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Via E-mail
April 28, 2022

Travis Martin
Community & Economic Development Department
City of San Bernardino
201 N. E Street, 3rd Floor
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Re: Comment on the Initial Study/ Mitigated Negative Declaration for the Amazing 34 Distribution Center Project

Dear Mr. Martin:

I am writing on behalf of Supporters Alliance For Environmental Responsibility (“SAFER”) regarding the Initial Study and Mitigated Negative Declaration (“IS/MND”) prepared for the Amazing 34 Distribution Center Project, including all actions related or referring to the proposed demolition of two onsite warehouse distribution buildings, and construction of a single new distribution warehouse totaling approximately 89,475 square feet located at 791 South Waterman Avenue in the City of San Bernardino (“Project”).

After reviewing the IS/MND, we conclude the IS/MND fails as an informational document, and that there is a fair argument that the Project may have adverse environmental impacts. Therefore, we request that the City of San Bernardino (“City”) prepare an environmental impact report (“EIR”) for the Project pursuant to the California Environmental Quality Act (“CEQA”), Public Resources Code section 21000, et seq.

This comment has been prepared with the assistance of expert consulting firm RK Engineering and expert wildlife biologist Shawn Smallwood, Ph.D. RK Engineering’s and Dr. Smallwood’s comments and curriculum vitae are attached as Exhibit B and C hereto and are incorporated herein by reference in their entirety.

I. PROJECT DESCRIPTION

The proposed Project is described as involving the demolition of two warehouses which it states are currently on the Project site in order to construct a single new distribution warehouse. The site is 3.84 acres and will consist of a 77,562 square foot (sf) warehouse, 7,353 sf of warehouse mezzanine, and 4,560 sf of wholesale and office space. There are single-family homes directly east and north of the Project site. The

project will require a zoning amendment from Office Industrial Park to Industrial Light. The MND states that construction is estimated to begin on July 15, 2022 and end on September 1, 2023.

II. LEGAL STANDARD

As the Supreme Court held, “If no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR.” *Communities for a Better Environment v. South Coast Air Quality Management Dist. (ConocoPhillips)* (2010) 48 Cal. 4th 310, 319-320, citing, *No Oil, Inc. v. City of Los Angeles*, 13 Cal.3d at pp. 75, 88; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal. App. 3d 491, 504–505. “The ‘foremost principle’ in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.” *Communities for a Better Environment v. Calif. Resources Agency* (2002) 103 Cal. App. 4th 98, 109.

The EIR is the very heart of CEQA. *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1214; *Pocket Protectors v. City of Sacramento* (2004) 124 Cal. App. 4th 903, 927. The EIR is an “environmental ‘alarm bell’ whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return.” *Bakersfield Citizens*, 124 Cal.App.4th at 1220. The EIR also functions as a “document of accountability,” intended to “demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.” *Laurel Heights Improvements Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392. The EIR process “protects not only the environment but also informed self-government.” *Pocket Protectors*, 124 Cal.App.4th 927.

An EIR is required if “there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment.” Pub. Res. Code § 21080(d) (emphasis added); see also *Pocket Protectors*, 124 Cal.App.4th at 927. In very limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact thus requiring no EIR (CEQA Guidelines § 15371), only if there is not even a “fair argument” that the project will have a significant environmental effect. Pub. Res. Code §§ 21100, 21064. Since “[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process,” by allowing the agency “to dispense with the duty [to prepare an EIR],” negative declarations are allowed only in cases where “the proposed project will not affect the environment at all.” *Citizens of Lake Murray v. San Diego*, 129 Cal.App.3d 436, 440 (1989). CEQA contains a “**preference for resolving doubts in favor of environmental review.**” *Pocket Protectors*, 124 Cal.App.4th at 927 (emphasis in original).

III. DISCUSSION

A. The City Has Allowed Project Development Prior to the Certification of the Final MND, Thereby Undermining the Fundamental Purpose of CEQA – To Require Consideration of Environmental Factors Prior to Project Implementation.

The MND states that “[t]he Project involves the demolition of existing warehouse building [sic] to make way for a single new distribution warehouse . . .” MND, p. 11. Additionally, the MND section on Existing Conditions states that “[t]he Project site is currently developed with 2 warehouse distribution buildings to be demolished.” MND, p. 9. However, a search of the Project site on Google Maps demonstrates that the site had in fact been cleared of the two buildings as of at least August 2021. See Screenshots of property, Exhibit A. Additionally, expert wildlife biologist Shawn Smallwood, Ph.D., conducted a site review of the Project site on April 25, 2022 and found that “where buildings once stood, only vacant pads remained” on site. Smallwood Report, Exhibit C, p. 1; Photo 1, p.2 (showing a view of the project site upon which there are currently no buildings). The MND’s description of the Project as involving demolition of warehouses onsite, and its description of existing conditions as including two warehouses onsite is therefore false and misleading.

CEQA is first and foremost designed to require governmental decisionmakers to consider the environmental impacts of their actions *before* proceeding with a proposed project. The City violated this most fundamental requirement of CEQA by allowing developers to commence demolition of buildings for the proposed project before the mitigated negative declaration was certified, and before the document had been circulated for public consideration and comment. In so doing, the City has undermined the basic goals of CEQA.

CEQA states that the lead agency must consider public comment on the negative declaration “prior to carrying out or approving a project for which a negative declaration has been adopted.” CEQA § 21091(e). Requiring early consideration of environmental impacts allows the decisionmaker to require more environmentally beneficial project alternatives or mitigation measures at a point when true flexibility remains. CEQA requires environmental factors to be considered at the “earliest possible stage . . . before [the project] gains irreversible momentum,” (*Bozung v. Local Agency Formation Comm.*, (1975)13 Cal.3d 263, 277), “at a point in the planning process ‘where genuine flexibility remains.’” *Sundstrom v. Mendocino County*, (1988) 202 Cal.App.3d 296, 307.

The City violated this basic tenet of CEQA law by allowing site demolition to commence prior to the circulation of the MND. In so doing, the City effectively deprived the public of its right to “have an appropriate voice in the formulation of any decision [affecting the environment].” *Environmental Planning v. County of El Dorado* (1982) 131 Cal.App.3d 350, 354.

B. The MND Fails to Provide an Accurate Project Description.

An accurate and stable project description is a bedrock requirement of CEQA, as demonstrated by the Court in the case of *County of Inyo v. City of Los Angeles*:

Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the “no project” alternative) and weigh other alternatives in the balance. An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR.

(1977) 71 Cal.App.3d 185 at 192-93. The ability of informed citizens to participate in environmental review is a key component of CEQA. *Washoe, supra*, 17 Cal.App.5th at 285 [“Informed public participation is essential to environmental review under CEQA.”]; *Inyo, supra*, 71 Cal.App.3d at 192 [“The EIR process facilitates CEQA’s policy of supplying citizen input.”]. Through the EIR process, CEQA “provide[s] public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment.” *Washoe, supra*, 17 Cal.App.5th at 286 [quoting Pub. Res. Code § 21061].

As discussed above, the MND describes the Project as including demolition of two buildings onsite, but those buildings have already been demolished. The Project’s description therefore fails to meet CEQA standards. The City must prepare a revised MND, or an EIR which includes an accurate project description.

C. The MND Incorrectly Reports the Project’s Baseline Environmental Conditions, Therefore its Analysis of Impacts is Inadequate.

Before analyzing a project’s impacts, an EIR must first identify and describe “the physical environmental conditions in the vicinity of the project as they exist at the time the notice of preparation is published.” 14 CCR § 15125(a). This information is critical to the EIR’s impact analysis because it serves as the baseline against which a project’s predicted effects can be described and quantified. 14 CCR § 15125(a); *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447 (*Smart Rail*). A description of important environmental resources that will be adversely affected by the project is critical to a legally adequate discussion of the environmental setting, and emphasis is to be placed on rare or unique environmental resources when describing the environmental setting. 14 CCR § 15125(c); *San Joaquin Raptor/Wildlife Rescue Ctr. v County of Stanislaus* (1994) 27 Cal.App.4th 713, 722-30 [description of the environmental setting deficient because it did not disclose the specific location and extent of riparian habitat adjacent to the property, inadequately investigated the possibility of wetlands on the site, understated the significance of the project’s location adjacent to a river, and failed to discuss a nearby wildlife preserve].)

Courts have repeatedly held that where an EIR contains an “inadequate description of the environmental setting for the project, a proper analysis of project impacts [i]s impossible.” *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1122 [invalidating EIR with only passing references to surrounding viticulture]; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 873-75. “[T]he impacts of the project must be measured against the ‘real conditions on the ground,’” and not against hypothetical permitted levels. *Save Our Peninsula Committee v. County of Monterey* (2001) 87 Cal.App.4th 99, 124-125. As the court has explained, using such a skewed baseline “mislead(s) the public” and “draws a red herring across the path of public input.” *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 656; *Woodward Park Homeowners v. City of Fresno* (2007) 150 Cal.App.4th 683, 708-711.

Here, the City has analyzed almost all environmental impacts in the MND assuming that there are two warehouses currently onsite which will be demolished as part of the Project. All of the sections which rely on this improper baseline are therefore inadequate, and the City must prepare a revised MND or an EIR which accurately assesses the Project’s impacts.

D. The Project Will Have Significant Adverse Energy Impacts That the IS/MND Fails to Adequately Analyze and Mitigate.

RK Engineering Group (RK) conducted a peer review of the MND from an energy impact standpoint and provided comments. RK Engineering’s comment letter and CV are attached as Exhibit B and summarized below.

1. The MND Fails to Adequately Discuss Renewable Energy Sources.

RK Engineering found that the MND did not discuss whether renewable energy sources could be incorporated into the project. Ex. B, p. 2. In failing to do so, the MND failed to adequately evaluate energy impacts, and a potentially significant impact may therefore occur. *Id.* In support of its conclusions, RK points to a recent California court case, *League to Save Lake Tahoe Mountain Area Preservation Foundation, et al. v. County of Placer, et al.* (2022) 75 Cal. App. 5th 63 (*League to Save Lake Tahoe*), in which the court ruled that an EIR should “address the project’s potential to increase its use of renewable energy sources.” *Id.* at 1. RK states that this ruling is consistent with CEQA Guidelines on energy, which state that “the means of achieving energy conservation includes decreasing the reliance on fossil fuels, such as coal, natural gas and oil, and increasing reliance on renewable energy sources.” *Id.* at 2. In failing to discuss renewable energy, the MND has failed to adequately analyze energy impacts, and the City should prepare an EIR which does so.

2. The MND Fails to Consider and Implement all Feasible Mitigation Measures.

RK recommends a number of mitigation measures which could be implemented for the Project to ensure that it would not result in the wasteful, inefficient, or unnecessary consumption of energy. Ex. B, p. 2. RK's recommendations stem from the California Attorney General's Bureau of Environmental Justice's letter on Warehouse Projects, which provides recommendations on best practices and mitigation for reduction of energy consumption. *Id.*; see also, State of California, Department of Justice, *Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act*, <https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf>. RK concludes that "[b]y not incorporating all feasible mitigation measures, the project has the potential to result in wasteful, inefficient or unnecessary consumption of energy." *Id.* at 5. An EIR should be prepared for the Project which adequately assesses the Project's energy impacts and potential mitigation measures.

E. The Project Will Have Significant Adverse Biological Impacts That the IS/MND Fails to Adequately Analyze and Mitigate.

Shawn Smallwood, Ph.D. reviewed the IS/MND's analysis of the Project's biological impacts, in addition to conducting a site visit of the Project site. Dr. Smallwood's comment letter and CV are attached as Exhibit C and his comments are briefly summarized here.

1. The IS/MND is inadequate in its characterization of the existing environmental setting as it relates to wildlife.

Dr. Smallwood's analysis of the Project's impacts is supported by a site visit that he conducted on April 25, 2022. Ex. C, p. 1. Dr. Smallwood reconnoitered the area for 1 hour and 50 minutes at 6:14 am, and for another hour starting at 10:18 am, both times with the use of binoculars. *Id.* During that visit, he observed the presence of 22 species of vertebrate wildlife at and near the Project site, two of which are special-status species. *Id.*, see Ex. B, Table 1, p. 3. Dr. Smallwood found that the site "composed an island of open space that would attract any wildlife in search of breeding opportunities, forage, or stop-over opportunities during long-distance travel." *Id.* at 2.

Every CEQA document must start from a "baseline" assumption. The CEQA "baseline" is the set of environmental conditions against which to compare a project's anticipated impacts. *Communities for a Better Env't. v. So. Coast Air Qual. Mgmt. Dist.* (2010) 48 Cal. 4th 310, 321. Dr. Smallwood found that the IS/MND was incomplete and inaccurate in its characterization of environmental setting due to an inadequate biological survey and a review of literature and databases that was too cursory. Ex. C, p. 8-21. The biological survey for the IS/MND was prepared by Gonzales Environmental Consulting in June 2021 (GEC Report). The GEC Report only detected a fraction of the species identified by Dr. Smallwood, despite having surveyed the area for a longer

period of time and having had direct access to the site. Ex. C, p. 8. Notably, Dr. Smallwood pointed out that the GEC Report did not record having seen signs of pocket gophers, which Dr. Smallwood observed were numerous, including ones that were spilling onto the sidewalk. *Id.*, see also, Photo 11, p. 10. Dr. Smallwood concluded that his findings demonstrate that there is a fair argument that an EIR should be prepared to accurately characterize the environmental baseline and properly assess impacts to wildlife. *Id.* at 8.

Dr. Smallwood also identified flaws in the IS/MND's review of databases. Ex. C, p. 15. The GEC Report only reviewed the California Natural Diversity Data Base ("CNDDDB") and inappropriately used it to screen out special-status species from further consideration. *Id.* at 15-16. Dr. Smallwood looked at additional databases that are useful to determine presence and likelihood of presence, such as eBird and iNaturalist. *Id.* Based on that review, he identified 99 special-status species that could potentially occur on-site, as compared to the GEC Report's 41. *Id.*; see also Table 2, p. 17-20. Ultimately, Dr. Smallwood found that "[t]he site provides one of the few remaining opportunities in the region for wildlife to find breeding substrate and opportunities to forage and stop-over during travel." *Id.* at 21.

A skewed baseline such as the one used by the City here ultimately "mislead(s) the public" by engendering inaccurate analyses of environmental impacts, mitigation measures and cumulative impacts for biological resources. See *San Joaquin Raptor Rescue Center*, 149 Cal.App.4th 645, 656; *Woodward Park Homeowners*, 150 Cal.App.4th 683, 708-711. This inaccurate baseline and the species identified by Dr. Smallwood warrants discussion and analysis in an EIR to ensure species are accurately detected and that any impacts are mitigated to a less than significant level.

2. The IS/MND fails to analyze the Project's impact on lost breeding capacity.

Dr. Smallwood found that the Project would contribute to a decline in birds in North America, a trend that has been happening over the last approximately 50 years largely due to habitat loss and fragmentation and would be further exacerbated by this project. Ex. C, p. 21. Based on studies on the subject, Dr. Smallwood estimates that the presence of the Project on the site could lead to as many as 66 bird nests lost annually. *Id.* He further found that the reproductive capacity of the site would be lost, as the Project would prevent 191 fledglings per year, which would in turn contribute to the lost capacity of 217 birds per year. *Id.* at 22.

Because this impact was not addressed in the IS/MND and Dr. Smallwood has presented substantial evidence of a fair argument that habitat loss will impact species, the City must prepare an EIR to analyze the impact.

3. The IS/MND fails to analyze the project's impact to wildlife movement.

Dr. Smallwood found that the IS/MND falsely claimed to have performed analyses to determine whether the Project would adversely impact wildlife movement. Ex. C, p. 22. Despite the MND's claims, it "identifie[d] no seasonal foraging grounds, nor does it provide any foundation for analysis of genetic exchange among populations. And in fact, no level of demographic organization is characterized for any species of wildlife in the area, nor is there any description of how and to where wildlife move, disperse, or migrate in the area." *Id.*

Based on his assessment of the site, Dr. Smallwood determined that due to the multiple species of wildlife residing onsite, the majority of which are breeding, there would be offspring needing to disperse from the site, as well as other species which would need to come to the site to breed and persist. *Id.* He concluded that "[a]s one of the last remaining patches of open space in the region, it is likely very important to wildlife movement," and an EIR should be prepared to properly analyze this impact. *Id.*

4. The IS/MND fails to analyze the project's impacts on wildlife from additional traffic generated by the Project.

According to the IS/MND, the Project will generate 913,213 annual Vehicle Miles Traveled ("VMT"). Ex. C. p. 24. Yet the IS/MND provides no analysis of the impacts on wildlife that will be caused by the traffic on the roadways servicing the Project.

Vehicle collisions with special-status species is not a minor issue, but rather results in the death of millions of species each year. Dr. Smallwood explains:

In Canada, 3,562 birds were estimated killed per 100 km of road per year (Bishop and Brogan 2013), and the US estimate of avian mortality on roads is 2,200 to 8,405 deaths per 100 km per year, or 89 million to 340 million total per year (Loss et al. 2014). Local impacts can be more intense than nationally. The nearest study of traffic-caused wildlife mortality was performed along a 2.5 mile stretch of Vasco Road in Contra Costa County, California. Fatality searches in this study found 1,275 carcasses of 49 species of mammals, birds, amphibians, and reptiles over 15 months of searches (Mendelsohn et al. 2009). This fatality number needs to be adjusted for the proportion of fatalities that were not found due to scavenger removal and searcher error.

Ex. C, p. 22, 24.

Using the IS/MND's estimates of VMT as a basis, Dr. Smallwood was able to predict the impacts to wildlife that could be caused by the project. *Id.* at 24. Using the data from the Mendelsohn et al. (2009) study, Dr. Smallwood calculates that operation of the Project over 50 years would cause an accumulated 10,000 wildlife fatalities. *Id.* He therefore states that "the project-generated traffic would cause substantial, significant impacts to wildlife." *Id.* at 25. An EIR should be prepared which includes an analysis and mitigation of the result increased traffic from the Project will have on wildlife.

5. The IS/MND fails to adequately address the cumulative impacts of the Project on wildlife.

The GEC Report prepared for the MND provided a discussion of cumulative impacts which Dr. Smallwood determined was inapplicable to the Project. Ex. C, p. 25. Specifically, the GEC Report stated that some habitats would only be temporarily disturbed, and that some surviving species would return to the disturbed site following construction activity. *Id.* However, Dr. Smallwood states that “none of the soils and vegetation on the site would remain, because the site would be covered by impervious surfaces” and therefore “[w]ildlife would be unable to return to the site.” *Id.* The GEC Report also concludes that the site features disturbed habitat, thereby limiting its value to native plant and animal species. *Id.* Dr. Smallwood notes that “[w]ildlife communities worldwide have been disturbed by human activities, so the mere fact that the site has been disturbed cannot preclude use of the site by wildlife.” *Id.* Further, Dr. Smallwood’s observations demonstrate that species do in fact use the site. *Id.* An EIR should be prepared to adequately analyze potential cumulative impacts to wildlife caused by the Project.

As for the proposed mitigation measures, Dr. Smallwood states that while preconstruction surveys should be conducted for birds and burrowing owls, they represent only a “last-minute, one-time salvage and rescue operation[] targeting readily detectable nests or individuals before they are crushed under heavy construction machinery.” *Id.* These surveys would therefore fail to detect most species. *Id.* at 25-26. As for the mitigation measures MM BIO-3 to BIO-5, Dr. Smallwood agrees that these are best practices, but that they would “do little to nothing to mitigate impacts to wildlife.” *Id.* at 26. Dr. Smallwood recommends several measures, including detection surveys and compensatory mitigation, which he states should be considered in an EIR for the Project. *Id.* at 27.

6. CONCLUSION

In light of the above comments, the City must prepare an EIR for the Project and the draft EIR should be circulated for public review and comment in accordance with CEQA. Thank you for considering these comments.

