for a potential solar field in Nevada. The results of the survey were analyzed using

Sonobat 4 software and included in a report of findings, including any minimization measures to reduce potential project-related impacts (2024).

Graduate Research Assistant, Texas State University Wildlife Ecology Lab, Department of Biology. Conducted mist-netting, radio tracking, and habitat assessment of evening bats (*Nycticeius humeralis*). Quantified bat activity based on management practices and habitat types through acoustic sampling. Mentored six undergraduate assistants on research methods, analysis, and field skills. (2017–2020)

Bat Field Technician, U.S. Forest Service Southern Research Station, Clemson, South Carolina. Conducted mist-netting, radio tracking, harp trapping, and acoustic sampling of bats. Monitored bat roosts through emergence surveys, Anabat Roost Loggers, and Lotek Wireless technology. (2017)

Bat Research Assistant, Eastern Michigan University Bat Lab, Department of Biology. Documented the bat community of Pictured Rocks National Lakeshore in the Upper Peninsula of Michigan through mist-netting, banding, and radio tracking. Conducted mist-netting presence/absence surveys of threatened and endangered bat species as part of a project to expand a wind energy facility. Surveyed hibernating bats in abandoned copper mines of western Upper Michigan. (2016)

Natural Resource Data Management Intern, Student Conservation Association and AmeriCorps Internship Program, U.S. Fish & Wildlife Service, Wheeler National Wildlife Refuge Complex, Alabama, and Big Branch Marsh National Wildlife Refuge, Louisiana. Conducted a series of mobile acoustic surveys and emergence counts of cave-dwelling bats. Performed bat, fish, and avian (waterfowl and whooping crane [*Grus americana*]) sampling to inform wildlife management. (2015)

Publications

Rogers, J., M. Parker, and S. Fritts. 2023. "Bats Captured in a Protected Wildlife Refuge Used Trees in a Human-Dominated Landscape as Maternity Roosts." *Journal for Fish and Wildlife Management*. *In press*.

Presentations

Urban Tree Roost Use by Evening Bats in Texas. 2019. Oral presentation delivered at the 49th North American Symposium on Bat Research, Kalamazoo, Michigan.

Summer Roost Ecology of Evening Bats on the Gulf Coast of Texas. 2019. Poster presented at the 54th Texas Chapter of The Wildlife Society Conference, Montgomery, Texas.

Summer Roost Ecology of Evening Bats on the Gulf Coast of Texas. 2018. Poster presented at the 48th North American Symposium on Bat Research, Puerto Vallarta, Mexico.

Rafinesque Big-eared Bat Roosting Ecology, a Threatened Mammal in Texas. 2018. Poster presented at the 53rd Texas Chapter of The Wildlife Society Conference, Dallas, Texas.

Roost Use by Corynorhinus rafinesquii *in an Upland Forest of South Carolina.* 2017. Poster presented at the 47th North American Symposium on Bat Research, Knoxville, Tennessee.

A Search for Myotis septentrionalis *at Pictured Rocks National Lakeshore.* 2016. Poster presented at the 46th North American Symposium on Bat Research, San Antonio, Texas.

Eilleen Salas

BIOLOGIST

Eilleen Salas is a field biologist with 5 years' experience conducting fieldwork in botanical and wildlife biological surveys, including but not limited to protocol wildlife surveys for California gnatcatcher (*Polioptila californica*), least Bell's vireo (*Vireo bellii pusillus*), and desert tortoise (*Gopherus agassizii*); biological habitat assessments; focused rare plant surveys; and vegetation mapping. Ms. Salas is certified in California Rapid Assessment Method (CRAM) for riverine and depressional wetlands. She is skilled in plant, insect, and bird identification, as well as benthic macroinvertebrate and diatom taxonomy.

Education

California State University, Long Beach
MS, Biology, 2022
BS, Biology, 2013

Certifications

California Rapid Assessment Method (CRAM)

Professional Affiliations

Society of Environmental Toxicology and Chemistry

Society of Freshwater Scientists

Society of Wetland Scientists

Project Experience

Los Angeles Department of Public Works San Gabriel Reservoir Post-Fire Emergency Restoration Project, Los Angeles County, California. Conducted focused protocol surveys for the special-status species least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*). Performed a pre-construction survey prior to vegetation removal of the upper basin where sediment will be placed. Additionally, assisted with vegetation mapping for approximately 1.93 square miles of this project area.

Department of Water Resources San Joaquin Habitat Conservation Project, Central Valley, California. Performed various wildlife surveys for an approximately 132-mile stretch along the California Aqueduct. Species surveys for this project included threatened and federally protected blunt-nose leopard lizard (*Gambelia sila*) protocol surveys, burrowing owl (*Athene cunicularia*) surveys, and American badger (*Taxidea taxus*) and San Joaquin kit fox (*Vulpes macrotis mutica*) burrow surveys.

On-Call Environmental Services, Los Angeles Department of Water and Power, California. Performed on-call tasks such as general biological reconnaissance and due diligence surveys, nesting bird surveys, vegetation mapping, habitat assessments, pre-construction clearance surveys, construction monitoring, wildlife camera studies, and hawk extractions for several Los Angeles Department of Water and Power facilities and projects. Prepared associated reporting.

Lake Elsinore Back Bay, Lake Elsinore California. Conducted riparian bird surveys including least Bell's vireo protocol surveys. Performed rare plant target surveys in a portion of a 2,100-acre study area within Lake Elsinore Back Bay. Target species included Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Hammitt's clay-cress (*Sibaropsis hammittii*), and round-leaved filaree (*California macrophylla*).

Hesperia Commerce Center II Project, City of Hesperia, California. Performed a two-day desert tortoise protocol survey by walking transects spaced 10–15 meters apart across the proposed warehouse project area. Conducted comprehensive desert native plant surveys on approximately 400 acres of Joshua tree (*Yucca brevifolia*) woodland habitat. Surveys specifically focused on Wiggins' cholla (*Cylindropuntia echinocarpa*).

Reserve at Rancho Mission Viejo, San Juan Capistrano, California. Conducted focused coastal sage scrub and riparian bird point count surveys for California gnatcatcher, coastal cactus wren (*Campylorhynchus brunneicapillus*), least Bell's vireo, and southwestern willow flycatcher. Additionally, performed coastal sage scrub vegetation monitoring using the point transect method to determine cover and species diversity. Also performed arroyo toad (*Anaxyrus californicus*) annual monitoring surveys in the San Juan Creek watershed. Identified arroyo toad tadpoles at different development stages among other frog and toad species including western toad (*Anaxyrus boreas*) and pacific treefrog (*Pseudacris regilla*).

Strauss Wind Energy Project, BayWa Renewable Energy, Lompoc, California. Performed rare plant surveys, focusing on Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) and other special-status plant species. Correctly identified and mapped Gaviota tarplant at its early budding and full bloom stages. Conducted native grassland and non-native vegetation mapping throughout the project area. Also performed other biological surveys including raptor and eagle point count surveys.

San Fernando Valley Spineflower, Newhall Land and Farming Company, Santa Clarita, California. Performed population and density surveys for the state endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) at blooming and senescence stages. Conducted other rare plant focus surveys including for mariposa lily (*Calochortus clavatus* var. *gracilis*). Additionally, assisted in a pollination study aiming to understand the assorted insect pollinators essential to the reproduction of the state endangered San Fernando Valley spineflower. This 3-week field effort required knowledge of individual spineflower populations and observation/collection of individual insect visitors to spineflower plants from dawn until dusk.

Newhall Land and Farming Company, Santa Clarita, California. Assisted in population surveys for the state endangered San Fernando Valley spineflower, mariposa lily monitoring and seed collection, and general rare plant surveys throughout 2019. Also assisted in studying the non-native Argentine ant (*Linepithema humile*) using ant traps and identifying to genus level using a dissecting microscope.

Relevant Previous Experience

Tidal Influence, Los Cerritos Wetlands, Seal Beach, California. Conducted wetland and upland plant vegetation surveys including for the endangered California tarplant (*Centromadia parryi* ssp. *australis*). Surveyed and monitored endangered species such as Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). Wrote monthly reports to aid project managers in identifying and prioritizing future projects. Assisted with wetland restoration techniques such as plant identification, seed collection, propagation, and planting to increase native vegetation coverage and improve habitat quality.

Graduate Student Researcher, California State University, Long Beach, California. Investigated the effects of polycyclic aromatic hydrocarbon pollutants on freshwater diatom communities. Responsible for collecting water, sediment, and algal samples in the San Bernardino Mountains. Managed undergraduates and help maintain an efficient work environment.

Stream Biologist, Stream Ecology and Assessment Laboratory, California. Performed bioassessment fieldwork for California's Region 8 watersheds (Santa Ana watersheds) following U.S. Environmental Protection Agency and Surface Water Ambient Monitoring Program protocols. Led and managed small 5-person teams through difficult terrains in the San Bernardino Mountains. Surveyed riparian habitats for mitigation projects in partnership with San Diego State University. Responsible for plant identification and habitat assessment through CRAM. Related laboratory tasks include sample processing, data entry, and quality control. Assisted in identification of bio-indicators using benthic macroinvertebrates and diatoms.

Environmental Compliance Intern, Orange County Sanitation District, California. Drafted and edited reports to aid in compliance with the U.S. Environmental Protection Agency and Air Quality Management District, including scope-of-work reports for industrial stormwater audits. Worked with multiple teams including stormwater, air quality, and biosolids. Successfully managed and prioritized several ongoing projects simultaneously. Oversaw third-party contractors during biological assessments/mitigation projects.

Dahlia Serrato

ENVIRONMENTAL BIOLOGIST

Education

California State University, Fullerton
BS, Biological Science, 2024

Dahlia Serrato is an ecology and evolution focused biologist with 3 years' research experience in the field and laboratory. Relevant coursework including mammalogy, wildlife conservation, and entomology have helped her to develop strong mammal ID, invertebrate ID, and data-set management skills. In the last 9 months survey efforts have been primarily to detect the presence of burrowing owl (*Athene cunicularia*) and Crotch's bumblebee (*Bombus crotchii*). Ms. Serrato is passionate about wildlife conservation, ecosystem restoration, and is an experienced public speaker.

Dudek Project Experience

Silverwood Lake Creel Survey, California Department of Water Resources, Hesperia, California. Interviewing shoreline anglers where fishing efforts were observed and accessible, as well as boat anglers to determine angler fishing success and catch rates of stocked rainbow trout (*Oncorhynchus mykiss*). (2024 – Present)

Pyramid Lake and Castaic Lake Creel Surveys, California Department of Water Resources, Santa Clarita, California. Interviewing shoreline anglers where fishing efforts were observed and accessible, as well as boat anglers to determine angler fishing success and catch rates of stocked rainbow trout (*Oncorhynchus mykiss*). (2024 – Present)

Legacy Village Camera Trap Review, Stevenson Ranch Venture, LLC, Santa Clarita, California. Reviewed over 10,000 camera trap photos to determine species ID and directional migration of predatory mammals. Instances of observed predation recorded. Species notable to this study include black bears (*Ursus americanus)*, bobcats (*Lynx rufus)*, and California species of Special Concern American badgers (*Taxidea taxus),* and cougars *(Puma concolor)*. (2024).

