

City Council Regular Meeting

February 1, 2024

RECEIVED
2024 JAN 31 P 3:04
CITY OF FRESNO
CITY CLERK'S OFFICE

FRESNO CITY COUNCIL



Public Comment Packet

ITEM(S)

Public Comment

10:00 AM (ID 24-111) Regarding HEARING to consider Development Permit Application No. P21-02699, Vesting Tentative, Parcel Map No. 2021-09, and related Final Environmental Impact Report (FEIR), State Clearinghouse (SCH) No. 2022050265, regarding an Office/Warehouse Project located on approximately $\pm$ 48.03 acres of property at the northeast intersection of North Marks and West Nielsen Avenues (Council District 3)

[TITLE TRUNCATED FOR SUPPLEMENTAL PACKET COVER PAGE]

Contents of Supplement: Public Comment from Wanger Jones Helsley PC (Received 1/31/2024), Public Comment from Victoria Yundt, Lozeau Drury (Received on 1/31/2024)

Item(s)

Supplemental Information:

Any agenda related public documents received and distributed to a majority of the City Council after the Agenda Packet is printed are included in Supplemental Packets. Supplemental Packets are produced as needed. The Supplemental Packet is available for public inspection in the City Clerk's Office, 2600 Fresno Street, during normal business hours (main location pursuant to the Brown Act, G.C. 54957.5(2)). In addition, Supplemental Packets are available for public review at the City Council meeting in the City Council Chambers, 2600 Fresno Street. Supplemental Packets are also available on-line on the City Clerk's website.

Americans with Disabilities Act (ADA):

WANGER JONES HELSLEY PC
ATTORNEYS

OLIVER W. WANGER
TIMOTHY JONES*
MICHAEL S. HELSLEY
RILEY C. WALTER
PATRICK D. TOOLE
SCOTT D. LAIRD
JOHN P. KINSEY
KURT F. VOTE
TROY T. EWELL
JAY A. CHRISTOFFERSON
MARISA L. BALCH
AMANDA G. HEBESHA**
PETER M. JONES†
JEFFREY B. PAPE†
DEBORAH K. BOYETT
STEVEN K. VOTE
NICOLAS R. CARDELLA
GIULIO A. SANCHEZ
KATHLEEN D. DEVANEY
BENJAMIN C. WEST
HUNTER C. CASTRO
STEPHANIE M. HOSMAN
IAN J. QUINN††
RACHEL L. POMBO
NATHAN J. MARTIN
COLTEN D. BALLINGER
COLLEEN E. BUSBY
DANIKA E. JONES

* Also admitted in Washington
** Also admitted in Idaho
† Of Counsel
†† Also admitted in Texas

265 E. RIVER PARK CIRCLE, SUITE 310
FRESNO, CALIFORNIA 93720

MAILING ADDRESS
POST OFFICE BOX 28340
FRESNO, CALIFORNIA 93729

TELEPHONE
(559) 233-4800
FAX
(559) 233-9330



CLOVIS OFFICE:
642 Pollasky Avenue
Suite 100
Clovis, California 93612

OFFICE ADMINISTRATOR
LYNN M. HOFFMAN

Writer's E-Mail Address:
jkinsey@wjhattorneys.com

Website:
www.wjhattorneys.com

January 31, 2024

VIA EMAIL & UNITED STATES MAIL

Fresno City Council
c/o City Clerk
CITY OF FRESNO
2600 Fresno Street, Room 2097
Fresno, CA 93721

Andrew Janz, Esq.
City Attorney
CITY OF FRESNO
2600 Fresno Street, Room 2031
Fresno, CA 93721

**Re: February 1, 2024, Hearing on Scannell Properties
Project**

Dear Honorable Councilmembers & City Attorney Janz:

My office represents Scannell Properties ("Scannell") in connection with the Fresno City Council's consideration of its proposed development of the property located at the northeast intersection of North Marks and West Nielsen Avenues (the "Project"). The City's Planning Commission unanimously approved the Project on October 4, 2023. The appeal of the Planning Commission's decision is currently set for February 1, 2024, although it has previously been the subject of several continuances.

Although nearly four months has passed since the Planning Commission took action on the Project, I have been made aware that the City Attorney is recommending that the City Council table the item and defer action on the appeal until the City completes the production of documents in response to several Public Records Act (the "PRA") requests served on the City by opponents of the Project. We also understand Planning Director Jennifer Clark has requested that the item be postponed for similar reasons.

WANGER JONES HELSLEY PC

Fresno City Councilmembers
City Attorney Andrew Janz, Esq.
January 31, 2024
Page 2

Scannell is extremely disappointed to learn the City is contemplating a further continuance of this item, and requests that the hearing occur no later than **February 22, 2024**. First, we understand the requests have been pending for months, and that the City has not only made a good faith effort to comply, but has substantially complied with the requests. We also understand the requestor (Adams Broadwell) has not even endeavored to download all of the files provided with the City—demonstrating the requestor is using the PRA for an improper purpose, including to effectuate the delays at issue here.

More fundamentally, however, the City's obligation to release records to third-parties under the PRA has nothing to do with the merits of the appeal or the Project. There is no statutory deadline to produce records under the PRA, (*Motorola Comm. & Electronics, Inc. v. Dept. of Gen'l Servs.* (1997) 55 Cal.App.4th 1340, 1349); nor is there any obligation to produce documents prior to the consideration of an agenda item by an agency's legislative body. (See, e.g., Govt. Code, § 7922.530.)

Moreover, compliance with the PRA is not a condition precedent to Project approval under any relevant authority, including the City's Development Code, State Planning and Zoning Law, (see generally Govt. Code, § 65000, *et seq.*), or the California Environmental Quality Act. (See generally Pub. Resources Code, § 21000, *et seq.*) If it were, a project opponent could forestall municipal action on a development project by simply filing successive PRA requests. That is of course not the law. Indeed, any such interpretation would not only interfere with an applicant's right to a fair process and a city's ability to comply with the deadlines required under the Permit Streaming Act, (*cf.* Govt. Code, § 65920, *et seq.*), but also impermissibly subvert both the PRA and CEQA "into an instrument for the oppression and delay of social, economic, [and] recreational development and advancement," which the courts have repeatedly warned against. (See, e.g., *Tiburon Open Space Comm. v. County of Marin* (2022) 78 Cal.App.5th 700, 781.)

This Project has already been the subject of significant delay. It should not be delayed further, especially when (i) there is no valid legal basis to do so, (ii) the City has made a good faith effort to comply with the PRA, and (iii) the requesting party is plainly using the PRA for an improper purpose. Scannell respectfully requests that the City Council decline to delay consideration of the Project, and that the hearing on the Project occur no later than February 22, 2024.

Respectfully submitted,

✓ John P. Kinsey



T 510.836.4205
F 510.836.4205

2249 Harrison Street, Ste. 150
Oakland, CA 94612

www.lozeaudrury.com
info@lozeaudrury.com

January 31, 2024

Via E-mail

Annalisa Perea, President
Mike Karbassi, Vice-President
Miguel Angel Arias, Councilmember
Tyler Maxwell, Councilmember
Luis Chavez, Councilmember
Garry Bredefeld, Councilmember
Nelson Esparza, Councilmember
City of Fresno City Council
Attn: Todd Stermer, City Clerk
2600 Fresno Street
Fresno, CA 93721
clerk@fresno.gov

Jennifer K. Clark, Director
Steven Martinez, Planner
Planning and Development Department
City of Fresno
2600 Fresno Street, Room 3043
Fresno, CA 93721
Jennifer.Clark@fresno.gov
Steven.Martinez@fresno.gov

Re: Comment on Development Permit Application No. P21-02699, Vesting Tentative Parcel Map No. 2021-09, and Final Environmental Impact Report, State Clearinghouse (SCH) No. 2022050265, for the 2740 West Nielsen Avenue Office/Warehouse Project (February 1, 2024 City Council Meeting Agenda Item 1)

Dear President Perea, Vice-President Karbassi, Honorable Members of the City of Fresno City Council, Clerk Stermer, Director Clark, and Mr. Martinez:

I am writing on behalf of Laborers International Union of North America, Local Union No. 294 and its members living in and around the City of Fresno ("LIUNA") regarding the Final Environmental Impact Report ("FEIR" or "EIR"), State Clearinghouse (SCH) No. 2022050265, for the Development Permit Application No. P21-02699 and Vesting Tentative Parcel Map No. 2021-09 proposing to construct four warehouse buildings totaling approximately 901,438 square feet of office and warehouse uses located on approximately 48.03 acres of property at the northeast intersection of North Marks and West Nielsen Avenues in Fresno, California (the "Project"). This Project is scheduled to be heard on appeal as Agenda Item 1 at the City Council's February 1, 2024 meeting.

After reviewing the FEIR, LIUNA is concerned that the FEIR fails to adequately analyze significant environmental impacts, and fails to mitigate significant impacts that will occur as a result of the Project. LIUNA requests that the City Council grant the appeals and refrain from certifying the EIR at this time, and instead, request staff to reconsider the analyses and require

additional mitigation measures in order to address the Project's significant transportation, biological resources, air quality, health risk, energy, and noise impacts that the Project as proposed will cause.

This comment is prepared with the assistance of biologist Shawn Smallwood, Ph.D. Dr. Smallwood's comments and curriculum vitae are attached hereto as Exhibit A, and are incorporated herein by reference in their entirety. Dr. Smallwood's comment included at Exhibit A was originally submitted to the City of Fresno Planning and Development Department as Exhibit B to LIUNA's June 13, 2022 comment letter on the Initial Study and Mitigated Negative Declaration ("IS/MND" or "MND") that the City initially prepared for the Project. While Dr. Smallwood's comment references the MND, not the EIR, his expert analysis of the Project's biological resources impacts still applies to the shortcomings found in the EIR.

PROJECT DESCRIPTION

The Project proposes to construct approximately 901,438 square feet of office and warehouse uses on an approximately 48-acre project site. The Project would include four buildings with a total of 201 loading docks. Building 1 would be 468,812 sf with 122 truck loading docks. Building 2 would be 248,786 sf with 46 loading docks. Building 3 would be 93,074 sf with 18 loading docks. Building 4 would 90,766 sf with 15 loading docks. Construction would occur in two phases over 24 months, with each phase taking about 12 months. Buildings 2, 3 and 4 would be constructed in the Phase 1. Building 1 would be constructed in Phase 2. Once constructed, the Project is anticipated to generate 1,920 car trips per day and 342 truck trips per day. Adjusted to Passenger Car Equivalents ("PCE"), the Project will generate 2,458 PCE trips per day.