Sincerely,



Amalia Bowley Fuentes

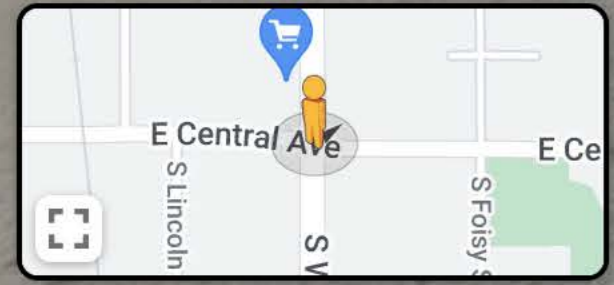
LOZEAU DRURY LLP

EXHIBIT A

799 S Waterman Ave
 San Bernardino, California

Google

Street View - Aug 2021



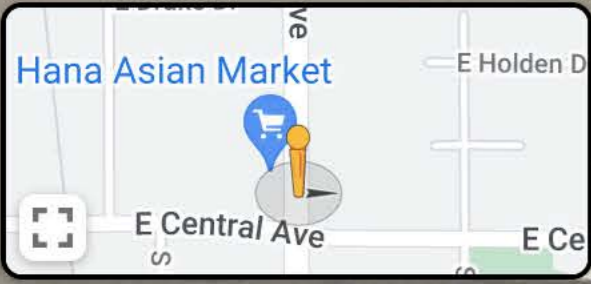
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791 S Waterman Ave
San Bernardino, California

Google

Street View - Aug 2021



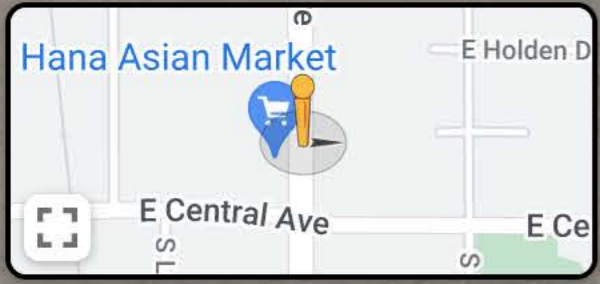
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743 S Waterman Ave
San Bernardino, California

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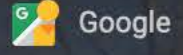
Street View - Aug 2021



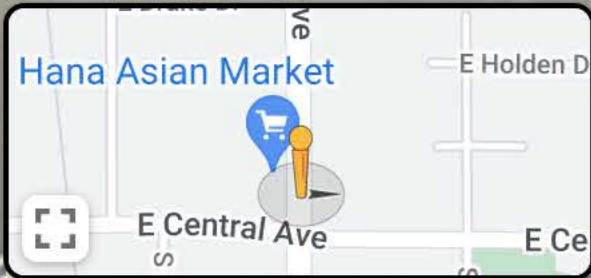
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Google

791 S Waterman Ave
San Bernardino, California



Street View - Mar 2022



Google

EXHIBIT B

April 28, 2022

Amalia Bowley Fuentes
LOZEAU DRURY LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612

Subject: Peer Review of Amazing 34 Distribution Center Energy Impact Analysis, City of San Bernardino

Dear Ms. Bowley Fuentes:

Introduction

RK ENGINEERING GROUP, INC. (RK) is pleased to provide this review of the Amazing 34 Distribution Center Initial Study/Mitigated Negative Declaration, City of San Bernardino, April 2022 (hereinafter referred to as IS/MND).

The purpose of this letter is to review the IS/MND from an energy impact standpoint and provide comments to help ensure that all potential impacts from the project are adequately identified and the effects mitigated to the maximum extent feasible.

Energy Comments

The following comments pertain to the evaluation of Energy impacts within the IS/MND.

1. Page 53. Energy. In the recent California court case, *League to Save Lake Tahoe Mountain Area Preservation Foundation, et al. v. County of Placer, et al.*, the Third District Court of Appeal ruled that an EIR should address the project's potential to increase its use of renewable energy sources for at least two purposes. First, when the EIR analyzes the project's energy use to determine if it creates significant effects, it should discuss whether any renewable energy features could be incorporated into the project. Second, when determining if a project would have a potentially significant impact to energy conservation, the analysis should discuss whether any renewable energy features could be incorporated into the project, and if applicable, mitigate the impact by requiring uses of alternate fuels, particularly renewable ones.

The court's ruling is consistent with the CEQA Guidelines, Appendix F, Energy Conservation requirements, which state that the means of achieving energy conservation includes decreasing the reliance on fossil fuels, such as coal, natural gas and oil, and increasing reliance on renewable energy sources.

The energy impact analysis presented on Page 53 of the IS/MND does not discuss whether renewable energy sources could be incorporated into the project. Hence, the analysis has not adequately evaluated the energy impact, and by failing to incorporate renewable energy sources, a potentially significant impact may occur.

To adequately address the issue, and to ensure the potential impact is adequately mitigated, the IS/MND should identify the impact as potentially significant and include a mitigation measure that requires the project to install roof top solar panels.

The 2019 Building Energy Efficiency Standards (Title 24, Part 6, Section 110.10(b)1.B.) requires that no less than 15 percent of the total roof area of the building shall be designated as a Solar Zone¹. Therefore, a mitigation requirement to install solar panels across the full extent of the designated rooftop Solar Zone would seem feasible.

2. Additional Energy Mitigation Measures. Additional mitigation measures should be implemented to help ensure that the project does not result in wasteful, inefficient or unnecessary consumption of energy. The California Attorney General's Bureau of Environmental Justice (Bureau) released the comment letter, *Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act*, to help lead agencies pursue CEQA compliance and promote environmentally-just development².

The Bureau's letter provides recommendations for feasible best practices and mitigation measures that would help reduce energy consumption.

¹ 2019 Building Energy Efficiency Standards. Section 100.1 – Definitions and Rules of Construction. A "Solar Zone" is defined as is a section of the roof designated and reserved for the future installation of a solar electric or solar thermal system.

² State of California. Department of Justice. Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act. Website (Accessed April 2022):

<https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf>

The Bureau recommends that local jurisdictions should consider designing projects with the necessary infrastructure to prepare for the zero-emission future of goods movement. The following examples of mitigation measures recommended by the Bureau would help reduce the project's consumption of fossil fuels and encourage renewable energy usage:

- Requiring that all facility-owned and operated fleet equipment with a gross vehicle weight rating greater than 14,000 pounds accessing the site meet or exceed 2010 model-year emissions equivalent engine standards as currently defined in California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.5, Section 2025. Facility operators shall maintain records on-site demonstrating compliance with this requirement and shall make records available for inspection by the local jurisdiction, air district, and state upon request.
- Requiring all heavy-duty vehicles entering or operated on the project site to be zero-emission beginning in 2030.
- Requiring on-site equipment, such as forklifts and yard trucks, to be electric with the necessary electrical charging stations provided.
- Requiring tenants to use zero-emission light- and medium-duty vehicles as part of business operations.
- Forbidding trucks from idling for more than two minutes and requiring operators to turn off engines when not in use.
- Posting both interior- and exterior-facing signs, including signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to CARB, the air district, and the building manager.
- Constructing electric truck charging stations proportional to the number of dock doors at the project.
- Constructing electric plugs for electric transport refrigeration units at every dock door, if the warehouse use could include refrigeration.

- Constructing electric light-duty vehicle charging stations proportional to the number of parking spaces at the project.
- Installing solar photovoltaic systems on the project site of a specified electrical generation capacity, such as equal to the building's projected energy needs.
- Requiring all stand-by emergency generators to be powered by a non-diesel fuel.
- Requiring facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of trucks.
- Requiring operators to establish and promote a rideshare program that discourages single-occupancy vehicle trips and provides financial incentives for alternate modes of transportation, including carpooling, public transit, and biking.
- Meeting CalGreen Tier 2 green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.
- Achieving certification of compliance with LEED green building standards.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations.
- Posting signs at every truck exit driveway providing directional information to the truck route.
- Improving and maintaining vegetation and tree canopy for residents in and around the project area.
- Requiring that every tenant train its staff in charge of keeping vehicle records in diesel technologies and compliance with CARB regulations, by attending CARB approved courses. Also require facility operators to maintain records on-site demonstrating compliance and make records available for inspection by the local jurisdiction, air district, and state upon request.

- Requiring tenants to enroll in the United States Environmental Protection Agency's SmartWay program, and requiring tenants to use carriers that are SmartWay carriers.
- Providing tenants with information on incentive programs, such as the Carl Moyer Program and Voucher Incentive Program, to upgrade their fleets.

According to the Bureau, the overwhelming majority of mitigation measures recommended above have been adapted from actual warehouse projects in California. Hence, they are considered feasible mitigation measures.

Conclusions

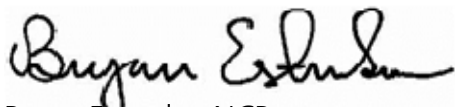
Based upon this review, the Amazing 34 Distribution Center Initial Study/Mitigated Negative Declaration, City of San Bernardino, April 2022, has not adequately analyzed the potential energy impact of the project from a renewable energy perspective and not all feasible mitigation measures have been implemented.

By not incorporating all feasible mitigation measures, the project has the potential to result in wasteful, inefficient or unnecessary consumption of energy, and a potentially significant impact under CEQA would occur.

The project should implement all feasible mitigation measures listed in this letter, including the installation of roof top solar panels, in order to ensure the impact to energy conservation is reduced to a less than significant level.

RK Engineering Group, Inc appreciates this opportunity to work with LOZEAU DRURY LLP. If you have any questions regarding our review, or need additional analysis, please contact us at (949) 474-0809.

Respectfully submitted,
RK ENGINEERING GROUP, INC.



Bryan Estrada, AICP
Principal

Qualification Statement

RK engineering group, inc. uniquely combines engineering expertise and professionalism with creative thinking and innovative problem solving. The result is an extraordinary transportation engineering firm that possesses the requisite expertise as well as the ability to look across disciplinary boundaries for solutions others may overlook.

This innovative approach is evident by the breadth of services available to RK engineering group, inc.'s diverse clientele that includes regional governments, counties, cities, special districts, school districts, community associations, private developers and contractors, engineering and planning firms. Each client receives what RK engineering group, inc. is known for...on time, on target, on budget professional service.

The Complete Range of Transportation Engineering Expertise

RK engineering group, inc. is a complete transportation engineering firm offering the full range of services including:

- Transportation Planning
- Traffic Engineering
- Traffic Impact Studies
- Circulation Elements
- Transit/Pedestrian Systems
- Parking Studies
- Traffic Signal and Signing/Striping Plans
- Traffic Control Plans
- Street Lighting Plans
- Community Traffic Calming
- Traffic Signal Timing

RK engineering group, inc. also integrates transportation, air quality and noise impacts into environmental engineering services including:

- Acoustical Studies
- Sound Barrier Analysis
- Noise Elements
- Noise Ordinance Compliance
- Air Quality Studies

The Right Personnel for the Job

RK engineering group, inc.'s staff represent more than 70 years of cumulative experience in traffic engineering and related disciplines.

Beyond this experience, RK engineering group, inc. personnel are recognized leaders in the fields of transportation planning, traffic impact analysis, circulation planning, multi-modal planning, parking studies, and environmental engineering.

The combination of this experience and expertise means that major program assignments and small technical studies are all successfully completed to the satisfaction of RK engineering group, inc.'s clientele.

Quality Work Attracts Quality Clients

Perhaps the best measure of a firm's capabilities is the quality of the clientele it attracts. RK engineering group, inc. is pleased to count among its satisfied clientele the Orange County Transportation Authority, and the Transportation Corridor Agencies as well as the counties of Orange and Riverside.

Municipal clients have included the cities of Canyon Lakes, Huntington Beach, Irvine, Mammoth, Mission Viejo, Moreno Valley, Murrieta, Newport Beach, Perris, Rancho Santa Margarita, and San Juan Capistrano. Institutional clientele have included a range of school districts as well as respected institutions like the University of California, Irvine; Pomona College, Western State University College of Law, and California Baptist College. Community Association clients include the CZ Master Association in Coto de Caza, Aliso Viejo Community Association and numerous other associations.

RK engineering group, inc.'s client list also includes more than 500 private sector companies ranging from developers and engineers to urban planners.

Qualification Statement

Traffic Impact Analysis

RK engineering group, inc. staff have prepared several hundred traffic impact studies throughout Southern and Central California, as well as Southern Nevada, Arizona and Colorado. Work products provided by the firm includes conceptual planning/feasibility studies or detailed design recommendations. The firm can evaluate both existing conditions and the effects of future development upon infrastructure requirements. RK engineering group, inc. staff have prepared numerous studies in compliance with Congestion Management Program (CMP) requirements.

RK engineering group, inc. responsibilities can include representing clients at Board of Supervisors, City Council and Planning/Traffic Commissions meetings; serving as a liaison with company/public agency representatives on technical matters involving traffic impacts; working with County, regional and state agencies to secure government approvals and funding for projects; and interfacing with other firms to provide coordination of engineering/planning and design of projects.

Circulation Planning

RK engineering group, inc. has a broad range of experience including city general plan circulation elements, specific plans, traffic control assessments for special attractions or major events, site access evaluations, traffic management plans and fee program studies.

RK engineering group, inc. services include the preparation of neighborhood traffic management plans to reduce volumes on residential streets, minimize vehicle speeds, and address "cut through" traffic issues. Traffic calming solutions which have been addressed are based on design and management strategies that aim to allow safer neighborhoods for residents. These solutions include roundabouts, street closures, speed humps, chokers, and access restrictions.

RK engineering group, inc. also provides services for school districts. These services include, but are not limited to sidewalk improvements, pedestrian and bicycle crosswalks, traffic control devices as well as diversion of traffic. Also, other services may include revising and recommending feasible school circulation as well as parking lot design for designation of "pick-up" and "drop-off" parking zones. This service is intended to provide a safe route of travel and a safe traffic environment for children attending schools.

Transportation Demand Management

Transportation demand management (TDM) strategies designated for local government action have taken on increased importance in light of federal conformity requirements. Many local governments have adopted trip reduction ordinances to comply with the state and federal mandates. RK engineering group, inc. has prepared TDM plans for industrial, office, retail and residential projects throughout Southern California. RK engineering group, inc. services include the determination of appropriate transportation control measures as well as project-specific implementation and monitoring strategies.

Transit Planning

The increasingly intermodal aspects of regional and local transportation are being addressed by RK engineering group, inc. on an integrated basis. RK engineering group, inc. staff have prepared detailed studies of on-road and rail transit services, including corridors and stations.

RK engineering group, inc. has provided assessments of the location, design and travel patterns associated with commuter rail stations in Orange County, San Bernardino County and Kern County. Accommodations for public transportation services, such as bus turnouts and pedestrian access linkages, have been incorporated into many large and small development projects based upon RK engineering group, inc. inputs.

Qualification Statement

Parking Studies

RK engineering group, inc. has completed a number of parking studies for residential, commercial and industrial developments. Studies have included evaluating existing parking demand and the assessment of "shared parking" through the use of ULI shared parking evaluation procedures. Parking management plans have been developed to control parking for high parking generators (i.e. large institutional uses and special events including raceways and concerts).

RK engineering group, inc. develops creative and innovative methods for maximizing the efficiency of available parking resources.

Re-evaluating existing parking facility designs to improve circulation, safety, modify control operations and maximization of parking spaces is also a specialty of the company.

Environmental Engineering

As communities continue to evolve and develop, environmental noise and air quality impacts are a potential by-product of community expansion. RK engineering group, inc. services include EIR air/noise studies, noise contour analysis, noise exposure maps (NEM), air/noise impact studies, community and environmental air/noise planning and noise mitigation design. The effects of traffic on noise and air quality are a significant by-product of roadway design. Robert Kahn, P.E. a Certified Acoustical Engineer (No. 112-88) in the County of Orange and is supported by Michael Dickerson, INCE (Institute of Noise Control Engineers) member. RK engineering group, inc. services include acoustical studies, truck mix studies, noise control assessments and noise mitigation design.

RK engineering group, inc. uses "state of the art" computer modeling to project noise impacts and also has the equipment to perform field measurements.

Traffic Engineering

RK engineering group, inc. provides a full range of traffic engineering capabilities including the design of traffic signals, signing and striping, street lighting and worksite traffic control plans. RK engineering group, inc. also provides studies for traffic signal warrants, weaving analysis, intersection safety studies and many other traffic engineering services that also include, but are definitely not limited to, pedestrian/ bicycle studies, warrant analysis, CA MUTCD compatibility and sight distance reviews. Work products provided by the firm can include concept plans, improvement plans, construction documents, traffic safety/traffic control studies and recommendations with respect to evaluating traffic control devices and other roadway design features. Traffic design plans are prepared using AutoCAD software to easily interface with other project plans. RK engineering group, inc. can prepare engineering studies to identify appropriate speed limits based upon radar speed surveys. Field review of existing conditions is an important element of the RK engineering group, inc. design process.

RK engineering group, inc. provides services for traffic signal timing and coordination in linking traffic signals along a corridor. The goal of traffic signal coordination is to safely optimize driver travel times and traffic flow along arterial corridors. This efficient method of operating traffic control systems not only benefits public safety but also benefits air quality resulting from lower emissions from decreased stop-and-go traffic. Traffic signal timing and coordination is a beneficial and cost effective method that increases driver mobility while also reducing air pollution. By providing traffic signal and coordination services, RK engineering group, inc. continues to aid cities and agencies in effectively reducing traffic congestion delay and air pollution.

RK engineering group, inc. responsibilities can also include providing complete traffic engineering plans, specifications and cost estimates; evaluating existing traffic conditions, including traffic control devices; recommending appropriate speed limits based upon radar speed studies, accident history and existing physical conditions; reviewing the need for traffic control devices; sight distance evaluations, including before and after project implementation; evaluation of the need for speed humps as an appropriate roadway design feature and other traffic engineering functions.

Bryan Estrada, AICP, PTP

Principal

Areas of Expertise

Transportation and Environmental Planning
Transportation Demand Management
Traffic Impact Studies
Parking Studies
Air Quality Analysis
Greenhouse Gas/Global Climate Change Analysis
Environmental Acoustics/Noise Analysis
CEQA Compliance
Synchro Traffic Analysis Software
California Emissions Estimator Model (CalEEMod)
FHWA Noise Modeling
SoundPLAN Software
AutoCAD

Education and Training

University of California, Irvine, B.A., Urban Studies
California Air Resources Board, Air Quality Training Program
Geo Instruments Vibration Monitoring Short Course

Professional History

RK Engineering Group, Inc.
Principal
2007 - Present

Certificates and Affiliations

American Institute of Certified Planners (AICP)
Professional Transportation Planner (PTP)
American Planning Association
Association of Environmental Professionals

Representative Experience

Mr. Bryan Estrada is a native of Southern California and also stayed in the area by attending the University of California, Irvine, School of Planning, Policy and Design where he received a Bachelor of Arts degree in Urban Studies. Mr. Estrada's multidisciplinary background is concentrated around current transportation challenges and their environmental impacts within urban areas. Mr. Estrada is committed to sustainable development practices, transportation demand management, and global climate change awareness.

Since 2007, Mr. Estrada has gained experience in the many aspects of Transportation and Environmental Planning while working with RK Engineering Group. He is an active member of the American Planning Association (APA) and the Association of Environmental Professionals (AEP), and stays up to date on the latest trends and topics concerning CEQA policy. He is frequently engaged with local government agencies, community groups, and developers to help to craft innovative solutions to mitigate traffic, noise and air quality impacts throughout the community.

Mr. Estrada's experience includes traffic/transportation planning, air quality and greenhouse gas analysis, and environmental acoustics/noise analysis. He has also contributed to the design and construction of traffic signal plans, signing and striping plans and traffic control plans. He is regularly out in the field performing assessments and inventories of project sites and meeting with community stakeholders.