Ivanhoe Reservoir Great Blue Heron Rookery Nest Checks, Los Angeles Department of Water and Power, Los Angeles, California. Assisted seasoned biologist with nest checks and construction monitoring adjacent to a known great blue heron (*Ardea Herodias*) rookery at Ivanhoe reservoir in Silverlake, California. Observed nests and provided photographs for updated report. (2024)

Urban Forestry Oak Inventory and Tagging, NUWI - Sand Canyon, LLC, Santa Clarita, California. Assisted professional arboritst in the identification and tagging of coast live oak (*Quercus agrifolia*) and California scrub oak (*Quercus berberidifolia*) in order to update inventory of existing trees for construction development. (2024)

Compass BESS - Permitting Consulting and Agreement Coordination, Broad Reach Power, San Juan Capistrano, California. Assisted seasoned biologist with burrow site mapping for burrowing owl (*Athene cunicularia*) and federally endangered Crotch's bumblebee (*Bombus crotchii)* for wildlife compliance survey. In-field bumblebee identification and video documentation taken to complete bio report. (2024)

San Gabriel Reservoir Post Fire Emergency Restoration Project, Los Angeles County Public Works, Los Angeles County, California. Assisted senior biologists with the relocation of special-status aquatic species, federally listed Santa Ana sucker (*Catostomus santaanae*), California species of Special Concern Santa Ana speckled dace (*Rhinichthys osculus ssp*.) and arroyo chub (*Gila orcutti*), as a part of impact avoidance and minimization for the

San Gabriel Reservoir Post Fire Emergency Restoration Project. Species relocated under the supervision of an agency-approved biologist via dip netting. (2024)

Malibu Creek Riparian Least Bell's Vireo Surveys, Los Angeles County, Malibu, California. Assisted nesting-bird specialist with riparian bird surveys at Malibu Canyon Roads over Malibu Creek. Special attention paid to potential presence of least bell's vireo (*Vireo bellii pusillus*). Incidentally observed yellow warbler (*Setophaga petechia*), and yellow-breasted chat (*Icteria virens*). (2024)

Wabash Day Street Lot Improvements, Wabash, Moreno Valley, California. Assisted seasoned biologist with biological reconnaissance survey to identify biological resources and mapped the vegetation communities and land cover types on site. (2024)

Crotch's Bumblebee Habitat Survey, Michael Baker International, Lancaster, California. Assisted seasoned biologist in identifying suitable habitat for the federally endangered Crotch's bumblebee (*Bombus crotchii)*. (2024)

Desert Valley Hospital, Prime Healthcare, Victorville, California. Assisted seasoned biologist to perform focused burrowing owl (*Athene cunicularia*) surveys in accordance with the CDFW 2012 protocols by walking 20-meter-wide transect lines looking for suitable burrows and active sign. (2024)

Biological Reconnaissance Rural Improvement, Main Hesperia LLC, Hesperia, California. Assisted senior biologist with biological reconnaissance survey to identify potential burrowing owl (*Athene cunicularia*) habitat by walking 20-meter-wide transect lines with an emphasis on mapping suitable burrows and active sign. Other species of interest included desert kit fox (*Vulpes macrotis arsipus)*, and California species of Special Concern American badger (*Taxidea taxus*). (2024)

Related Previous Experience

Community Ecology Botanical Research Project, California State University, Fullerton. 11-month research project designed to investigate the effect of two variables, north versus south aspect and nutrient uptake, on five species of Californian annual, flowering plants to understand the coexistence of native flora in summer months. As a student research assistant, collected over 1000 data points in outdoor conditions daily and collaborated with a partner to write a 15-page report that was presented at two undergraduate research conferences (SACNAS, SCUUR). (2023)

Paleoclimatology Geologic Research Project, California State University, Fullerton. As a student research assistant, conducted literature review to formulate testable hypothesis in under 6 weeks. Light microscopy was used to quantify microcharcoal from 126 sediment samples taken from a lakebed core to reconstruct historical fire records of the area exposing Little Ice Age flood event. Presented geophysical datasets at two symposiums to students and faculty. (2021)

Desert Myrmecology Research Project - Fullerton College, California. Survey of native and non-native ant species found in the Chuckwalla Mountain range conducted twice annually. As a student research assistant, identified 13 ant genera and 16 species by morphology using light microscopy and keys. Collected ant and insect specimens in three desert ecosystems (wash, scrub, and oasis) by ethylene glycol pitfall traps, and maintained Excel spreadsheet containing 100+ unique data points across 3 years. (2018–2020)

Microbe Tracking for Public Health Research Project, California State University, Fullerton. 8-week program investigating the source of bacteria and microbes in the Santa Ana River to identify the most problematic sources of contamination in local water supply. As a student research assistant, recorded atmospheric and aquatic data in

the field with multiparameter meter, and prepared 6 gallons of water for E. coli DNA extraction using Zymo-tech gene targeting qPCR. Demonstrated lab safety techniques 15 hours a week by appropriately handling pathogens and open flame. (2019)

Publications

(Research Contributor) Kirby, M., Hippard, S.K., Martinez, L.N., et al. (2024). Little Ice Age flood events recorded in sag pond sediments in the Carrizo Plains National Monument, California. J Paleolimnol. https://doi.org/10.1007/s10933-024-00312-4

Ryan D. Stanley

BIOLOGICAL RESOURCES | FISHERIES

Ryan Stanley (*RYE-uhn STAN-lee; he/him*) is a biologist with 5 years' professional experience as a fisheries biologist working with common and special-status aquatic organisms and specializing in fisheries techniques; methods of fish identification, capture, and detection (e.g., electrofishing, rotary screw traps, fyke nets, seining, snorkel surveys, passive integrated transponder [PIT] tags and antenna arrays, and Biomark software and systems); fish handling and relocation; fish ageing techniques; basic genetic techniques; benthic macroinvertebrate assessments; and riparian habitat surveys and stream habitat classification and surveys.

Education

Humboldt State University BS, Fisheries Biology – Freshwater, 2021

Certifications

Electrofishing Principles and Safety, Smith-Root and USFWS

(issued: 8/2024, no expiration)

Aquatic Invasive Species Inspector and Decontaminator (Level 2), PSMFC

(issued: 10/10/2024, no expiration)

Motorboat Operator Certification

(issued: 9/8/2022, no expiration)

Professional Affiliations

American Fisheries Society

CalTrout

Desert Fishes Council

Relevant Project Experience

Van Norman Complex Emergency Vegetation Removal, Los Angeles Department of Water and Power, Los Angeles, California. Riparian habitat surveys and monitoring in flood control basins and channels during maintenance to increase flood storage capacity. (Current)

Lower Quail Canal Project, California Department of Water Resources, Los Angeles County, California. Led wildlife surveys to determine presence of species and assess potential impacts on riparian/wetland species including special-status arroyo toad (*Anaxyrus californicus*), western spadefoot toad (*Spea hammondii*), southwestern pond turtle (*Actinemys pallida*) and two-striped garter snake (*Thamnophis hammondii*). (2024-Current)

Cedar Springs Dam Aquatic Invasive Species Inspections, California Department of Water Resources, Los Angeles County, California. Performed inspections to confirm the absence of aquatic invasive species on eleven aquatic vessels prior to deployment in Silverwood Lake, CA. (2024)

Management Action Plan, Rancho Mission Viejo Land Trust, Orange County, California. Performed arroyo toad (*A. californicus*) surveys in the San Juan Creek watershed pursuant to the Southern Subregion Habitat Conservation Plan and the San Juan Creek/Western San Mateo Creek Special Area Management Plan. Arroyo toad were found throughout the survey area. (2024)

City of Garden Grove Pond Revitalization Project, Edgemoor Infrastructure and Real Estate, Garden Grove, California. Captured and relocated 230 non-native aquatic turtles from two artificial ponds. Captured turtles were transported and transferred to the care of a non-profit organization. (2024)

Honor Rancho Compressor Modernization Project, Southern California Gas, Santa Clarita, California. Performed western spadefoot toad (*S. hammondii*) surveys consisting of the identification and mapping of suitable breeding habitat, and day and night surveys to identify spadefoot larvae and adults. (2024)

Whittaker–Bermite Specific Plan, Atlantis Group and New Urban West, Los Angeles County, California. Performed herpetological surveys including focused western spadefoot toad surveys within an area of approximately 1,000 acres. Monitoring of recruitment and metamorphosis of spadefoot population. Identified and mapped location of more than 2,000 spadefoot toad adult and larvae. (2023-Current)

Unarmored Threespine Stickleback Surveys of Upper Santa Clara River Watershed, Metropolitan Water District of Southern California, Los Angeles County, California. Completed visual encounter surveys and used underwater cameras to determine presence/absence of federally endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni)* in the Santa Clara River and San Francisquito Creek. (2022)

Castaic Lake Drawdown Studies, California Department of Water Resources, Los Angeles County, California. Conducted surveys to provide baseline data of biological resources present in the newly exposed shoreline area and areas adjacent to the high-water line. Provided motorboat piloting support. (2022–2023)

San Gabriel Reservoir Post-Fire Emergency Restoration Project, Los Angeles County Department of Public Works, Los Angeles County, California. Capture and relocation of over 67,000 native fishes including Santa Ana sucker (*Catostomus santaanae*), Santa Ana speckled dace (*Rhinichthys osculus* ssp.), arroyo chub (*Gila orcuttii*), two-striped garter snake, rainbow trout (*Oncorhynchus mykiss*), and southwestern pond turtle. Translocation of Santa Ana sucker from the San Gabriel Reservoir to previously unoccupied habitat upstream in the Upper West Fork of the San Gabriel River. (2021–2024)

Castaic Lake, Pyramid Lake, and Silverwood Lake Creel Surveys, California Department of Water Resources, Los Angeles County, California. Data analysis, annual reports, and field surveys at projects occurring at Castaic, Pyramid, and Silverwood Lakes to monitor and evaluate the success of the Department of Water Resources' trout stocking program. FERC Project 2426. (2021–Current)

Relevant Previous Experience

Steelhead Fish Passage Program Santa Felicia Dam Pre-Implementation Study, United Water Conservation District, Ventura County, California. Lead fisheries biological technician monitoring juvenile rainbow trout migration characteristics and environmental conditions in Piru Creek (Santa Clara River watershed). Incorporated arroyo toad and least Bell's vireo field surveys and identified arroyo toad larvae and nesting vireo and completed handling and relocation of southwestern pond turtle. Fish capture using a novel fyke design, rotary screw trap, and electrofishing; fish sedation and PIT tagging; and tissue sampling for ageing and genetic analysis. Fish movement detected using PIT tag antenna systems. Stream conditions monitored and evaluated. (2022)

Specialized Training

- Rare Pond Species Survey Techniques Workshop, The Wildlife Project, Sonoma County, CA. (2025)
- Aquatic Invasive Species Inspector and Decontaminator, Pacific States Marine Fisheries Commission. (2024)
- Electrofishing Principles and Safety Certification, Smith-Root, Vancouver, Washington. (2024)
- Principles and Techniques of Electrofishing, USFWS. (2024)
- Pacific Salmon Habitat Restoration, University of California, Davis. (2022)
- Motorboat Operators Certification Course, Lake Tahoe, California. (2022)
- White Sturgeon (*Acipenser transmontanus*) Aquaculture Internship, Fort Klamath Ranch, Fort Klamath, Oregon. (2020)

Sarah Tian

URBAN FORESTER

Sarah Tian (*SARE-uh t-YEN; she/her*) is an urban forester with 4 years' professional experience, including 2 years specializing in municipal arboriculture and tree inventories and 2 years as a consulting utility forester specializing in vegetation management and utility compliance maintenance.