LEGAL STANDARD

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an environmental impact report ("EIR") (except in certain limited circumstances). (*See, e.g.,* Pub. Res. Code ("PRC") § 21100.) "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." (*Comms. for a Better Env't v. Calif. Resources Agency* (2002) 103 Cal.App.4th 98, 109.)

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. (14 Cal. Code Regs. ("CEQA Guidelines") § 15002(a)(1).) "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.'" (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.) The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." (*Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal.App.4th 1344, 1354 ("Berkeley Jets"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.)

Second, CEQA requires public agencies to avoid or reduce environmental damage when “feasible” by requiring “environmentally superior” alternatives and all feasible mitigation measures. (CEQA Guidelines § 15002(a)(2) & (3); *see also Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley*, 52 Cal.3d at 564.) The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to “identify ways that environmental damage can be avoided or significantly reduced.” (CEQA Guidelines § 15002(a)(2).) If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has “eliminated or substantially lessened all significant effects on the environment where feasible” and that any unavoidable significant effects on the environment are “acceptable due to overriding concerns.” (PRC § 21081; CEQA Guidelines § 15092(b)(2)(A) & (B).)

The EIR is the very heart of CEQA. (*Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652.) CEQA requires that a lead agency analyze all potentially significant environmental impacts of its proposed actions in an EIR. (PRC § 21100(b)(1); CEQA Guidelines § 15126(a); *Berkeley Jets*, 91 Cal.App.4th 1344, 1354.) The EIR must not only identify the impacts, but must also provide “information about how adverse the impacts will be.” (*Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 831.) The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.) “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 Env’t*, 103 Cal.App.4th at 109.)

While the courts review an EIR using an “abuse of discretion” standard, “the reviewing court is not to ‘uncritically rely on every study or analysis presented by a project proponent in support of its position. A ‘clearly inadequate or unsupported study is entitled to no judicial deference.’” (*Berkeley Jets*, 91 Cal.App.4th at 1355 (quoting, *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 391 409, fn. 12).) A prejudicial abuse of discretion occurs “if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process.” (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722; *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1117; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 946.) As discussed below, in the attached expert comment letter, and appellants’ comments and other public comments submitted to the City, the EIR for this Project fails to adequately analyze and mitigate the Project’s impacts.

DISCUSSION

I. THE EIR'S PROJECT DESCRIPTION AS RELATED TO TRANSPORTATION IMPACTS IS INADEQUATE.

“An accurate, stable and finite project description is the *sine qua non* of an informative and legally adequate EIR.” (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192; *Berkeley Jets*, 91 Cal.App.4th 1344, 1354; *Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1023; *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal. App. 4th 182, 201.) “[A] curtailed or distorted project description,” on the other hand, “may stultify the objectives of the reporting process. Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal’s benefit against its environmental costs, consider mitigation measures, assess the advantage of terminating the proposal (*i.e.*, the “no project” alternative) and weigh other alternatives in the balance.” (*Id.*; see also, CEQA Guidelines § 15124; *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438.) As one analyst has noted:

The adequacy of an EIR’s project description is closely linked to the adequacy of the EIR’s analysis of the project’s environmental effects. If the description is inadequate because it fails to discuss the complete project, the environmental analysis will probably reflect the same mistake. (Kostka and Zischke, “Practice Under the California Environmental Quality Act,” p. 474 (8/99 update).)

A “rigorous analysis” required to dispose of an impact as insignificant. (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.) Such a rigorous analysis is not possible if the project description is inaccurate, inconsistent, or misleading.

Moreover, even though the project description typically need not identify the end user for a project because CEQA is concerned with the project’s environmental impacts, not who uses it, (see, e.g. *Maintain Our Desert Env’t v. Town of Apple Valley* (2004) 124 Cal.App.4th 430), courts have held that where the tenant, or type of business, is known and there is evidence that an impact unique to that tenant or type of business will result, an EIR must disclose that information. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1213.)

Here, the EIR assumes that the end users of the site will generate truck trips using the average trip generation rate of 2.13 trucks per 1,000 square feet found in the Western Riverside Council of Governments (“WRCOG”) Transportation Uniform Mitigation Fee (“TUMF”) High-Cube Warehouse Trip Generation Study (“WRCOG Study”). (DEIR, p. 4.10-9.) However, trip generation rates can vary widely based on the end user of a project, as shown by the WRCOG Study. An example is that the WRCOG Study found that an Amazon facility generates 4.5 daily trips per 1,000 square feet, which is twice the rate assumed in the EIR. (See Adams Broadwell Joseph & Cardozo May 19, 2023 Comments, Attach. C, p. 4.) However, because this approach is unsupported, it is likely to underestimate the Project’s operational air quality, health risk, GHG emissions, energy, noise, and vehicle miles traveled (“VMT”) impacts. As such, the EIR should

analyze truck trips based on the most intensive reasonably foreseeable use of the site, not an average use, since the City lacks information about the type of end user that will ultimately occupy the Project warehouses after construction. Therefore, the EIR should be revised to calculate impacts based on the most intensive foreseeable uses at the Project site.

II. THE EIR FAILS TO ADEQUATELY DISCLOSE, ANALYZE, AND MITIGATE ALL OF THE PROJECT'S POTENTIALLY SIGNIFICANT IMPACTS.

A. THE EIR FAILS TO ADEQUATELY DISCLOSE, ANALYZE, AND MITIGATE THE PROJECT'S POTENTIALLY SIGNIFICANT TRANSPORTATION IMPACTS.

1. The Project's Operational Trip Generation and Trip Length Calculations Included in the EIR are Incorrect.

As discussed above and noted by Adams Broadwell Joseph & Cardozo and its transportation expert Normal Marshall of Smart Mobility, because the City cannot reasonably assume that the Project will generate the average rate determined in the WRCOG Study, the City should have analyzed the more intensive trip generation rate to ensure that the City adequately disclosed the severity of the Project's potential transportation impacts. As explained by Mr. Marshall, if the EIR assumed the Amazon trip generation rate for the Project, the Project would result in a trip generation rate twice as high as estimated in the EIR. (*See* Adams Broadwell Joseph & Cardozo, May 19, 2023 Comments, Attach. C, p. 3.) Furthermore, if the City had used the parcel hub rate of approximately 14 trips per 1,000 square feet, the Project's trip generation rate would have been "more than six times the rate used in the [EIR]." (*Id.*) Since the future tenants and the eventual uses of the Project buildings are unknown, the City's reliance on the reduced trip rates is unreasonable and unsupported. Thus, the City should use the most conservative estimates for the Project's trip generation rates and provide that updated analysis in a revised and recirculated DEIR for public review.

2. The EIR Fails to Adequately Disclose and Analyze the Project's Potential Significant VMT Impacts.

The EIR concludes that the Project would not result in any significant VMT impacts. However, as Mr. Marshall found, the Project's VMT analysis included in the EIR is likely underestimated. According to Mr. Marshall, "the DEIR estimates that 10.2% of daily trips are made by heavy trucks (5+ axles) and another 7.6% are made by medium trucks (2-4 axles)," and that the average work trip lengths are estimated to be 9.5 miles and the "other" trip lengths are estimated to be 7.3 miles. (Adams Broadwell Joseph & Cardozo, May 19, 2023 Comments, Attach. C, p. 5.) However, Mr. Marshall found that "[i]t is likely that the average truck trip lengths are much higher than assumed in the CalEEMod default values." (*Id.*) Mr. Marshall explains that the major intermodal facilities that will likely be used to facilitate warehouse distribution related to Project operations are located "far from the project site," including:

- Rail intermodal facilities in Bakersfield 110 miles,

- Rail intermodal facilities in Stockton 120 miles,
- Port of Oakland 175 miles, and
- Port of Los Angeles 240 miles.

(*Id.*)

Since the future use of the Project site is unknown, it is impossible to fully evaluate trip lengths. As such, the EIR should have accounted for the possibility of the Project generating much greater truck trip lengths. Additionally, Mr. Marshall found that the DEIR's VMT analysis fails to incorporate data regarding trips that originate from outside of the Fresno Council of Governments ("Fresno COG") activity-based travel demand model ("ABM") region. (*Id.*, p. 6.) According to Mr. Marshall, it is necessary for the City to include "out of region" data in the EIR's VMT analysis in order to understand truck trip lengths to intermodal facilities and ports. As a result, Mr. Marshall recommended that the Project's "VMT analysis should be supplemented to include an analysis of external travel with a particular focus on truck travel." (*Id.*) Thus, the EIR should be revised to include this information in its VMT analysis and recirculated for public review.

B. THE EIR FAILS TO PROPERLY ANALYZE THE PROJECT'S POTENTIALLY SIGNIFICANT AIR QUALITY IMPACTS.

1. The EIR's Air Quality Analysis Is Not Based on Substantial Evidence Because It Fails to Use Substantiated Input Parameters to Estimate Project Emissions.

The EIR's air quality analysis is based on modeling using the California Emissions Estimator Model Version CalEEMod.2020.4.0 ("CalEEMod"). In order for this model to work as intended and to provide accurate results, the inputs relating to the proposed Project must accurately reflect the Project's components. The San Joaquin Valley Air Pollution Control District ("SJVAPCD") reviewed the CalEEMod modeling conducted for the Project, including comparing the model inputs to the EIR's project description. (*See* SJVAPCD May 18, 2023 Comments, p. 2.) SJVAPCD has identified significant omissions and errors in the model inputs which demonstrate that its results are less than substantial evidence and which underestimate the Project's air emissions and health risk impacts, including the CalEEMod underestimating the Heavy Heavy-Duty Truck trip lengths traveled. For example, SJVAPCD explains:

Based on the DEIR, specifically the Technical Appendices Volume I: Appendix C, the California Emissions Estimator Model (CalEEMod) air quality modeling results, include a 7.3 mile trip length for quantifying Project operational air quality emissions from Heavy Heavy-Duty (HHD) Truck travel. This value represents the default CalEEMod trip length. This Project consists of warehouse development and is expected to generate increased HHD truck trips that have the ability travel further distances (e.g. trip length) for distribution. As a result, the Project related emissions resulting from the CalEEMod analysis may be underestimated. The trip length included in the DEIR is not consistent with trip

length values we have seen for similar warehouse development projects and the DEIR lacks sufficient analysis to justify the use of the default value. The District recommends the DEIR be revised to include a project specific trip length value and associated analysis to justify the value. The DEIR and supporting CalEEMod air quality modeling results should be revised to reflect an appropriate trip length distance that is supported by project-specific factors.

(SJVAPCD May 18, 2023 Comments, p. 2.) Thus, the EIR should be revised and recirculated to include an adequate analysis of the Project's air quality impacts as related to HHD truck trips traveled.

Additionally, and as discussed above, the Project's transportation impact analysis fails to adequately analyze the Project's operational truck trip generation rates. As a result, the EIR likely underestimates the Project's VMT. Given that the Project's air quality analysis relies on the transportation impact analysis' trip generation numbers and VMT to calculate the Project's air emissions and analyze the Project's air quality and GHG emission impacts, the EIR's failure to adequately calculate the Project's trip generation resulted in the EIR's failure to adequately calculate the emissions from truck traffic during Project operation. Thus, the EIR should be revised and recirculated to include a proper transportation impact analysis for the Project that adequately analyzes the Project's air quality impacts.

Lastly, the EIR fails to analyze air quality impacts related to the Project's operation of backup generators. According to Adams Broadwell Joseph & Cardozo's and its air quality and hazardous materials expert James J.J. Clark, Ph.D. of Clark and Associates, each Extreme Heat Event ("EHE") and Public Safety Power Shutoff ("PSPS") that occurs during Project operation would result in increased diesel particulate matter ("DPM") from the reasonably foreseeable operation of backup generators being used at the Project site. (Adams Broadwell Joseph & Cardozo, May 19, 2023 Comments, Attach. A, p. 15.) Even though the City does not have to analyze the worst-case scenarios related to a project's impacts when preparing an EIR, there is substantial evidence demonstrating that PSPS events and EHEs are reasonably foreseeable events that will require the use of backup generators at the Project site. (*Id.*) Thus, the EIR should be revised and recirculated to include an analysis of the impacts on air quality from the Project's operation of backup generators.

These mistakes in the air modeling and impact analyses as related to emissions render the air pollution analysis and corresponding EIR discussion inaccurate and not based on substantial evidence. In order to provide accurate information to the public and decision makers and to determine whether or not the Project will have significant air quality impacts and sufficient mitigation requirements, a new discussion of air impacts must be prepared and circulated to the public in a revised DEIR.

**C. THE PROJECT COULD RESULT IN SIGNIFICANT HEALTH RISKS
WHICH ARE NOT ANALYZED OR MITIGATED IN THE EIR.**

The EIR fails to adequately disclose, analyze, and mitigate health risk impacts related to the Project, as discussed below.

First, the EIR fails to adequately analyze the Project's operational health risk. For example, without providing any justification, the City failed to analyze building downwash, which is a critical dispersion factor that affects the rate and severity of exposure to toxic contaminants. (*See* Adams Broadwell Joseph & Cardozo, May 19, 2023 Comments, Attach. A, p. 8.) Therefore, the EIR should be revised and recirculated to incorporate an adequate analysis of the Project's operational health risks.

Second, the EIR does not adequately analyze the Project's significant Valley Fever impacts. Nor does the EIR require that any and all mitigation measures that will reduce Valley Fever risks be incorporated as binding mitigation in the Project's Mitigation Monitoring and Reporting Program ("MMRP"). (*Id.*, pp. 4-6.) Therefore, the EIR should be revised and recirculated to include an analysis of the health risks related to the Project's Valley Fever impacts as well as adequate mitigation measures to mitigate those impacts.

Thus, the EIR should be revised and recirculated to include an adequate analysis of health risk impacts as a result of the Project.

**D. THE PROJECT WILL CAUSE SIGNIFICANT BIOLOGICAL RESOURCES
IMPACTS WHICH ARE NOT ANALYZED OR MITIGATED IN THE EIR.**

Expert wildlife biologist Dr. Shawn Smallwood, Ph.D. visited the site on May 31, 2022. (Smallwood, p. 1.) He also reviewed the MND that was previously prepared for the proposed Project and its supporting documents. Drawing on his familiarity with the project area and decades of studying and surveying many of the species encountered at the site, Dr. Smallwood prepared a critique of the MND, which is attached as Exhibit A to this comment letter, pointing out numerous shortcomings in the baseline assessment of the presence of species at the site, failures to evaluate impacts that will result from the Project, and numerous instances where the City's assertions with regard to the Project's biological resources impacts are insufficient or not supported by substantial evidence. While Dr. Smallwood's comment references the MND, not the Draft EIR or FEIR, his expert analysis of the Project's biological resources impacts still applies to the shortcomings found in the EIR.

**1. The EIR Fails to Address the Impacts on Wildlife from Additional Traffic
Generated by the Project.**

According to the EIR, the Project will generate an average of 1,920 new daily vehicle trips, including 342 daily truck trips. Yet the EIR provides no analysis of the impacts of wildlife that will be caused by an increase in traffic on the roadways servicing the Project. (Smallwood, pp. 19-21.)

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:

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.

(Smallwood, p. 19.)

The EIR should be revised to analyze and mitigate this potentially significant impact on wildlife and recirculated for public review.

2. The Project Will Have a Significant Impact on Wildlife Movement.

Similarly to the MND initially prepared for the Project, the EIR improperly dismisses the Project's potential to impact wildlife movement based on the sole ground that no migratory corridor exists at the Project site. (Smallwood, pp. 18-19.) A project will have a significant biological impact if it would "[i]nterfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites." (CEQA Guidelines, App. G.) As Dr. Smallwood pointed out in his review of the MND, the EIR also relies on an assumption that a physical corridor be present on the Project site in order for the Project to disrupt wildlife movement:

The implied premise is that only disruption of the function of a wildlife movement corridor can interfere with wildlife movement in the region. This premise, however, represents a false CEQA standard, and is therefore inappropriate to the analysis. The primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor.

(Smallwood, p. 18.) Dr. Smallwood explains that the Project site will have a significant impact on wildlife movement:

A site such as the proposed project site is critically important for wildlife movement because it composes an increasingly diminishing area of open space within a growing expanse of anthropogenic uses, forcing more species of volant wildlife to use the site for stopover and staging during migration, dispersal, and home range patrol (Warnock 2010, Taylor et al. 2011, Runge et al. 2014). The project would cut wildlife off from stopover and staging opportunities, forcing volant wildlife to travel even farther between remaining stopover sites.

(*Id.*, pp. 18-19.)

Because the Project will have a significant impact on wildlife movement, the EIR should be revised to analyze and mitigate this potentially significant impact on wildlife, and then recirculated for public review.

E. THE EIR FAILS TO ADEQUATELY ANALYZE AND MITIGATE SIGNIFICANT NOISE IMPACTS RELATED TO CONSTRUCTION.

The EIR fails to adequately analyze and mitigate the Project's potentially significant construction noise impacts. According to Adams Broadwell Joseph & Cardozo and its noise expert Derek Watry of Wilson Ihrig:

Mr. Watry found that the Project's site prep phase will result in a noise level of 70.2 dBA Leq, while grading will result in noise levels of 71 dBA Leq, and building construction will result in noise levels of 69.0 dBA Leq. When compared to the existing ambient noise level of 62.3 dBA Leq, Mr. Watry found that Project construction will result in noise exposure increases of 7.9, 8.7 and 6.7 dBA Leq during the Projects site prep, grading, and building phases respectively. Therefore, the Project will exceed the DEIR's threshold of 5 dBA Leq during three phases of construction, resulting in a significant impact.

(Adams Broadwell Joseph & Cardozo, May 19, 2023 Comments, p. 29 (citing *id.*, Attach. B, p. 5).) Hence, the EIR fails to properly analyze the Project's significant noise impacts and therefore should be corrected and recirculated for public review.

F. THE EIR FAILS TO ADEQUATELY DISCLOSE, ANALYZE, AND MITIGATE THE PROJECT'S POTENTIALLY SIGNIFICANT ENERGY IMPACTS.

Contrary to the EIR, the construction and operation of the Project could potentially cause wasteful, inefficient, and unnecessary consumption of energy.

The standard under CEQA is whether the Project would result in wasteful, inefficient, or unnecessary consumption of energy resources. Failing to undertake "an investigation into renewable energy options that might be available or appropriate for a project" violates CEQA. (*California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173, 213.) Energy conservation under CEQA is defined as the "wise and efficient use of energy." (CEQA Guidelines, app. F, § I.) The "wise and efficient use of energy" is achieved by "(1) decreasing overall per capita energy consumption, (2) decreasing reliance on fossil fuels such as coal, natural gas and oil, and (3) increasing reliance on renewable energy resources." (*Id.*)

Noting compliance with the 2019 California Building Energy Efficiency Standards (Cal. Code Regs., tit. 24, part 6 (Title 24)) does not constitute an adequate analysis of energy. (*Ukiah*

Citizens for Safety First v. City of Ukiah (2016) 248 Cal.App.4th 256, 264-65.) Similarly, the Court in *City of Woodland* held as unlawful an energy analysis that relied on compliance with Title 24, that failed to assess transportation energy impacts, and that failed to address renewable energy impacts. (*City of Woodland*, 225 Cal.App.4th at pp. 209-13.) As such, the EIR's reliance on Title 24 compliance does not satisfy the requirements for an adequate discussion of the Project's energy impacts.

The EIR summarily concludes that the Project would not result in the inefficient, wasteful, and unnecessary consumption of energy. There is no discussion of the Project's cost effectiveness in terms of energy requirements. There is no discussion of energy consuming equipment and processes that will be used during the construction or operation of the Project. The Project's energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, and maintenance were not identified. The effect of the Project on peak and base period demands for electricity has not been addressed. The greenhouse gas (GHG) discussion in the EIR fails to address GHG emissions resulting from energy production and energy savings measures, as well energy conservation. As such, the EIR conclusions are unsupported by the necessary discussions of the Project's energy impacts under CEQA.

In addition, the effect of the Project on peak and base period demands for electricity has not been addressed. This is of particular concern given recent events where California's electric grid was significantly impacted by an unprecedented high energy demand as a result of the prolonged, record-breaking heat wave that affected the entire State of California for multiple days. For example, at the start of September 2022, California experienced extreme heat, with temperatures across the state 10 to 20 degrees hotter than normal, driving up energy demand and straining power generation equipment as people ran their air conditioning. On September 6, 2022, as a result of electricity supplies running low in the face of record heat and demand, the California Independent System Operator (Cal-ISO) issued an Energy Emergency Alert (EEA) 3, the highest energy alert, authorizing the grid operator to order rotating power outages to lower demand and stabilize the system if necessary. As grid conditions worsened, energy supplies were determined to be insufficient to cover demand and reserves, and an EEA 3 was declared, meaning controlled power outages were imminent or in process according to each utility's emergency plan. The EEA 3 was in response to an evening peak electricity demand that was forecasted at more than 52,000 megawatts, which Cal-ISO stated was "a new historic all-time high for the grid, as the state endured the hottest day in this prolonged, record-breaking heat wave." Here, the EIR fails to adequately analyze energy conservation. As such, the EIR's conclusions are unsupported by the necessary discussions of the Project's energy impacts under CEQA.

Moreover, under *League to Save Lake Tahoe*, the agency has to implement all feasible energy mitigation measures unless it has substantial evidence to show that the proposed measures are infeasible. (*Save Lake Tahoe*, 75 Cal.App.5th at 166-168; *see also, id.*, pp. 159-163.) An example of a feasible mitigation measure, which has recently been adopted as a new ordinance in San Francisco is the requirement that 100% of parking spaces have electric vehicle charging stations. Since requiring all parking stalls to be EV stalls is likely feasible, the EIR must implement it as an energy efficient mitigation measure, or at minimum, provide substantial

evidence that implementing such a mitigation measure is unfeasible. As such, the EIR's conclusion is unsupported by the necessary discussions of the Project's energy impacts under CEQA.

In conclusion, because the EIR failed to adequately analyze and mitigate the Project's potentially wasteful, inefficient, and unnecessary consumption of energy, an EIR should be prepared to address the Project's potential significant energy impacts, and to mitigate those impacts accordingly.

III. THE CITY SHOULD PREPARE AND RECIRCULATE A REVISED DRAFT EIR.

A revised draft EIR ("RDEIR") should be prepared and circulated for full public review to address the impacts identified above and to propose feasible mitigation measures. CEQA requires recirculation of an EIR when significant new information is added to the EIR following public review but before certification. (PRC § 21092.1.) The CEQA Guidelines clarify that new information is significant if "the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project" including, for example, "a disclosure showing that ... [a] new significant environmental impact would result from the project." (14 CCR § 15088.5.) The above significant environmental impacts have not been analyzed in the EIR and must be addressed in a RDEIR that is recirculated for public review.

CONCLUSION

For the foregoing reasons, the EIR is inadequate. LIUNA urges the City to make the above changes, and recirculate a revised DEIR to the public for review. The EIR should analyze all feasible mitigation measures to reduce or avoid the Project's significant adverse environmental impacts. LIUNA also notes that appellants and other commenters have addressed various environmental issues, and LIUNA agrees with many of those points, particularly those raised by appellants.

Sincerely,

Victoria Yundt
LOZEAU | DRURY LLP

EXHIBIT A

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

Steven Martinez, Planner
City of Fresno
Planning and Development Department
2600 Fresno Street
Fresno, CA 93721

10 June 2022

RE: 2740 West Nielsen Avenue Warehouse

Dear Mr. Martinez,

I write to comment on the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the 2740 West Nielsen Avenue Warehouse project (City of Fresno 2022), which would add four warehouse buildings with 901,438 square feet of floor space on 48.03 acres at 2740 West Nielsen Avenue. I write to point out that the environmental setting of the site was incompletely and inaccurately characterized and the project would have significant impacts on biological resources that were not addressed in the IS/MND, and that mitigation is warranted to minimize and compensate for those impacts.

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 worked 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 worked part-time as a 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-six years. My CV is attached.

SITE VISIT

I visited the site of the proposed project from 18:21 to 20:21 hours on 31 May 2022. The site was largely covered by asphalt and concrete, but strips and patches of soil and grassland covered the rest of the site. The largest patches of grassland had been recently disked. The site also included ornamental trees scattered across its interior aspect and lining its perimeter. When I surveyed the site from its periphery, winds were still, the sky was clear, and the temperature was 85° F. I used binoculars to scan for wildlife.

Over my 2-hour survey, I detected 16 species of vertebrate wildlife at the project site, including 2 special-status species (Table 1). Ground squirrels occurred across the entire site (Photos 1-4). In that portion of the aerosphere over the project site, I saw foraging, breeding territory defense and daily travel expressed by the birds I saw. I saw Canada goose (Photo 5), red-tailed hawks, many cliff swallows and other birds (Photos 6-8). Mourning doves and house finches were all over the site, foraging across the impervious surfaces for seeds deposited by grasses growing through the cracks in the asphalt (Photos 9-12). I saw western kingbirds and killdeer in breeding pairs (Photos 13-15). Many birds of multiple species used the site, because the site provides these species with habitat.

Table 1. Wildlife species I observed at the project site on 31 May 2022.

Species	Scientific name	Status ¹	Note
Canada goose	<i>Branta canadensis</i>		Flock flew over low
Black-crowned night-heron	<i>Nycticorax nycticorax</i>		Pair flew over
Killdeer	<i>Charadrius vociferus</i>		Nesting on site
Mourning dove	<i>Zenaida macroura</i>		Many foraging/nesting
Rock pigeon	<i>Columba livia</i>	Non-native	
Red-tailed hawk	<i>Buteo jamaicensis</i>	BOP	Nesting adjacent
Western kingbird	<i>Tyrannus vociferans</i>		Multiple pairs nesting
Oak titmouse	<i>Baeolophus inornatus</i>	BCC	Adjacent to site
European starling	<i>Sturnus vulgaris</i>	Non-native	
House sparrow	<i>Passer domesticus</i>	Non-native	
American crow	<i>Corvus brachyrhynchos</i>		Most flew in at dusk
Northern mockingbird	<i>Mimus polyglottos</i>		≥2 pair along perimeter
Cliff swallow	<i>Petrochelidon pyrrhonota</i>		Many
House finch	<i>Haemorphous mexicanus</i>		Many foraging/nesting
Botta's pocket gopher	<i>Thomomys bottae</i>		Burrows
California ground squirrel	<i>Otospermophilus beecheyi</i>		Many

¹ BCC = US Fish and Wildlife Service's Bird Species of Conservation Concern, BOP = Birds of Prey (California Fish and Game Code 3503.5).

Despite the extensive disturbance of the site, and despite the anthropogenic land uses that surround the site, wildlife continue to make ample use of it. The evidence of breeding was abundant, from the red-tailed hawks' rumpled feathers to the constant food deliveries to nest sites, to the defense of breeding territories, and to the affection shown between members of pairs of birds. The ground squirrels use the impervious surfaces as convenient roofing for their burrow systems, which provide habitat for many other species of wildlife, most of which I did not see because they resided in their burrow refugia. And the open space of the site provides wildlife with rapidly diminishing opportunities to find forage, refugia, breeding sites, and stopover and staging in support of movement through the area. The site provides abundant habitat value to wildlife in the area. The site may very well support burrowing owls and Swainson's hawks, which are two notable special-status species.

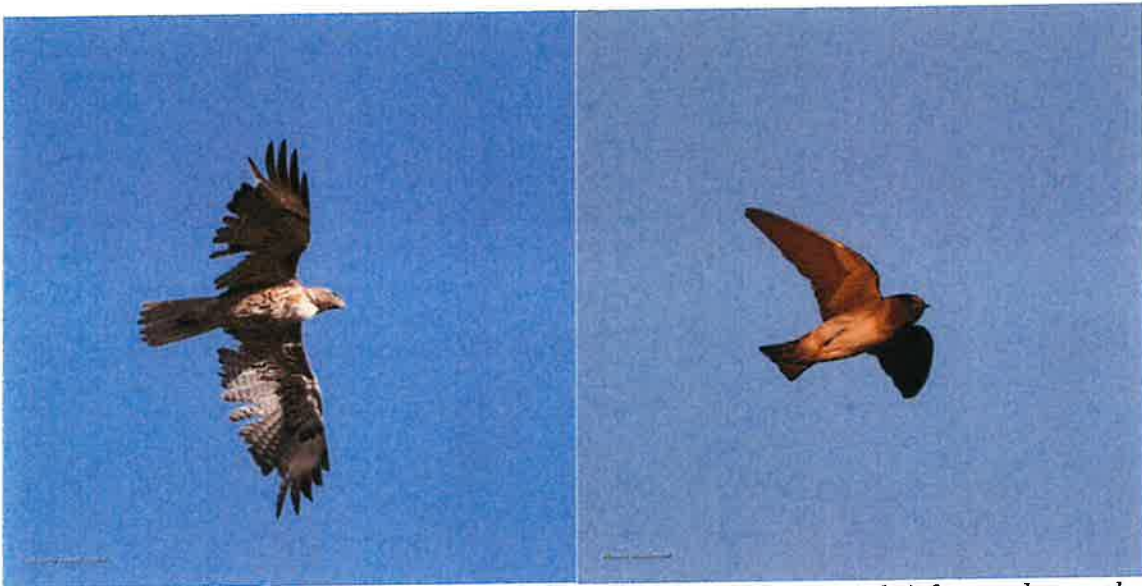


Photos 1-4. A family of ground squirrels on the project site, 31 May 2022. The mother made her rounds, attending to her pups.





Photo 5. Canada goose was hard to miss at the project site, 31 May 2022.



Photos 6 and 7. Red-tailed hawks (left) and cliff swallows (right) foraged over the project site, 31 May 2022.

Photo 8. A flock of small birds selectively flew over the project site at dusk, 31 May 2022.

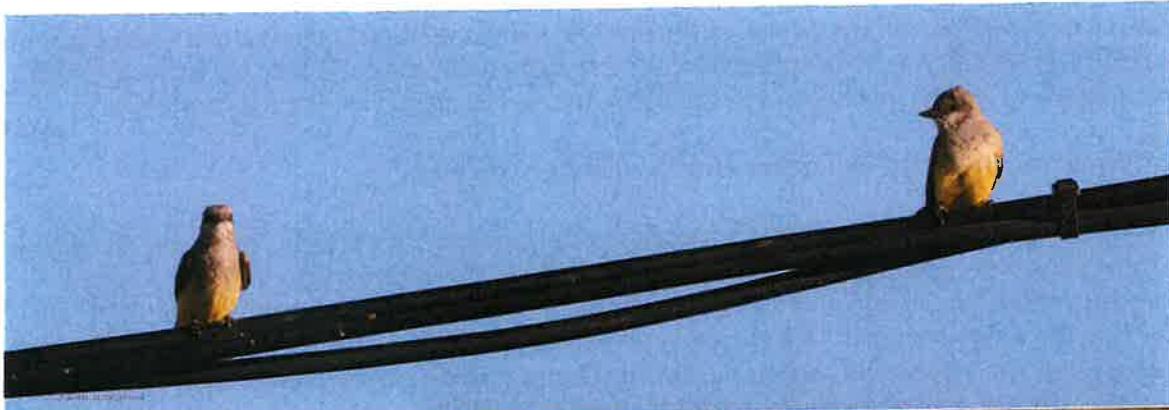




Photos 9 and 10. Mourning doves foraged and nested on the project site, 31 May 2022.



Photo 11 and 12. A pair of house finches showing affection on the project site, 31 May 2022.



Photos 13 and 14. *Western kingbirds (top) and killdeer (right) nest on the project site, 31 May 2022.*



ENVIRONMENTAL SETTING

The first step in analysis of potential project impacts to biological resources is to accurately characterize the existing environmental setting, including the 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 is essential as the baseline from which to analyze 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 incomplete. Herein I comment on the environmental

setting described in the IS/MND, and I provide some additional 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.

Environmental Setting informed by Field Surveys

Live Oak Associates (2021:4) performed a reconnaissance-level field survey on 18 March 2021 to identify “principal land uses and biotic habitats, identifying plant and animal species encountered, and assessing the suitability of the habitats within the project site for special-status species.” No report is provided of weather and temperature during the survey, nor the time of day when the survey began and how long the biologist surveyed the site. By not reporting these methods nor the conditions of the survey, the IS/MND denies the reader essential information needed to interpret the reported findings. For example, the reader should be informed whether the survey was performed at a time of day when wildlife are more or less active and detectable. Knowing how long the biologist was at the project area would have informed of the likelihoods of species detections, and probably would have informed of why so few species of vertebrate wildlife were detected.

Live Oak Associates reportedly detected 8 species of vertebrate wildlife, including western fence lizard, common side-blotched lizard, killdeer, northern mockingbird, European starling, white-crowned sparrow, house finch, and California ground squirrel. Ground squirrels are especially important in this list because they are members of an ecological keystone species, serving as prey to special-status species of raptors (e.g., Swainson’s hawk) and provisioners of burrows used by burrowing owls and others. Ground squirrels are not listed as a species detected by Live Oak Associates (2021: App. B), but a ground squirrel burrow system is shown in Live Oak Associates (2021: App. C, Photo 6). In fact, ground squirrels occur across the entirety of the site -- a key element of the current environmental setting that is insufficiently reported in the IS/MND.

The biologist from Live Oak Associates detected only 50% of the species of vertebrate wildlife that I did. In my experience, the most likely reasons for the discrepancy in survey outcomes was that the consulting biologist visited the site very briefly or during a time of day least likely to detect wildlife. However, time of day would have been less of a factor in March. Nor can I explain the difference by time on site, because, after all, it only took me the first 11 minutes of my survey to detect 8 species – the same number that was detected by Live Oak Associates. Assuming Live Oak Associates was on the project site for longer than 11 minutes, it would seem that Live Oak Associates ought to improve their wildlife detection. As reasonably feasible, detecting as many of the species that are available is essential for accurately characterizing the environmental setting. This is true even though it is unrealistic to expect reconnaissance-level surveys to detect all of the species that use a site, or even a substantial proportion of the species that do so.

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 implies 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 enables the analyst to 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 no more species of vertebrate wildlife than I did during the evening of 31 May 2022. I did about as well as could be predicted by the pattern in the data at the project site at that date and time. 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 survey on 29 March 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.

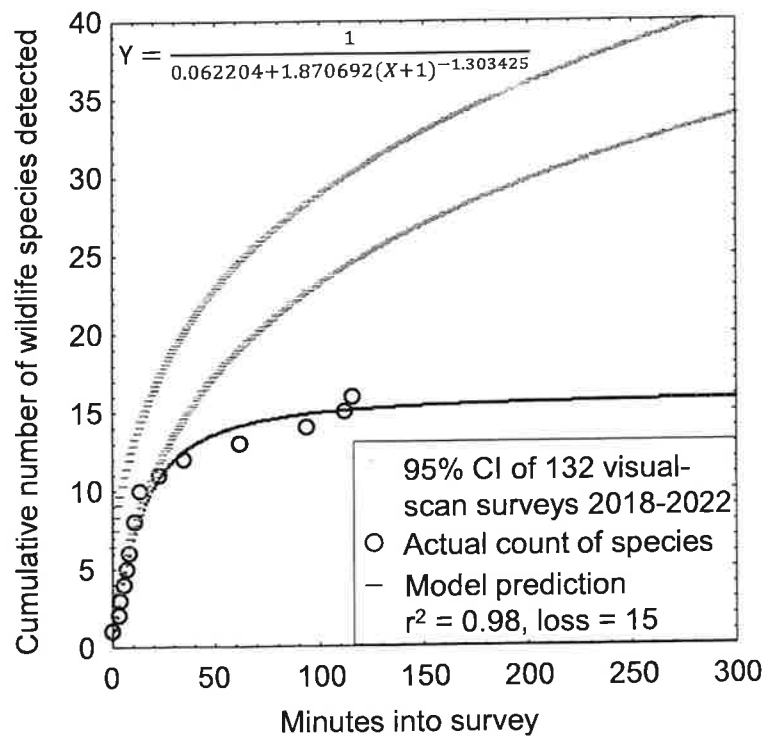


Figure 1 also reveals that the richness of the wildlife community at the project site is lower than the average species richness at other proposed project sites I have visited

across California over the past four years. After about 25 minutes of survey, both the data and the best-fit model fell below the 95% upper bound of the confidence interval estimated from another 132 survey outcomes at other sites. Relative to other proposed project sites, this site is species-poor, but certainly not absent of species. The site still provides plenty of habitat value to wildlife. Should the site be developed as proposed, wildlife in the area would suffer significant impacts caused not only by loss of habitat but also by loss of one of the last remaining patches of open space in the area.

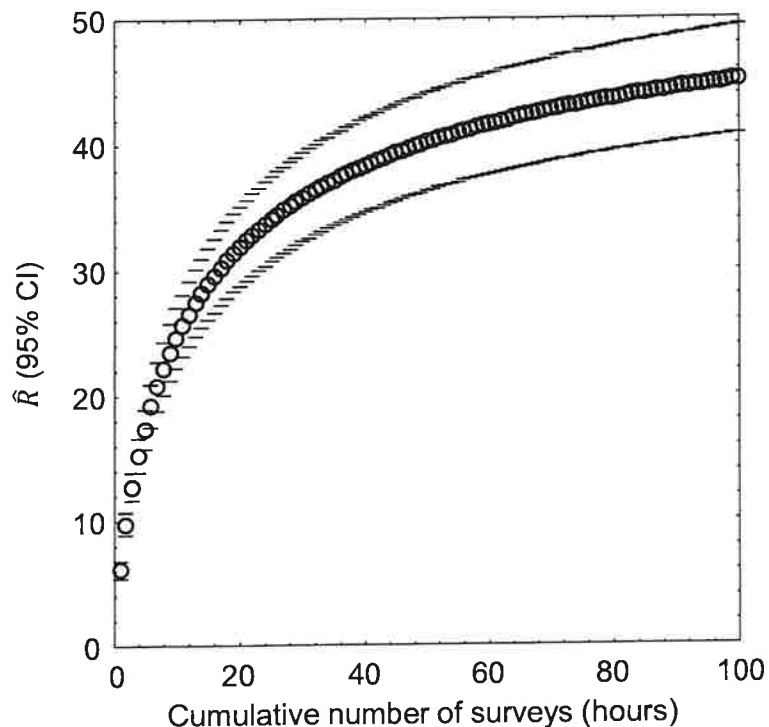
The site supports fewer species of wildlife than most other sites I have surveyed over the past several years, but I could have detected many more species than predicted had I also performed surveys at night to detect nocturnal and crepuscular species with appropriate methods and technology, or by conducting 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 19 species documented there so far between the surveys performed by Live Oak Associates and myself (Live Oak Associates detected 3 species that I did not), 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: $\hat{R} = \frac{1}{1/a + b \times (\text{Hours})^c}$, 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 9.74 species over the first 2 hours of surveys in the Altamont Pass (2 hours to match the number of hours I surveyed at the project site), which composed 17.1% of the total predicted species I would detect with a much larger survey effort. Given the example illustrated in Figure 2,

the 16 species I detected after my 2 hours of survey at the project site likely represented 17.1% 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 $16/0.171 = 94$ species of vertebrate wildlife at the site.

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.

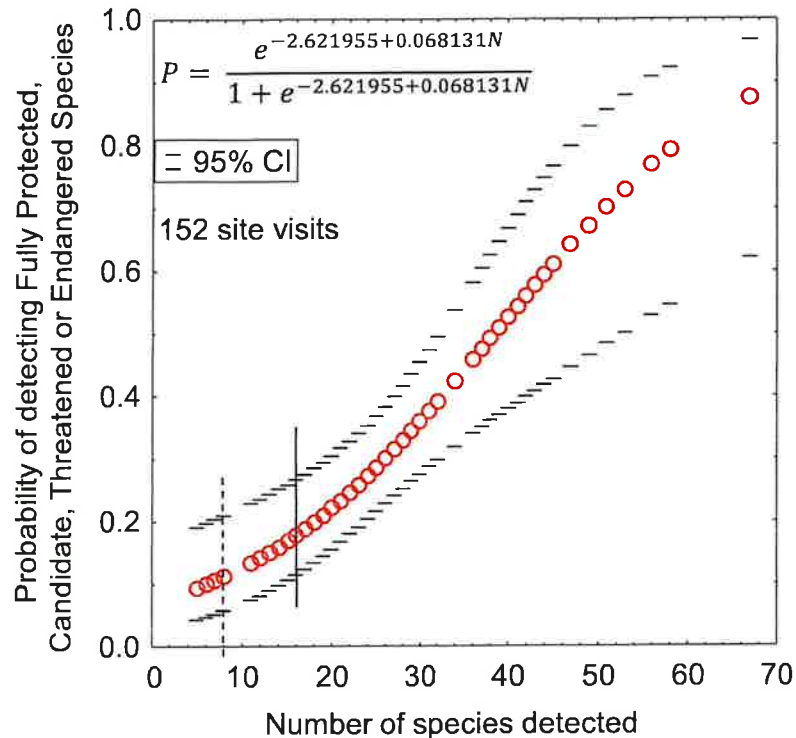


Again, however, my prediction of 94 species of vertebrate wildlife is derived from visual-scan surveys during the daytime, and would not detect nocturnal mammals. The true number of species composing the wildlife community of the site must be larger. A reconnaissance-level survey should serve only as 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 Live Oak Associates 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 Live Oak Associates. Live Oak Associates managed to detect but a very small fraction of the wildlife community that occurs at the site, having detected only 8 of ≥ 94 , or 8.4%. Live Oak Associates' survey did not provide the basis for anything close to an accurate characterization of the environmental setting.

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 solid vertical line represents the number of species I detected, and the dashed vertical line represents the number of species detected by Live Oak Associates (2021).



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 18% chance of detecting a listed species, whereas the survey effort of Live Oak Associates carried a 10.5% chance. Live Oak Associates did not detect a listed species, nor did I, but the odds are that I would have had I performed additional 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, especially its composition by the rarer and more cryptic listed species. 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.

Environmental Setting informed by Desktop Review

The IS/MND further mischaracterizes the current environmental setting through unrealistic assumptions, pigeon-holing species into overly narrow portions of the environment which are then determined absent from the site, overly cursory review of data bases of species occurrences, and by misapplying the California Natural Diversity Data Base (CNDDB). As examples, the IS/MND (p. 30) explains, “The Biological Evaluation provides tables that identify those special-status plant and animal species known to occur or that potentially occur in the vicinity of the project site (based on the literature review and experience in the region) and includes detailed information about each species’ habitat and distribution, State and federal status designations, and probability of occurrence within the project site.” This explanation is fairly misleading, and is in need of some unpacking.

Let’s explore the first part of the above-quoted explanation: “The Biological Evaluation provides tables that identify those special-status plant and animal species known to occur or that potentially occur in the vicinity of the project site...” In reality, the table of potential occurrences of special status species of wildlife in Live Oak Associates (2021) listed a fraction of the special-status species that potentially occur on the project site. The IS/MND misapplies CNDDB to screen out special-status species that did not turn up in the CNDDB query. CNDDB is suitable for confirming presence of a species, or for determining whether protocol-level detection surveys are warranted, but it is unsuitable for supporting absence determinations or for determining very low, low or moderate likelihoods of occurrence. CNDDB is not based on scientific sampling, and is dependent on property access and investigator reporting. Another limitation of CNDDB is its focus on special-status species. Most members of any of California’s wildlife communities are not reported to CNDDB, because CNDDB is not interested in them and Scientific Collecting Permits do not require reporting of them. This means that any species recently designated with special status will be less represented in CNDDB as compared to other species that were assigned special status decades ago. For these reasons and likely others, CNDDB appropriately posts the disclaimer, “We work very hard to keep the CNDDB 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 CNDDB 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 CNDDB is equally important to the maintenance of the CNDDB. ...” In short, CNDDB cannot possibly inform of all of the special-status species that occupy a site unless earlier detection surveys were performed and the results transmitted to CNDDB.

Had eBird and iNaturalist also been reviewed in addition to CNDDB, 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, 82 special-status species of wildlife potentially use the site at one time or another. Of these, 1 was confirmed on the site by my survey visit, 28 (34%) have been documented within 1.5 miles of the site (‘Very close’), 9 (11%) within 1.5 and 3 miles (‘Nearby’), and another 33 (40%) within 3

to 30 miles ('In region'). Nearly half (46%) of the special-status species in Table 2 have been recorded within only 3 miles of the project site, which means the site carries a lot of potential for supporting special-status species of wildlife. The IS/MND determines 2 of the species documented within 1.5 miles to be unlikely and absent, determinations which do not comport with the nearness of the occurrence records.

Some of the species are unlikely to use resources on the ground of the project site, but nevertheless benefit from the unobstructed portion of the site's aerosphere or from the lift of heated air above the site. Some species such as merlin and ferruginous hawk use the site seasonally in support of their next breeding attempts to the north. Some species likely stopover during migration. Most (89%) are omitted from analysis in the IS/MND.

The second part of the above-quoted explanation claims that the table of potentially occurring special-status species "includes detailed information about each species' habitat and distribution..." The information in Table 1 of Live Oak Associates (2021), however, is not at all detailed. For example, the habitat and distribution of burrowing owls is summarized as the following: "Found in open, dry grasslands, deserts, and ruderal areas; requires ground squirrel burrows for cover and nesting." Burrowing owls are also found in perennial grasslands (Smallwood and Morrison 2018), prairie, scrublands, agricultural fields such as alfalfa and pasture, along levees and berms, and on small patches of soil amid impervious surfaces such as airport tarmacs and runways. Contrary to the Live Oak Associates' description, burrowing owls do not require ground squirrel burrows, although burrowing owl nest success and chick survival improve in the presence of ground squirrels. Burrowing owl habitat is much more diverse than described in the cited Table, which, by the way, is silent regarding burrowing owl distribution. Table 1 of Live Oak Associates (2021) is much too cursory to be sufficiently informative to readers of the IS/MND.

As another example, Table 1 of Live Oak Associates (2021) describes Swainson's hawk habitat as "Summer migrant in the Central Valley. Forages in grasslands and fields close to riparian areas." Like with burrowing owls, Swainson's hawk habitat is much more diverse (Smallwood et al. 2006) and Swainson's hawk distribution is more widespread than the reader of the IS/MND is being led to believe. Swainson's hawks nest in the foothills of the Diablo Range, and within neighborhoods of some cities, as examples. Swainson's hawks do not need to forage only near riparian areas.

The third part of the above-quoted explanation claims that Table 1 of Live Oak Associates (2021) includes for each species a "probability of occurrence within the project site." It actually does not do this. There is no probability statement, nor is there any analytical foundation to a probability statement. The Table classifies occurrence likelihoods as 'possible' or 'unlikely,' and adds 'absent' as an inconsistent third category. Absent is inconsistent with possible and unlikely, because it is an absolute whereas the other two categories connote uncertainty. Absent is also inappropriate unless this determination is founded on protocol-level detection surveys or incontrovertible evidence that the site is outside the species' geographic range or the site lacks habitat.

Table 2. Occurrence likelihoods of special-status species at the project site, based on records of sightings in eBird and iNaturalist and on my site visit.

Species	Scientific name	Status ¹	Occurrence likelihood	
			IS/MND	Data bases, site visits
Crotch's bumble bee	<i>Bombus crotchii</i>	CCE	Absent	In region
Monarch	<i>Danaus plexippus</i>	FC		In region
Aleutian cackling goose	<i>Branta hutchinsonii leucopareia</i>	WL		In region
Redhead	<i>Aythya americana</i>	SSC2		In region
Clark's grebe	<i>Aechmophorus clarki</i>	BCC		In region
Western grebe	<i>Aechmophorus occidentalis</i>	BCC		In region
American white pelican	<i>Pelecanus erythrorhynchos</i>	SSC1		Very close
Double-crested cormorant	<i>Phalacrocorax auritus</i>	WL		Very close
White-faced ibis	<i>Plegadis chihi</i>	WL		Very close
Greater sandhill crane	<i>Grus c. canadensis</i>	CT, CFP, SSC3		In region
Long-billed curlew	<i>Numenius americanus</i>	BCC, WL		In region
Whimbrel	<i>Numenius phaeopus</i>	BCC		In region
Marbled godwit	<i>Limosa fedua</i>	BCC		In region
Willet	<i>Tringa semipalmata</i>	BCC		In region
American avocet	<i>Recurvirostra americana</i>	BCC		Nearby
Snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT, BCC		In region
Caspian tern	<i>Hydroprogne caspia</i>	BCC		In region
California gull	<i>Larus californicus</i>	BCC, WL		Very close
Western gull	<i>Larus occidentalis</i>	BCC		In region
Turkey vulture	<i>Cathartes aura</i>	BOP		Very close
Osprey	<i>Pandion haliaetus</i>	WL, BOP		In region
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA, BCC, CFP		In region
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA, BCC, CFP		Very close
Red-tailed hawk	<i>Buteo jamaicensis</i>	BOP		On site
Ferruginous hawk	<i>Buteo regalis</i>	BCC, WL, BOP		In region
Swainson's hawk	<i>Buteo swainsoni</i>	BCC, CT	Unlikely	Very close
Rough-legged hawk	<i>Buteo regalis</i>	BOP		Nearby
Red-shouldered hawk	<i>Buteo lineatus</i>	BOP		Very close

Species	Scientific name	Status ¹	Occurrence likelihood	
			IS/MND	Data bases, site visits
Sharp-shinned hawk	<i>Accipiter striatus</i>	WL, BOP		Very close
Cooper's hawk	<i>Accipiter cooperi</i>	WL, BOP		Very close
Northern harrier	<i>Circus cyaneus</i>	SSC3, BOP		Very close
White-tailed kite	<i>Elanus leucurus</i>	CFP, BOP		Nearby
American kestrel	<i>Falco sparverius</i>	BOP		Very close
Merlin	<i>Falco columbarius</i>	WL, BOP		Very close
Prairie falcon	<i>Falco mexicanus</i>	BCC, WL, BOP		Very close
Peregrine falcon	<i>Falco peregrinus</i>	BCC, CFP, BOP		Very close
Burrowing owl	<i>Athene cunicularia</i>	BCC, SSC2, BOP	Unlikely	In region
Great-horned owl	<i>Bubo virginianus</i>	BOP		Very close
Short-eared owl	<i>Asio flammeus</i>	BCC, SSC3, BOP		In region
Barn owl	<i>Tyto alba</i>	BOP		Nearby
Western screech-owl	<i>Megascops kennicotti</i>	BCC, BOP		Nearby
Rufous hummingbird	<i>Selasphorus rufus</i>	BCC		Very close
Costa's hummingbird	<i>Calypte costae</i>	BCC		Very close
Nuttall's woodpecker	<i>Picoides nuttallii</i>	BCC		Very close
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC		In region
Vaux's swift	<i>Chaetura vauxi</i>	SSC2		Very close
Willow flycatcher	<i>Epidomax trailii</i>	CE, BCC		Very close
Olive-sided flycatcher	<i>Contopus cooperi</i>	BCC, SSC2		Very close
Oak titmouse	<i>Baeolophus inornatus</i>	BCC		Very close
Horned lark	<i>Eremophila alpestris</i>	WL		Nearby
Purple martin	<i>Progne subis</i>	SSC2		In region
Bank swallow	<i>Riparia riparia</i>	CT		In region
Loggerhead shrike	<i>Lanius ludovicianus</i>	BCC, SSC2		Nearby
California thrasher	<i>Toxostoma redivivum</i>	BCC		In region
Yellow-billed magpie	<i>Pica nuttalli</i>	BCC		Nearby
Yellow warbler	<i>Setophaga petechia</i>	BCC, SSC2		Very close
Yellow-breasted chat	<i>Icteria virens</i>	SSC3		Very close
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	BCC, SSC2		In region

Species	Scientific name	Status ¹	Occurrence likelihood	
			IS/MND	Data bases, site visits
Modesto song sparrow	<i>Melospiza melodia</i>	SSC3		Nearby
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC2		In region
Bullock's oriole	<i>Icterus bullockii</i>	BCC		Very close
Tricolored blackbird	<i>Agelaius tricolor</i>	CT, BCC	Unlikely	In region
Yellow-headed blackbird	<i>X. xanthocephalus</i>	SSC3		In region
Lawrence's goldfinch	<i>Spinus lawrencei</i>	BCC		Very close
Pallid bat	<i>Antrozous pallidus</i>	SSC, WBWG H	Possible	In region
Townsend's big-eared bat	<i>Plecotus t. townsendii</i>	SSC, WBWG H		In range
Western mastiff bat	<i>Eumops perotis</i>	SSC, WBWG H	Possible	In range
Silver-haired bat	<i>Lasionycteris noctivagans</i>	WBWG:M		In range
Western red bat	<i>Lasiurus blossevillii</i>	SSC, WBWG H		In region
Little brown bat	<i>Myotis lucifugus</i>	WBWG:M		In range
Big brown bat	<i>Epistictus fuscus</i>	WBWG:L		In range
California myotis	<i>Myotis californicus</i>	WBWG:L		In region
Canyon bat	<i>Parastrellus hesperus</i>	WBWG:M		In range
Small-footed myotis	<i>Myotis cililabrum</i>	WBWG M		In range
Miller's myotis	<i>Myotis evotis</i>	WBWG M		In range
Fringed myotis	<i>Myotis thysanodes</i>	WBWG H		In range
Long-legged myotis	<i>Myotis volans</i>	WBWG H		In range
Yuma myotis	<i>Myotis yumanensis</i>	WBWG LM		In range
Hoary bat	<i>Lasiurus cinereus</i>	WBWG LM	Not expected	In region
American badger	<i>Taxidea taxus</i>	SSC	Absent	In region
Western spadefoot	<i>Speas hmondii</i>	SSC		In region
Western pond turtle	<i>Actinemys marmorata</i>	SSC	Absent	Very close

¹ Listed as FT or FE of FC = federally Threatened or Endangered or Candidate for listing, BGEPA = Bald and Golden Eagle Protection Act, BCC = US Fish and Wildlife Service's Bird Species of Conservation Concern, CT or CE or CCE = California Threatened or Endangered or Candidate Endangered, CFP = California Fully Protected (CFG Code 3511), BOP = California Fish and Game Code 3503.5 (Birds of Prey), and SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3 (Shuford and Gardali 2008), WL = Taxa to Watch List (Shuford and Gardali 2008), WBWG = Western Bat Working Group with low, medium and high conservation priorities.

The IS/MND applies the absence determination to too many special-status species of wildlife. The IS/MND (p. 30) concludes, "...the proposed project does not have the potential to impact these species [18 of the 20 special-status species of wildlife with nearby occurrences in CNDDDB] through project-related mortality or loss of habitat as there is little or no likelihood that they are present or would be present during construction activity." This conclusion lacks foundation in the cases of burrowing owls and Swainson's hawk, as examples. With ground squirrels inhabiting the entirety of the project site, there is no basis for determining burrowing owls or Swainson's hawks are absent. Ground squirrels are very important to burrowing owls and Swainson's hawks, and where they occur is also where burrowing owls and Swainson's hawks are more likely to occur.

The IS/MND then concludes "The two special-status species that have the potential to forage over the project site from time to time, but would not roost on the site, include western mastiff bat and pallid bat. These two bat species would not be adversely affected from project-related loss of habitat nor is foraging habitat uniquely important for these species. ... These bats would be expected to continue to use the project site for foraging after redevelopment." These conclusions, however, are merely convenient speculations. The IS/MND offers no evidence in support of the incredible notion that the warehouses and surrounding parking lots would serve just as well as foraging habitat as the current environmental setting. It is also unclear what the IS/MND means by "uniquely important foraging habitat." This phrase is presented as a standard, but it has no origin in science or CEQA. To be clear, if the site provides habitat to pallid bat and western mastiff bat, then the project would destroy habitat of these species, thereby diminishing the numerical capacities of these species on planet Earth; no tricky terminology would alter this outcome.

A fair argument can be made for the need to prepare an EIR that is better informed by a more comprehensive desktop analysis and by appropriate interpretation of occurrence records for the purpose of characterizing the wildlife community as part of the current environmental setting.

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 analyze 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 a tenth of that documented by Young (1948) and Yahner (1982), an average nest density of 34.3 multiplied against 0.1 and the project's 48.03 acres would estimate a capacity of 165 bird nests annually. That this estimate is reasonable was supported by the numbers of birds I saw at the site, especially the numbers of paired birds and the numbers of birds making food deliveries. In my estimation, 165 bird nests at the project site is a conservative estimate.

The loss of at least 165 nest sites of birds would qualify as a significant project impact that has not been analyzed 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 of the project. 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 479 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 54,500 birds $\{(nests/year \times chicks/nest \times number\ of\ years) + (2\ adults/nest \times nests/year) \times (number\ of\ years \div years/generation)\}$ (Smallwood 2022). The project's denial to California of 545 birds per year is 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's analysis of whether the project would interfere with wildlife movement in the region is fundamentally flawed by misdirection and pseudoscientific arguments. According to the IS/MND (p. 32), "The project site does not contain any features that would function as wildlife movement corridors for resident or migratory wildlife species." The implied premise is that only disruption of the function of a wildlife movement corridor can interfere with wildlife movement in the region. This premise, however, represents a false CEQA standard, and is therefore inappropriate to the analysis. The primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. A site such as the proposed project site is critically important for wildlife movement because it composes an increasingly diminishing area of open space within a growing expanse of anthropogenic uses, forcing more species of volant wildlife to use the site for stopover and staging during migration, dispersal, and home range patrol (Warnock 2010, Taylor et al. 2011, Runge et al. 2014). The project would cut wildlife off from stopover and

staging opportunities, forcing volant wildlife to travel even farther between remaining stopover sites.

Also according to the IS/MND (p. 32), “In addition, the perimeter chain-link fence would inhibit the movement of native or migratory wildlife.” Chain-link fence might inhibit movement of livestock, but not most wildlife. Birds and bats have wings. Small mammals and most reptiles pass right through the fence. Foxes climb over fences. And the fence that currently surrounds the project site does so with gaping holes large enough for people to walk through. With holes as large as appear in the fence, why climb over or crawl under? The fence is quite porous.

The project, with its large warehouse buildings and new fencing, would interfere with wildlife movement in the region. A fair argument can be made for the need to prepare an EIR to appropriately analyze the project’s impacts to wildlife caused by the project’s interference with wildlife movement in the region.

TRAFFIC IMPACTS TO WILDLIFE

The IS/MND provides no analysis of wildlife-traffic collision mortality that would result from the project. The IS/MND predicts annual vehicle miles traveled (VMT) of 5,605,645, which is many miles that would put wildlife at dire risk of collision mortality along all reaches of roadway leading traffic to and from the project site (Photos 15–18). 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 15. *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 16. Great-tailed grackle (left) walks onto a rural road in Imperial County, 4 February 2022.



Photo 17. A mourning dove (right) killed by vehicle traffic on a California road. Photo by Noriko Smallwood, 21 June 2020.



Photo 18. 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 only 41 miles from the project site, 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.

Predicting project-generated traffic impacts to wildlife

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 $19,500 \text{ cars and trucks} \times 2.5 \text{ miles} \times 365 \text{ days/year} \times 1.25 \text{ years} = 22,242,187.5 \text{ vehicle miles}$ per 12,187 wildlife fatalities, or 1,825 vehicle miles per fatality. The predicted annual VMT divided by the 1,825 miles per fatality, would predict 3,072 wildlife fatalities per year.

The project's traffic over 50 years would accumulate 153,600 wildlife fatalities. Even if only half this number is killed due to potentially lower densities of wildlife around Vacaville as compared to the Vasco Road study site, the annual predicted mortality would be 1,536 and the 50-year toll would be 76,800. And 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, not just at the project site, but also at sites as distant as project traffic extends. 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 adopts a flawed approach to analysis of cumulative impacts. The IS/MND implies that cumulative impacts are really just residual impacts of incomplete mitigation. It concludes that with the proposed mitigation measures for the project's direct impacts, the project would cause no significant impacts to wildlife, so there would be no impacts to mitigate and hence no cumulative impacts. If this was CEQA's standard – that cumulative impacts are simply unmitigated project-specific impacts – then cumulative effects analysis would be merely an analysis of mitigation efficacy. The IS/MND's implied standard is not the standard of analysis of cumulative effects. CEQA defines cumulative impacts, and it outlines two general approaches for performing the analysis. Given that North America has lost nearly a third of its birds over the past half century (Rosenberg et al. 2019), and given that simple calculations reveal the project's impacts would deny Californians of many birds, an appropriate cumulative effects analysis is warranted. A fair argument can be made for the need to prepare an EIR to appropriately analyze cumulative effects.

MITIGATION MEASURES

Mitigation Measure BIO-1: Preconstruction survey for breeding birds

The IS/MND proposes preconstruction, take-avoidance surveys to minimize impacts to breeding birds. Whereas I agree that preconstruction surveys would be appropriate, it must be understood by decision-makers and the public that such surveys typically detect small fractions of the animals targeted. Nesting birds are highly adept at concealment to avoid predation. Over such a large area, the notion that more than a few animals would be detected would be fantasy. Furthermore, preconstruction, take-avoidance surveys ultimately fail to prevent the impacts of habitat loss, resulting in the loss of productive capacity of the site.

Preconstruction surveys should not be performed without first having performed detection surveys. Preconstruction surveys are no substitute for detection surveys. Species detection surveys are needed to (1) support negative findings of species when appropriate, (2) inform preconstruction surveys to improve their efficacy, (3) estimate project impacts, and (4) inform compensatory mitigation and other forms of mitigation. Detection survey protocols and guidelines are available from resource agencies for most special-status species. Otherwise, professional standards can be learned from the scientific literature and species' experts.

Mitigation Measure BIO-2: Buffer bird nests discovered in preconstruction survey

This measure is merely an extension of mitigation measure BIO-1. This measure is typically included as BIO-1, but the IS/MND separates it out for some reason, perhaps to convey the impression of two mitigation measures instead of one. Whereas I concur with the buffering of bird nests during construction, see my comments on BIO-1.

RECOMMENDED MEASURES

The IS/MND proposes only preconstruction surveys, and presents no specific details regarding compensatory mitigation for habitat loss. 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 (CDFW 2012) and Swainson's hawk (CDFW 2000).

Construction Timing: Live Oak Associates (2021) recommended that project construction occur outside the avian breeding season, but the IS/MND omitted this measure. An EIR should be prepared, and it should include construction timing outside the avian breeding season as a mitigation measure.

Construction Monitoring: Qualified biologists should be required to monitor construction impacts to wildlife. A report of the monitoring findings should be required, and it should be required that the report be made available to the public, who deserve to be informed of some of the consequences of project construction.

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.

REFERENCES CITED

- Bishop, C. A. and J. M. Brogan. 2013. Estimates of avian mortality attributed to vehicle collisions in Canada. *Avian Conservation and Ecology* 8:2.
<http://dx.doi.org/10.5751/ACE-00604-080202>.
- Brown, K., K. S. Smallwood, J. Szewczak, and B. Karas. 2016. Final 2012-2015 Report Avian and Bat Monitoring Project Vasco Winds, LLC. Prepared for NextEra Energy Resources, Livermore, California.
- CDFW (California Department of Fish and Wildlife). 2000. Recommended timing and methodology for Swainson's Hawk nesting surveys in California's Central Valley. Sacramento, California.

- CDFW (California Department of Fish and Wildlife). 2012. Staff Report on Burrowing Owl Mitigation. Sacramento, California.
- City of Fresno. 2022. Mitigated Negative Declaration for Development Permit Application No. P21-02699 & Tentative Parcel Map No. P21-05930. Prepared by LSA for City of Fresno, California.
- Forman, T. T., D. Sperling, J. A. Bisonette, A. P. Clevenger, C. D. Cutshall, V. H. Dale, L. Fahrig, R. France, C. R. Goldman, K. Heanue, J. A. Jones, F. J. Swanson, T. Turrentine, and T. C. Winter. 2003. Road Ecology. Island Press, Covello, California.
- Live Oak Associates. 2021. Biological Evaluation Nielsen Avenue Office/Warehouse Project Fresno County, California. Prepared for Scannell Properties, Wayzata, Minnesota.
- Loss, S. R., T. Will, and P. P. Marra. 2014. Estimation of Bird-Vehicle Collision Mortality on U.S. Roads. *Journal of Wildlife Management* 78:763-771.
- Rosenberg, K. V., A. M. Dokter, P. J. Blancher, J. R. Sauer, A. C. Smith, P. A. Smith, J. C. Stanton, A. Panjabi, L. Helft, M. Parr, and P. P. Marra. 2019. Decline of the North American avifauna. *Science* 10.1126/science.aaw1313 (2019).
- Runge, C. A., T. G. Martin, H. P. Possingham, S. G. Willis, and R. A. Fuller. 2014. Conserving mobile species. *Frontiers in Ecology and Environment* 12(7): 395-402, doi:10.1890/130237.
- Santos, S. M., F. Carvalho, and A. Mira. 2011. How long do the dead survive on the road? Carcass persistence probability and implications for road-kill monitoring surveys. *PLoS ONE* 6(9): e25383. doi:10.1371/journal.pone.0025383
- Shuford, W. D., and T. Gardali, [eds.]. 2008. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds* 1. Western Field Ornithologists, Camarillo, California.
- Smallwood, K. S. 2022. Utility-scale solar impacts to volant wildlife. *Journal of Wildlife Management*: e22216. <https://doi.org/10.1002/jwmg.22216>
- Smallwood, K. S. and M. L. Morrison. 2018. Nest-site selection in a high-density colony of burrowing owls. *Journal of Raptor Research* 52:454-470.
- Smallwood, K. S., B. J. Nakamoto, and S. Geng. 1996. Association analysis of raptors on an agricultural landscape. Pages 177-190 in D.M. Bird, D.E. Varland, and J.J. Negro, eds., *Raptors in human landscapes*. Academic Press, London.

Taylor, P. D., S. A. Mackenzie, B. G. Thurber, A. M. Calvert, A. M. Mills, L. P. McGuire, and C. G. Guglielmo. 2011. Landscape movements of migratory birds and bats reveal an expanded scale of stopover. *PlosOne* 6(11): e27054.
doi:10.1371/journal.pone.0027054.

Warnock, N. 2010. Stopping vs. staging: the difference between a hop and a jump. *Journal of Avian Biology* 41:621-626.

Yahner, R. H. 1982. Avian nest densities and nest-site selection in farmstead shelterbelts. *The Wilson Bulletin* 94:156-175.

Young, H. 1948. A comparative study of nesting birds in a five-acre park. *The Wilson Bulletin* 61:36-47.



Kenneth Shawn Smallwood

Curriculum Vitae

3108 Finch Street
Davis, CA 95616
Phone (530) 756-4598
Cell (530) 601-6857
puma@dcn.org

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

- 762 professional reports, including:
 - 90 peer reviewed publications
 - 24 in non-reviewed proceedings
- 646 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*: e22216. <https://doi.org/10.1002/jwmg.22216>
- 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.
- Smallwood, K. S., and D. A. Bell. 2020. Relating bat passage rates to wind turbine fatalities.

- Diversity 12(84); doi:10.3390/d12020084.
- Smallwood, K. S., and D. A. Bell. 2020. Effects of wind turbine curtailment on bird and bat fatalities. *Journal of Wildlife Management* 84:684-696. DOI: 10.1002/jwmg.21844
- Kitano, M., M. Ino, K. S. Smallwood, and S. Shiraki. 2020. Seasonal difference in carcass persistence rates at wind farms with snow, Hokkaido, Japan. *Ornithological Science* 19: 63 – 71.
- Smallwood, K. S. and M. L. Morrison. 2018. Nest-site selection in a high-density colony of burrowing owls. *Journal of Raptor Research* 52:454-470.
- Smallwood, K. S., D. A. Bell, E. L. Walther, E. Leyvas, S. Standish, J. Mount, B. Karas. 2018. Estimating wind turbine fatalities using integrated detection trials. *Journal of Wildlife Management* 82:1169-1184.
- Smallwood, K. S. 2017. Long search intervals under-estimate bird and bat fatalities caused by wind turbines. *Wildlife Society Bulletin* 41:224-230.
- Smallwood, K. S. 2017. The challenges of addressing wildlife impacts when repowering wind energy projects. Pages 175-187 in Köppel, J., Editor, *Wind Energy and Wildlife Impacts: Proceedings from the CWW2015 Conference*. Springer. Cham, Switzerland.
- May, R., Gill, A. B., Köppel, J. Langston, R. H.W., Reichenbach, M., Scheidat, M., Smallwood, S., Voigt, C. C., Hüppop, O., and Portman, M. 2017. Future research directions to reconcile wind turbine–wildlife interactions. Pages 255-276 in Köppel, J., Editor, *Wind Energy and Wildlife Impacts: Proceedings from the CWW2015 Conference*. Springer. Cham, Switzerland.
- Smallwood, K. S. 2017. Monitoring birds. M. Perrow, Ed., *Wildlife and Wind Farms - Conflicts and Solutions*, Volume 2. Pelagic Publishing, Exeter, United Kingdom. www.bit.ly/2v3cR9Q
- Smallwood, K. S., L. Neher, and D. A. Bell. 2017. Turbine siting for raptors: an example from Repowering of the Altamont Pass Wind Resource Area. M. Perrow, Ed., *Wildlife and Wind Farms - Conflicts and Solutions*, Volume 2. Pelagic Publishing, Exeter, United Kingdom. www.bit.ly/2v3cR9Q
- Johnson, D. H., S. R. Loss, K. S. Smallwood, W. P. Erickson. 2016. Avian fatalities at wind energy facilities in North America: A comparison of recent approaches. *Human–Wildlife Interactions* 10(1):7-18.
- Sadar, M. J., D. S.-M. Guzman, A. Mete, J. Foley, N. Stephenson, K. H. Rogers, C. Grosset, K. S. Smallwood, J. Shipman, A. Wells, S. D. White, D. A. Bell, and M. G. Hawkins. 2015. Mange Caused by a novel *Micnemidocoptes* mite in a Golden Eagle (*Aquila chrysaetos*). *Journal of Avian Medicine and Surgery* 29(3):231-237.
- Smallwood, K. S. 2015. Habitat fragmentation and corridors. Pages 84-101 in M. L. Morrison and H. A. Mathewson, Eds., *Wildlife habitat conservation: concepts, challenges, and solutions*. John Hopkins University Press, Baltimore, Maryland, USA.