Mr. Estrada works on transportation and environmental planning projects that range from focused site-specific technical studies to regional and General Plan level analyses. His recent work includes Mixed Use Development projects in Downtown Huntington Beach, the City of Aliso Viejo General Plan Update and Aliso Viejo Town Center Vision Plan, Eleanor Roosevelt High School eStem Academy Traffic Impact Study and On-Site Circulation Plan (Eastvale, CA), Great Wolf Lodge Resort (Garden Grove, CA), Starbucks Coffee Shops (multiple locations through Southern California), Paradise Knolls Specific Plan (Jurupa Valley, CA), Vista Del Agua Specific Plan (Coachella, CA), and Monterey Park Hotel Mixed Use Development Project (Monterey Park, CA).

Mr. Estrada has obtained the American Institute of Certified Planners (AICP) certification granted by the American Planning Association and the Professional Transportation Planner (PTP) certification granted by the Transportation Professional Certification Board.

EXHIBIT C

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

Travis Martin, Associate Planner
City of San Bernardino
201 North E Street, 3rd Floor
San Bernardino, CA 92401

28 April 2022

RE: Amazing 34 Distribution Center

Dear Mr. Martin,

I write to comment on the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the proposed Amazing 34 Distribution Center, which I understand would add a warehouse with 77,562 sf of floor space on 3.84 acres at 791 South Waterman Ave, San Bernardino, California (City of San Bernardino 2022). In support of my updated comments, I reviewed a habitat assessment prepared by Gonzales Environmental Consulting (GEC 2021).

My qualifications for preparing expert comments are the following. I hold a Ph.D. degree in Ecology from University of California at Davis, where I subsequently worked for four years as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, interactions between wildlife and human infrastructure and activities, conservation of rare and endangered species, and on the ecology of invading species. I authored numerous papers on special-status species issues. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and the Raptor Research Foundation, and I've been a part-time lecturer at California State University, Sacramento. I was Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management. I have performed wildlife surveys in California for thirty-five years, including at many proposed project sites. My CV is attached.

SITE VISIT

I visited the proposed project site for nearly 3 hours on 25 April 2022. I surveyed for 1 hour and 50 min starting at 06:14 hours and for another 1 hour starting at 10:18 hours. The weather was clear with no wind, and temperatures were 53° F at 06:18 and 80° F at 10:18. I used binoculars to scan for wildlife from the sidewalk along the western and southern perimeters of the site.

Where buildings once stood, only vacant pads remained. Ruderal annual grassland covered most of the rest of the site, which included ornamental trees and shrubs (Photo 1). Pocket gophers were established within burrow systems wherever soil was not

covered by impervious surfaces, and of course whatever species of wildlife that live in those burrows in addition to pocket gophers were invisible to me. Warehouses were to the south, a commercial strip to the west, and homes were to the north and east. The site composed an island of open space that would attract any wildlife in search of breeding opportunities, forage, or stop-over opportunities during long-distance travel.



Photo 1. Southeastward view of the site of the proposed project, 25 April 2022.

I detected 22 species of vertebrate wildlife at the site (Table 1), including members of 2 special-status species. I saw at least 102 birds of 20 avian species, 2 feral house cats, and numerous burrow systems of Botta's pocket gophers. I saw so many birds during my early morning survey that I decided to return for a mid-morning survey to assess whether I would get a similar result in warmer conditions. Whereas I saw 19 species during my first survey, I saw only 11 during my second, but among these 11 were an additional 3 species I had not seen earlier. I saw ample evidence of breeding, including birds in breeding plumage, birds carrying nest material, and birds delivering food to their nests. Birds also defended breeding territories, including an aggressive defense by American crows directed towards the red-tailed hawk that arrived to forage (Photos 1 and 2). I saw western tanagers and Cassin's kingbirds (Photos 3 and 4), bushtits (Photo 5), northern mockingbirds and cedar waxwings (Photos 6 and 7), and ash-throated flycatchers and house finches (Photos 8 and 9). A black-crowned night-heron also selected the site as part of its travel route.

Table 1. Species of wildlife I observed during 2.83 hours of survey on 25 April 2022.

Common name	Scientific name	Status	Note
Black-crowned night-heron	<i>Nycticorax nycticorax</i>		1 flew over
Red-tailed hawk	<i>Buteo jamaicensis</i>	BOP	1 foraging
Mourning dove	<i>Zenaida macroura</i>		2 pair
Rock pigeon	<i>Columba livia</i>	Non-native	3
Eurasian collared-dove	<i>Streptopelia decaocto</i>	Non-native	2 pair
Western kingbird	<i>Tyrannus verticalis</i>		1 pair
Cassin's kingbird	<i>Tyrannus vociferans</i>		1 pair
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>		1 pair
Black phoebe	<i>Sayornis nigricans</i>		1 individual seen
Cedar waxwing	<i>Bombycilla cedrorum</i>		Flock of 15
European starling	<i>Sturnus vulgaris</i>	Non-native	20
House sparrow	<i>Passer domesticus</i>	Non-native	18
Common raven	<i>Corvus corax</i>		1 pair
American crow	<i>Corvus brachyrhynchos</i>		2 pair
Northern mockingbird	<i>Mimus polyglottos</i>		2 pair
Bushtit	<i>Psaltriparus minimus</i>		2 pair
Bullock's oriole	<i>Icterus bullockii</i>	BCC	1 pair
House finch	<i>Haemorphous mexicanus</i>		About 10
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>		1 individual seen
Western tanager	<i>Piranga ludoviciana</i>		1 pair
House cat	<i>Felis catus</i>	Non-native	2
Botta's pocket gopher	<i>Thomomys bottae</i>		Mounds everywhere

Photos 1 and 2.

American crow (top) and red-tailed hawk (bottom) at the project site, 25 April 2022. As the red-tailed hawk arrived to forage on the site, the American crows converged on it to harass incessantly until the hawk left the premises. The hawk tried perching on a power pole, where it snuggled up against the pole for protection, but one of the crows repeatedly and effectively strafed the hawk until the hawk left.



Shava Smallwood



Shava Smallwood



Photos 3 and 4. *Western tanager (left) and Cassin's kingbird (right) at the project site, 25 April 2022.*



Photo 5. *Bushtit checking me over from a fence on the project site, 25 April 2022.*



Photos 6 and 7. Northern mockingbird at its nest site (left) and a flock of 15 cedar waxwings (below) at the project site, 25 April 2022.



Shawn Smallwood



Photos 8 and 9. Ash-throated flycatcher (left) and a few of the house finches feeding on common groundsel, fiddleneck and wild oats (below) on the project site, 25 April 2022.



CURRENT ENVIRONMENTAL SETTING

The first step in analysis of potential project impacts to biological resources is to accurately characterize the existing environmental setting, including the biological species that use the site, their relative abundances, how they use the site, key ecological relationships, and known and ongoing threats to those species with special status. A reasonably accurate characterization of the environmental setting can provide the basis for determining whether the site holds habitat value to wildlife, as well as a baseline against which to analyze potential project impacts. Methods to achieve this first step typically include surveys of the site for biological resources and reviews of literature, databases and local experts for documented occurrences of special-status species. In the case of this project, these essential steps remain grossly incomplete. Herein I provide some characterization of the wildlife community as a component of the current environmental setting, including the identification of special-status species likely to use the site at one time or another.

On 26 and 30 June 2021, starting at 06:00 and 07:00 hours, respectively, 4 person-hours were committed to “General reconnaissance and habitat assessment surveys ... to determine habitat suitability for listed species and special status plant, wildlife, and aquatic species. Suitable habitat for listed species and special status species was determined by the presence of specific habitat elements. The surveys coincided with the period during which many wildlife species, including migratory species, would have been most detectable. A faunal inventory of all species observed during the course of the surveys was also prepared” (GEC 2021:25). And, “All wildlife species encountered during surveys were documented” (GEC 2021:26). In other words, the surveys were timed to detect wildlife, and all that was found was reported. Nevertheless, the consulting biologists reportedly saw only 10 birds representing 4 species, including mourning dove, common raven, house finch, and house sparrow. I saw 102 birds of 20 species of birds, or 10 times the number of birds representing 5 times the number of species reported by GEC (2021).

Despite having spent longer than another person-hour than I spent at the site, and despite have direct access to the site, and despite the large sizes of some of the animals on site (see Photos 1 and 2) and the bright colors of some of the animals (Photo 10), the consulting biologists reportedly saw a tenth of the animals I saw and a fifth of the species. Despite the abundance of soil mounds and soil plugs all over the site, the consulting biologists somehow missed seeing signs of pocket gophers (Photo 11). There were so many mounds on site that the GEC biologists could not have walked over the site without taking care to avoid stumbling. It is therefore a wonder that the consulting biologists failed to see what was plainly visible – that the site is intensively used by numerous species of wildlife. A fair argument can be made for the need to prepare an EIR to appropriately characterize the current environmental setting as a baseline upon which to appropriately analyze potential project impacts to wildlife.



Photo 10. *Western tanagers stood out on site due to their bright colors and energetic activities, 25 April 2022.*



Photo 11. *One of many soil mounds of Botta’s pocket gophers spilling out from the project site onto the surrounding sidewalks, 25 April 2022.*

According to the IS/MND (p. 45), “No special status animals were observed during field surveys.” This seemingly factual statement is actually pseudoscientific, because the surveys were not detection surveys, meaning they were not designed, nor were they performed, to provide reasonable probability of detection of any given special-status species. To their credit, GEC (2021:4) reported the caveat, “A circumstance of a negative result is not necessarily evidence that the species does not exist on the site or that the site is not actual or potential habitat of the species.” On this point, I agree with GEC. In fact, special-status species *do* occur at the project site. I saw a red-tailed hawk, which is a species of raptor protected by California Code referred to as Birds of Prey (FGC 3503.5). I also saw a Bullock’s oriole, which is listed by the US Fish and Wildlife Service as a Bird Species of Conservation Concern. I failed to get any good photos of Bullock’s oriole on site, but I caught enough of one to document that it was a Bullock’s oriole (Photos 12 and 13). In summary, GEC did not detect any special-status species at the site, but I did.



Photos 12 and 13.
Bullock's oriole in a sycamore (left) just before flying to a palm tree on the east side of the site, 25 April 2022.

Even after my more productive survey outcome compared to that of GEC, that portion of the current environmental setting composed of wildlife remains incompletely characterized. My detections of 22 species of vertebrate wildlife need to be interpreted within the context of the survey effort. As would be the case for any reconnaissance-level survey, the time I could commit to my survey was grossly short of the time needed to inventory all of the species that use the site. Observers are imperfect at detecting all species that occur within their surveyed space, and not all of the species that would occur in the surveyed space would occur there during the period of the observer's survey. One should not expect that the biologist who just completed a reconnaissance-level survey actually detected more than a fraction of the species that use the site, and neither should a biologist claim to have detected more than a fraction of the species composing the wildlife community.

A reconnaissance-level survey can be useful for confirming presence of the species that were detected, but it can also be useful for estimating the number of species that were not detected. One can model the pattern in species detections during a survey as a means to estimate the number of species that used the site but were undetected during the survey. To support such a modeling effort, the observer needs to record the times into the survey when each species was first detected. The cumulative number of species' detections increases with increasing survey time, but eventually with diminishing returns (Figure 1). If survey time is represented by minutes into the survey, as it is in Figure 1, then minutes into the survey can also represent person-minutes. Person-minutes imply that >1 person can simultaneously survey a site, which is true, thereby allowing for the model to predict survey outcomes with more observers contributing more survey-minutes during the same survey period. This allowance can constrain model predictions to the environmental conditions experienced during the time period of the survey, thereby minimizing risk of model over-extension. In the case of my survey, the pattern in the data (Figure 1) predicts that had I more biologists to commit to my survey, we would have detected 59 species of vertebrate wildlife during the morning of 25 April 2022. This modeling approach is useful for more realistically representing the species richness of the site at the time of a survey, but it cannot represent the species richness throughout the year or across multiple years because

many species are seasonal or even multi-annual in their movement patterns and in their occupancy of habitat.

Figure 1. Actual (red circles) and predicted (red line) relationships between the number of vertebrate wildlife species detected and the elapsed survey time based on my visual-scan surveys on 25 April 2022, and compared to the mean and 95% CI of 120 other surveys I performed at proposed project sites. Note that the relationship would differ if the survey was based on another method or during another season.

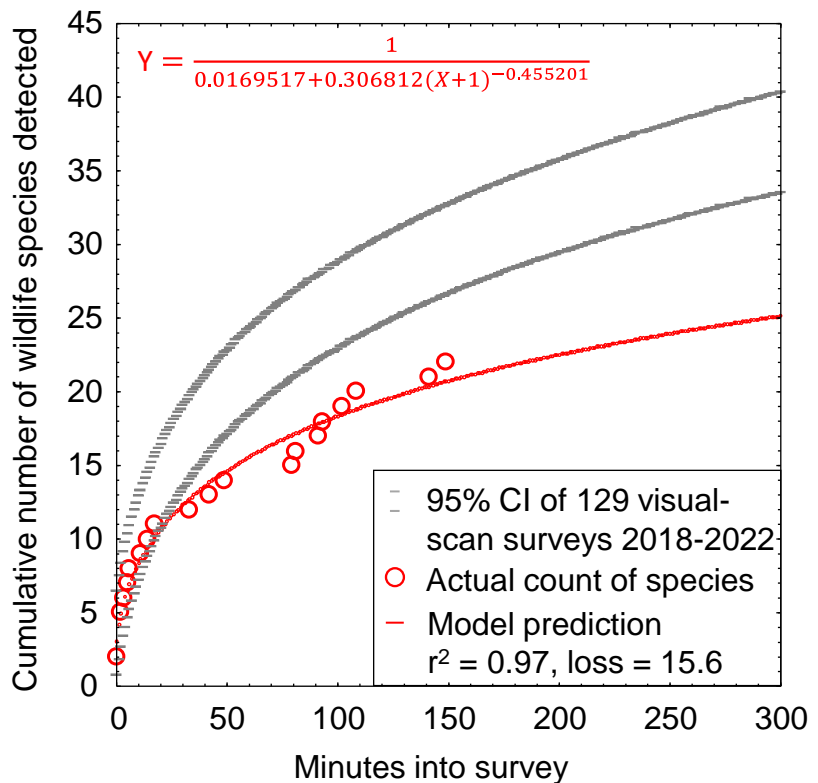


Figure 1 also reveals that the richness of the wildlife community at the project site is lower than the average species richness at other proposed project sites I have visited across California over the past three years. Both the data and the best-fit model trailed the 95% lower bound of the confidence interval estimated from another 120 survey outcomes at other sites. Relative to other proposed project sites, the Amazing 34 site supports lower species richness, but the model nevertheless predicts 59 species could have been detected that very morning of the 25th had more biologists been available. The site supports plenty of species of wildlife, and there can be no doubt that it provides ample habitat value to wildlife.

The site is richer in wildlife than implied in the IS/MND, but I could have detected more species than predicted by the pattern of the data in Figure 1 had I also performed surveys at night to detect nocturnal and crepuscular species with appropriate methods and technology, or and conducting surveys in different seasons and years to detect migrants and species with multi-annual cycles of abundance. Nevertheless, based on the substantial evidence gathered during my reconnaissance-level survey, I conclude that the site is richer in wildlife than the 22 species I documented there so far, but also that the environmental setting of the project remains insufficiently characterized as foundation for analysis of impacts to special-status species. There is no question that a

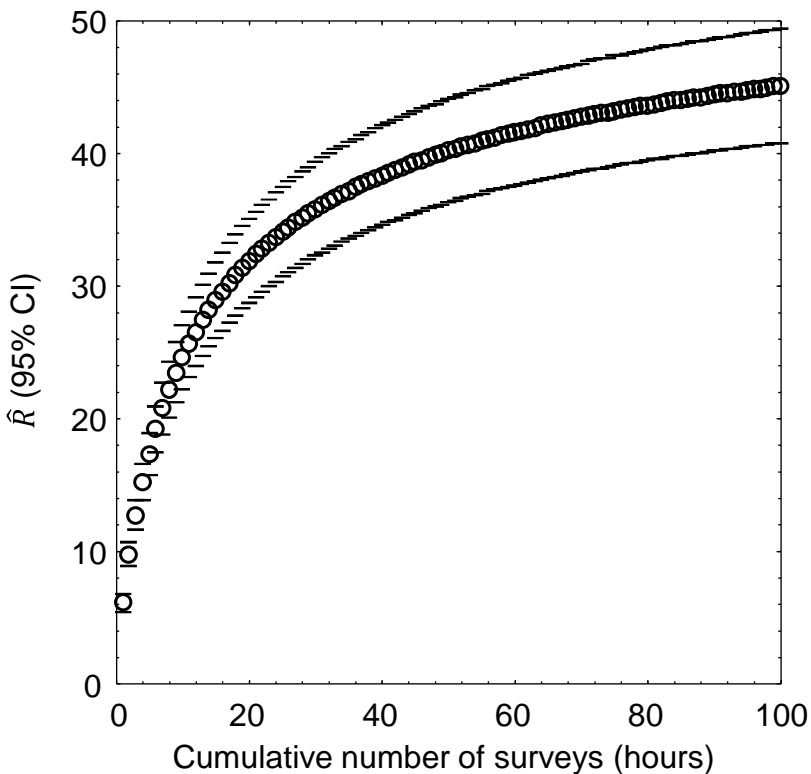
larger survey effort would result in a longer list of species documented to use the project site, thereby improving our understanding of the current environmental setting. A more realistic representation of species richness at the site could be obtained by simply repeating visual-scan surveys on various dates through the year.

As part of my research, I completed a much larger survey effort across 167 km² of annual grasslands of the Altamont Pass Wind Resource Area, where from 2015 through 2019 I performed 721 1-hour visual-scan surveys, or 721 hours of surveys, at 46 stations. I used binoculars and otherwise the methods were the same as the methods I use for surveys at proposed project sites. At each of the 46 survey stations, I tallied new species detected with each sequential survey at that station, and then related the cumulative species detected to the hours (number of surveys, as each survey lasted 1 hour) used to accumulate my counts of species detected. I used combined quadratic and simplex methods of estimation in Statistica to estimate least-squares, best-fit nonlinear models of cumulative species detected regressed on hours of survey (number of surveys) at the station: $\hat{R} = \frac{1}{1/a+b \times (Hours)^c}$, where \hat{R} represented cumulative species richness detected.

The coefficients of determination, r^2 , of the models ranged 0.88 to 1.00, with a mean of 0.97 (95% CI: 0.96, 0.98); or in other words, the models were excellent fits to the data. I projected the predictions of each model to thousands of hours to find predicted asymptotes of wildlife species richness. The mean model-predicted asymptote of species richness was 57 after 11,857 hours of visual-scan surveys among the 46 stations. I also averaged model predictions of species richness at each incremental increase of number of surveys, i.e., number of hours (Figure 2). On average I detected 12.24 species over the first 2.83 hours of surveys in the Altamont Pass (2.83 hours to match the number of hours I surveyed at the project site), which composed 21.5% of the total predicted species I would detect with a much larger survey effort. Given the example illustrated in Figure 2, the 22 species I detected after my 2.83 hours of survey at the project site likely represented 21.5% of the species to be detected after many more visual-scan surveys over another year or longer. With many more repeat surveys through the year, I would likely detect $22/0.215 = 102$ species of vertebrate wildlife at the site.