Sarah has experience with responsibilities including city arboriculture, participating in tree inventories, and preparing subsequent reports to ensure project compliance with local tree ordinances. She has also worked in the San Francisco Bay area prescribing vegetation management to reduce risk associated with utilities.

Education

University of California, Los Angeles
BS, Ecology, Behavior, and Evolution, 2020

Certifications

International Society of Arboriculture (ISA) Certified Arborist, No. WE-13677A

Tree Risk Assessment Qualification

Project Experience

Development

Solomon Hills Oak Management Plan, Solstra Communities California LLC, Orcutt, California. Identified and evaluated oak trees (Quercus spp.) to create inventory of existing oak trees for construction development impact. Assisted with development of subsequent oak tree report to align with local ordinances.

Mesa Verde Specific Plan CEQA and Support, Mesa Verde Owner LLC, Calimesa, California. Identified and evaluated regulated trees to create inventory of existing trees for construction development impact. Assisted with development of subsequent tree report to align with local ordinances.

Belcaro Sand Canyon Biological Resources, NUWI – Sand Canyon LLC, Santa Clarita, California. Identified and evaluated oak trees to create inventory of existing oak trees for construction development impact. Assisted with development of subsequent oak tree report to align with local ordinances.

Phelan 20 Acres, Cambria 60 Partners LLC, Hesperia, California. Identified and evaluated Joshua trees (Yucca brevifolia) to create inventory of existing Joshua trees for construction development impact according to local and California Department of Fish and Wildlife (CDFW) requirements.

Biological Resources and Oak Tree Resources, Newhall Land and Farming Company, Valencia, California. Identified and evaluated regulated trees to create inventory of existing trees for construction development impact. Assisted with development of subsequent tree report to align with local ordinances.

Hidalgo Energy Storage Project, Jupiter Power LLC, Adelanto, California. Identified and evaluated Joshua trees to create inventory of existing Joshua trees for construction development impact. Assisted with subsequent Joshua Tree Preservation, Protection, and Relocation Plan and Desert Native Plant Relocation Plan to align with local ordinances and CDFW requirements.

Apple Valley Stoddard Wells Warehouse, Covington Investments LLC, Apple Valley, California. Identified and evaluated Joshua trees to create inventory of existing Joshua trees for construction development impact according to local and CDFW requirements.

Power Plant 1 and 2 Mitigation Construction Monitoring, Los Angeles Department of Water and Power, Los Angeles, California. Supervised Los Angeles Department of Water and Power construction to ensure compliance with local tree ordinances. Advised construction workers and ensured responsible trimming of tree canopies and avoidance of trenching within the tree protection zone.

30-Acre Hesperia Project West of 395, Kiss Hesperia Venture LLC, Hesperia, California. Identified and evaluated Joshua trees to create inventory of existing Joshua trees for construction development impact. Assisted with subsequent Joshua Tree Preservation, Protection, and Relocation Plan and Desert Native Plant Relocation Plan to align with local ordinances and CDFW requirements.

Mojave Industrial Parking Building 1 and 2 and 3 Project, Mojave 80 Gray LLC, Victorville, California. Identified and evaluated Joshua trees to create inventory of existing Joshua trees for construction development impact. Assisted with subsequent Joshua Tree Preservation, Protection, and Relocation Plan and Desert Native Plant Relocation Plan to align with local ordinances and CDFW requirements.

Yucca Terrace 13, Yucca Terrace Investors, Hesperia, California. Identified and evaluated Joshua trees to create inventory of existing Joshua trees for construction development impact according to local and CDFW requirements.

Poplar 18, Covington Group Inc., Hesperia, California. Identified and evaluated Joshua trees to create inventory of existing Joshua trees for construction development impact according to local and CDFW requirements.

Municipal

Arborist Services, City of Agoura Hills, California. Served as on-call city arborist. Reviewed new construction project materials, including arborist reports and architectural plans, to ensure compliance with local Oak Tree Preservation Guidelines. Issued comments to applicants based on project material review. Reviewed permit applications to advise city on permitted tree work. Conducted site visits as needed to evaluate trees in the city.

City of Irvine Urban Forest Master Plan, City of Irvine, California. Conducted surveys of trees in the city right-of-way to determine tree data for upcoming municipal Urban Forest Management Plan.

City of Irvine Eucalyptus Windrow Tomography, City of Irvine, California. Used sonic tomography to evaluate windrow eucalyptus trees (*Eucalyptus* spp.) for internal decay. Presence of internal decay indicates higher risk. Results of sonic tomography were used by the city to determine eucalyptus tree removals.

Arborist Services, City of Encinitas, California. Inspected municipal trees for proper pruning and presence of pests. Ensured general wellbeing and contributed to the maintenance and upkeep of city trees.

Arborist Services, City of Pasadena, California. Reviewed homeowner cases in order to determine removals and prepared subsequent memos. Based removals on criteria such as location, health, and expected growth.

Resource Management

Avian and Vegetation Pilot Monitoring Studies, Rancho Mission Viejo Land Trust, Mission Viejo, California. Aided biologists by recording data identifying local bird species for monitoring purposes.

La Cumbre Country Club Project, La Cumbre Country Club, Santa Barbara, California. Identified and evaluated trees to evaluate potential impacts to trees from site improvements.

Castaic Lake Drawdown Studies, California Department of Water Resources, Castaic, California. Identified and evaluated trees near ordinary high-water mark to contribute to ongoing study of effects of lake drawdown on nearby vegetation.

Prima Deschecha-Invasive Shothole Borer Evaluation, Habitat Restoration Sciences Inc., San Juan Capistrano, California. Inspected and maintained shothole borer beetle (*Euwallacea* spp.) traps.

Saddle Crest Construction Oak Restoration, Rutter Development Corporation, Trabuco Canyon, California. Identified and evaluated replacement oak saplings to determine future replantings. Evaluations were based on sapling health and structure.

Murrieta Hills Project Tree Report, Pulte Home Corporation-2009, Murrieta, California. Identified and evaluated oak trees for relocation suitability. Evaluations were based on characteristics such as health, structure, and location. Suitable oaks are to be relocated to minimize construction's negative effects on native trees.

Relevant Previous Experience

Consulting Utility Forester, DRG Pacific Services LLC, San Carlos, California. Prescribed tree pruning in a manner that balanced tree preservation with reduction of wildfire risk. Developed, implemented, and oversaw tree pruning schedules. Assisted in applying for permits to conduct tree pruning on municipal trees. Ensured timely and efficient completion of work. Coordinated communication between Pacific Gas and Electric, construction contractors, municipal agencies, tree crews, and homeowners.

Field Marine Biology Quarter Student, University of California, Los Angeles, California. Worked in two groups of three to scour existing scientific research to develop two novel research proposals concerning wildlife behavior and marine ecology. Created and followed experiment protocol by designing two experiments and conducting fieldwork in Mo'orea, French Polynesia. Responsibilities included data entry, analysis, and evaluation. Wrote and presented two scientific research reports.

Botany Intern, National Park Service, Thousand Oaks, California. Contributed to an ongoing biological field survey by working in teams of two to three to collect and record data in the Santa Monica Mountains. Identified, surveyed, and assessed populations of Southern California plant species. Conducted outdoor surveys up to 8 hours at a time. Responsibilities included data collection and entry.

Intern, California Greenworks, Los Angeles, California. Assisted in organizing volunteer and community engagement events to promote urban sustainability in Los Angeles. Recruited and supervised volunteers for urban sustainability events. (2018–2019)

Undergraduate Research Assistant, Philip Rundel Lab, Los Angeles, California. Assisted in research to determine effects of nitrogen pollution on California plant species. Collected data by separating and weighing flowers, leaves, and stems from control and experimental groups. Prepared plant samples for analysis. Data collection and entry.

Undergraduate Research Assistant, Aaron Blaisdell Lab, Los Angeles, California. Contributed to animal cognition research by collecting pigeon (*Columba spp.)* cognition data and ensuring animal health. Handled, fed, and weighed pigeons. Performed equipment maintenance by cleaning Skinner box at end of each shift. Attended weekly meetings.

Publications

C. Kelligrew, S. Tian, M. Weiss, D.M. Williams, and D.T. Blumstein. 2021. "The Effect of White Noise on Behavioral and Flight Responses of Blue-Tailed Skinks." *Current Zoology* 67(1): 125–126.

Appendix 3.2B

Potential to Occur Tables and Compendia

Plants

Gymnosperms and Gnetophytes

CUPRESSACEAE—CYPRESS FAMILY

Juniperus californica—California juniper

EPHEDRACEAE—EPHEDRA FAMILY

Ephedra californica—California joint fir

Ephedra viridis—Mormon tea

Eudicots

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

APIACEAE—CARROT FAMILY

Lomatium mohavense—Mojave desertparsley

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia acanthicarpa—flatspine bur ragweed

Ambrosia salsola var. *salsola*—burrobrush

Artemisia ludoviciana—white sagebrush

Artemisia tridentata ssp. *parishii*—big sagebrush

Artemisia tridentata ssp. *tridentata*—basin big sagebrush

Artemisia tridentata—big sagebrush

Chaenactis artemisiifolia—white pincushion

Chaenactis fremontii—pincushion flower

Chaenactis glabriuscula—yellow pincushion

Corethrogyne filaginifolia—sand-aster

Encelia actoni—Acton's brittle brush

Encelia farinosa—brittle bush

Encelia frutescens—button brittlebush

Ericameria brachylepis—chaparral goldenbush

Ericameria linearifolia—narrowleaf goldenbush

Ericameria nauseosa var. *hololeuca*—rubber rabbitbrush

Ericameria pinifolia—pinebush

Eriophyllum confertiflorum var. *confertiflorum*—golden-yarrow

Eriophyllum pringlei—Pringle's woolly sunflower

Gutierrezia californica—California match weed

Lasthenia glaberrima—smooth goldfields
Lasthenia gracilis—needle goldfields
Layia glandulosa—whitedaisy tidytips
Layia platyglossa—coastal tidytips
Malacothrix glabrata—smooth desertdandelion
Matricaria discoidea—disc mayweed
Senecio flaccidus—threadleaf ragwort
Stephanomeria pauciflora—brownplume wirelettuce
Tetradymia stenolepis—Mojave cottonthorn
Uropappus lindleyi—Lindley's silverpuffs

BORAGINACEAE—BORAGE FAMILY

Amsinckia douglasiana—Douglas' fiddleneck
Amsinckia menziesii—Menzies' fiddleneck
Cryptantha angustifolia—Panamint cryptantha
Cryptantha intermedia—Clearwater cryptantha
Harpagonella palmeri—Palmer's grapplinghook
Nemophila menziesii—baby blue eyes
Phacelia crenulata var. *ambigua*—purplestem phacelia
Phacelia distans—distant phacelia
Phacelia fremontii—Fremont's phacelia
Phacelia tanacetifolia—lacy phacelia
Pholistoma membranaceum—white fiestaflower

BRASSICACEAE—MUSTARD FAMILY

* *Hirschfeldia incana*—shortpod mustard
* *Sisymbrium altissimum*—tall tumblemustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia echinocarpa—Wiggins' cholla
Opuntia basilaris var. *basilaris*—beavertail pricklypear
Opuntia basilaris var. *brachyclada*—short-joint beavertail
Opuntia littoralis—coast prickly pear

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex argentea—silverscale saltbush
Atriplex canescens—fourwing saltbush
Chenopodium californicum—California goosefoot
Grayia spinosa—spiny hop sage

CUCURBITACEAE—GOURD FAMILY

Marah macrocarpa—Cucamonga manroot

EUPHORBIACEAE—SPURGE FAMILY

Euphorbia albomarginata—whitemargin sandmat

FABACEAE—LEGUME FAMILY

Acmispon glaber—deer weed

Acmispon maritimus var. *maritimus*—coastal bird's-foot trefoil

Acmispon parviflorus—desert deervetch

Lupinus bicolor—miniature lupine

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

Salvia apiana—white sage

Salvia carduacea—thistle sage

Salvia *columbariae*—chia

Salvia dorrii var. *pilosa*—purple sage

Scutellaria mexicana—Mexican bladdersage

LOASACEAE—LOASA FAMILY

Mentzelia ravenii—no common name

MONTIACEAE—MONTIA FAMILY

Calyptridium monandrum—common pussypaws

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia*—California four o'clock

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia contorta—plains evening primrose

Eulobus californicus—California suncup

* *Oenothera biennis*—common evening primrose

OROBANCHACEAE—BROOM-RAPE FAMILY

Castilleja exserta ssp. *exserta*—exserted Indian paintbrush

PAPAVERACEAE—POPPY FAMILY

Eschscholzia californica—California poppy

Eschscholzia minutiflora—pygmy poppy

Platystemon californicus—creamcups

PLANTAGINACEAE—PLANTAIN FAMILY

Penstemon spectabilis—showy penstemon

POLEMONIACEAE—PHLOX FAMILY

Eriastrum densifolium—giant woollystar

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum—California buckwheat

Rumex hymenosepalus—canaigre dock

RANUNCULACEAE—BUTTERCUP FAMILY

Delphinium parishii—desert larkspur

SOLANACEAE—NIGHTSHADE FAMILY

Lycium cooperi—peach thorn

Monocots

AGAVACEAE—AGAVE FAMILY

* *Agave americana*—American century plant

Hesperoyucca whipplei—chaparral yucca

POACEAE—GRASS FAMILY

* *Avena fatua*—wild oat

Bromus carinatus—California brome

* *Bromus diandrus*—ripgut brome

* *Bromus hordeaceus*—soft brome

* *Bromus madritensis* ssp. *rubens*—red brome

* *Bromus tectorum*—cheatgrass

Elymus elymoides—squirreltail

Festuca microstachys—small fescue

Hordeum jubatum—foxtail barley

* *Hordeum murinum*—mouse barley

Melica imperfecta—smallflower melicgrass

Poa secunda—onesided bluegrass

* *Schismus arabicus*—Arabian schismus

Stipa speciosa—desert needlegrass

THEMIDACEAE—BRODIAEA FAMILY

Dichelostemma capitatum ssp. *capitatum*—bluedicks

Wildlife

Invertebrate

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Junonia coenia—common buckeye

PIERIDAE—WHITES AND SULFURS BUTTERFLIES

Pieris rapae—cabbage white

Reptile

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis longipes—western fence lizard

Uta stansburiana elegans—western side-blotched lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis tigris tigris—Great Basin whiptail

Bird

ICTERIDAE—BLACKBIRDS

Icterus bullockii—Bullock's oriole

Icterus cucullatus—hooded oriole

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch

Spinus lawrencei—Lawrence's goldfinch

Spinus psaltria—lesser goldfinch

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis saya—Say's phoebe

Tyrannus verticalis—western kingbird

Tyrannus vociferans—Cassin's kingbird

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Calypte costae—Costa's hummingbird

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay

Corvus corax—common raven

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Toxostoma redivivum—California thrasher

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Streptopelia decaocto*—Eurasian collared-dove