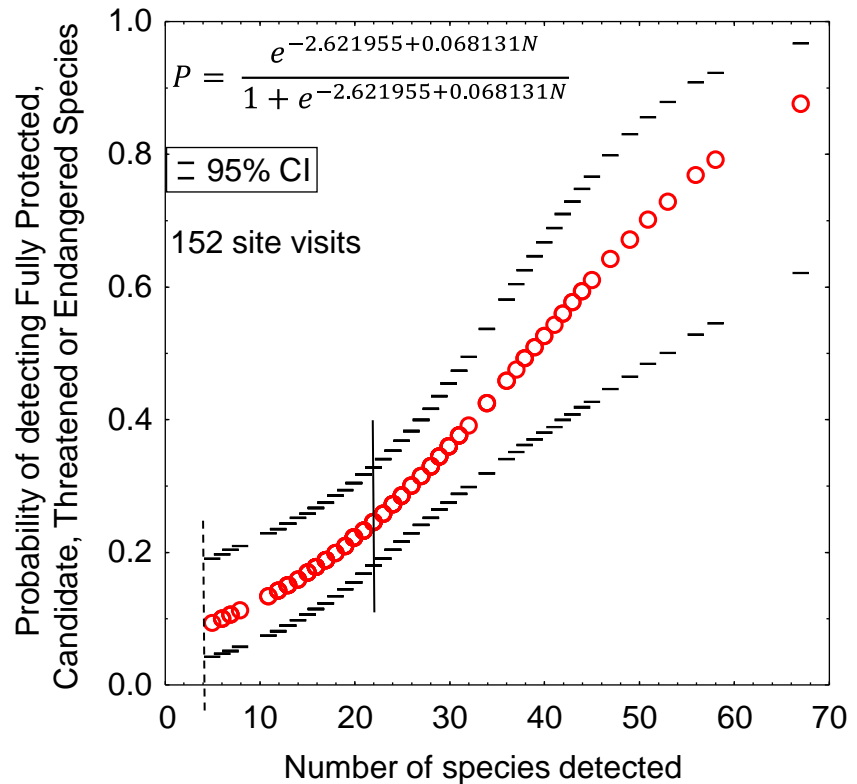
Again, however, my prediction of 102 species of vertebrate wildlife is derived from visual-scan surveys during the daytime, and would not detect nocturnal mammals. The true number of species composing the wildlife community of the site must be larger. A reconnaissance-level survey should serve only as a starting point toward characterization of a site's wildlife community, but it certainly cannot alone inform of the inventory of species that use the site. Without careful interpretation, the survey outcome of GEC should not serve as the foundation for characterizing baseline conditions, because there were truly many more species that used the site at the time of the survey than were detected by GEC. GEC managed to detect but a very small fraction of the wildlife community that occurs at the site, having detected only 4 of ≥ 102 , or 3.9%.

Figure 2. Mean (95% CI) predicted wildlife species richness, \hat{R} , as a nonlinear function of hour-long survey increments across 46 visual-scan survey stations across the Altamont Pass Wind Resource Area, Alameda and Contra Costa Counties, 2015–2019.



Additionally, the likelihood of detecting special-status species is typically lower than that of more common species. This difference can be explained by the fact that special-status species tend to be rarer and thus less detectable than common species. Special-status species also tend to be more cryptic, fossorial, or active during nocturnal periods when reconnaissance surveys are not performed. Another useful relationship from careful recording of species detections and subsequent comparative analysis is the probability of detection of listed species as a function of an increasing number of vertebrate wildlife species detected (Figure 3). (Note that listed species number fewer than special-status species, which are inclusive of listed species. Also note that I include California Fully Protected species and federal Candidate species as “listed” species.)

Figure 3. Probability of detecting ≥ 1 Candidate, Threatened or Endangered Species of wildlife listed under California or federal Endangered Species Acts, based on survey outcomes logit-regressed on the number of wildlife species I detected during 152 site visits in California. The vertical line represents the number of species I detected.



As demonstrated in Figures 1 and 2, the number of species detected is largely a function of survey effort. Greater survey effort also increases the likelihood that listed species will be detected (which is the first tenet of detection surveys for special-status species). Based on the outcomes of 152 previous surveys I completed at sites of proposed projects, my survey effort at the project site carried an 25% chance of detecting a listed species, whereas the survey effort of GEC carried a 9.5% chance. GEC did not detect a listed species, nor did I, but the odds are that I would have had I performed another 3 surveys of equal effort at the site, whereas GEC would have done so after another 10 of their surveys. Listed species likely use the site, but documenting their use would take more survey effort to achieve a reasonable likelihood of detecting them. No reconnaissance-level survey is capable of detecting enough of the wildlife species that occur at a site to realistically characterize the site's wildlife community. A fair argument can be made for the need to prepare an EIR that is better informed by biological resources surveys and by appropriate interpretation of survey outcomes for the purpose of characterizing the wildlife community as part of the current environmental setting.

As I noted earlier, the other first step toward characterization of the wildlife community as part of the current environmental setting is to review literature, databases and local experts for documented occurrences of special-status species around the site. In support of the IS/MND, GEC reviewed the California Natural Diversity Data Base (CNDDDB) to identify species for which to determine occurrence likelihoods. Had eBird and iNaturalist also been reviewed, determinations of occurrence likelihood would have been made for many additional species (Table 2). In my assessment based on data base

reviews and my site visit, 99 special-status species of wildlife potentially use the site at one time or another. Of these, 2 (2%) were confirmed on the site by survey visits, 46 (46%) have been documented within 1.5 miles of the site ('Very close'), 13 (13%) within 1.5 and 3 miles ('Nearby'), and another 35 (35%) within 3 to 50 miles ('In region'). But whereas my review reveals 99 special-status species with potential to occur on site, the ISD/MND addresses only 41 of these. Of these 41 species, the IS/MND determines 3 (7%) to have low occurrence potential, and 38 (93%) to have no potential. Of the 38 species the IS/MND determines have no potential, 17 (45%) have been documented on eBird within 1.5 miles of the project site. The site holds much more potential for supporting special-status species of wildlife than has been determined in the IS/MND.

Furthermore, the IS/MND misapplies CNDDDB to screen out special-status species not reported within 1 mile of the site. Specifically, the IS/MND (p. 44) reports, "...no special-status species have been documented on the proposed project site (Rarefind 5 2021). However, fourteen special-status species (all records are from the 1800's -early 1900's and not on or near the project site) have been documented within one mile of the proposed project site..." Whereas CNDDDB can be helpful for confirming occurrences of special-status species where they have been reported, it cannot be relied upon for determining absences of species. This is because CNDDDB relies on volunteer reporting, and it is limited in its spatial coverage by the access of biologists to private properties. The findings reported to CNDDDB do not originate from any sort of randomized or systematic sampling across California, nor does CNDDDB collect reports of negative findings. Many survey findings are not reported to CNDDDB because consulting biologists signed non-disclosure agreements with developers. Furthermore, most wildlife species in California are not reported to CNDDDB, because CNDDDB is uninterested in them and Scientific Collecting Permits do not require their reporting. Therefore, species recently assigned special status will be under-represented in CNDDDB. In the absence of scientific sampling, absence determinations based on CNDDDB reporting are vulnerable to multiple biases. The limitations of CNDDDB are well-known, and summarized by CDFW in a warning presented on its CNDDDB web site, <https://wildlife.ca.gov/Data/CNDDDB/About>: "*We work very hard to keep the CNDDDB and the Spotted Owl Database as current and up-to-date as possible given our capabilities and resources. However, we cannot and do not portray the CNDDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide. Field verification for the presence or absence of sensitive species will always be an important obligation of our customers. Likewise, your contribution of data to the CNDDDB is equally important to the maintenance of the CNDDDB. ...*" A fair argument can be made for the need to prepare an EIR to more appropriately analyze data base records to characterize the current environmental setting.

Table 2. Reports of special-status bird species occurrences near the proposed project site, according to Gonzales Environmental Consulting (GEC) and eBird (<https://eBird.org>).

Common name	Species name	Status	GEC finding	Database sightings
Crotch's bumble bee	<i>Bombus crotchii</i>	CCE	Low	In region
Monarch	<i>Danaus plexippus</i>	FC		Very close
Western spadefoot	<i>Spea hammondi</i>	SSC	None	In region
Blainville's horned lizard	<i>Phrynosoma coronatum blainvillii</i>	SSC	None	Very close
Coastal western whiptail	<i>Cnemidophorus tigris stejnegeri</i>	SSC	None	In region
Orange-throated whiptail	<i>Aspidoscelis hyperythra</i>	TWL	None	In region
Coast patch-nosed snake	<i>Salvadora hexalepis virgultea</i>	SSC		Very close
San Bernardino ringneck snake	<i>Diadophis punctatus modestus</i>	CNDDDB	None	In region
California glossy snake	<i>Arizona elegans occidentalis</i>	SSC	None	In region
Northern red-diamond rattlesnake	<i>Crotalus r. ruber</i>	SSC	None	Nearby
Southern California legless lizard	<i>Anniella stebbinsi</i>	SSC	None	Very close
Common loon	<i>Gavia immer</i>	SSC		In region
Brant	<i>Branta bernicla</i>	SSC2		In region
Cackling goose (Aleutian)	<i>Branta hutchinsii leucopareia</i>	WL		Very close
Redhead	<i>Aythya americana</i>	SSC3		Very close
American white pelican	<i>Pelicanus erythrorhynchos</i>	SSC1		Very close
Double-crested cormorant	<i>Phalacrocorax auritus</i>	TWL	None	Very close
White-faced ibis	<i>Plegadis chihi</i>	TWL		Very close
Western grebe	<i>Aechmophorus occidentalis</i>	BCC		Very close
Clark's grebe	<i>Aechmophorus clarkia</i>	BCC		Very close
Long-billed curlew	<i>Numenius americanus</i>	BCC, TWL		In region
Whimbrel	<i>Numenius phaeopus</i>	BCC		In region
Least bittern	<i>Ixobrychus exilis</i>	SSC, BCC		In region
California gull	<i>Larus californicus</i>	TWL		Very close
Caspian tern	<i>Hydropogone caspia</i>	WL		In region
Turkey vulture	<i>Cathartes aura</i>	BOP		Very close
Osprey	<i>Pandion haliaetus</i>	TWL, BOP		Very close
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA, BCC, CFP		In region
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA, BCC, CFP	None	Nearby

Common name	Species name	Status	GEC finding	Database sightings
Swainson's hawk	<i>Buteo swainsoni</i>	CT, BOP	None	Very close
Red-tailed hawk	<i>Buteo jamaicensis</i>	BOP		Very close
Ferruginous hawk	<i>Buteo regalis</i>	TWL, BOP,		Very close
Red-shouldered hawk	<i>Buteo lineatus</i>	BOP		Very close
Northern harrier	<i>Circus cyaneus</i>	BCC, SSC ₃ , BOP		Very close
White-tailed kite	<i>Elanus leucurus</i>	CFP, BOP		Nearby
Sharp-shinned hawk	<i>Accipiter striatus</i>	BOP		Very close
Cooper's hawk	<i>Accipiter cooperi</i>	BOP	None	Very close
American kestrel	<i>Falco sparverius</i>	BOP		Very close
Merlin	<i>Falco columbarius</i>	BOP	None	Very close
Prairie falcon	<i>Falco mexicanus</i>	TWL, BOP	None	Very close
Peregrine falcon	<i>Falco peregrinus</i>	CFP, BOP		Very close
Barn owl	<i>Tyto alba</i>	BOP		Nearby
Burrowing owl	<i>Bubo virginianus</i>	BCC, SSC ₂ , BOP	None	Very close
Great-horned owl	<i>Athene cunicularia</i>	BOP		Nearby
Short-eared owl	<i>Asio flammeus</i>	SSC ₃ , BOP		In region
Western screech-owl	<i>Megascops kennicottii</i>	BOP		Nearby
Vaux's swift	<i>Chaetura vauxi</i>	SSC ₂	None	Very close
Black swift	<i>Cypseloides niger</i>	BCC		In region
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC		Very close
Nuttall's woodpecker	<i>Picoides nuttallii</i>	BCC		Very close
Costa's hummingbird	<i>Calypte costae</i>	BCC	None	Very close
Allen's hummingbird	<i>Selasphorus sasin</i>	BCC		Very close
Rufous hummingbird	<i>Selasphorus rufus</i>	BCC		Very close
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	BCC		In region
Horned lark	<i>Eremophila alpestris actia</i>	TWL		Very close
California gnatcatcher	<i>Polioptila c. californica</i>	FT, SSC	None	Nearby
Willow flycatcher	<i>Empidonax traillii</i>	CE	None	Very close
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC ₂	None	Very close
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	SSC ₂		Very close
Purple martin	<i>Progne subis</i>	SSC ₂	None	In region

Common name	Species name	Status	GEC finding	Database sightings
Bank swallow	<i>Riparia riparia</i>	BLM:S		Very close
Wrentit	<i>Chamaea fasciata</i>	BCC		Very close
Oak titmouse	<i>Baeolophus inornatus</i>	BCC		Nearby
Loggerhead shrike	<i>Lanius ludovicianus</i>	BCC, SSC2	Low	Very close
Least Bell's vireo	<i>Vireo belli pusillus</i>	FE, CE	None	Very close
California thrasher	<i>Toxostoma redivivum</i>	BCC		Very close
Yellow warbler	<i>Setophaga petechia</i>	SSC2	None	Very close
Yellow-breasted chat	<i>Icteria virens</i>	SSC3	None	Very close
Summer tanager	<i>Piranga rubra</i>	SSC1		In region
Black-chinned sparrow	<i>Spizella atrogularis</i>	BCC		In region
Bell's sage sparrow	<i>Amphispiza b. belli</i>	TWL	None	Nearby
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	SSC2		Nearby
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC2		In region
Southern California rufous-crowned sparrow	<i>Aimophila ruficeps canescens</i>	BCC, SSC	None	Nearby
Brewer's sparrow	<i>Spizella breweri</i>	BCC		In region
Tricolored blackbird	<i>Agelaius tricolor</i>	BCC, CT	None	Very close
Yellow-headed blackbird	<i>X. xanthocephalus</i>	SSC3	None	Nearby
Bullock's oriole	<i>Icterus bullockii</i>	BCC		Very close
Cassin's finch	<i>Haemorhous cassinii</i>	BCC		In region
Lawrence's goldfinch	<i>Spinus lawrencei</i>	BCC	None	Very close
Pallid bat	<i>Antrozous pallidus</i>	SSC, WBWG H		In region
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SSC, WBWG H		In region
Western red bat	<i>Lasiurus blossewillii</i>	SSC, WBWG H		In region
Western yellow bat	<i>Lasiurus xanthinus</i>	SSC, WBWG H	None	In range
Small-footed myotis	<i>Myotis cililabrum</i>	WBWG M		In range
Miller's myotis	<i>Myotis evotis</i>	WBWG M		In region
Fringed myotis	<i>Myotis thysanodes</i>	WBWG H		In region
Long-legged myotis	<i>Myotis Volans</i>	WBWG H		In region
Yuma myotis	<i>Myotis yumanensis</i>	SSC, WBWG LM		Nearby
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	SSC, WBWG M	None	In region

Common name	Species name	Status	GEC finding	Database sightings
Western mastiff bat	<i>Eumops perotis</i>	SSC, WBWG H		In range
Southern grasshopper mouse	<i>Onychomys torridus ramona</i>	SSC	None	In region
Dulzura pocket mouse	<i>Chaetodipus californicus femoralis</i>	SSC	None	
Northwestern San Diego pocket mouse	<i>Chaetodipus f. fallax</i>	SSC	None	In region
Pallid San Diego pocket mouse	<i>Chaetodipus fallax pallidus</i>	SSC	None	Near range
Los Angeles pocket mouse	<i>Perognathus longimembris brevinasus</i>	SSC	None	In region
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	SSC	None	In region
Stephens's kangaroo rat	<i>Dipodomys stephensi</i>	FE, CT	None	In range
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	SSC	None	In region
American badger	<i>Taxidea taxus</i>	SSC	Low	In region

¹ Listed as FT and FE = federal threatened and endangered, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, CT and CE = California threatened and endangered, CFP = California Fully Protected (CDFW Code 3511), BOP = California Department of Fish and Wildlife Code 3503.5 (Birds of Prey), and SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively, and WL = Taxa to Watch List (Shuford and Gardali 2008), WBWG = Western Bat Working Group listing as low, moderate or high priority.

The IS/MND mischaracterizes the current environmental setting in other ways, as well. For example, the IS/MND downplays the value of the site to wildlife because “The habitat around San Bernardino South is developed and utilized primarily for residential and commercial purposes” (p. 45). What is neglected, however, is the site’s island-like value to wildlife trying to persist on this otherwise anthropogenic landscape. The site provides one of the few remaining opportunities in the region for wildlife to find breeding substrate and opportunities to forage and stop-over during travel. Again, a fair argument can be made for the need to prepare an EIR to appropriately characterize the current environmental setting as a baseline upon which to appropriately analyze potential project impacts to wildlife.

BIOLOGICAL IMPACTS ASSESSMENT

Determination of occurrence likelihoods of special-status species is not, in and of itself, an analysis of potential project impacts. An impacts analysis should consider whether and how a proposed project would affect members of a species, larger demographic units of the species, or the whole of a species. In the following, I analyze several types of impacts likely to result from the project, and none of which are soundly analyzed in the IS/MND.

HABITAT LOSS

The IS/MND does not address potential impacts of habitat loss to breeding birds. Habitat loss has been recognized as the most likely leading cause of a documented 29% decline in overall bird abundance across North America over the last 48 years (Rosenberg et al. 2019). Habitat loss not only results in the immediate numerical decline of wildlife, but it also results in permanent loss of productive capacity. For example, a complex of grassland, wetland, and woodland at one study site had a total bird nesting density of 32.8 nests per acre (Young 1948). In another study on a similar complex of vegetation cover, the average annual nest density was 35.8 nests per acre (Yahner 1982). These densities averaged 34.3 nests per acre, but they were from study sites that were much less disturbed than the project site. Assuming the nest density of the project site is only half that documented by Young (1948) and Yahner (1982), an average nest density of 34.3 multiplied against 0.5 and the project’s 3.84 acres would estimate a capacity of 66 bird nests annually. Considering the number of birds I saw on site, and assuming some of the birds remained hidden on their nests, my assumption that nest density was half that of Young (1948) and Yahner (1982) is reasonable.

The loss of 66 nest sites of birds would qualify as a significant project impact that has not been addressed in the IS/MND. But the impact does not end with the immediate loss of nest sites as the site is graded in preparation for impervious surfaces. The reproductive capacity of the site would be lost. The average number of fledglings per nest in Young’s (1948) study was 2.9. Assuming Young’s (1948) study site typifies bird productivity, the project would prevent the production of 191 fledglings per year. After 100 years and further assuming an average bird generation time of 5 years, the lost capacity of both breeders and annual fledgling production would total 21,740 birds

$\{(nests/year \times chicks/nest \times number\ of\ years) + (2\ adults/nest \times nests/year) \times (number\ of\ years \div years/generation)\}$. The project's denial to California of 217 birds per year has not been analyzed as a potential impact in the IS/MND, nor does the IS/MND provide any compensatory mitigation for this impact. A fair argument can be made for the need to prepare an EIR to appropriately analyze the project's impacts to wildlife caused by habitat loss and habitat fragmentation.

WILDLIFE MOVEMENT

The IS/MND makes false claims of analyses having been performed to determine whether the project would adversely affect wildlife movement in the region. According to the IS/MND (p. 46), "The project was evaluated in relationship to the facilitation of wildlife movement and whether it provides links to seasonal foraging grounds or affects the exchange of genetic information between disjunct subpopulations." In fact, the IS/MND identifies no seasonal foraging grounds, nor does it provide any foundation for analysis of genetic exchange among populations. And in fact, no level of demographic organization is characterized for any species of wildlife in the area, nor is there any description of how and to where wildlife move, disperse, or migrate in the area. The "analysis" is pure speculation spun around empty scientific terms, i.e., it is pseudoscience.

Multiple species of wildlife reside at the site of the proposed project. The majority of the species I saw there are breeding. The offspring of these animals will need to disperse from the site, and in years to come, recruits to the local breeding pool would need to travel to the site for the species to be able to persist there. With breeding animals on site, the site also provides forage for predatory species that nest nearby. The site is also used for stop-over by animals undergoing longer travels. As one of the last remaining patches of open space in the region, it is likely very important to wildlife movement. A fair argument can be made for the need to prepare an EIR to appropriately analyze potential project impacts to wildlife movement in the region.