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

HIRUNDINIDAE—SWALLOWS

Stelgidopteryx serripennis—northern rough-winged swallow

TURDIDAE—THRUSHES

Sialia currucoides—mountain bluebird

Sialia mexicana—western bluebird

REMIZIDAE—PENDULINE TITS AND VERDINS

Auriparus flaviceps—verdin

PARULIDAE—WOOD-WARBLERS

Setophaga coronata—yellow-rumped warbler

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus—cactus wren

Salpinctes obsoletus—rock wren

Thryomanes bewickii—Bewick's wren

PASSERELLIDAE—NEW WORLD SPARROWS

Artemisiospiza belli—Bell's sparrow

Chondestes grammacus—lark sparrow

Melozone crissalis—California towhee

Passerculus sandwichensis—savannah sparrow

Zonotrichia leucophrys—white-crowned sparrow

Mammal

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

LEPORIDAE—HARES AND RABBITS

Lepus californicus—black-tailed jackrabbit

Sylvilagus bachmani—brush rabbit

SCIURIDAE—SQUIRRELS

Ammospermophilus leucurus—white-tailed antelope squirrel

Spermophilus (*Otospermophilus*) *beecheyi*—California ground squirrel

* signifies introduced (non-native) species

INTENTIONALLY LEFT BLANK

Special-Status Plants

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Acanthoscyphus parishii var. *abramsii*	Abrams' oxytheca	None/None/1B.2	Chaparral/annual herb/June–Aug/ 3,750–6,745	Not expected to occur. The Study Area is outside this species current range.
Androsace elongata ssp. *acuta*	California androsace	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland/annual herb/ Mar–June/490–4,280	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Anomobryum julaceum	slender silver moss	None/None/4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest; Roadsides (usually)/moss/N.A./330–3,280	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Aphyllon validum ssp. *validum*	Rock Creek broomrape	None/None/1B.2	Chaparral, Pinyon and juniper woodland; Granitic/perennial herb (parasitic)/May–Sep/3,380–6,560	Not expected to occur. Suitable micro-habitat (granitic) for the species is not present in the Study Area.
Arctostaphylos glandulosa ssp. *gabrielensis*	San Gabriel manzanita	None/None/1B.2	Chaparral/perennial evergreen shrub/ Mar/1,950–4,920	Not expected to occur. This conspicuous species was not observed in the Study Area.
Arctostaphylos parryana ssp. *tumescens*	interior manzanita	None/None/4.3	Chaparral (montane), Cismontane woodland/perennial evergreen shrub/ Feb–Apr/6,890–7,580	Not expected to occur. This conspicuous species was not observed in the Study Area.
Asplenium vespertinum	western spleenwort	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub; Rocky/perennial rhizomatous herb/Feb–June/ 590–3,280	Low potential to occur. Suitable habitat for the species is present in the Study Area, but records for the species are from the southern and eastern San Gabriel Mountains.
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1	Meadows and seeps, Playas; Alkaline, Lake Margins/annual herb/May–Oct/ 195–2,785	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; Gravelly (sometimes), Sandy (sometimes)/ perennial evergreen shrub/ (Feb)Mar–June/230–2,705	Not expected to occur. This conspicuous species was not observed in the Study Area.
Calochortus catalinae	Catalina mariposa lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb) Mar–June/50–2,295	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Calochortus clavatus var. *avius*	Pleasant Valley mariposa-lily	None/None/1B.2	Lower montane coniferous forest/ perennial bulbiferous herb/May–July/ 1,000–5,905	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Calochortus clavatus var. *gracilis*	slender mariposa-lily	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/Mar–June (Nov)/1,045–3,280	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Calochortus palmeri var. *palmeri*	Palmer's mariposa-lily	None/None/1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps; Mesic/ perennial bulbiferous herb/Apr–July/ 2,325–7,840	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Calochortus plummerae	Plummer's mariposa-lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; Granitic, Rocky/perennial bulbiferous herb/May–July/330–5,580	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Calochortus striatus	alkali mariposa-lily	None/None/1B.2	Chaparral, Chenopod scrub, Meadows and seeps, Mojavean desert scrub; Alkaline, Mesic/perennial bulbiferous herb/Apr–June/230–5,230	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Calystegia peirsonii	Peirson's morning-glory	None/None/4.2	Chaparral, Chenopod scrub, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/Apr–June/ 100–4,920	Low potential to occur. The species was initially assessed as having high potential due to the presence of suitable in the Study Area and recent local records (Calflora 2025); however, the species was not observed during focused rare plant surveys.
Canbya candida	white pygmy-poppy	None/None/4.2	Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland; Granitic, Gravelly, Sandy/ annual herb/Mar–June/1,970–4,790	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Castilleja gleasoni	Mt. Gleason paintbrush	None/SR/1B.2	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; Granitic/perennial herb (hemiparasitic)/ May–June (Sep)/3,805–7,115	Not expected to occur. Suitable habitat for the species is present in the Study Area but the Study Area is outside the range of the species.
Castilleja plagiotoma	Mojave paintbrush	None/None/4.3	Great Basin scrub (alluvial), Joshua tree "woodland", Lower montane coniferous forest, Pinyon and juniper woodland/ perennial herb (hemiparasitic)/ Apr–June/985–8,205	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1	Marshes and swamps, Valley and foothill grassland, Vernal pools/annual herb/May–Nov/0–1,570	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	None/SE/1B.1	Coastal scrub, Valley and foothill grassland/annual herb/Apr–July/ 490–4,000	Not expected to occur. Marginal habitat is present in the Study Area; however, no recent records along the SR-14.
Chorizanthe spinosa	Mojave spineflower	None/None/4.2	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, Playas; Alkaline (sometimes)/annual herb/Mar–July/20–4,265	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Claytonia peirsonii ssp. *peirsonii*	Peirson's spring beauty	None/None/1B.2	Subalpine coniferous forest, Upper montane coniferous forest; Granitic, Metamorphic, Scree, Talus/perennial herb/(Mar) May–June/4,955–9,005	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Clinopodium mimuloides	monkey-flower savory	None/None/4.2	Chaparral, North Coast coniferous forest; Mesic, Streambanks/perennial herb/June–Oct/1,000–5,905	Not expected to occur. Suitable micro-habitats (mesic and streambanks) for the species are not present in the Study Area.
Diplacus johnstonii	Johnston's monkeyflower	None/None/4.3	Lower montane coniferous forest (disturbed areas, gravelly, roadsides, rocky, scree)/annual herb/May–Aug/ 3,200–9,580	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub; Flood deposited terraces and washes/annual herb/Apr–June/ 655–2,490	Not expected to occur. Suitable micro-habitats (Flood deposited terraces and washes) for the species are not present in the Study Area.
Erigeron breweri var. *jacinteus*	San Jacinto Mountains daisy	None/None/4.3	Subalpine coniferous forest, Upper montane coniferous forest; Rocky/ perennial rhizomatous herb/June–Sep/ 8,860–9,515	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Eriogonum umbellatum var. *minus*	alpine sulfur-flowered buckwheat	None/None/4.3	Subalpine coniferous forest, Upper montane coniferous forest; Gravelly/ perennial herb/June–Sep/ 5,905–10,065	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3	Chaparral, Lower montane coniferous forest; Gravelly (sometimes), Sandy (sometimes)/annual herb/Apr–June/ 4,005–6,005	Not expected to occur. The Study Area is below the elevation range of the species.
Frasera neglecta	pine green-gentian	None/None/4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest/perennial herb/May–July/4,595–8,205	Not expected to occur. The Study Area is below the elevation range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Galium angustifolium ssp. *gabrielense*	San Antonio Canyon bedstraw	None/None/4.3	Chaparral, Lower montane coniferous forest; Granitic, Rocky (sometimes), Sandy (sometimes)/perennial herb/ Apr–Aug/3,935–8,695	Not expected to occur. The Study Area is below the elevation range of the species.
Galium angustifolium ssp. *gracillimum*	slender bedstraw	None/None/4.2	Joshua tree "woodland", Sonoran desert scrub; Granitic, Rocky/perennial herb/ Apr–June (July)/425–5,085	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Galium jepsonii	Jepson's bedstraw	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; Granitic, Gravelly (sometimes), Rocky (sometimes)/perennial rhizomatous herb/July–Aug/5,055–8,205	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Galium johnstonii	Johnston's bedstraw	None/None/4.3	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland, Riparian woodland/perennial herb/ June–July/4,005–7,545	Not expected to occur. The Study Area is below the elevation range of the species.
Goodmania luteola	golden goodmania	None/None/4.2	Meadows and seeps, Mojavean desert scrub, Playas, Valley and foothill grassland; Alkaline (sometimes), Clay (sometimes)/annual herb/Apr–Aug/ 65–7,220	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Heuchera abramsii	Abrams' alumroot	None/None/4.3	Upper montane coniferous forest (rocky)/perennial rhizomatous herb/ July–Aug/9,185–11,485	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Heuchera caespitosa	urn-flowered alumroot	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Riparian forest (montane), Upper montane coniferous forest; Rocky/perennial rhizomatous herb/May–Aug/3,790–8,695	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; Gravelly (sometimes), Sandy (sometimes)/	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
			perennial herb/Feb–July (Sep)/ 230–2,660	
Hulsea vestita ssp. gabrielensis	San Gabriel Mountains sunflower	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; Rocky/perennial herb/May–July/ 4,920–8,205	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Hulsea vestita ssp. *parryi*	Parry's sunflower	None/None/4.3	Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest; Carbonate (sometimes), Granitic (sometimes), Openings, Rocky/perennial herb/ Apr–Aug/4,495–9,500	Not expected to occur. The Study Area is below the elevation range of the species.
Imperata brevifolia	California satintail	None/None/2B.1	Chaparral, Coastal scrub, Meadows and seeps, Mojavean desert scrub, Riparian scrub; Mesic/perennial rhizomatous herb/Sep–May/0–3,985	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Juglans californica	Southern California black walnut	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous tree/Mar–Aug/ 165–2,955	Not expected to occur. This conspicuous species was not observed in the Study Area.
Juncus duranii	Duran's rush	None/None/4.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest; Mesic/perennial rhizomatous herb/July–Aug/ 5,800–9,200	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Lepechinia fragrans	fragrant pitcher sage	None/None/4.2	Chaparral/perennial shrub/Mar–Oct/ 65–4,300	Not expected to occur. This conspicuous species was not observed in the Study Area.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	Chaparral, Coastal scrub/annual herb/ Jan–July/5–2,905	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Leptosiphon aureus	Golden linanthus	None/None/4.2	Chaparral, Cismontane woodland, Valley and foothill grassland/annual herb/Apr—May/5-2,300	Present. Numerous observations of the species were mapped within the gen-tie portion of the Study Area
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; Openings/perennial bulbiferous herb/ Mar–July (Aug)/100–5,905	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Lilium parryi	lemon lily	None/None/1B.2	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest; Mesic/perennial bulbiferous herb/ July–Aug/4,000–9,005	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Linanthus concinnus	San Gabriel linanthus	None/None/1B.2	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest; Openings, Rocky/annual herb/ Apr–July/4,985–9,185	Not expected to occur. The Study Area is below the elevation range of the species.
Loeflingia squarrosa var. *artemisiarum*	sagebrush loeflingia	None/None/2B.2	Desert dunes, Great Basin scrub, Sonoran desert scrub; Sandy/annual herb/Apr–May/2,295–5,295	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Lupinus albifrons var. *johnstonii*	interior bush lupine	None/None/4.3	Chaparral, Lower montane coniferous forest; Decomposed granitic/perennial shrub/May–July/4,920–8,205	Not expected to occur. The Study Area is below the elevation range of the species.
Lupinus elatus	silky lupine	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest/ perennial herb/June–Aug/ 4,920–9,845	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Lupinus peirsonii	Peirson's lupine	None/None/1B.3	Joshua tree "woodland", Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest; Gravelly, Rocky/ perennial herb/Apr–June/3,280–8,205	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
				species was not observed during focused rare plant surveys.
Lycium torreyi	Torrey's box-thorn	None/None/4.2	Mojavean desert scrub, Sonoran desert scrub; Rocky, Sandy, Streambanks, Washes/perennial shrub/(Jan–Feb)Mar–June (Sep–Nov)/-165–4,005	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Malacothamnus davidsonii	Davidson's bush-mallow	None/None/1B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous shrub/June–Jan/ 605–3,740	Not expected to occur. This conspicuous species was not observed in the Study Area.
Monardella australis ssp. *gabrielensis*	San Gabriel Mountains monardella	None/None/1B.2	Broadleafed upland forest, Chaparral, Lower montane coniferous forest; Granitic, Openings/shrub/July–Sep/ 5,245–7,215	Not expected to occur. The Study Area is below the elevation range of the species.
Monardella exilis	Mojave monardella	None/None/4.2	Chenopod scrub, Desert dunes, Great Basin scrub, Joshua tree "woodland", Lower montane coniferous forest, Mojavean desert scrub, Pinyon and juniper woodland; Sandy/annual herb/ Apr–Sep/1,970–6,725	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Monardella viridis	green monardella	None/None/4.3	Broadleafed upland forest, Chaparral, Cismontane woodland/perennial rhizomatous herb/June–Sep/ 330–3,315	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Mucronea californica	California spineflower	None/None/4.2	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; Sandy/annual herb/Mar–July (Aug)/0–4,595	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Muhlenbergia californica	California muhly	None/None/4.3	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadows	Not expected to occur. Suitable micro-habitats (mesic, seeps, and

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
			and seeps; Mesic, Seeps, Streambanks/perennial rhizomatous herb/June–Sep/330–6,560	streambanks) for the species are not present in the Study Area.
Muilla coronata	crowned muilla	None/None/4.2	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland/perennial bulbiferous herb/Mar–Apr (May)/ 2,200–6,430	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Navarretia fossalis	spreading navarretia	FT/None/1B.1	Chenopod scrub, Marshes and swamps (shallow freshwater), Playas, Vernal pools/annual herb/Apr–June/ 100–2,150	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Nemacladus secundiflorus var. *robbinsii*	Robbins' nemacladus	None/None/1B.2	Chaparral, Valley and foothill grassland; Openings/annual herb/Apr–June/ 1,150–5,580	Low potential to occur. The species was initially assessed as having high potential due to the presence of suitable in the Study Area and recent local records (Calflora 2025); however, the species was not observed during focused rare plant surveys.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodland/perennial stem/ Apr–June (Aug)/1,390–5,905	Present. Four individuals were identified in the gen-tie portion of the Study Area during the 2023 focused rare plant surveys.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1	Vernal pools/annual herb/Apr–Aug/ 50–2,165	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Oreonana vestita	woolly mountain-parsley	None/None/1B.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest; Gravelly (sometimes), Talus (sometimes)/ perennial herb/Mar–Sep/ 5,300–11,485	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Packera ionophylla	Tehachapi ragwort	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; Granitic, Rocky/perennial herb/ June–July/4,920–8,860	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Perideridia pringlei	adobe yampah	None/None/4.3	Chaparral, Cismontane woodland, Coastal scrub, Pinyon and juniper woodland; Clay (often), Serpentine/ perennial herb/Apr–June (July)/ 985–5,905	Not expected to occur. Suitable micro-habitats (clay and serpentine soils) for the species are not present in the Study Area.
Phacelia mohavensis	Mojave phacelia	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland; Gravelly (sometimes), Sandy (sometimes)/ annual herb/Apr–Aug/4,595–8,205	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	Chaparral, cismontane woodland, Coastal scrub, Riparian woodland; gravelly benches, dry stream bottoms, Sandy/perennial herb/ (July) Aug–Nov (Dec)/0–6,885	Low potential to occur. The species was initially assessed as having moderate potential due to the presence of suitable in the Study Area; however, the species was not observed during focused rare plant surveys.
Quercus durata var. *gabrielensis*	San Gabriel oak	None/None/4.2	Chaparral, Cismontane woodland/ perennial evergreen shrub/Apr–May/ 1,475–3,280	Not expected to occur. This conspicuous species was not observed in the Study Area.
Quercus engelmannii	Engelmann oak	None/None/4.2	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland/perennial deciduous tree/ Mar–June/165–4,265	Not expected to occur. This conspicuous species was not observed in the Study Area.
Selaginella asprella	bluish spike-moss	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland, Subalpine coniferous forest, Upper montane coniferous forest; Granitic, Rocky/perennial rhizomatous herb/July/5,250–8,860	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/ CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur[2]
Senecio astephanus	San Gabriel ragwort	None/None/4.3	Chaparral, Coastal scrub; Rocky, Slopes/perennial herb/May–July/ 1,310–4,920	Not expected to occur. The Study Area is outside the range of the species.
Sidotheca caryophylloides	chickweed oxytheca	None/None/4.3	Lower montane coniferous forest (sandy)/annual herb/July–Sep (Oct)/3,655–8,530	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Stylocline masonii	Mason's neststraw	None/None/1B.1	Chenopod scrub, Pinyon and juniper woodland; Sandy/annual herb/ Mar–May/330–3,935	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Symphyotrichum greatae	Greata's aster	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland; Mesic/perennial rhizomatous herb/ June–Oct/985–6,590	Not expected to occur. Suitable micro-habitat (mesic conditions) for the species is not present in the Study Area.
Syntrichopappus lemmonii	Lemmon's syntrichopappus	None/None/4.3	Chaparral, Joshua tree "woodland", Pinyon and juniper woodland; Gravelly (sometimes), Sandy (sometimes)/ annual herb/Apr–May (June)/ 1,640–6,005	Low potential to occur. The species was initially assessed as having high potential due to the presence of suitable in the Study Area and recent local records (Calflora 2025); however, the species was not observed during focused rare plant surveys.
Thysanocarpus rigidus	rigid fringepod	None/None/1B.2	Pinyon and juniper woodland; Dry, Rocky, Slopes/annual herb/Feb–May/ 1,965–7,215	Not expected to occur. Herbarium records for the species are only from San Diego and Riverside counties.
Yucca brevifolia	western Joshua tree	None/SC/CBR	Great Basin grassland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland, Sonoran desert scrub, Valley and foothill grassland/perennial leaf succulent/Apr–May/1,310–6,560	Not expected to occur. This conspicuous species was not observed in the Study Area.