TRAFFIC IMPACTS TO WILDLIFE

The IS/MND neglects to address one of the project's most obvious, substantial impacts to wildlife, and that is wildlife mortality and injuries caused by project-generated traffic. Project-generated traffic would endanger wildlife that must, for various reasons, cross roads used by the project's traffic (Photos 14-17). Vehicle collisions have accounted for the deaths of many thousands of amphibian, reptile, mammal, bird, and arthropod fauna, and the impacts have often been found to be significant at the population level (Forman et al. 2003). Across North America traffic impacts have taken devastating tolls on wildlife (Forman et al. 2003). In Canada, 3,562 birds were estimated killed per 100 km of road per year (Bishop and Brogan 2013), and the US estimate of avian mortality on roads is 2,200 to 8,405 deaths per 100 km per year, or 89 million to 340 million total per year (Loss et al. 2014). Local impacts can be more intense than nationally.

Photo 14. A Gambel's quail dashes across a road on 3 April 2021. Such road crossings are usually successful, but too often prove fatal to the animal. Photo by Noriko Smallwood.



Photo 15. Great-tailed grackle walks onto a rural road in Imperial County, 4 February 2022.



Photo 16. Mourning dove killed by vehicle on a California road. Photo by Noriko Smallwood, 21 June 2020.



Photo 17. Raccoon killed on Road 31 just east of Highway 505 in Solano County. Photo taken on 10 November 2018.



The nearest study of traffic-caused wildlife mortality was performed along a 2.5-mile stretch of Vasco Road in Contra Costa County, California. Fatality searches in this study found 1,275 carcasses of 49 species of mammals, birds, amphibians and reptiles over 15 months of searches (Mendelsohn et al. 2009). This fatality number needs to be adjusted for the proportion of fatalities that were not found due to scavenger removal and searcher error. This adjustment is typically made by placing carcasses for searchers to find (or not find) during their routine periodic fatality searches. This step was not taken at Vasco Road (Mendelsohn et al. 2009), but it was taken as part of another study right next to Vasco Road (Brown et al. 2016). The Brown et al. (2016) adjustment factors were similar to those for carcass persistence of road fatalities (Santos et al. 2011). Applying searcher detection rates estimated from carcass detection trials performed at a wind energy project immediately adjacent to this same stretch of road (Brown et al. 2016), the adjusted total number of fatalities was estimated at 12,187 animals killed by traffic on the road. This fatality number translates to a rate of 3,900 wild animals per mile per year killed along 2.5 miles of road in 1.25 years. In terms comparable to the national estimates, the estimates from the Mendelsohn et al. (2009) study would translate to 243,740 animals killed per 100 km of road per year, or 29 times that of Loss et al.'s (2014) upper bound estimate and 68 times the Canadian estimate. An analysis is needed of whether increased traffic generated by the project site would similarly result in local impacts on wildlife.

Predicting project-generated traffic impacts to wildlife

For wildlife vulnerable to front-end collisions and crushing under tires, road mortality can be predicted from the study of Mendelsohn et al. (2009) as a basis, although it would be helpful to have the availability of more studies like that of Mendelsohn et al. (2009) at additional locations. My analysis of the Mendelsohn et al. (2009) data resulted in an estimated 3,900 animals killed per mile along a county road in Contra Costa County. Two percent of the estimated number of fatalities were birds, and the balance was composed of 34% mammals (many mice and pocket mice, but also ground squirrels, desert cottontails, striped skunks, American badgers, raccoons, and others), 52.3% amphibians (large numbers of California tiger salamanders and California red-legged frogs, but also Sierran treefrogs, western toads, arboreal salamanders, slender salamanders and others), and 11.7% reptiles (many western fence lizards, but also skinks, alligator lizards, and snakes of various species).

During the Mendelsohn et al. (2009) study, 19,500 cars traveled Vasco Road daily, so the vehicle miles that contributed to my estimate of non-volant fatalities was $19,500 \text{ cars} \times 2.5 \text{ miles} \times 365 \text{ days/year} \times 1.25 \text{ years} = 22,242,187.5 \text{ vehicle miles}$ per 12,187 wildlife fatalities, or 1,825 vehicle miles per fatality. This rate divided into the IS/MND's prediction of 913,213 annual vehicle miles traveled (mitigated + unmitigated VMT) due to the project, predicts 500 vertebrate wildlife fatalities per year. Assuming the project-generated traffic would destroy 40% of this number due to its urbanized surroundings, a more realistic prediction would be 200 vertebrate wildlife fatalities per year. **Operations over 50 years would accumulate 10,000 wildlife fatalities.** It remains unknown whether and to what degree vehicle tires contribute to carcass

removals from the roadway, thereby contributing a negative bias to the fatality estimates I made from the Mendelsohn et al. (2009) fatality counts.

Based on my assumptions and simple calculations, the project-generated traffic would cause substantial, significant impacts to wildlife. There is at least a fair argument that can be made for the need to prepare an EIR to analyze this impact. Mitigation measures to improve wildlife safety along roads are available and are feasible, and they need exploration for their suitability with the proposed project.

CUMULATIVE IMPACTS

The IS/MND fails to analyze potential project contributions to cumulative impacts. GEC (2021) provides some discussion of cumulative impacts, but the discussion appears to consist of canned text that has little bearing to the proposed project. For example, it says “Some habitats would only be temporarily disturbed, such as at construction staging sites that are active only during the construction phase of the project. Such temporary disturbance would either kill resident wildlife or displace them into adjacent or more distant habitats, depending on the species. Some of the surviving species would return to the disturbed site following completion of the construction activity.” In truth, none of the soils and vegetation on the site would remain, because the site would be covered by impervious surfaces. Wildlife would be unable to return to the site. GEC’s discussion is nonsensical.

GEC (2021) concludes, “The site features disturbed habitat. The disturbed vegetation on the project site (site) and its history of anthropogenic disturbances limits its value to native plant and animal species.” And yet I can detect 22 species of vertebrate wildlife during a cursory survey of the site one morning, and the pattern of the data predict the site supports at least 102 species of wildlife through the course of one or more years. Wildlife communities worldwide have been disturbed by human activities, so the mere fact that the site has been disturbed cannot preclude use of the site by wildlife. Despite the disturbance of the site and despite its urban/industrial surroundings, the site is much richer in wildlife than the 10 birds of 4 species GEC reported there. GEC’s cumulative impacts discussion lacks credibility. A fair argument can be made for the need to prepare an EIR to appropriately analyze cumulative effects.

MITIGATION MEASURES

MM BIO-1 Preconstruction survey for migratory birds

Preconstruction surveys should be performed for nesting birds, but not as a substitute for detection surveys. Preconstruction surveys are not designed or intended to reduce project impacts. Preconstruction surveys are only intended as last-minute, one-time salvage and rescue operations targeting readily detectable nests or individuals before they are crushed under heavy construction machinery. Because most special-status species are rare and cryptic, and because most bird species are expert at hiding their nests lest they get predated, most of their nests will not be detected by preconstruction

surveys. Many of the nests at the project site are located in dense vegetation, such as within the densely layered fronds of palm trees. Locating all of the nests on site would require more effort than is committed during preconstruction surveys.

Detection surveys are needed to inform preconstruction take-avoidance surveys by mapping out where biologists performing preconstruction surveys are most likely to find animals before the tractor blade finds them. Detection surveys were designed by species experts, often undergoing considerable deliberation and review before adoption. Detection surveys often require repeated efforts using methods known to maximize likelihoods of detection. Detection surveys are needed to assess impacts and to inform the formulation of appropriate mitigation measures, because preconstruction surveys are not intended for these roles either. What is missing from the IS/MND, and what is in greater need than preconstruction surveys, is detection surveys consistent with guidelines and protocols that wildlife ecologists have uniquely developed for use with each special-status species. What is also missing is compensatory mitigation of unavoidable impacts.

Following detection surveys, preconstruction surveys should be performed. However, an EIR should be prepared, and it should detail how the results of preconstruction surveys would be reported. Without reporting the results, preconstruction surveys are vulnerable to serving as an empty gesture rather than a mitigation measure. For these reasons, this mitigation measure is not sufficient to reduce the project's impacts to nesting birds to less than significant levels.

MM BIO-2 Preconstruction survey for burrowing owls

Again, I concur that a preconstruction survey would be warranted, but only after completion of detection surveys that meet the standards of CDFW (2012).

MM BIO-3 Avoid planting of priority exotics

MM BIO-4 Maintenance and refueling only in designated safe zone

MM BIO-5 Prevent runoff

The above measures, BIO-3 to BIO-5, are best practices with which I concur should be implemented, but which would do little to nothing to mitigate impacts to wildlife. They might help to minimize impacts to wildlife off site, but they would not avoid nor compensate for impacts to wildlife on site.

RECOMMENDED MEASURES

The IS/MND proposes only preconstruction surveys and a few best management practices, but no compensatory mitigation for habitat loss or losses to project-generated traffic. A fair argument can be made for the need to prepare an EIR to formulate

appropriate measures to mitigate project impacts to wildlife. Below are few suggestions of measures that ought to be considered in an EIR.

Detection Surveys: Protocol-level detection surveys should be implemented for special-status species, and most especially for burrowing owl.

Habitat Loss: If the project goes forward, compensatory mitigation would be warranted for habitat loss. An equal area of open space should be protected in perpetuity as close to the project site as possible.

Road Mortality: Compensatory mitigation is needed for the increased wildlife mortality that would be caused by the project-generated road traffic in the region. I suggest that this mitigation can be directed toward funding research to identify fatality patterns and effective impact reduction measures such as reduced speed limits and wildlife under-crossings or overcrossings of particularly dangerous road segments. Compensatory mitigation can also be provided in the form of donations to wildlife rehabilitation facilities (see below).

Fund Wildlife Rehabilitation Facilities: Compensatory mitigation ought also to include funding contributions to wildlife rehabilitation facilities to cover the costs of injured animals that will be delivered to these facilities for care. Many animals would likely be injured by collisions with automobiles.

Thank you for your attention,



Shawn Smallwood, Ph.D.

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Kenneth Shawn Smallwood

Curriculum Vitae

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Born May 3, 1963 in
Sacramento, California.
Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;
- Wildlife monitoring and field study using GPS, thermal imaging, behavior surveys;
- Using systems analysis and experimental design principles to identify meaningful ecological patterns that inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 761 professional reports, including:
 - 90 peer reviewed publications
 - 24 in non-reviewed proceedings
- 645 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 92 public presentations of research results

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The five-member committee investigated causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC reviewed the science underlying the Alameda County Avian Protection Program, and advised

the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Part-time Lecturer, 1998-2005, California State University, Sacramento. Instructed Mammalogy, Behavioral Ecology, and Ornithology Lab, Contemporary Environmental Issues, Natural Resources Conservation.

Senior Ecologist, 1999-2005, BioResource Consultants. Designed and implemented research and monitoring studies related to avian fatalities at wind turbines, avian electrocutions on electric distribution poles across California, and avian fatalities at transmission lines.

Chairman, Conservation Affairs Committee, The Wildlife Society--Western Section, 1999-2001. Prepared position statements and led efforts directed toward conservation issues, including travel to Washington, D.C. to lobby Congress for more wildlife conservation funding.

Systems Ecologist, 1995-2000, Institute for Sustainable Development. Headed ISD's program on integrated resources management. Developed indicators of ecological integrity for large areas, using remotely sensed data, local community involvement and GIS.

Associate, 1997-1998, Department of Agronomy and Range Science, University of California, Davis. Worked with Shu Geng and Mingua Zhang on several studies related to wildlife interactions with agriculture and patterns of fertilizer and pesticide residues in groundwater across a large landscape.

Lead Scientist, 1996-1999, National Endangered Species Network. Informed academic scientists and environmental activists about emerging issues regarding the Endangered Species Act and other environmental laws. Testified at public hearings on endangered species issues.

Ecologist, 1997-1998, Western Foundation of Vertebrate Zoology. Conducted field research to determine the impact of past mercury mining on the status of California red-legged frogs in Santa Clara County, California.

Senior Systems Ecologist, 1994-1995, EIP Associates, Sacramento, California. Provided consulting services in environmental planning, and quantitative assessment of land units for their conservation and restoration opportunities based on ecological resource requirements of 29 special-status species. Developed ecological indicators for prioritizing areas within Yolo County

to receive mitigation funds for habitat easements and restoration.

Post-Graduate Researcher, 1990-1994, Department of Agronomy and Range Science, *U.C. Davis*. Under Dr. Shu Geng's mentorship, studied landscape and management effects on temporal and spatial patterns of abundance among pocket gophers and species of Falconiformes and Carnivora in the Sacramento Valley. Managed and analyzed a data base of energy use in California agriculture. Assisted with landscape (GIS) study of groundwater contamination across Tulare County, California.

Work experience in graduate school: Co-taught Conservation Biology with Dr. Christine Schonewald, 1991 & 1993, UC Davis Graduate Group in Ecology; Reader for Dr. Richard Coss's course on Psychobiology in 1990, UC Davis Department of Psychology; Research Assistant to Dr. Walter E. Howard, 1988-1990, UC Davis Department of Wildlife and Fisheries Biology, testing durable baits for pocket gopher management in forest clearcuts; Research Assistant to Dr. Terrell P. Salmon, 1987-1988, UC Wildlife Extension, Department of Wildlife and Fisheries Biology, developing empirical models of mammal and bird invasions in North America, and a rating system for priority research and control of exotic species based on economic, environmental and human health hazards in California. Student Assistant to Dr. E. Lee Fitzhugh, 1985-1987, UC Cooperative Extension, Department of Wildlife and Fisheries Biology, developing and implementing statewide mountain lion track count for long-term monitoring.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

Projects

Repowering wind energy projects through careful siting of new wind turbines using map-based collision hazard models to minimize impacts to volant wildlife. Funded by wind companies (principally NextEra Renewable Energy, Inc.), California Energy Commission and East Bay Regional Park District, I have collaborated with a GIS analyst and managed a crew of five field biologists performing golden eagle behavior surveys and nocturnal surveys on bats and owls. The goal is to quantify flight patterns for development of predictive models to more carefully site new wind turbines in repowering projects. Focused behavior surveys began May 2012 and continue. Collision hazard models have been prepared for seven wind projects, three of which were built. Planning for additional repowering projects is underway.

Test avian safety of new mixer-ejector wind turbine (MEWT). Designed and implemented a before-after, control-impact experimental design to test the avian safety of a new, shrouded wind turbine developed by Ogin Inc. (formerly known as FloDesign Wind Turbine Corporation). Supported by a \$718,000 grant from the California Energy Commission's Public Interest Energy Research program and a 20% match share contribution from Ogin, I managed a crew of seven field biologists who performed periodic fatality searches and behavior surveys, carcass detection trials, nocturnal behavior surveys using a thermal camera, and spatial analyses with the collaboration of a GIS analyst. Field work began 1 April 2012 and ended 30 March 2015 without Ogin installing its MEWTs, but we still achieved multiple important scientific advances.

Reduce avian mortality due to wind turbines at Altamont Pass. Studied wildlife impacts caused by 5,400 wind turbines at the world's most notorious wind resource area. Studied how impacts are perceived by monitoring and how they are affected by terrain, wind patterns, food resources, range management practices, wind turbine operations, seasonal patterns, population cycles, infrastructure management such as electric distribution, animal behavior and social interactions.

Reduce avian mortality on electric distribution poles. Directed research toward reducing bird electrocutions on electric distribution poles, 2000-2007. Oversaw 5 founts of fatality searches at 10,000 poles from Orange County to Glenn County, California, and produced two large reports.

Cook *et al.* v. Rockwell International *et al.*, No. 90-K-181 (D. Colorado). Provided expert testimony on the role of burrowing animals in affecting the fate of buried and surface-deposited radioactive and hazardous chemical wastes at the Rocky Flats Plant, Colorado. Provided expert reports based on four site visits and an extensive document review of burrowing animals. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals. I testified in federal court in November 2005, and my clients were subsequently awarded a \$553,000,000 judgment by a jury. After appeals the award was increased to two billion dollars.

Hanford Nuclear Reservation Litigation. Provided expert testimony on the role of burrowing animals in affecting the fate of buried radioactive wastes at the Hanford Nuclear Reservation, Washington. Provided three expert reports based on three site visits and extensive document review. Predicted and verified a certain population density of pocket gophers on buried waste structures, as well as incidence of radionuclide contamination in body tissue. Conducted transect surveys for evidence of burrowing animals and other wildlife on and around waste facilities. Discovered substantial intrusion of waste structures by burrowing animals.

Expert testimony and declarations on proposed residential and commercial developments, gas-fired power plants, wind, solar and geothermal projects, water transfers and water transfer delivery systems, endangered species recovery plans, Habitat Conservation Plans and Natural Communities Conservation Programs. Testified before multiple government agencies, Tribunals, Boards of Supervisors and City Councils, and participated with press conferences and depositions. Prepared expert witness reports and court declarations, which are summarized under Reports (below).

Protocol-level surveys for special-status species. Used California Department of Fish and Wildlife and US Fish and Wildlife Service protocols to search for California red-legged frog, California tiger salamander, arroyo southwestern toad, blunt-nosed leopard lizard, western pond turtle, giant kangaroo rat, San Joaquin kangaroo rat, San Joaquin kit fox, western burrowing owl, Swainson's hawk, Valley elderberry longhorn beetle and other special-status species.

Conservation of San Joaquin kangaroo rat. Performed research to identify factors responsible for the decline of this endangered species at Lemoore Naval Air Station, 2000-2013, and implemented habitat enhancements designed to reverse the trend and expand the population.

Impact of West Nile Virus on yellow-billed magpies. Funded by Sacramento-Yolo Mosquito and Vector Control District, 2005-2008, compared survey results pre- and post-West Nile Virus epidemic for multiple bird species in the Sacramento Valley, particularly on yellow-billed magpie and American crow due to susceptibility to WNV.

Workshops on HCPs. Assisted Dr. Michael Morrison with organizing and conducting a 2-day workshop on Habitat Conservation Plans, sponsored by Southern California Edison, and another 1-day workshop sponsored by PG&E. These Workshops were attended by academics, attorneys, and consultants with HCP experience. We guest-edited a Proceedings published in Environmental Management.

Mapping of biological resources along Highways 101, 46 and 41. Used GPS and GIS to delineate vegetation complexes and locations of special-status species along 26 miles of highway in San Luis Obispo County, 14 miles of highway and roadway in Monterey County, and in a large area north of Fresno, including within reclaimed gravel mining pits.

GPS mapping and monitoring at restoration sites and at Caltrans mitigation sites. Monitored the success of elderberry shrubs at one location, the success of willows at another location, and the response of wildlife to the succession of vegetation at both sites. Also used GPS to monitor the response of fossorial animals to yellow star-thistle eradication and natural grassland restoration efforts at Bear Valley in Colusa County and at the decommissioned Mather Air Force Base in Sacramento County.

Mercury effects on Red-legged Frog. Assisted Dr. Michael Morrison and US Fish and Wildlife Service in assessing the possible impacts of historical mercury mining on the federally listed California red-legged frog in Santa Clara County. Also measured habitat variables in streams.

Opposition to proposed No Surprises rule. Wrote a white paper and summary letter explaining scientific grounds for opposing the incidental take permit (ITP) rules providing ITP applicants and holders with general assurances they will be free of compliance with the Endangered Species Act once they adhere to the terms of a “properly functioning HCP.” Submitted 188 signatures of scientists and environmental professionals concerned about No Surprises rule US Fish and Wildlife Service, National Marine Fisheries Service, all US Senators.

Natomas Basin Habitat Conservation Plan alternative. Designed narrow channel marsh to increase the likelihood of survival and recovery in the wild of giant garter snake, Swainson’s hawk and Valley Elderberry Longhorn Beetle. The design included replication and interspersions of treatments for experimental testing of critical habitat elements. I provided a report to Northern Territories, Inc.

Assessments of agricultural production system and environmental technology transfer to China. Twice visited China and interviewed scientists, industrialists, agriculturalists, and the Directors of the Chinese Environmental Protection Agency and the Department of Agriculture to assess the need and possible pathways for environmental clean-up technologies and trade opportunities between the US and China.

Yolo County Habitat Conservation Plan. Conducted landscape ecology study of Yolo County to spatially prioritize allocation of mitigation efforts to improve ecosystem functionality within the County from the perspective of 29 special-status species of wildlife and plants. Used a hierarchically structured indicators approach to apply principles of landscape and ecosystem ecology, conservation biology, and local values in rating land units. Derived GIS maps to help guide the conservation area design, and then developed implementation strategies.

Mountain lion track count. Developed and conducted a carnivore monitoring program throughout California since 1985. Species counted include mountain lion, bobcat, black bear, coyote, red and gray fox, raccoon, striped skunk, badger, and black-tailed deer. Vegetation and land use are also monitored. Track survey transect was established on dusty, dirt roads within randomly selected quadrats.

Sumatran tiger and other felids. Upon award of Fulbright Research Fellowship, I designed and initiated track counts for seven species of wild cats in Sumatra, including Sumatran tiger, fishing cat, and golden cat. Spent four months on Sumatra and Java in 1988, and learned Bahasa Indonesia, the official Indonesian language.

Wildlife in agriculture. Beginning as post-graduate research, I studied pocket gophers and other wildlife in 40 alfalfa fields throughout the Sacramento Valley, and I surveyed for wildlife along a 200 mile road transect since 1989 with a hiatus of 1996-2004. The data are analyzed using GIS and methods from landscape ecology, and the results published and presented orally to farming groups in California and elsewhere. I also conducted the first study of wildlife in cover crops used on vineyards and orchards.

Agricultural energy use and Tulare County groundwater study. Developed and analyzed a data base of energy use in California agriculture, and collaborated on a landscape (GIS) study of groundwater contamination across Tulare County, California.

Pocket gopher damage in forest clear-cuts. Developed gopher sampling methods and tested various poison baits and baiting regimes in the largest-ever field study of pocket gopher management in forest plantations, involving 68 research plots in 55 clear-cuts among 6 National Forests in northern California.

Risk assessment of exotic species in North America. Developed empirical models of mammal and bird species invasions in North America, as well as a rating system for assigning priority research and control to exotic species in California, based on economic, environmental, and human health hazards.

Peer Reviewed Publications

Smallwood, K. S. 2022. Utility-scale solar impacts to volant wildlife. *Journal of Wildlife Management*: In press.

Smallwood, K. S., and N. L. Smallwood. 2021. Breeding Density and Collision Mortality of Loggerhead Shrike (*Lanius ludovicianus*) in the Altamont Pass Wind Resource Area. *Diversity* 13, 540. <https://doi.org/10.3390/d13110540>.

Smallwood, K. S. 2020. USA wind energy-caused bat fatalities increase with shorter fatality search intervals. *Diversity* 12(98); <https://doi.org/10.3390/d12030098>

Smallwood, K. S., D. A. Bell, and S. Standish. 2020. Dogs detect larger wind energy impacts on bats and birds. *Journal of Wildlife Management* 84:852-864. DOI: 10.1002/jwmg.21863.

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Comments on Environmental Documents (Year; pages)

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- Shirk & Riggin Industrial Park Application, Visalia (2022; 22);
- Duarte Industrial Application, Visalia (2022; 17);
- Amond World Cold Storage Warehouse IS/MND, Madera (2022; 23);
- Replies on Schulte Logistics Centre EIR, Tracy (2022; 28);
- Alta Cuvee Mixed Use Project Recirculated IS/MND, Ranch Cucamonga (2022; 8);
- Fourth visit, Veterans Affairs Site Plan Review No. 20-0102 MND, Bakersfield (2022; 9);
- Replies on 1242 20th Street Wellness Center Project FEIR, Santa Monica (2022; 5);
- 656 South San Vicente Medical Office Project EIR, Los Angeles (2022; 21);
- UCSF New Hospital at Parnassus Heights DEIR. San Francisco (2022; 40);
- DPR-21-021 Warehouse IS, Modesto (2022; 19);
- Ormat Brawley Solar Project DEIR, Brawley (2022; 37);
- Site visits to Heber 1 Geothermal Repower Project IS/MND (2022; 31);
- Heritage Industrial Center Design Review, Chula Vista (2022; 13);
- Temporary Outdoor Vehicle Storage DEIR, Port of Hueneme (2022; 29);
- CNU Medical Center and Innovation Park DEIR, Natomas (2022; 35);
- Beverly Boulevard Warehouse IS/MND, Pico Rivera (2021; 28);
- Hagemon Properties IS/MND Amendment, Bakersfield (2022; 23);
- Airport Distribution Center IS/MND, Redding (2021; 22);
- Orchard on Nevada Warehouse Staff Report, Redlands (2021; 24);
- Landings Logistics Center Exemption, Bakersfield (2021; 19);
- Replies on Hearn Veterans Village IS/MND, Santa Rosa (2021; 22);
- North Central Valley BESS Project IS/MND, Stockton (2021; 37);
- 2nd Replies on Heber 1 Geothermal Repower Project IS/MND (2022; 21);
- Stagecoach Solar DEIR, Barstow (2021; 24);
- Updated Sun Lakes Village North EIR Amendment 5, Banning, Riverside County (2021; 35);
- Freedom Circle Focus Area and Greystar General Plan Amendment Project EIR, San Jose (2021; 43);
- Operon HKI Warehouse IS/MND, Perris (2021; 26);
- Fairway Business Park Phase III IS/MND, Lake Elsinore (2021; 23);
- South Stockton Commerce Center IS/MND, Stockton (2021; 31);
- Starpoint Warehouse IS/MND, San Bernardino (2021; 24);
- Replies on Heber 1 Geothermal Repower Project IS/MND (2021; 15);
- Heber 1 Geothermal Repower Project IS/MND (2021; 11);
- Alviso Hotel Project IS/MND, San Jose (2021; 43);
- Replies on Easton Research Park West IS/MND, Rancho Cordova (2021; 3);
- Easton Research Park West IS/MND, Rancho Cordova (2021; 31);
- US Cold Storage DEIR, Hesperia (2021; 30);
- 1242 20th Street Wellness Center Project FEIR, Santa Monica (2021; 23);

- Third visit, Veterans Affairs Site Plan Review No. 20-0102 MND, Bakersfield (2021; 10);
- Roseland Creek Community Park Project IS/MND, Santa Rosa (2021; 23);
- Vista Mar Declaration of Irreparable Harm, Pacifica (2021; 3);
- LogistiCenter at Fairfield IS/MND (2021; 25);
- Alta Cuvee Mixed Use Project IS/MND, Ranch Cucamonga (2021; 29);
- Caligrows Architectural and Site Plan Review, Patterson (2021; 21);
- 1055 E. Sandhill Avenue Warehouse IS/MND, Carson (2021; 10);
- Chestnut & Tenth Street Commercial Project IS/MND, Gilroy (2021; 27);
- Libitzky Management Warehouse IS/MND, Modesto (2021; 20);
- 3rd Replies on Heber 2 Geothermal Repower Project IS/MND, El Centro (2021; 10);
- Medical Office Building DEIR, Santa Cruz (2021; 30);
- Scannell Warehouse DEIR, Richmond (2021; 24);
- Diamond Heights Application, San Francisco (2021; 24);
- Costa Azul Mixed-Use EIR Addendum, San Diego (2021; 25);
- Woodland Research Park DEIR (2021; 45);
- 2nd Replies on Diamond Street Industrial IS/MND, San Marcos (2021; 9);
- Replies on Diamond Street Industrial IS/MND, San Marcos (2021; 3);
- Diamond Street Industrial IS/MND, San Marcos (2021; 28);
- DHS 109 Industrial Park IS/MND, Desert Hot Springs (2021; 33);
- Jersey Industrial Complex Rancho Cucamonga (2022; 22);
- 1188 Champions Drive Parking Garage Staff Report, San Jose (2021; 5);
- San Pedro Mountain, Pacifica (2021; 22);
- Pixior Warehouse IS/MND, Hesperia (2021; 29);
- 2nd Replies on Heber 2 Geothermal Repower Project IS/MND, El Centro (2021; 9);
- Hearn Veterans Village IS/MND, Santa Rosa (2021; 23);
- Second visit, Veterans Affairs Site Plan Review No. 20-0102 MND, Bakersfield (2021; 11);
- Replies on Station East Residential/Mixed Use EIR, Union City (2021; 26);
- Schulte Logistics Centre EIR, Tracy (2021; 30);
- 4150 Point Eden Way Industrial Development EIR, Hayward (2021; 13);
- Airport Business Centre IS/MND, Manteca (2021; 27);
- Dual-branded Hotel IS/MND, Santa Clara (2021; 26);
- Legacy Highlands Specific Plan EIR, Beaumont (2021; 47);
- UC Berkeley LRDP and Housing Projects #1 and #2 EIR (2021; 27);
- Santa Maria Airport Business Park EIR, Santa Maria (2021; 27);
- Replies on Coachella Valley Arena EIR Addendum, Thousand Palms (2021; 20);
- Coachella Valley Arena EIR Addendum, Thousand Palms (2021; 35);
- Inland Harbor Warehouse NOD, Ontario (2021; 8);
- Alvarado Specific Plan DEIR, La Mesa (2021; 35);
- Harvill Avenue and Rider Street Terminal Project MND, Riverside (2021; 23);
- Gillespie Field EIR Addendum, El Cajon (2021; 28);
- Heritage Wind Energy Project section 94-c siting process, New York (2021; 99);
- Commercial Street Hotels project Site Plans, Oakland (2021; 19);
- Heber 1 Geothermal Repower Project MND, El Centro (2021; 11);
- Citrus-Slover Warehouse Project MND, Fontana (2021; 20);

- Scott Ranch Project RDEIR (Davidon Homes), Petaluma (2021; 31);
- Replies on StratosFuel Renewable H2 Project MND, Victorville (2021; 5);
- StratosFuel Renewable H2 Project MND, Victorville (2021; 25);
- Replies on PARS Global Storage MND, Murietta (2021; 22);
- Baldwin-Zacharias Master Plans EIR, Patterson (2021; 38);
- 1000 Gibraltar Drive EIR, Milpitas (2021; 20);
- Mango Avenue Industrial Warehouse Project, Fontana, MND (2021; 20);
- Veterans Affairs Site Plan Review No. 20-0102 MND, Bakersfield (2021; 25);
- Replies on UCSF Comprehensive Parnassus Heights Plan EIR (2021; 13);
- 14 Charles Hill Circle Design Review (2021; 11);
- SDG Commerce 217 Warehouse IS, American Canyon (2021; 26);
- Mulqueeney Ranch Wind Repowering Project DSEIR (2021; 98);
- Clawiter Road Industrial Project IS/MND, Hayward (2021; 18);
- Garnet Energy Center Stipulations, New York (2020);
- Heritage Wind Energy Project, New York (2020: 71);
- Ameresco Keller Canyon RNG Project IS/MND, Martinez (2020; 11);
- Cambria Hotel Project Staff Report, Dublin (2020; 19);
- Central Pointe Mixed-Use Staff Report, Santa Ana (2020; 20);
- Oak Valley Town Center EIR Addendum, Calimesa (2020; 23);
- Coachillin Specific Plan MND Amendment, Desert Hot Springs (2020; 26);
- Stockton Avenue Hotel and Condominiums Project Tiering to EIR, San Jose (2020; 19);
- Cityline Sub-block 3 South Staff Report, Sunnyvale (2020; 22);
- Station East Residential/Mixed Use EIR, Union City (2020; 21);
- Multi-Sport Complex & Southeast Industrial Annexation Suppl. EIR, Elk Grove (2020; 24);
- Sun Lakes Village North EIR Amendment 5, Banning, Riverside County (2020; 27);
- 2nd comments on 1296 Lawrence Station Road, Sunnyvale (2020; 4);
- 1296 Lawrence Station Road, Sunnyvale (2020; 16);
- Mesa Wind Project EA, Desert Hot Springs (2020; 31);
- 11th Street Development Project IS/MND, City of Upland (2020; 17);
- Vista Mar Project IS/MND, Pacifica (2020; 17);
- Emerson Creek Wind Project Application, Ohio (2020; 64);
- Replies on Wister Solar Energy Facility EIR, Imperial County (2020; 12);
- Wister Solar Energy Facility EIR, Imperial County (2020; 28);
- Crimson Solar EIS/EIR, Mojave Desert (2020, 35) not submitted;
- Sakioka Farms EIR tiering, Oxnard (2020; 14);
- 3440 Wilshire Project IS/MND, Los Angeles (2020; 19);
- Replies on 2400 Barranca Office Development Project EIR, Irvine (2020; 8);
- 2400 Barranca Office Development Project EIR, Irvine (2020; 25);
- Replies on Heber 2 Geothermal Repower Project IS/MND, El Centro (2020; 4);
- 2nd comments on Heber 2 Geothermal Repower Project IS/MND, El Centro (2020; 8);
- Heber 2 Geothermal Repower Project IS/MND, El Centro (2020; 3);
- Lots 4-12 Oddstad Way Project IS/MND, Pacifica (2020; 16);
- Declaration on DDG Visalia Warehouse project (2020; 5);
- Terraces of Lafayette EIR Addendum (2020; 24);

- AMG Industrial Annex IS/MND, Los Banos (2020; 15);
- Replies to responses on Casmalia and Linden Warehouse, Rialto (2020; 15);
- Clover Project MND, Petaluma (2020; 27);
- Ruby Street Apartments Project Env. Checklist, Hayward (2020; 20);
- Replies to responses on 3721 Mt. Diablo Boulevard Staff Report (2020; 5);
- 3721 Mt. Diablo Boulevard Staff Report (2020; 9);
- Steeno Warehouse IS/MND, Hesperia (2020; 19);
- UCSF Comprehensive Parnassus Heights Plan EIR (2020; 24);
- North Pointe Business Center MND, Fresno (2020; 14);
- Casmalia and Linden Warehouse IS, Fontana (2020; 15);
- Rubidoux Commerce Center Project IS/MND, Jurupa Valley (2020; 27);
- Haun and Holland Mixed Use Center MND, Menifee (2020; 23);
- First Industrial Logistics Center II, Moreno Valley IS/MND (2020; 23);
- GLP Store Warehouse Project Staff Report (2020; 15);
- Replies on Beale WAPA Interconnection Project EA & CEQA checklist (2020; 29);
- 2nd comments on Beale WAPA Interconnection Project EA & CEQA checklist (2020; 34);
- Beale WAPA Interconnection Project EA & CEQA checklist (2020; 30);
- Levine-Fricke Softball Field Improvement Addendum, UC Berkeley (2020; 16);
- Greenlaw Partners Warehouse and Distribution Center Staff Report, Palmdale (2020; 14);
- Humboldt Wind Energy Project DEIR (2019; 25);
- Sand Hill Supplemental EIR, Altamont Pass (2019; 17);
- 1700 Dell Avenue Office Project, Campbell (2019, 28);
- 1180 Main Street Office Project MND, Redwood City (2019; 19);
- Summit Ridge Wind Farm Request for Amendment 4, Oregon (2019; 46);
- Shafter Warehouse Staff Report (2019; 4);
- Park & Broadway Design Review, San Diego (2019; 19);
- Pinnacle Pacific Heights Design Review, San Diego (2019; 19);
- Pinnacle Park & C Design Review, San Diego (2019; 19);
- Preserve at Torrey Highlands EIR, San Diego (2019; 24);
- Santana West Project EIR Addendum, San Jose (2019; 18);
- The Ranch at Eastvale EIR Addendum, Riverside County (2020; 19);
- Hageman Warehouse IS/MND, Bakersfield (2019; 13);
- Oakley Logistics Center EIR, Antioch (2019; 22);
- 27 South First Street IS, San Jose (2019; 23);
- 2nd replies on Times Mirror Square Project EIR, Los Angeles (2020; 11);
- Replies on Times Mirror Square Project EIR, Los Angeles (2020; 13);
- Times Mirror Square Project EIR, Los Angeles (2019; 18);
- East Monte Vista & Aviator General Plan Amend EIR Addendum, Vacaville (2019; 22);
- Hillcrest LRDP EIR, La Jolla (2019; 36);
- 555 Portola Road CUP, Portola Valley (2019; 11);
- Johnson Drive Economic Development Zone SEIR, Pleasanton (2019; 27);
- 1750 Broadway Project CEQA Exemption, Oakland (2019; 19);
- Mor Furniture Project MND, Murietta Hot Springs (2019; 27);
- Harbor View Project EIR, Redwood City (2019; 26);

- Visalia Logistics Center (2019; 13);
- Cordelia Industrial Buildings MND (2019; 14);
- Scheu Distribution Center IS/ND, Rancho Cucamonga (2019; 13);
- Mills Park Center Staff Report, San Bruno (2019; 22);
- Site visit to Desert Highway Farms IS/MND, Imperial County (2019; 9);
- Desert Highway Farms IS/MND, Imperial County (2019; 12);
- ExxonMobil Interim Trucking for Santa Ynez Unit Restart SEIR, Santa Barbara (2019; 9);
- Olympic Holdings Inland Center Warehouse Project MND, Rancho Cucamonga (2019; 14);
- Replies to responses on Lawrence Equipment Industrial Warehouse, Banning (2019; 19);
- PARS Global Storage MND, Murietta (2019; 13);
- Slover Warehouse EIR Addendum, Fontana (2019; 16);
- Seefried Warehouse Project IS/MND, Lathrop (2019; 19)
- World Logistics Center Site Visit, Moreno Valley (2019; 19);
- Merced Landfill Gas-To-Energy Project IS/MND (2019; 12);
- West Village Expansion FEIR, UC Davis (2019; 11);
- Site visit, Doheny Ocean Desalination EIR, Dana Point (2019; 11);
- Replies to responses on Avalon West Valley Expansion EIR, San Jose (2019; 10);
- Avalon West Valley Expansion EIR, San Jose (2019; 22);
- Sunroad – Otay 50 EIR Addendum, San Diego (2019; 26);
- Del Rey Pointe Residential Project IS/MND, Los Angeles (2019; 34);
- 1 AMD Redevelopment EIR, Sunnyvale (2019; 22);
- Lawrence Equipment Industrial Warehouse IS/MND, Banning (2019; 14);
- SDG Commerce 330 Warehouse IS, American Canyon (2019; 21);
- PAMA Business Center IS/MND, Moreno Valley (2019; 23);
- Cupertino Village Hotel IS (2019; 24);
- Lake House IS/ND, Lodi (2019; 33);
- Campo Wind Project DEIS, San Diego County (DEIS, (2019; 14);
- Stirling Warehouse MND site visit, Victorville (2019; 7);
- Green Valley II Mixed-Use Project EIR, Fairfield (2019; 36);
- We Be Jammin rezone MND, Fresno (2019; 14);
- Gray Whale Cove Pedestrian Crossing IS/ND, Pacifica (2019; 7);
- Visalia Logistics Center & DDG 697V Staff Report (2019; 9);
- Mather South Community Masterplan Project EIR (2019; 35);
- Del Hombro Apartments EIR, Walnut Creek (2019; 23);
- Otay Ranch Planning Area 12 EIR Addendum, Chula Vista (2019; 21);
- The Retreat at Sacramento IS/MND (2019; 26);
- Site visit to Sunroad – Centrum 6 EIR Addendum, San Diego (2019; 9);
- Sunroad – Centrum 6 EIR Addendum, San Diego (2018; 22);
- North First and Brokaw Corporate Campus Buildings EIR Addendum, San Jose (2018; 30);
- South Lake Solar IS, Fresno County (2018; 18);
- Galloo Island Wind Project Application, New York (not submitted) (2018; 44);
- Doheny Ocean Desalination EIR, Dana Point (2018; 15);
- Stirling Warehouse MND, Victorville (2018; 18);
- LDK Warehouse MND, Vacaville (2018; 30);

- Gateway Crossings FEIR, Santa Clara (2018; 23);
- South Hayward Development IS/MND (2018; 9);
- CBU Specific Plan Amendment, Riverside (2018; 27);
- 2nd replies to responses on Dove Hill Road Assisted Living Project MND (2018; 11);
- Replies to responses on Dove Hill Road Assisted Living Project MND (2018; 7);
- Dove Hill Road Assisted Living Project MND (2018; 12);
- Deer Ridge/Shadow Lakes Golf Course EIR, Brentwood (2018; 21);
- Pyramid Asphalt BLM Finding of No Significance, Imperial County (2018; 22);
- Amáre Apartments IS/MND, Martinez (2018; 15);
- Petaluma Hill Road Cannabis MND, Santa Rosa (2018; 21);
- 2nd comments on Zeiss Innovation Center IS/MND, Dublin (2018; 12);
- Zeiss Innovation Center IS/MND, Dublin (2018; 32);
- City of Hope Campus Plan EIR, Duarte (2018; 21);
- Palo Verde Center IS/MND, Blythe (2018; 14);
- Logisticcenter at Vacaville MND (2018; 24);
- IKEA Retail Center SEIR, Dublin (2018; 17);
- Merge 56 EIR, San Diego (2018; 15);
- Natomas Crossroads Quad B Office Project P18-014 EIR, Sacramento (2018; 12);
- 2900 Harbor Bay Parkway Staff Report, Alameda (2018; 30);
- At Dublin EIR, Dublin (2018; 25);
- Fresno Industrial Rezone Amendment Application No. 3807 IS (2018; 10);
- Nova Business Park IS/MND, Napa (2018; 18);
- Updated Collision Risk Model Priors for Estimating Eagle Fatalities, USFWS (2018; 57);
- 750 Marlborough Avenue Warehouse MND, Riverside (2018; 14);
- Replies to responses on San Bernardino Logistics Center IS (2018; 12);
- San Bernardino Logistics Center IS (2018; 19);
- CUP2017-16, Costco IS/MND, Clovis (2018; 11);
- Desert Land Ventures Specific Plan EIR, Desert Hot Springs (2018; 18);
- Ventura Hilton IS/MND (2018; 30);
- North of California Street Master Plan Project IS, Mountain View (2018; 11);
- Tamarind Warehouse MND, Fontana (2018; 16);
- Lathrop Gateway Business Park EIR Addendum (2018; 23);
- Centerpointe Commerce Center IS, Moreno Valley (2019; 18);
- Amazon Warehouse Notice of Exemption, Bakersfield (2018; 13);
- CenterPoint Building 3 project Staff Report, Manteca (2018; 23);
- Cessna & Aviator Warehouse IS/MND, Vacaville (2018; 24);
- Napa Airport Corporate Center EIR, American Canyon (2018, 15);
- 800 Opal Warehouse Initial Study, Mentone, San Bernardino County (2018; 18);
- 2695 W. Winton Ave Industrial Project IS, Hayward (2018; 22);
- Trinity Cannabis Cultivation and Manufacturing Facility DEIR, Calexico (2018; 15);
- Shoe Palace Expansion IS/MND, Morgan Hill (2018; 21);
- Newark Warehouse at Morton Salt Plant Staff Report (2018; 15);
- Northlake Specific Plan FEIR “Peer Review”, Los Angeles County (2018; 9);
- Replies to responses on Northlake Specific Plan SEIR, Los Angeles County (2018; 13);

- Northlake Specific Plan SEIR, Los Angeles County (2017; 27);
- Bogle Wind Turbine DEIR, east Yolo County (2017; 48);
- Ferrante Apartments IS/MND, Los Angeles (2017; 14);
- The Villages of Lakeview EIR, Riverside (2017; 28);
- Data Needed for Assessing Trail Management Impacts on Northern Spotted Owl, Marin County (2017; 5);
- Notes on Proposed Study Options for Trail Impacts on Northern Spotted Owl (2017; 4);
- Pyramid Asphalt IS, Imperial County (Declaration) (2017; 5);
- San Gorgonio Crossings EIR, Riverside County (2017; 22);
- Replies to responses on Jupiter Project IS and MND, Apple Valley (2017; 12);
- Proposed World Logistics Center Mitigation Measures, Moreno Valley (2017, 2019; 12);
- MacArthur Transit Village Project Modified 2016 CEQA Analysis (2017; 12);
- PG&E Company Bay Area Operations and Maintenance HCP (2017; 45);
- Central SoMa Plan DEIR (2017; 14);
- Suggested mitigation for trail impacts on northern spotted owl, Marin County (2016; 5);
- Colony Commerce Center Specific Plan DEIR, Ontario (2016; 16);
- Fairway Trails Improvements MND, Marin County (2016; 13);
- Review of Avian-Solar Science Plan (2016; 28);
- Replies on Pyramid Asphalt IS, Imperial County (2016; 5);
- Pyramid Asphalt IS, Imperial County (2016; 4);
- Agua Mansa Distribution Warehouse Project Initial Study (2016; 14);
- Santa Anita Warehouse MND, Rancho Cucamonga (2016; 12);
- CapRock Distribution Center III DEIR, Rialto (2016: 12);
- Orange Show Logistics Center IS/MND, San Bernardino (2016; 9);
- City of Palmdale Oasis Medical Village Project IS/MND (2016; 7);
- Comments on proposed rule for incidental eagle take, USFWS (2016, 49);
- Replies on Grapevine Specific and Community Plan FEIR, Kern County (2016; 25);
- Grapevine Specific and Community Plan DEIR, Kern County (2016; 15);
- Clinton County Zoning Ordinance for Wind Turbine siting (2016);
- Hallmark at Shenandoah Warehouse Project Initial Study, San Bernardino (2016; 6);
- Tri-City Industrial Complex Initial Study, San Bernardino (2016; 5);
- Hidden Canyon Industrial Park Plot Plan 16-PP-02, Beaumont (2016; 12);
- Kimball Business Park DEIR (2016; 10);
- Jupiter Project IS and MND, Apple Valley, San Bernardino County (2016; 9);
- Revised Draft Giant Garter Snake Recovery Plan of 2015 (2016, 18);
- Palo Verde Mesa Solar Project EIR, Blythe (2016; 27);
- Reply on Fairview Wind Project Natural Heritage Assessment, Ontario, Canada (2016; 14);
- Fairview Wind Project Natural Heritage Assessment, Ontario, Canada (2016; 41);
- Reply on Amherst Island Wind Farm Natural Heritage Assessment, Ontario (2015, 38);
- Amherst Island Wind Farm Natural Heritage Assessment, Ontario (2015, 31);
- Second Reply on White Pines Wind Farm, Ontario (2015, 6);
- Reply on White Pines Wind Farm Natural Heritage Assessment, Ontario (2015, 10);
- White Pines Wind Farm Natural Heritage Assessment, Ontario (2015, 9);
- Proposed Section 24 Specific Plan Agua Caliente Band of Cahuilla Indians DEIS (2015, 9);

- Replies on 24 Specific Plan Agua Caliente Band of Cahuilla Indians FEIS (2015, 6);
- Sierra Lakes Commerce Center Project DEIR, Fontana (2015, 9);
- Columbia Business Center MND, Riverside (2015; 8);
- West Valley Logistics Center Specific Plan DEIR, Fontana (2015, 10);
- Willow Springs Solar Photovoltaic Project DEIR (2015, 28);
- Alameda Creek Bridge Replacement Project DEIR (2015, 10);
- World Logistic Center Specific Plan FEIR, Moreno Valley (2015, 12);
- Elkhorn Valley Wind Power Project Impacts, Oregon (2015; 143);
- Bay Delta Conservation Plan EIR/EIS, Sacramento (2014, 21);
- Addison Wind Energy Project DEIR, Mojave (2014, 32);
- Replies on the Addison Wind Energy Project DEIR, Mojave (2014, 15);
- Addison and Rising Tree Wind Energy Project FEIR, Mojave (2014, 12);
- Palen Solar Electric Generating System FSA (CEC), Blythe (2014, 20);
- Rebuttal testimony on Palen Solar Energy Generating System (2014, 9);
- Seven Mile Hill and Glenrock/Rolling Hills impacts + Addendum, Wyoming (2014; 105);
- Rising Tree Wind Energy Project DEIR, Mojave (2014, 32);
- Replies on the Rising Tree Wind Energy Project DEIR, Mojave (2014, 15);
- Soitec Solar Development Project PEIR, Boulevard, San Diego County (2014, 18);
- Oakland Zoo expansion on Alameda whipsnake and California red-legged frog (2014; 3);
- Alta East Wind Energy Project FEIS, Tehachapi Pass (2013, 23);
- Blythe Solar Power Project Staff Assessment, California Energy Commission (2013, 16);
- Clearwater and Yakima Solar Projects DEIR, Kern County (2013, 9);
- West Antelope Solar Energy Project IS/MND, Antelope Valley (2013, 18);
- Cuyama Solar Project DEIR, Carrizo Plain (2014, 19);
- Desert Renewable Energy Conservation Plan (DRECP) EIR/EIS (2015, 49);
- Kingbird Solar Photovoltaic Project EIR, Kern County (2013, 19);
- Lucerne Valley Solar Project IS/MND, San Bernardino County (2013, 12);
- Tule Wind project FEIR/FEIS (Declaration) (2013; 31);
- Sunlight Partners LANDPRO Solar Project MND (2013; 11);
- Declaration in opposition to BLM fracking (2013; 5);
- Blythe Energy Project (solar) CEC Staff Assessment (2013;16);
- Rosamond Solar Project EIR Addendum, Kern County (2013; 13);
- Pioneer Green Solar Project EIR, Bakersfield (2013; 13);
- Replies on Soccer Center Solar Project MND (2013; 6);
- Soccer Center Solar Project MND, Lancaster (2013; 10);
- Plainview Solar Works MND, Lancaster (2013; 10);
- Alamo Solar Project MND, Mojave Desert (2013; 15);
- Replies on Imperial Valley Solar Company 2 Project (2013; 10);
- Imperial Valley Solar Company 2 Project (2013; 13);
- FRV Orion Solar Project DEIR, Kern County (PP12232) (2013; 9);
- Casa Diablo IV Geothermal Development Project (2013; 6);
- Reply on Casa Diablo IV Geothermal Development Project (2013; 8);
- Alta East Wind Project FEIS, Tehachapi Pass (2013; 23);
- Metropolitan Air Park DEIR, City of San Diego (2013;);

- Davidon Homes Tentative Subdivision Rezoning Project DEIR, Petaluma (2013; 9);
- Oakland Zoo Expansion Impacts on Alameda Whipsnake (2013; 10);
- Campo Verde Solar project FEIR, Imperial Valley (2013; 11pp);
- Neg Dec comments on Davis Sewer Trunk Rehabilitation (2013; 8);
- North Steens Transmission Line FEIS, Oregon (Declaration) (2012; 62);
- Summer Solar and Springtime Solar Projects IS/MND Lancaster (2012; 8);
- J&J Ranch, 24 Adobe Lane Environmental Review, Orinda (2012; 14);
- Replies on Hudson Ranch Power II Geothermal Project and Simbol Calipatria Plant II (2012; 8);
- Hudson Ranch Power II Geothermal Project and Simbol Calipatria Plant II (2012; 9);
- Desert Harvest Solar Project EIS, near Joshua Tree (2012; 15);
- Solar Gen 2 Array Project DEIR, El Centro (2012; 16);
- Ocotillo Sol Project EIS, Imperial Valley (2012; 4);
- Beacon Photovoltaic Project DEIR, Kern County (2012; 5);
- Butte Water District 2012 Water Transfer Program IS/MND (2012; 11);
- Mount Signal and Calexico Solar Farm Projects DEIR (2011; 16);
- City of Elk Grove Sphere of Influence EIR (2011; 28);
- Sutter Landing Park Solar Photovoltaic Project MND, Sacramento (2011; 9);
- Rabik/Gudath Project, 22611 Coleman Valley Road, Bodega Bay (CPN 10-0002) (2011; 4);
- Ivanpah Solar Electric Generating System (ISEGS) (Declaration) (2011; 9);
- Draft Eagle Conservation Plan Guidance, USFWS (2011; 13);
- Niles Canyon Safety Improvement Project EIR/EA (2011; 16);
- Route 84 Safety Improvement Project (Declaration) (2011; 7);
- Rebuttal on Whistling Ridge Wind Energy Power DEIS, Skamania County, (2010; 6);
- Whistling Ridge Wind Energy Power DEIS, Skamania County, Washington (2010; 41);
- Klickitat County's Decisions on Windy Flats West Wind Energy Project (2010; 17);
- St. John's Church Project DEIR, Orinda (2010; 14);
- Results Radio Zone File #2009-001 IS/MND, Conaway site, Davis (2010; 20);
- Rio del Oro Specific Plan Project FEIR, Rancho Cordova (2010; 12);
- Results Radio Zone File #2009-001, Mace Blvd site, Davis (2009; 10);
- Answers to Questions on 33% RPS Implementation Analysis Preliminary Results Report (2009; 9);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington (Second Declaration) (2008; 17);
- Draft 1A Summary Report to CAISO (2008; 10);
- Hilton Manor Project Categorical Exemption, County of Placer (2009; 9);
- Protest of CARE to Amendment to the Power Purchase and Sale Agreement for Procurement of Eligible Renewable Energy Resources Between Hatchet Ridge Wind LLC and PG&E (2009; 3);
- Tehachapi Renewable Transmission Project EIR/EIS (2009; 142);
- Delta Shores Project EIR, south Sacramento (2009; 11 + addendum 2);
- Declaration in Support of Care's Petition to Modify D.07-09-040 (2008; 3);
- The Public Utility Commission's Implementation Analysis December 16 Workshop for the Governor's Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 9);

- The Public Utility Commission’s Implementation Analysis Draft Work Plan for the Governor’s Executive Order S-14-08 to implement a 33% Renewable Portfolio Standard by 2020 (2008; 11);
- Draft 1A Summary Report to California Independent System Operator for Planning Reserve Margins (PRM) Study (2008; 7.);
- SEPA Determination of Non-significance regarding zoning adjustments for Skamania County, Washington (Declaration) (2008; 16);
- Colusa Generating Station, California Energy Commission PSA (2007; 24);
- Rio del Oro Specific Plan Project Recirculated DEIR, Mather (2008; 66);
- Replies on Regional University Specific Plan EIR, Roseville (2008; 20);
- Regional University Specific Plan EIR, Roseville (2008; 33);
- Clark Precast, LLC’s “Sugarland” project, ND, Woodland (2008; 15);
- Cape Wind Project DEIS, Nantucket (2008; 157);
- Yuba Highlands Specific Plan EIR, Spenceville, Yuba County (2006; 37);
- Replies to responses on North Table Mountain MND, Butte County (2006; 5);
- North Table Mountain MND, Butte County (2006; 15);
- Windy Point Wind Farm EIS (2006; 14 and Powerpoint slide replies);
- Shiloh I Wind Power Project EIR, Rio Vista (2005; 18);
- Buena Vista Wind Energy Project NOP, Byron (2004; 15);
- Callahan Estates Subdivision ND, Winters (2004; 11);
- Winters Highlands Subdivision IS/ND (2004; 9);
- Winters Highlands Subdivision IS/ND (2004; 13);
- Creekside Highlands Project, Tract 7270 ND (2004; 21);
- Petition to California Fish and Game Commission to list Burrowing Owl (2003; 10);
- Altamont Pass Wind Resource Area CUP renewals, Alameda County (2003; 41);
- UC Davis Long Range Development Plan: Neighborhood Master Plan (2003; 23);
- Anderson Marketplace Draft Environmental Impact Report (2003; 18);
- Negative Declaration of the proposed expansion of Temple B’nai Tikyah (2003; 6);
- Antonio Mountain Ranch Specific Plan Public Draft EIR (2002; 23);
- Replies on East Altamont Energy Center evidentiary hearing (2002; 9);
- Revised Draft Environmental Impact Report, The Promenade (2002; 7);
- Recirculated Initial Study for Calpine’s proposed Pajaro Valley Energy Center (2002; 3);
- UC Merced -- Declaration (2002; 5);
- Replies on Atwood Ranch Unit III Subdivision FEIR (2003; 22);
- Atwood Ranch Unit III Subdivision EIR (2002; 19);
- California Energy Commission Staff Report on GWF Tracy Peaker Project (2002; 20);
- Silver Bend Apartments IS/MND, Placer County (2002; 13);
- UC Merced Long-range Development Plan DEIR and UC Merced Community Plan DEIR (2001; 26);
- Colusa County Power Plant IS, Maxwell (2001; 6);
- Dog Park at Catlin Park, Folsom, California (2001; 5);
- Calpine and Bechtel Corporations’ Biological Resources Implementation and Monitoring Program (BRMIMP) for the Metcalf Energy Center (2000; 10);
- Metcalf Energy Center, California Energy Commission FSA (2000);
- US Fish and Wildlife Service Section 7 consultation with the California Energy Commission

- regarding Calpine and Bechtel Corporations' Metcalf Energy Center (2000; 4);
- California Energy Commission's Preliminary Staff Assessment of the proposed Metcalf Energy Center (2000: 11);
- Site-specific management plans for the Natomas Basin Conservancy's mitigation lands, prepared by Wildlands, Inc. (2000: 7);
- Affidavit of K. Shawn Smallwood in Spirit of the Sage Council, et al. (Plaintiffs) vs. Bruce Babbitt, Secretary, U.S. Department of the Interior, et al. (Defendants), Injuries caused by the No Surprises policy and final rule which codifies that policy (1999: 9).
- California Board of Forestry's proposed amended Forest Practices Rules (1999);
- Sunset Sky ranch Airport Use Permit IS/MND (1999);
- Ballona West Bluffs Project Environmental Impact Report (1999; oral presentation);
- Draft Recovery Plan for Giant Garter Snake (Fed. Reg. 64(176): 49497-49498) (1999; 8);
- Draft Recovery Plan for Arroyo Southwestern Toad (1998);
- Pacific Lumber Co. (Headwaters) HCP & EIR, Fortuna (1998; 28);
- Natomas Basin HCP Permit Amendment, Sacramento (1998);
- San Diego Multi-Species Conservation Program FEIS/FEIR (1997; 10);

Comments on other Environmental Review Documents:

- Proposed Regulation for California Fish and Game Code Section 3503.5 (2015: 12);
- Statement of Overriding Considerations related to extending Altamont Winds, Inc.'s Conditional Use Permit PLN2014-00028 (2015; 8);
- Covell Village PEIR, Davis (2005; 19);
- Bureau of Land Management Wind Energy Programmatic EIS Scoping (2003; 7.);
- NEPA Environmental Analysis for Biosafety Level 4 National Biocontainment Laboratory (NBL) at UC Davis (2003: 7);
- Notice of Preparation of UC Merced Community and Area Plan EIR, on behalf of The Wildlife Society—Western Section (2001: 8.);
- Preliminary Draft Yolo County Habitat Conservation Plan (2001; 2 letters totaling 35.);
- Merced County General Plan Revision, notice of Negative Declaration (2001: 2.);
- Notice of Preparation of Campus Parkway EIR/EIS (2001: 7.);
- Draft Recovery Plan for the bighorn sheep in the Peninsular Range (*Ovis candensis*) (2000);
- Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*), on behalf of The Wildlife Society—Western Section (2000: 10.);
- Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement, on behalf of The Wildlife Society—Western Section (2000: 7.);
- State Water Project Supplemental Water Purchase Program, Draft Program EIR (1997);
- Davis General Plan Update EIR (2000);
- Turn of the Century EIR (1999: 10);
- Proposed termination of Critical Habitat Designation under the Endangered Species Act (Fed. Reg. 64(113): 31871-31874) (1999);
- NOA Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process, termed the HCP 5-Point Policy Plan (Fed. Reg. 64(45): 11485 - 11490) (1999; 2 + attachments);
- Covell Center Project EIR and EIR Supplement (1997).

Position Statements I prepared the following position statements for the Western Section of The Wildlife Society, and one for nearly 200 scientists:

- Recommended that the California Department of Fish and Game prioritize the extermination of the introduced southern water snake in northern California. The Wildlife Society--Western Section (2001);
- Recommended that The Wildlife Society—Western Section appoint or recommend members of the independent scientific review panel for the UC Merced environmental review process (2001);
- Opposed the siting of the University of California’s 10th campus on a sensitive vernal pool/grassland complex east of Merced. The Wildlife Society--Western Section (2000);
- Opposed the legalization of ferret ownership in California. The Wildlife Society--Western Section (2000);
- Opposed the Proposed “No Surprises,” “Safe Harbor,” and “Candidate Conservation Agreement” rules, including permit-shield protection provisions (Fed. Reg. Vol. 62, No. 103, pp. 29091-29098 and No. 113, pp. 32189-32194). This statement was signed by 188 scientists and went to the responsible federal agencies, as well as to the U.S. Senate and House of Representatives.

Posters at Professional Meetings

Leyvas, E. and K. S. Smallwood. 2015. Rehabilitating injured animals to offset and rectify wind project impacts. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S., J. Mount, S. Standish, E. Leyvas, D. Bell, E. Walther, B. Karas. 2015. Integrated detection trials to improve the accuracy of fatality rate estimates at wind projects. Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 9-12 March 2015.

Smallwood, K. S. and C. G. Thelander. 2005. Lessons learned from five years of avian mortality research in the Altamont Pass WRA. AWEA conference, Denver, May 2005.

Neher, L., L. Wilder, J. Woo, L. Spiegel, D. Yen-Nakafugi, and K.S. Smallwood. 2005. Bird’s eye view on California wind. AWEA conference, Denver, May 2005.

Smallwood, K. S., C. G. Thelander and L. Spiegel. 2003. Toward a predictive model of avian fatalities in the Altamont Pass Wind Resource Area. Windpower 2003 Conference and Convention, Austin, Texas.

Smallwood, K.S. and Eva Butler. 2002. Pocket Gopher Response to Yellow Star-thistle Eradication as part of Grassland Restoration at Decommissioned Mather Air Force Base, Sacramento County, California. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and Michael L. Morrison. 2002. Fresno kangaroo rat (*Dipodomys nitratoides*) Conservation Research at Resources Management Area 5, Lemoore Naval Air Station. White Mountain Research Station Open House, Barcroft Station.

Smallwood, K.S. and E.L. Fitzhugh. 1989. Differentiating mountain lion and dog tracks. Third

Mountain Lion Workshop, Prescott, AZ.

Smith, T. R. and K. S. Smallwood. 2000. Effects of study area size, location, season, and allometry on reported *Sorex* shrew densities. Annual Meeting of the Western Section of The Wildlife Society.

Presentations at Professional Meetings and Seminars

Long-Term Population Trend of Burrowing Owls in the Altamont. Golden Gate Audubon, 21 October 2020.

Long-Term Population Trend of Burrowing Owls in the Altamont. East Bay Regional Park District 2020 Stewardship Seminar, Oakland, California, 18 November 2020.

Smallwood, K.S., D.A. Bell, and S, Standish. Dogs detect larger wind energy effects on bats and birds. The Wildlife Society, 28 September 2020.

Smallwood, K.S. and D.A. Bell. Effects of wind turbine curtailment on bird and bat fatalities in the Altamont Pass Wind Resource Area. The Wildlife Society, 28 September 2020.

Smallwood, K.S., D.A. Bell, and S, Standish. Dogs detect larger wind energy effects on bats and birds. The Wildlife Survey, 7 February 2020.

Smallwood, K.S. and D.A. Bell. Effects of wind turbine curtailment on bird and bat fatalities in the Altamont Pass Wind Resource Area. The Wildlife Survey, 7 February 2020.

Dog detections of bat and bird fatalities at wind farms in the Altamont Pass Wind Resource Area. East Bay Regional Park District 2019 Stewardship Seminar, Oakland, California, 13 November 2019.

Repowering the Altamont Pass. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area, 1999-2007. Altamont Symposium, The Wildlife Society – Western Section, 5 February 2017.

Conservation and recovery of burrowing owls in Santa Clara Valley. Santa Clara Valley Habitat Agency, Newark, California, 3 February 2017.

Mitigation of Raptor Fatalities in the Altamont Pass Wind Resource Area. Raptor Research Foundation Meeting, Sacramento, California, 6 November 2015.

From burrows to behavior: Research and management for burrowing owls in a diverse landscape. California Burrowing Owl Consortium meeting, 24 October 2015, San Jose, California.

The Challenges of repowering. Keynote presentation at Conference on Wind Energy and Wildlife Impacts, Berlin, Germany, 10 March 2015.

Research Highlights Altamont Pass 2011-2015. Scientific Review Committee, Oakland, California,

8 July 2015.

Siting wind turbines to minimize raptor collisions: Altamont Pass Wind Resource Area. US Fish and Wildlife Service Golden Eagle Working Group, Sacramento, California, 8 January 2015.

Evaluation of nest boxes as a burrowing owl conservation strategy. Sacramento Chapter of the Western Section, The Wildlife Society. Sacramento, California, 26 August 2013.

Predicting collision hazard zones to guide repowering of the Altamont Pass. Conference on wind power and environmental impacts. Stockholm, Sweden, 5-7 February 2013.

Impacts of Wind Turbines on Wildlife. California Council for Wildlife Rehabilitators, Yosemite, California, 12 November 2012.

Impacts of Wind Turbines on Birds and Bats. Madrone Audubon Society, Santa Rosa, California, 20 February 2012.

Comparing Wind Turbine Impacts across North America. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. California Energy Commission Staff Workshop: Reducing the Impacts of Energy Infrastructure on Wildlife, 20 July 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Alameda County Scientific Review Committee meeting, 17 February 2011

Comparing Wind Turbine Impacts across North America. Conference on Wind energy and Wildlife impacts, Trondheim, Norway, 3 May 2011.

Update on Wildlife Impacts in the Altamont Pass Wind Resource Area. Raptor Symposium, The Wildlife Society—Western Section, Riverside, California, February 2011.

Siting Repowered Wind Turbines to Minimize Raptor Collisions. Raptor Symposium, The Wildlife Society - Western Section, Riverside, California, February 2011.

Wildlife mortality caused by wind turbine collisions. Ecological Society of America, Pittsburgh, Pennsylvania, 6 August 2010.

Map-based repowering and reorganization of a wind farm to minimize burrowing owl fatalities. California burrowing Owl Consortium Meeting, Livermore, California, 6 February 2010.

Environmental barriers to wind power. Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy. A symposium sponsored by the Environmental & Energy Law & Policy Journal, University of Houston Law Center, Houston, 23 February 2007.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Meeting with Japan Ministry of the Environment and Japan Ministry of the Economy, Wild

Bird Society of Japan, and other NGOs Tokyo, Japan, 9 November 2006.

Lessons learned about bird collisions with wind turbines in the Altamont Pass and other US wind farms. Symposium on bird collisions with wind turbines. Wild Bird Society of Japan, Tokyo, Japan, 4 November 2006.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework. California Society for Ecological Restoration (SERCAL) 13th Annual Conference, UC Santa Barbara, 27 October 2006.

Fatality associations as the basis for predictive models of fatalities in the Altamont Pass Wind Resource Area. EEI/APLIC/PIER Workshop, 2006 Biologist Task Force and Avian Interaction with Electric Facilities Meeting, Pleasanton, California, 28 April 2006.

Burrowing owl burrows and wind turbine collisions in the Altamont Pass Wind Resource Area. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, February 8, 2006.

Mitigation at wind farms. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Incorporating data from the California Wildlife Habitat Relationships (CWHR) system into an impact assessment tool for birds near wind farms. Shawn Smallwood, Kevin Hunting, Marcus Yee, Linda Spiegel, Monica Parisi. Workshop: Understanding and resolving bird and bat impacts. American Wind Energy Association and Audubon Society. Los Angeles, CA. January 10 and 11, 2006.

Toward indicating threats to birds by California's new wind farms. California Energy Commission, Sacramento, May 26, 2005.

Avian collisions in the Altamont Pass. California Energy Commission, Sacramento, May 26, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. EPRI Environmental Sector Council, Monterey, California, February 17, 2005.

Ecological solutions for avian collisions with wind turbines in the Altamont Pass Wind Resource Area. The Wildlife Society—Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Associations between avian fatalities and attributes of electric distribution poles in California. The Wildlife Society - Western Section Annual Meeting, Sacramento, California, January 19, 2005.

Minimizing avian mortality in the Altamont Pass Wind Resources Area. UC Davis Wind Energy Collaborative Forum, Palm Springs, California, December 14, 2004.

Selecting electric distribution poles for priority retrofitting to reduce raptor mortality. Raptor Research Foundation Meeting, Bakersfield, California, November 10, 2004.

Responses of Fresno kangaroo rats to habitat improvements in an adaptive management framework.

Annual Meeting of the Society for Ecological Restoration, South Lake Tahoe, California, October 16, 2004.

Lessons learned from five years of avian mortality research at the Altamont Pass Wind Resources Area in California. The Wildlife Society Annual Meeting, Calgary, Canada, September 2004.

The ecology and impacts of power generation at Altamont Pass. Sacramento Petroleum Association, Sacramento, California, August 18, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Consortium meeting, Hayward, California, February 7, 2004.

Burrowing owl mortality in the Altamont Pass Wind Resource Area. California Burrowing Owl Symposium, Sacramento, November 2, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. National Wind Coordinating Committee, Washington, D.C., November 17, 2003.

Raptor Behavior at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

Raptor Mortality at the Altamont Pass Wind Resource Area. Annual Meeting of the Raptor Research Foundation, Anchorage, Alaska, September, 2003.

California mountain lions. Ecological & Environmental Issues Seminar, Department of Biology, California State University, Sacramento, November, 2000.

Intra- and inter-turbine string comparison of fatalities to animal burrow densities at Altamont Pass. National Wind Coordinating Committee, Carmel, California, May, 2000.

Using a Geographic Positioning System (GPS) to map wildlife and habitat. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Suggested standards for science applied to conservation issues. Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

The indicators framework applied to ecological restoration in Yolo County, California. Society for Ecological Restoration, September 25, 1999.

Ecological restoration in the context of animal social units and their habitat areas. Society for Ecological Restoration, September 24, 1999.

Relating Indicators of Ecological Health and Integrity to Assess Risks to Sustainable Agriculture and Native Biota. International Conference on Ecosystem Health, August 16, 1999.

A crosswalk from the Endangered Species Act to the HCP Handbook and real HCPs. Southern California Edison, Co. and California Energy Commission, March 4-5, 1999.

Mountain lion track counts in California: Implications for Management. Ecological & Environmental Issues Seminar, Department of Biological Sciences, California State University, Sacramento, November 4, 1998.

“No Surprises” -- Lack of science in the HCP process. California Native Plant Society Annual Conservation Conference, The Presidio, San Francisco, September 7, 1997.

In Your Interest. A half hour weekly show aired on Channel 10 Television, Sacramento. In this episode, I served on a panel of experts discussing problems with the implementation of the Endangered Species Act. Aired August 31, 1997.

Spatial scaling of pocket gopher (*Geomys*) density. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Estimating prairie dog and pocket gopher burrow volume. Southwestern Association of Naturalists 44th Meeting, Fayetteville, Arkansas, April 10, 1997.

Ten years of mountain lion track survey. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Study and interpretive design effects on mountain lion density estimates. Fifth Mountain Lion Workshop, San Diego, February 27, 1996.

Small animal control. Session moderator and speaker at the California Farm Conference, Sacramento, California, Feb. 28, 1995.

Small animal control. Ecological Farming Conference, Asylomar, California, Jan. 28, 1995.

Habitat associations of the Swainson's Hawk in the Sacramento Valley's agricultural landscape. 1994 Raptor Research Foundation Meeting, Flagstaff, Arizona.

Alfalfa as wildlife habitat. Seed Industry Conference, Woodland, California, May 4, 1994.

Habitats and vertebrate pests: impacts and management. Managing Farmland to Bring Back Game Birds and Wildlife to the Central Valley. Yolo County Resource Conservation District, U.C. Davis, February 19, 1994.

Management of gophers and alfalfa as wildlife habitat. Orland Alfalfa Production Meeting and Sacramento Valley Alfalfa Production Meeting, February 1 and 2, 1994.

Patterns of wildlife movement in a farming landscape. Wildlife and Fisheries Biology Seminar Series: Recent Advances in Wildlife, Fish, and Conservation Biology, U.C. Davis, Dec. 6, 1993.

Alfalfa as wildlife habitat. California Alfalfa Symposium, Fresno, California, Dec. 9, 1993.

Management of pocket gophers in Sacramento Valley alfalfa. California Alfalfa Symposium, Fresno, California, Dec. 8, 1993.

Association analysis of raptors in a farming landscape. Plenary speaker at Raptor Research Foundation Meeting, Charlotte, North Carolina, Nov. 6, 1993.

Landscape strategies for biological control and IPM. Plenary speaker, International Conference on Integrated Resource Management and Sustainable Agriculture, Beijing, China, Sept. 11, 1993.

Landscape Ecology Study of Pocket Gophers in Alfalfa. Alfalfa Field Day, U.C. Davis, July 1993.

Patterns of wildlife movement in a farming landscape. Spatial Data Analysis Colloquium, U.C. Davis, August 6, 1993.

Sound stewardship of wildlife. Veterinary Medicine Seminar: Ethics of Animal Use, U.C. Davis. May 1993.

Landscape ecology study of pocket gophers in alfalfa. Five County Grower's Meeting, Tracy, California. February 1993.

Turbulence and the community organizers: The role of invading species in ordering a turbulent system, and the factors for invasion success. Ecology Graduate Student Association Colloquium, U.C. Davis. May 1990.

Evaluation of exotic vertebrate pests. Fourteenth Vertebrate Pest Conference, Sacramento, California. March 1990.

Analytical methods for predicting success of mammal introductions to North America. The Western Section of the Wildlife Society, Hilo, Hawaii. February 1988.

A state-wide mountain lion track survey. Sacramento County Dept Parks and Recreation. April 1986.

The mountain lion in California. Davis Chapter of the Audubon Society. October 1985.

Ecology Graduate Student Seminars, U.C. Davis, 1985-1990: Social behavior of the mountain lion; Mountain lion control; Political status of the mountain lion in California.

Other forms of Participation at Professional Meetings

- Scientific Committee, Conference on Wind energy and Wildlife impacts, Berlin, Germany, March 2015.
- Scientific Committee, Conference on Wind energy and Wildlife impacts, Stockholm, Sweden, February 2013.
- Workshop co-presenter at Birds & Wind Energy Specialist Group (BAWESG) Information sharing week, Bird specialist studies for proposed wind energy facilities in South Africa, Endangered Wildlife Trust, Darling, South Africa, 3-7 October 2011.
- Scientific Committee, Conference on Wind energy and Wildlife impacts, Trondheim,

Norway, 2-5 May 2011.

- Chair of Animal Damage Management Session, The Wildlife Society, Annual Meeting, Reno, Nevada, September 26, 2001.
- Chair of Technical Session: Human communities and ecosystem health: Comparing perspectives and making connection. Managing for Ecosystem Health, International Congress on Ecosystem Health, Sacramento, CA August 15-20, 1999.
- Student Awards Committee, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.
- Student Mentor, Annual Meeting of the Western Section of The Wildlife Society, Riverside, CA, January, 2000.

Printed Mass Media

Smallwood, K.S., D. Mooney, and M. McGuinness. 2003. We must stop the UCD biolab now. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2002. Spring Lake threatens Davis. Op-Ed to the Davis Enterprise.

Smallwood, K.S. Summer, 2001. Mitigation of habitation. The Flatlander, Davis, California.

Entrikan, R.K. and K.S. Smallwood. 2000. Measure O: Flawed law would lock in new taxes. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 2000. Davis delegation lobbies Congress for Wildlife conservation. Op-Ed to the Davis Enterprise.

Smallwood, K.S. 1998. Davis Visions. The Flatlander, Davis, California.

Smallwood, K.S. 1997. Last grab for Yolo's land and water. The Flatlander, Davis, California.

Smallwood, K.S. 1997. The Yolo County HCP. Op-Ed to the Davis Enterprise.

Radio/Television

PBS News Hour,

FOX News, Energy in America: Dead Birds Unintended Consequence of Wind Power Development, August 2011.

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Mountain lion attacks (with guest Professor Richard Coss). 23 April 2009;

KXJZ Capital Public Radio -- Insight (Host Jeffrey Callison). Wind farm Rio Vista Renewable Power. 4 September 2008;

KQED QUEST Episode #111. Bird collisions with wind turbines. 2007;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. December 27, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. May 3, 2001;

KDVS Speaking in Tongues (host Ron Glick), Yolo County HCP: 1 hour. February 8, 2001;

KDVS Speaking in Tongues (host Ron Glick & Shawn Smallwood), California Energy Crisis: 1 hour. Jan. 25, 2001;

KDVS Speaking in Tongues (host Ron Glick), Headwaters Forest HCP: 1 hour. 1998;

Davis Cable Channel (host Gerald Heffernon), Burrowing owls in Davis: half hour. June, 2000;

Davis Cable Channel (hosted by Davis League of Women Voters), Measure O debate: 1 hour. October, 2000;

KXTV 10, In Your Interest, The Endangered Species Act: half hour. 1997.

Committees

- Scientific Review Committee, Alameda County, Altamont Pass Wind Resource Area
- Ph.D. Thesis Committee, Steve Anderson, University of California, Davis
- MS Thesis Committee, Marcus Yee, California State University, Sacramento

Other Professional Activities or Products

Testified in Federal Court in Denver during 2005 over the fate of radio-nuclides in the soil at Rocky Flats Plant after exposure to burrowing animals. My clients won a judgment of \$553,000,000. I have also testified in many other cases of litigation under CEQA, NEPA, the Warren-Alquist Act, and other environmental laws. My clients won most of the cases for which I testified.

Testified before Environmental Review Tribunals in Ontario, Canada regarding proposed White Pines, Amherst Island, and Fairview Wind Energy projects.

Testified in Skamania County Hearing in 2009 on the potential impacts of zoning the County for development of wind farms and hazardous waste facilities.

Testified in deposition in 2007 in the case of O'Dell et al. vs. FPL Energy in Houston, Texas.

Testified in Klickitat County Hearing in 2006 on the potential impacts of the Windy Point Wind Farm.

Memberships in Professional Societies

The Wildlife Society
Raptor Research Foundation

Honors and Awards

Fulbright Research Fellowship to Indonesia, 1987
J.G. Boswell Full Academic Scholarship, 1981 college of choice
Certificate of Appreciation, The Wildlife Society—Western Section, 2000, 2001
Northern California Athletic Association Most Valuable Cross Country Runner, 1984
American Legion Award, Corcoran High School, 1981, and John Muir Junior High, 1977
CIF Section Champion, Cross Country in 1978
CIF Section Champion, Track & Field 2 mile run in 1981
National Junior Record, 20 kilometer run, 1982
National Age Group Record, 1500 meter run, 1978

Community Activities

District 64 Little League Umpire, 2003-2007
Dixon Little League Umpire, 2006-07
Davis Little League Chief Umpire and Board member, 2004-2005
Davis Little League Safety Officer, 2004-2005
Davis Little League Certified Umpire, 2002-2004
Davis Little League Scorekeeper, 2002
Davis Visioning Group member
Petitioner for Writ of Mandate under the California Environmental Quality Act against City of Woodland decision to approve the Spring Lake Specific Plan, 2002
Served on campaign committees for City Council candidates