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened

State
SC: State candidate for listing
SE: State listed as endangered
SR: State designated as rare
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California but more common elsewhere
4: Plants of limited distribution
CBR: Considered by Rejected for a CRPR
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20% - 80% of occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat)

Plant References

Calflora. 2025. The CalFlora Database: Information on California plants for education, research, and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. Berkeley, California. Accessed February 2025. https://www.calflora.org/.

CDFW (California Department of Fish and Wildlife). 2025. *RareFind,* Version 5.2.14. California Natural Diversity Database (CNDDB). Accessed February 2025. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

CNPS (California Native Plant Society). 2025. *Inventory of Rare and Endangered Plants.* Online Ed. Version 8-03 0.45. Sacramento, California: CNPS. Accessed February 2025. http://www.rareplants.cnps.org/advanced.html.

Consortium of California Herbaria (CCH). 2025. CCH1: Featuring California vascular plant data from the Consortium of California Herbaria and other sources. Regents of the University of California. Accessed February 2025. https://ucjeps.berkeley.edu/consortium/.

Jepson Flora Project. 2025. Jepson eFlora. Berkeley, California: University of California. Accessed February 2025. http://ucjeps.berkeley.edu/eflora/.

USFWS. 2025. IPaC: Information for Planning and Consultation. Powered by ECOS – the Environmental Conservation Online System. Accessed February 2025. https://ecos.fws.gov/ipac/.

Special-Status Wildlife

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Invertebrates				
Bombus crotchii	Crotch's bumble bee	None/CSL	Open grassland and scrub communities supporting suitable floral resources	Moderate potential to occur. The species may nest and forage in the Study Area; however, 2024 focused surveys for the species conducted in the Study Area were negative for the species.
Branchinecta lynchi	vernal pool fairy shrimp	FT/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	FC/None	Wind-protected tree groves with nectar sources and nearby water sources	Not expected to occur (overwintering). Suitable habitat for the species is not present in the Study Area; however, the species may be transient through the area during migration.
Euphydryas editha quino	quino checkerspot butterfly	FE/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Not expected to occur. The Study Area is outside the current range of the species.
Glyptostoma gabrielense	San Gabriel chestnut	None/None	Native to a narrow strip of the front range of the San Gabriel Mountains about 15 miles (24 km) long near Pasadena, California, where it inhabits riparian canyons and other areas with sufficient seasonal moisture	Not expected to occur. The Study Area is outside the current range of the species.
Helminthoglypta fontiphila	Soledad shoulderband	None/None	known only from Little Rock Creek Canyon on the north flank of the San Gabriel Mountains and from	Not expected to occur. The Study Area is outside the current range of the species.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
			the Santa Clara River in Soledad Canyon	
Helminthoglypta traskii pacoimensis	Pacoima shoulderband	None/None	Known only from Pacoima Canyon on the west slope of the San Gabriel Mountains	Not expected to occur. The Study Area is outside the current range of the species.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Fish				
Catostomus santaanae	Santa Ana sucker	FT/None	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	FE/FP, SE	Slow-moving and backwater areas	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gila orcuttii	arroyo chub	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
			third order); adjacent stream terraces and uplands for foraging and wintering	
Rana boylii pop. 6	foothill yellow-legged frog - south coast DPS	FE/SE	Rocky streams and rivers with open banks in forest, chaparral, and woodland	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rana draytonii	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Rana muscosa	mountain yellow-legged frog	FE/SE	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Taricha torosa (Monterey Co. south only)	California newt	None/SSC	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Reptiles				
Actinemys pallida	southwestern pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Anniella pulchra/ Anniella stebbinsi/ Anniella spp.	northern California legless lizard/ southern California legless lizard/ California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. Suitable habitat is present throughout the Study Area and there are recent records in the region; however, moist sandy or loose, loamy soils are limited in the Study Area to beneath the larger California junipers due to the expected higher moisture content of the soil.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Arizona elegans occidentalis	California glossy snake	None/SSC	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils	Low potential to occur. Suitable habitat is present throughout the Study Area.
Aspidoscelis tigris stejnegeri	Coastal whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas	Low potential to occur. Suitable habitat is present throughout the Study Area; however, the Study Area is in the northern limits of the species.
Diadophis punctatus modestus	San Bernardino ring-necked snake	None/None	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gopherus agassizii	Mojave desert tortoise	FT/ST	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Not expected to occur. Suitable habitat for the species is not present in the Study Area, which is also outside the range of the species.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Moderate potential to occur. Suitable habitat is present throughout the Study Area and there are recent nearby records.
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL	Nests and forages in dense stands of live oak, riparian	Not expected to occur (nesting). Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
			woodlands, or other woodland habitats often near water	
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Moderate potential to occur. Suitable habitat is present throughout the Study Area.
Aquila chrysaetos (nesting and wintering)	golden eagle	None/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to nest in the Study Area. Low potential for wintering and as a transient during foraging and migration. There is a 1965 record for nesting by the species to the south of the Study Area in Aliso Canyon.
Artemisiospiza belli belli	Bell's sage sparrow	None/WL	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Moderate potential to occur. Suitable habitat is present throughout the Study Area.
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/CSL	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur in the Study Area. The Study Area is outside of the predicted habitat for the species (CDFW 2024b) and no diagnostic sign of the species was observed during the many surveys of the Study Area
Buteo regalis (wintering)	ferruginous hawk	None/WL	Winters and forages in open, dry country, grasslands, open fields, agriculture	Low potential to occur. Marginal wintering habitat is present in the Study Area but local wintering records of the species are from the Antelope Valley, north of the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur for nesting in the Study Area but may occur as a transient during migration.
Charadrius montanus (wintering)	mountain plover	BCC/SSC	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Falco mexicanus (nesting)	prairie falcon	None/WL	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Gymnogyps californianus	California condor	FE/FP, SE	Nests in rock formations, deep caves, and occasionally in cavities in giant sequoia trees *(Sequoiadendron giganteus*); forages in relatively open habitats where large animal carcasses can be detected	Not expected to occur for nesting. Suitable nesting habitat for the species is not present in the Study Area. The species could be a transient in the area for foraging.
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Present. An individual was observed in 2023, suitable habitat for the species is present in the Study Area, and there are recent local records.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Toxostoma lecontei	LeConte's thrasher	BCC/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Mammals				
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Low potential to occur for roosting and may forage over the Study Area. Suitable roosting habitat (trees) for the species is present in the Study Area.
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/None	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. In Los Angeles County, records of the species are from the eastern desert foothills of the San Gabriel Mountains.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. Suitable habitat is present throughout the Study Area; however, the Study Area is in the northern limits of the species.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Myotis thysanodes	fringed myotis	None/None	Drier woodlands (oak, pinyon–juniper, and ponderosa pine), desert scrub, mesic coniferous forest, grassland, and sage–grass steppe; sea level to 9,350 ft; roosts in buildings, mines, rocks, cliff faces, bridges, and large, decadent trees and snags	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Myotis volans	long-legged myotis	None/None	Primarily coniferous forests, but also seasonally in riparian and desert habitats; roosts in crevices in cliffs, caves, mines, buildings, exfoliating tree bark, and snags	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Myotis yumanensis	Yuma myotis	None/None	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Not expected to occur for roosting but may forage over the Study Area. Suitable roosting habitat for the species is not present in the Study Area.
Neotamias speciosus speciosus	lodgepole chipmunk	None/None	Lodgepole pine forests	Not expected to occur. Suitable habitat for the species is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Suitable habitat for the species is not present in the Study Area.
Perognathus inornatus	San Joaquin pocket mouse	None/None	Open grassland and scrub areas on fine-textured soils	Not expected to occur. In Los Angeles County, records of the species are from the foothills of the Liebre Mountains.
Puma concolor (Southern California/Central Coast Evolutionarily Significant Unit)	mountain lion	None/CSL	Require large areas of relatively undisturbed habitats with adequate connectivity; these often consist of pine forests, riparian and oak woodlands, streams, chaparral, and grasslands, though they are also known to occur in desert habitats	High potential to occur. The Study Area is part of large areas of relatively undisturbed habitats with adequate connectivity so it is expected that the species could use the Study Area as part of a home range. State Route 14 may reduce connectivity between the San Gabriel and Sierra Pelona mountains but not prohibit it. The species is not expected to have natal dens in the Study Area since females typically avoid establishing a den near human activity (Center for Biological Diversity and the Mountain Lion Foundation 2019)
Taxidea taxus	American badger	None/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils; needs sufficient food, friable soils and open, uncultivated ground; preys on burrowing rodents and digs burrows	Low potential to occur. Suitable habitat is present in the Study Area but no individuals were observed and no diagnostic sign (i.e., burrows or digs with the species' conspicuous claw marks) were observed during the extensive surveys. There is one record within 20 miles of the Study Area from 1930 at Lake Los Angeles (CDFW 2025). There is one 2021 iNaturalist record approximately 8.6 miles to the west near Agua Dulce (iNaturalist 2025).
Xerospermophilus mohavensis	Mohave ground squirrel	None/ST	Desert scrub habitats including those dominated by creosote bush	Not expected to occur. Suitable habitat for the species is not present in the Study Area and it is outside the range of the species.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
			and burrobush, desert sink scrub, and desert saltbush scrub	

Status Legend
Federal
BCC: Bird of Conservation Concern (U.S. Fish and Wildlife Service)
FC: Candidate for federal listing as threatened or endangered
FE: Federally listed as endangered
FT: Federally listed as threatened
State
FP: California Fully Protected Species
SE: State listed as endangered
SSC: California Species of Special Concern
ST: State listed as threatened
CSL: Candidate for State Listing
WL: CDFW Watch List Species

Wildlife References

Allen, L.W., K.L. Garrett, and M.C. Wimer. 2016. *Los Angeles County Breeding Bird Atla*s. Los Angeles, Calif.: Los Angeles Audubon Society.

Blood, B. 2024. Guide to the Terrestrial Mammals of Southern California and Eastern and Southern Sierra Nevada. California. Outskirts Press.

CDFW (California Department of Fish and Wildlife). 2025a. *RareFind*, Version 5.2.14. California Natural Diversity Database (CNDDB). Accessed May 2025. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

CDFW. 2025b. CWHR Life History Accounts and Range Maps – Website. Updated versions of species information in Zeiner et al. 1988–1990. CDFW, CWHR Program. Accessed May 2025. https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

Center for Biological Diversity and the Mountain Lion Foundation. 2019. A Petition to List the Southern California/Central Coast Evolutionarily Significant Unit (ESU) of Mountain Lions as Threatened under the California Endangered Species Act (CESA). Accessed May 2025. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171208&inline.

eBird. 2025. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Accessed May 2025. http://www.ebird.org.

Hansen, R. and Shedd, J. 2025. California Amphibians and Reptiles. New Jersey. Princeton University Press. January 2025.

iNaturalist. 2025. iNaturalist, an online community database. Accessed May 2025. https://www.inaturalist.org/.

Magney, D. 2009. Los Angeles County Wildlife - Terrestrial Gastropods (Snails and Slugs). Accessed May 2025. https://magney.org/photofiles/Snails-LosAngelesCounty.htm.

Miner, K.L., and D.C. Stokes. 2005. “Bats in the South Coast Ecoregion: Status, Conservation Issues, and Research Needs.” USDA Forest Service Gen. Tech. Rep. PSW-GTR-195:211-277.

Mock, P. 2004. California Gnatcatcher (*Polioptila californica*). In The Coastal Scrub and Chaparral Bird Conservation Plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California. California Partners in Flight. Accessed May 2025. http://www.prbo.org/calpif/htmldocs/scrub.html.

Nafis, G. 2025. *California Herps - A Guide to the Amphibians and Reptiles of California*. Accessed May 2025. http://www.californiaherps.com/.

PISCES. 2014. PISCES Range Data. California Fish Data and Management Software. Center for Watershed Sciences. University of California, Davis. Accessed May 2025. https://pisces.ucdavis.edu/fish.

USFWS. 2019. Recovery Plan for Quino checkerspot butterfly (*Euphydryas editha quino*) Draft Amendment 1. Original Approved August 11, 2003. Original prepared by Alison Williams-Anderson for U.S. Fish and Wildlife Service, Region 8. Carlsbad, California. March 2019. Accessed May 2025. https://ecos.fws.gov/docs/recovery_plan/Draft%20RP%20Amendment%20for%20QCB_1.pdf.

The Xerces Society. 2018. *A Petition to the State of California Fish and Game Commission to List the Crotch bumble bee (Bombus crotchii), Franklin's bumble bee (Bombus franklini), Suckley cuckoo bumble bee (Bombus suckleyi), and western bumble bee (Bombus occidentalis occidentalis) as Endangered under the California Endangered Species Act*. Submitted by The Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety. October 2019. Accessed May 2025. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161902&inline.

WBWG (Western Bat Working Group). 2017. "Western Bat Species." Western Bat Working Group Website. Accessed May 2025. https:// http://wbwg.org/western-bat-species/.

INTENTIONALLY LEFT BLANK

Appendix 3.2C

California Natural Diversity Database Forms

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDB@wildlife.ca.gov

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

Date of Field Work (mm/dd/yyyy): 05/02/2023

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Leptosiphon aureus*

Common Name: golden linanthus

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 22 Subsequent Visit? (●) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Michael Cady
Address: 225 S Lake Ave, Suite 225-M210
Pasadena, CA 91101
E-mail Address: mcady@dudek.com
Phone: 626 204 9841

Plant Information

Phenology:
_____ % vegetative 100 % flowering _____ % fruiting

Animal Information

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

[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [ ] other

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

Acton, south and southwest of the Southern California Edison Vincent Substation.

County: Los Angeles Landowner / Mgr: Private

Quad Name: Acton and Pacifico Mountain Elevation: 3.200

T 5N R 12W Sec 27, SW 1/4 of SW 1/4, Meridian: H ( ) M ( ) S (●)

T 5N R 12W Sec 27, SE 1/4 of SW 1/4, Meridian: H ( ) M ( ) S (●)

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

GPS Make & Model: ESRI Collector App on smartphone

DATUM: **NAD27** ( ) **NAD83** (●) **WGS84** ( )

Horizontal Accuracy: 5 meters/feet

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

Coordinates: Three distinct location centered on (using Google Earth): 34.481144°, -118.127042°; 34.482630°, -118.125178°; and 34.485483°, -118.122460°.

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Vegetation is Juniperus californica/herbaceous Association and Artemisia californica - Eriogonum fasciculatum Association. Soils are Hanford coarse sandy loam, 2 to 9 percent slopes; Terrace escarpments; Greenfield sandy loam, 2 to 9 percent slopes; and Hanford sandy loam, 2 to 9 percent slopes.
Aspect is north- and south-facing slopes.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent (●) Good ( ) Fair ( ) Poor

Immediate AND surrounding land use: Vincent Substation, residential development, equestrian properties

Visible disturbances: Unpaved roads

Threats: Transmission project

Comments:

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

[X] Keyed (cite reference): Jepson eFlora
[ ] Compared with specimen housed at: _____
[X] Compared with photo / drawing in: Calflora
[ ] By another person (name): _____
[ ] Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[X]
Habitat	[ ]	[ ]	[X]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? (●) yes ( ) no

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDB@wildlife.ca.gov

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

Date of Field Work (mm/dd/yyyy): 07/01/2024

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Lanius ludovicianus*

Common Name: loggerhead shrike

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 1 Subsequent Visit? ( ) Yes (●) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Michael Cady
Address: 225 S Lake Ave, Suite 225-M210
Pasadena, CA 91101
E-mail Address: mcady@dudek.com
Phone: 626 204 9841

Plant Information

Phenology:

_____ % vegetative _____ % flowering _____ % fruiting

Animal Information

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

[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [X] other

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

Acton, just west of the Southern California Edison Vincent Substation.

County: Los Angeles Landowner / Mgr: Private

Quad Name: Acton Elevation: 3,045

T 5N R 12W Sec 28, NE 1/4 of SE 1/4, Meridian: H ( ) M ( ) S (●)

T ___ R ___ Sec ___, ___ 1/4 of ___ 1/4, Meridian: H ( ) M ( ) S ( )

DATUM: **NAD27** ( ) **NAD83** (●) **WGS84** ( )

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

Coordinates: 34.485503°, -118.134619°

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

GPS Make & Model: ESRI Collector App on smartphone

Horizontal Accuracy: 5 meters meters/feet

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Habitat is Juniperus californica/herbaceous association. Soils are Hanford coarse sandy loam, 2 to 9 percent slopes. Location was in a valley with hillsides to the east and west.

The individual was observed perched on California juniper and foraging.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent ( ) Good (●) Fair ( ) Poor

Immediate AND surrounding land use: Vincent Substation, residential development, railroad tracks, State Route 14

Visible disturbances: Unpaved roads

Threats: Development

Comments:

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

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

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[ ]
Habitat	[ ]	[ ]	[X]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? (●) yes ( ) no

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDB@wildlife.ca.gov

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

Date of Field Work (mm/dd/yyyy): 05/01/2023

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: *Opuntia basilaris var. brachyclada*

Common Name: short-joint beavertail

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 4 Subsequent Visit? (●) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Michael Cady
Address: 225 S Lake Ave, Suite 225-M210
Pasadena, CA 91101
E-mail Address: mcady@dudek.com
Phone: 626 204 9841

Plant Information

Phenology:
75 % vegetative | 25 % flowering | _____ % fruiting

Animal Information

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

[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [ ] other

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

Acton, south and southwest of the Southern California Edison Vincent Substation.

County: Los Angeles Landowner / Mgr: Private
Quad Name: Acton and Pacifico Mountain Elevation: 3,200
T 5N R 12W Sec 27, SE 1/4 of SW 1/4, Meridian: H ( ) M ( ) S (●) Source of Coordinates (GPS, topo. map & type): GPS
T ___ R ___ Sec ___, ___ 1/4 of ___ 1/4, Meridian: H ( ) M ( ) S ( ) GPS Make & Model: ESRI Collector App on smartphone
DATUM: **NAD27** ( ) **NAD83** (●) **WGS84** ( ) Horizontal Accuracy: 5 meters/feet
Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) ***OR*** Geographic (Latitude & Longitude) (●)
Coordinates: 34.481522°, -118.127349°; 34.480883°, -118.125018°; 34.482431°, -118.124846°; and 34.482571°, -118.124357°

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Vegetation is Juniperus californica/herbaceous Association.
Soils are Hanford coarse sandy loam, 2 to 9 percent slopes; Vista coarse sandy loam, 30 to 50 percent slopes; and Terrace escarpments.
Aspect is north-facing slopes

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent (●) Good ( ) Fair ( ) Poor
Immediate AND surrounding land use: Vincent Substation, residential development, equestrian properties
Visible disturbances: dirt roads
Threats: Transmission project
Comments:

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

[X] Keyed (cite reference): Jepson eFlora
[ ] Compared with specimen housed at: _____
[X] Compared with photo / drawing in: Calflora
[ ] By another person (name): _____
[ ] Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[X]
Habitat	[ ]	[ ]	[X]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? (●) yes ( ) no

Appendix 3.2D

1602 Lake and Streambed Alteration Agreement Application (to be provided)

Appendix 3.2E

Waste Discharge Requirements Application
(to be provided)

Appendix 3.2F
Nitrogen Deposition Model

Prairie Song Reliability Project

Nitrogen Deposition Emissions Estimate

AERMOD Source Name	Equipment Description	NH_3 Limit (ppm)	Gas Exhaust Velocity (cfm)	Emissions NH_3 (lb/hr)	Emissions NH_3 (lb/yr)	Emissions NOx (lb/hr)	Emissions NOx (lb/yr)	Emissions ADN (lb/hr)	Emissions ADN (lb/yr)	Annualized AERMOD ADN (lb/hr)
GEN1	220 kW Generator Exhaust - Testing/Maintenance	10	1,797	0.04758	2.38	0.21	10.68	0.26	13.06	0.0015
GEN2	500 kW Generator Exhaust - Testing/Maintenance	10	935	0.02475	1.24	0.49	24.60	0.52	25.84	0.0029
GEN3	500 kW Generator Exhaust - Testing/Maintenance	10	935	0.02475	1.24	0.49	24.60	0.52	25.84	0.0029

Notes:

Three generators anticipated for emergency backup for operations. Stack parameters based on SBCAPCD DICE Defaults (SBCAPCD 2025), if specifics were not available on generator spec sheets.

Operational maintenance and testing for: 2 hours/day 50 hours/year

lb/hour emissions rate based on ADN (atmospheric derived nitrogen) released during each hour of testing/maintenance. However, since AERMOD N2 deposition is an annual scenario, to estimate lb/hr normalized emissions over the entire year, the lb/year value was divided by the number of hours in a year

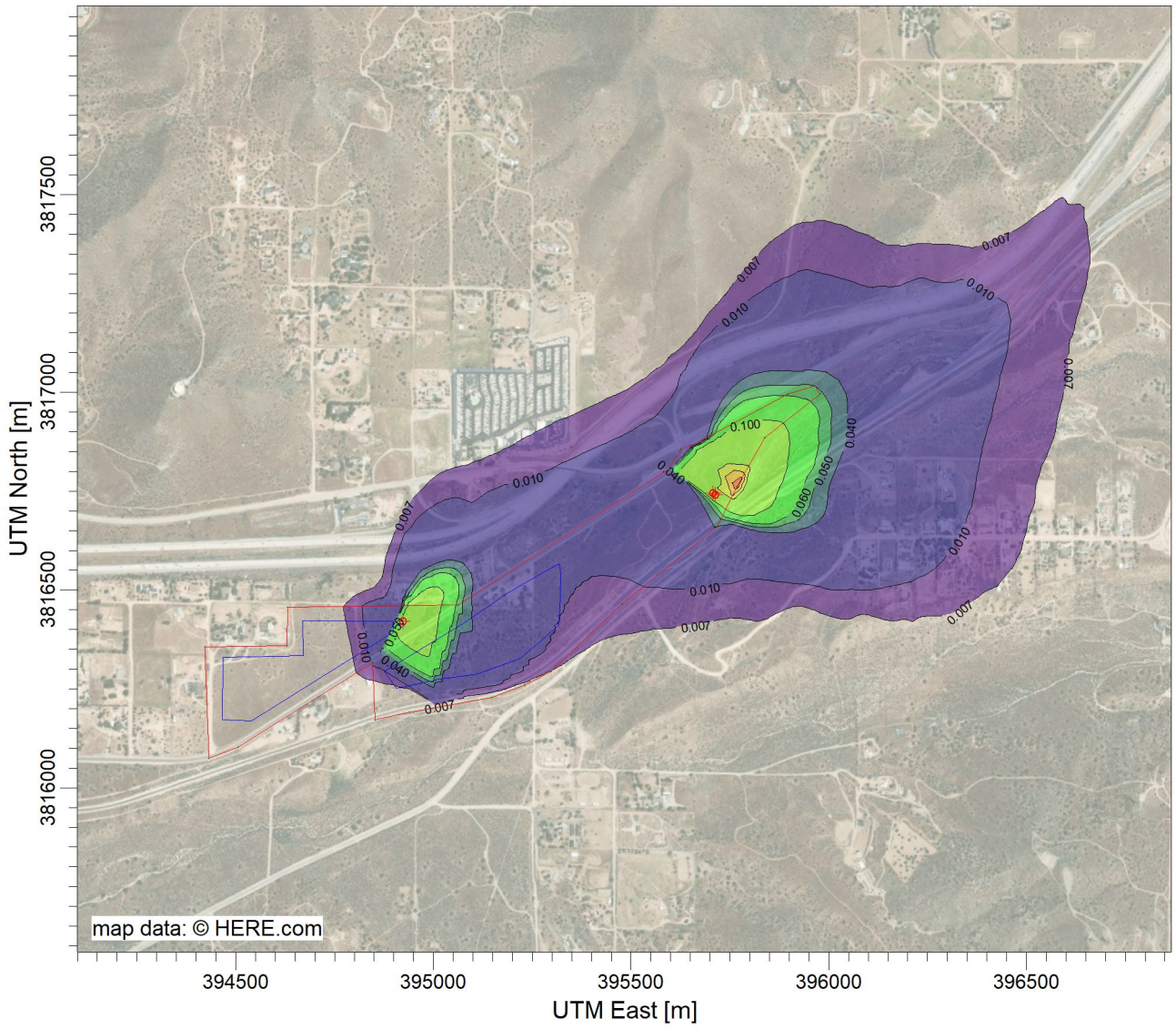
Conversions:

10ppm =	0.00001	ft^3/ft^3 stack flow
1 lb mole NH_3 =	385.3	ft^3 NH_3
1 lb-Mole NH3	17	lb NH3
1 (m^3/min)	35.31481481	ft^3/min
1 hour	60	minutes
1 g/m2	10	kg/ha

Operations =	24	hours/day
	8,760	hours/year
	365	days/year
	12	months

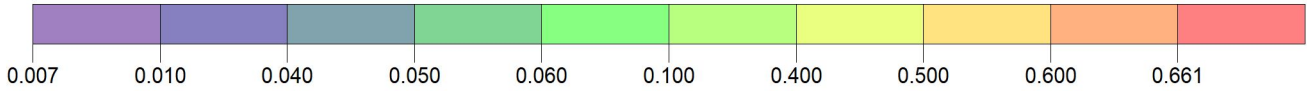
PROJECT TITLE:

Nitrogen Deposition Loading - 0.5 Mile Radius



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL kg/ha

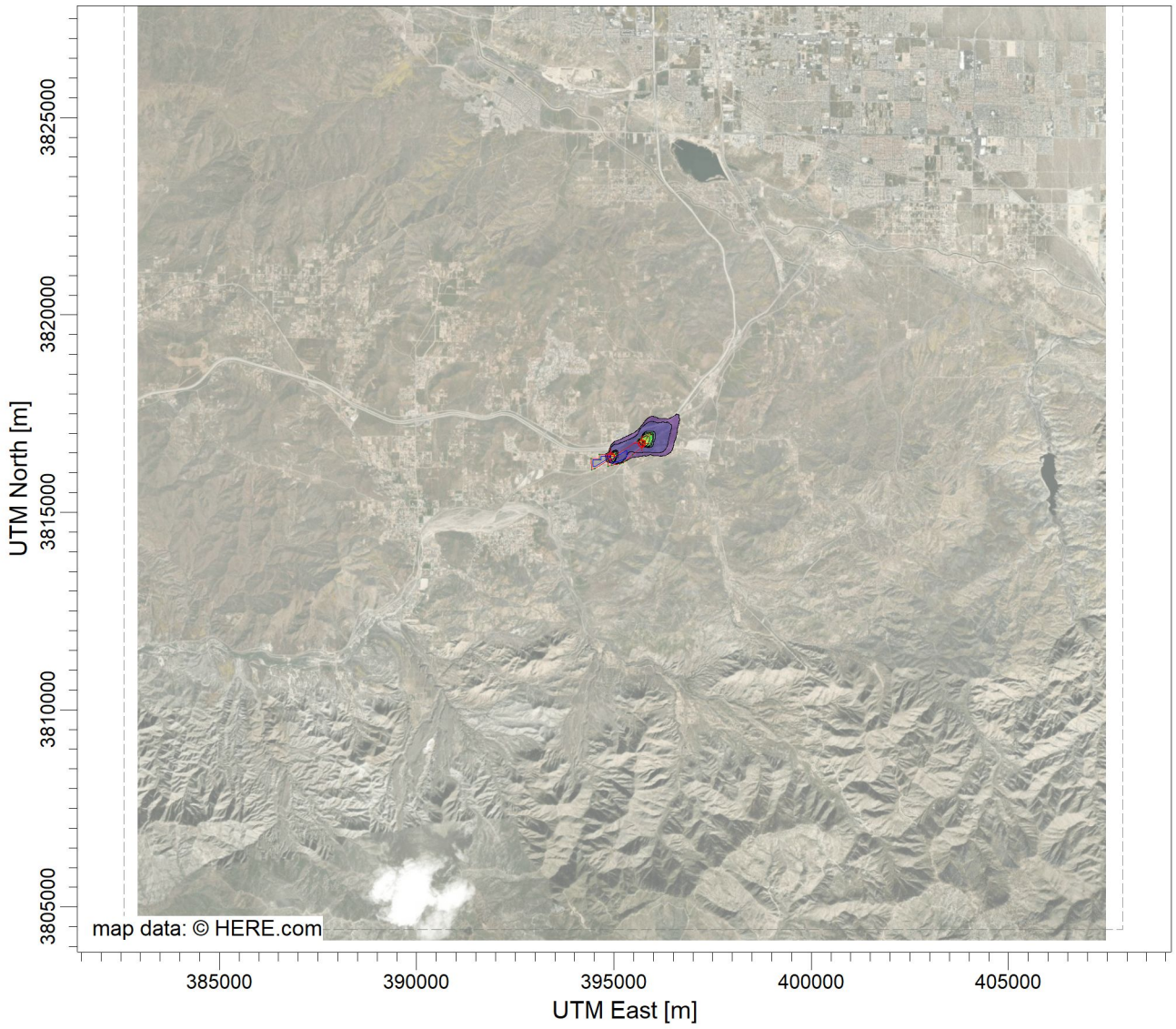
Max: 0.661 [kg/ha] at (395767.24, 3816761.28)



COMMENTS:	SOURCES: **3**		
	RECEPTORS: **34698**		
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:17,407 0 0.5 km	
	MAX: **0.661 kg/ha**	DATE: **5/30/2025**	PROJECT NO.:

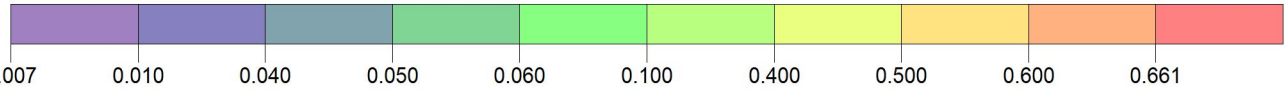
PROJECT TITLE:

Nitrogen Deposition Loading - 6 Mile Radius



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL kg/ha

Max: 0.661 [kg/ha] at (395767.24, 3816761.28)



COMMENTS:	SOURCES: **3**		
	RECEPTORS: **34698**		
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:174,390 0 5 km	
	MAX: **0.661 kg/ha**	DATE: **5/30/2025**	PROJECT NO.: