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December 13, 2023

Via E-mail

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Re: Comment on the Mitigated Negative Declaration (MND) for the Hardt and Brier Business Park Project (SCH No. 2023100916); Development and Environmental Review Committee December 13, 2023 Meeting Agenda Item No. 2

Dear Chairperson Lanier, Honorable Development and Environmental Review Committee Members, Ms. Meamber, and Mr. Rosales:

I am writing on behalf of Supporters Alliance for Environmental Responsibility ("SAFER") regarding the Initial Study and Mitigated Negative Declaration ("IS/MND") prepared for the Hardt and Brier Business Park Project (SCH No. 2023100916), including all actions related or referring to the proposed development of five new concrete tilt-up buildings with a combined total of 81,210 sq. ft at Hardt Street and East Brier Drive (APNs 0281-301-17, 0281-311-06, -07, -08, -11, -12, -18, and -19) in the City of San Bernardino("Project"), to be heard as Agenda Item No. 2 at the December 13, 2023 Development Environmental Review Committee meeting.

After reviewing the IS/MND, we conclude that there is a fair argument that the Project may have adverse environmental impacts that have not been analyzed and mitigated. Therefore, we request that the City of San Bernardino prepare an environmental impact report ("EIR") for the Project pursuant to the California Environmental Quality Act ("CEQA"), Public Resources Code ("PRC") section 21000, et seq.

This comment has been prepared with the assistance of expert wildlife biologist Dr. Shawn Smallwood, Ph.D. Dr. Smallwood's comment and curriculum vitae are attached as Exhibit A hereto and is incorporated herein by reference in its entirety.

PROJECT DESCRIPTION

The Project proposes the development and establishment of five new speculative business park/service commercial buildings with a total combined footprint of 81,210 square feet (SF) on eight parcels encompassing approximately 5.81 acres adjacent to Hardt Street and East Brier Drive. The site is identified by Assessor's Parcel Numbers (APNs) 0281-301-17, 0281-311-06, -07, -08, -11, -12, -18, and -19. Four parcels (APNs 0281-301-17, 0281-311-08, -07, -06) are located north of Hardt Street. The remaining four parcels are located south of Hardt Street. APN's 0281-311-11 and 0281-311-12 are to the east and directly south of Hardt Street and APN's 0281-311-18 and 0281-311-19 are further to the south, directly north of East Brier Drive. The IS/MND asserts that the Project site is undeveloped and vacant with exposed soil and sparse vegetation.

LEGAL STANDARD

As the California Supreme Court has held, "[i]f no EIR has been prepared for a nonexempt project, but substantial evidence in the record supports a fair argument that the project may result in significant adverse impacts, the proper remedy is to order preparation of an EIR." (*Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 319–20 ("*CBE v. SCAQMD*") (citing *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75, 88; *Brentwood Assn. for No Drilling, Inc. v. City of Los Angeles* (1982) 134 Cal.App.3d 491, 504–05).) "Significant environmental effect" is defined very broadly as "a substantial or potentially substantial adverse change in the environment." (PRC § 21068; *see also* 14 CCR § 15382.) An effect on the environment need not be "momentous" to meet the CEQA test for significance; it is enough that the impacts are "not trivial." (*No Oil, Inc.*, 13 Cal.3d at 83.) "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 v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 109 ("*CBE v. CRA*").)

The EIR is the very heart of CEQA. (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214 ("*Bakersfield Citizens*"); *Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 927.) The EIR is an "environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return." (*Bakersfield Citizens*, 124 Cal.App.4th at 1220.) The EIR also functions as a "document of accountability," intended to "demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action." (*Laurel Heights Improvements Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392.) The EIR process "protects not only the environment but also informed self-government." (*Pocket Protectors,* 124 Cal.App.4th at 927.)

An EIR is required if "there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment." (PRC § 21080(d); *see also Pocket Protectors,* 124 Cal.App.4th at 927.) In very limited circumstances, an agency may avoid preparing an EIR by issuing a negative declaration, a written statement briefly indicating that a project will have no significant impact thus requiring no EIR (14 CCR § 15371), only if there is not even a "fair argument" that the project will have a significant environmental effect. (PRC §§ 21100, 21064.) Since "[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process," by allowing the agency "to dispense with the duty [to prepare an EIR]," negative declarations are allowed only in cases where "the proposed project will not affect the environment at all." (*Citizens of Lake Murray v. San Diego* (1989) 129 Cal.App.3d 436, 440.)

Where an initial study shows that the project may have a significant effect on the environment, a mitigated negative declaration may be appropriate. However, a mitigated negative declaration is proper *only* if the project revisions would avoid or mitigate the potentially significant effects identified in the initial study "to a point where clearly no significant effect on the environment would occur, and…there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment." (PRC §§ 21064.5, 21080(c)(2); *Mejia v. City of Los Angeles* (2005) 130 Cal.App.4th 322, 331.) In that context, "may" means a reasonable possibility of a significant effect on the environment. (PRC §§ 21082.2(a), 21100, 21151(a); *Pocket Protectors*, 124 Cal.App.4th at 927; *League for Protection of Oakland's etc. Historic Res. v. City of Oakland* (1997) 52 Cal.App.4th 896, 904–05.)

Under the "fair argument" standard, an EIR is required if any substantial evidence in the record indicates that a project may have an adverse environmental effect—even if contrary evidence exists to support the agency's decision. (14 CCR § 15064(f)(1); *Pocket Protectors,* 124 Cal.App.4th at 931; *Stanislaus Audubon Society v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-51; *Quail Botanical Gardens Found., Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602.) The "fair argument" standard creates a "low threshold" favoring environmental review through an EIR rather than through issuance of negative declarations or notices of exemption from CEQA. (*Pocket Protectors*, 124 Cal.App.4th at 928.)

The "fair argument" standard is virtually the opposite of the typical deferential standard accorded to agencies. As a leading CEQA treatise explains:

> This 'fair argument' standard is very different from the standard normally followed by public agencies in their decision making. Ordinarily, public agencies weigh the evidence in the record and reach a decision based on a preponderance of the evidence. [Citation]. The fair argument standard, by contrast, prevents the lead agency from weighing competing evidence to determine who has a better

> argument concerning the likelihood or extent of a potential environmental impact.

(Kostka & Zishcke, *Practice Under the CEQA*, §6.37 (2d ed. Cal. CEB 2021).) The Courts have explained that "it is a question of law, not fact, whether a fair argument exists, and the courts owe no deference to the lead agency's determination. Review is de novo, with *a preference for resolving doubts in favor of environmental review*." (*Pocket Protectors*, 124 Cal.App.4th at 928 (emphasis in original).)

CEQA requires that an environmental document include a description of the project's environmental setting or "baseline." (CEQA Guidelines § 15063(d)(2).) The CEQA "baseline" is the set of environmental conditions against which to compare a project's anticipated impacts. (*CBE v. SCAQMD*, 48 Cal.4th at 321.) CEQA Guidelines section 15125(a) states, in pertinent part, that a lead agency's environmental review under CEQA:

> …must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time [environmental analysis] is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant.

(*See Save Our Peninsula Committee v. County of Monterey* (2001) 87 Cal.App.4th 99, 124–25 ("*Save Our Peninsula*").) As the court of appeal has explained, "the impacts of the project must be measured against the 'real conditions on the ground,'" and not against hypothetical permitted levels. (*Id*. at 121–23.)

DISCUSSION

I. THERE IS SUBSTANTIAL EVIDENCE OF A FAIR ARGUMENT THAT THE PROJECT MAY HAVE SIGNIFICANT BIOLOGICAL RESOURCES IMPACTS REQUIRING AN EIR.

After review of the IS/MND, wildlife biologist Dr. Shawn Smallwood, Ph.D., concludes that the Project may have significant impacts on several special status species. An EIR is required to mitigate these impacts.

Dr. Smallwood's conclusions were informed by the site visit of his associate, wildlife biologist Noriko Smallwood in November 2023. Noriko Smallwood visited the site for 3.18 hours from 06:43 to 09:54 hours on November 23, 2023. (Ex. A, p. 1.) During the site visits, Noriko saw and photographed "California horned lark (Photo 4), California gull (Photo 5), red-tailed hawk (Photos 6-9), lesser goldfinch and house finch (Photos 10 and 11), Nuttall's woodpecker and northern flicker (Photos 12 and 13), western meadowlark (Photos 14-16), black phoebe and white-crowned sparrow (Photos 17 and 18), northern mockingbird and Cassin's kingbird (Photos 19 and 20), Anna's hummingbird and California towhee (Photos 21 and 22), Eurasian collared-dove and Canada goose (Photos 23 and 24), common raven (Photos 25-27), among the other species listed in Table 1. The site also supports pollinating insects (Photos 28 and 29) and many other types of biological organisms." (*Id.*, pp. 2-11 & Table 1.) She "detected 27 species of vertebrate wildlife at or adjacent to the project site, including 5 species with special status (Table 1)." (*Id.*, p. 2.)

Additionally, based on database reviews and site visits, Dr. Smallwood found that 134 special-status species of wildlife are known to occur near enough to the site to warrant analysis of occurrence potential (Ex. A, p. 17; *see also id.*, pp. 19-23 (Table 2).) Of these 134 species, 5 (4%) were recorded on or adjacent to the project site through Noriko Smallwood's survey, "and another 34 (25%) species have been documented within 1.5 miles of the site ('Very close'), another 24 (18%) within 1.5 and 4 miles ('Nearby'), and another 61 (46%) within 4 to 30 miles ('In region'). Nearly half (47%) of the species in Table 2 have been reportedly seen within 4 miles of the project site." (*Id.*)

Dr. Smallwood concludes that the project site "supports multiple special-status species of wildlife and carries the potential for supporting many more special-status species of wildlife based on proximity of recorded occurrences." (*Id.*, p. 17.) As a result, "[t]he site is far richer in special-status species than is characterized in the IS/MND." (*Id.*)

A. The IS/MND Fails to Adequately Document Baseline Conditions.

Dr. Smallwood reviewed the IS/MND and the General Biological Assessment it relies on ("GBA") and found the following issues related to the wildlife baseline that the IS/MND and GBA relied upon:

- The GBA relies on the reconnaissance survey performed by Hernandez Environmental Services on November 5, 2021. According to Dr. Smallwood, the survey provides "no methodological details," other than the fact that "[t]wo biologists from Hernandez Environmental Services walked transects separated by 50 feet" Dr. Smallwood notes that "[t]here is no report of what time the survey began, nor how long the survey lasted. No checklist is shared of habitat elements that the biologists might have used during their survey. No explanation is provided of whether or how animal behavior data or other evidence contributed to the biologist's assessment of the site for its importance to animal movement. It is therefore difficult to assess survey outcomes relative to survey effort and methods." (Ex. A, p. 15.)

- Hernandez Environmental Services reported detecting only two species of vertebrate wildlife on the project site, including rock pigeon and song sparrow. Dr. Smallwood explains that while "Noriko did not detect the song sparrows on site, … she did detect 26 species that Hernandez Environmental Services did not. Noriko detected 13.5 times the number of vertebrate wildlife species detected by Hernandez Environmental Services, and she did it at the same time of year and over only 3.18 hours of survey. In fact, within only the first minute of her survey, Noriko detected twice the number of species reportedly detected by Hernandez Environmental Services. Furthermore, Noriko reported that the site was very active with wildlife throughout her survey. She observed large flocks of house finch, western meadowlark, California horned lark, and American pipit, as well as four red-tailed hawks on site, one of which was on site for the entirety of her survey. There were also numerous common ravens on site throughout her survey. Based on Noriko's survey, the existing environmental setting of the project site is entirely different from the setting characterized by Hernandez Environmental Services." (Ex. A, pp. 15-16.)

- Dr. Smallwood states that "[t]he IS/MND … reports, 'no special-status wildlife species were observed onsite during the field investigation conducted on November 5, 2021.' However, whereas this report could be factual, it is misleading to the readers of the IS/MND. Reconnaissance surveys for wildlife are not designed to detect special-status species. Special-status species can be detected during such surveys, as Noriko demonstrated at the project site, but these surveys are not formulated to detect[] them, nor are there minimum standards to be met in these surveys to support absence determinations. For the latter purpose, protocol-level detection surveys have been formulated by species experts. Hernandez Environmental Services … did not perform any detection surveys. Based on Hernandez Environmental Services…, the IS/MND's characterization of the existing environmental setting is therefore incomplete and inaccurate." (Ex. A, p. 16 (citing IS/MND, p. 61).)

- Dr. Smallwood explains that "[o]nly 43 (32%) of the species in Table 2 are analyzed for occurrence potential in the IS/MND. Of these, the IS/MND concludes that all are 'not present,' which is another way of saying they are absent. Except for species whose habitat is compellingly absent from the site, absence determinations are inappropriate based on the evidence gathered by Hernandez Environmental Services []. Absence determinations are supportable only after species-specific protocol-level detection surveys have been completed to the standards of the protocols, and the species were nevertheless not detected. No such surveys have been completed. It is inappropriate to conclude that a species is absent simply by looking at a site, and it is especially inappropriate to do so for 43 species of wildlife. The findings of Hernandez Environmental Services are not supportable." (Ex. A, p. 17.)

- Additionally, Dr. Smallwood notes that "[o]f the special-status species that Hernandez Environmental Services … claim to be absent from the project site, two – Cooper's hawk and California horned lark – were found by Noriko either on site or immediately adjacent to the site. Occurrence records of another 11 supposedly absent special-status species have been reported within only 1.5 miles of the site, and another 9 have been reported within 1.5 and 4 miles of the project site, and another 17 have been reported within 4 and 30 miles of the project site. The findings of Hernandez Environmental Services are not credible." (Ex. A, p. 17.)

- Dr. Smallwood also points out that "Hernandez Environmental Services … concludes all special-status plant species are absent, except for smooth tarplant, which is reportedly present. However, the IS/MND reports that Hernandez Environmental Services … found no special-status plant species during its reconnaissance survey in 2021. The discovery of a CNDDB occurrence record of smooth tarplant on the project site from 2003 prompted a follow-up survey on 20 May 2023, when Hernandez Environmental Services (2023) found 300 individuals of smooth tarplant. … As an annual that blooms in spring and summer, the 5 November 2021 reconnaissance survey was the wrong time of year to survey for smooth tarplant, as the follow-up survey demonstrated with the finding of 300 individual plants. … However, not even the follow-up survey of 20 May 2023 met the minimum standards of the CDFW (2018) reconnaissance survey guidelines for plants. Hernandez Environmental Services (2023) did not perform multiple surveys in the blooming season, nor did it survey a reference site or summarize the qualifications of its survey personnel. … The minimum standards of the CDFW (2018) survey guidelines for plants have not been met. The IS/MND is incomplete and likely inaccurate." (Ex. A, pp. 17-18.)

- Lastly, Dr. Smallwood notes that "[t]he IS/MND … next asserts that 'removal of the onsite smooth tarplant during Project construction would not constitute as a significant direct or indirect impact through habitat modifications, on any species identified as a candidate, sensitive, or special status, and no mitigation would be required.' This assertion pretends that smooth tarplant is not a special-status species, and that its removal would qualify as take only if it is regarded as habitat to some other special-status species. But smooth tarplant is a special-status species. Destroying 300 individuals of a rare plant species would easily qualify as a significant impact." (Ex. A, p. 18 (citing IS/MND, p. 60.)

In conclusion, the IS/MND's insufficient baseline fails to adequately evaluate the significance of the impacts to special-status species of wildlife. As a result, Noriko Smallwood and Dr. Smallwood's expert observations are substantial evidence of a fair argument that wildlife impacts may occur as a result of the Project. Thus, the Project requires an EIR to properly mitigate wildlife impacts of the Project.

B. The Project will have a potentially significant impact on special-status species as a result of lost habitat and lost breeding capacity.

These are significant impacts that have not been analyzed in the IS/MND. While habitat loss results in the immediate numerical decline of birds and other animals, it also results in a permanent loss of productive capacity. (*Id.*) Dr. Smallwood found that Project-related habitat loss and lost breading capacity will have a potentially significant impact on special-status species.

Dr. Smallwood analyzed the lost breading capacity likely to result from the Project. He started by evaluating two studies that show bird nesting densities between 32.8 and 35.8 bird nests per acre, for an average of 34.3 bird nests per acre. (*Id.* (citing Young (1948) and Yahner (1982), respectively.) To acquire a total nest density closer to conditions of the Project site, Dr. Smallwood surveyed a fragmented 12.74-acre site surrounded on three sides by residential developments in Rancho Cordova 30 times from March through the first half of August. (*Id.*) According to Dr. Smallwood, the "[t]otal nest density of birds on this site was 2.12 nests per acre on the portion of the study area that was composed of annual grassland with a scattering of trees and after omitting all the nests that were in trees (leaving only ground nests)." (*Id.*) Additionally, "[o]n 4.29 acres of grassland in the San Jacinto Wildlife Area, Noriko tabulated 2.79 bird nests/acre last spring. Applying the mean total nest density between [Dr. Smallwood and Noriko's] two survey efforts to the 5.81 acres of the project site, [Dr. Smallwood] predict[s] the project site supports 14.3 bird nests/year." (Ex. A, p. 24.) As such, Dr. Smallwood concludes that "[t]he loss of 14.3 nest sites of birds would qualify as a significant project impact that has not been quantitatively addressed in the IS/MND." (*Id.*)

Based on an average of 2.9 fledglings per nest and an average bird generation time of 5 years, the Project would prevent the production of 47.5 birds per year. (*Id.*, pp. 24-25 (citing Young (1948) and Smallwood (2022), respectively).) Neither the IS/MND nor the GBA assess the lost breeding capacity of birds that would result from the Project. (*See* Ex. A, pp. 24-25.) The potential loss of 47.5 birds in California annually following construction of this Project easily qualifies as a significant and substantial impact to special-status species that has not been analyzed.

An EIR is required to fully analyze the Project's impact on lost breeding capacity, and to mitigate that impact.

C. The Project will have a potentially significant impact on wildlife movement.

Dr. Smallwood explains in his comments that why the Project will have a significant impact on wildlife movement:

> The project, due to its elimination of at least 5.81 acres of vegetation cover and due to its insertion of 5 new buildings into the aerospace used by birds, bats and butterflies[,] would cut wildlife off from one of the last remaining stopover and staging opportunities in the project area, forcing volant wildlife to travel even farther between remaining stopover sites. This impact would be significant, and as the project is currently proposed, it would be unmitigated.

(Ex. A, p. 25.)

Dr. Smallwood's expert comments are substantial evidence of a significant impact that has not been mitigated, requiring preparation of an EIR.

The IS/MND improperly dismisses the Project's potential to significantly impact wildlife movement by improperly focusing on wildlife corridors, reasoning that:

> Usually, mountain canyons or riparian corridors are used by wildlife as corridors. The project site is flat and surrounded by urban development. No wildlife movement corridors were found to be present on the project site. (IS/MND, Appendix B, p. 10.)

However, as Dr. Smallwood points out, "these conclusions lack supporting evidence," because Hernandez Environmental Services … reports no survey methodology designed to determine whether wildlife rely on the site for movement in the region," and "[t]here was no sampling regime and there was no program of observation to record wildlife movement patterns, nor to quantify them or to qualitatively assess them. Based on what is reported, Hernandez Environmental Services … did not record or measure wildlife movement in any way." (Ex. A, p. 25.) As such, Dr. Smallwood states that "[t]he conclusions of the [GBA] and the IS/MND regarding wildlife movement on the project site are speculative and conclusory." (*Id.*)

Additionally, the IS/MND's conclusions regarding effects on wildlife movement rely on a false CEQA standard. (*Id.*) As Dr. Smallwood states, "[t]he primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. In fact, a site such as the 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." (*Id.*; *see also* CEQA Guidelines, App. G, pp. 333-34 (stating that the CEQA significance threshold is whether, among other things, a project will "[i]nterfere substantially with the movement of any native resident or migratory fish or wildlife species….").) Impacts to wildlife movement may occur with or without the presence of a wildlife corridor.

Because the Project would interfere with wildlife movement in the region, an EIR needs to be prepared to address and mitigate the Project's impacts on wildlife movement in the region.

D. The Project's traffic will significantly impact special-status species.

Dr. Smallwood identifies the serious impacts that increased traffic has on wildlife. (Ex. A, pp. 25-29.) Analyzing the potential impact on wildlife due to vehicle collisions is especially important because "traffic impacts have taken devastating tolls on wildlife," across North America. (*Id.*, p. 26 (citing Forman et al. 2003).) In the United States alone, estimates for "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." (*Id.* (citing Loss et al. 2014).) As Dr. Smallwood explains:

> 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).

(Ex. A, pp. 25-26.) Furthermore, a recent study conducted on traffic-caused wildlife mortality found "1,275 carcasses of 49 species of mammals, birds, amphibians and reptiles over 15 months of searches" "along a 2.5 mile stretch of Vasco Road in Contra Costa County, California." (*Id.*, p. 26 (citing Mendelsohn et al. 2009).)

Dr. Smallwood conducted an analysis to determine how the increased traffic generated by the Project would impacts to local wildlife and special-status species. (*Id.*)

Dr. Smallwood's estimated that the Project will result in 1,670,490 annual VMT, which would cause "915 vertebrate wildlife fatalities per year," which "would cause substantial, significant impacts to wildlife." (Ex. A, pp. 27-28.) Therefore, he concludes that "[a] fair argument can be made for the need to prepare an EIR to appropriately analyze the potential impacts of project-generated automobile traffic on wildlife." (*Id.*, p. 28.)

Additionally, Dr. Smallwood notes that "[m]itigation measures to improve wildlife safety along roads are available and are feasible," and therefore, "need exploration for their suitability with the proposed project." (*Id.*) Specifically, Dr. Smallwood suggests compensatory mitigation in the form of "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," and "donations to wildlife rehabilitation facilities." (*Id.*, p. 30.)

The IS/MND fails to recognize at all this potential significant impact of the Project. Because Dr. Smallwood's comments constitute substantial evidence of a fair argument that the Project may have a significant impact on wildlife in the vicinity, an EIR must be prepared to assess this impact and identify appropriate mitigation.

E. The Project will have a potentially significant cumulative impacts on wildlife.

The IS/MND fails to adequately analyze the cumulative impacts to wildlife from the Project by improperly implying that cumulative impacts are in reality only residual impacts as a result of incomplete mitigation from project-level impacts. (Ex. A, pp. 28-29.) For example, the Dr. Smallwood notes that "[t]he IS/MND asserts that '... potential Project-related impacts are either less than significant or would be less than significant with mitigation incorporated.' And, 'Given that the potential Project-related impacts would be mitigated to a less than significant level, implementation of the proposed Project would not result in impacts that are cumulatively considerable when evaluated with the impacts of other current projects, or the effects of probable future projects.'" (*Id.*, p. 28.) However, the IS/MND's implied standard is not the standard of cumulative effects required under CEQA. (*Id.*) CEQA defines cumulative impacts, and it outlines two general approaches for performing the required cumulative analysis. (*See* 14 CCR § 15130; PRC § 21083(b)(2).)

Here, the IS/MND's cumulative "analysis" is based on flawed logic. The conclusion that the Project will have no cumulative impact because each individual impact has been reduced to a less-than-significant level relies on the exact argument CEQA's cumulative impact analysis is meant to protect against. The entire purpose of the cumulative impact analysis is to prevent the situation where mitigation occurs to address project-specific impacts, without looking at the bigger picture. This argument, applied over and over again, has resulted in major environmental damage, and is a major reason why CEQA was enacted. As the Court stated in *CBE v. CRA*:

> Cumulative impact analysis is necessary because the full environmental impact of a proposed project cannot be gauged in a vacuum. One of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact.

(*CBE v. CRA*, 103 Cal.App.4th at 114 (citations omitted).) As such, the IS/MND misrepresented the standard and failed to perform an appropriate analysis.

Dr. Smallwood's comments include at Table 3 an example of how a cumulative analysis can begin. According to Dr. Smallwood:

> Table 3 includes a recently proposed project in [the] City of San Bernardino – the Amazing 34 project, which I predicted would result in 500 wildlife-vehicle collision fatalities annually. Several other currently proposed similar projects are listed, as well. The City's web site includes 28 industrial/commercial projects in the planning phase, all of which should contribute to an expanded version of Table 3. But even considering only the four projects in Table 3, 15,519 annual wildlife fatalities are predictable based on the volumes of traffic that would be generated by these projects. This is an example of cumulative impacts to wildlife that has not been addressed in the IS/MND.

(Ex. A, pp. 28-29 & Table 3.) Therefore, Dr. Smallwood concludes:

> At least a fair argument can be made for the need to prepare a new EIR to appropriately analyze potential project contributions to cumulative impacts to wildlife in the City. To do this, ongoing development in the City needs to be examined for its contributions to habitat fragmentation and how this fragmentation is affecting wildlife movement in the region. It also needs to examine City-wide annual VMT and to what degree this VMT is contributing to wildlife-vehicle collision mortality.

(*Id.*, p. 29.) Thus, an EIR must be prepared to include an adequate, serious analysis of the Project's cumulative impacts on wildlife.

F. The pre-construction survey mitigation measures are not sufficient to address potential impacts to birds that may be present at the site.

Dr. Smallwood has reviewed the proposed wildlife impact mitigation identified in the IS/MND related to pre-construction surveys for nesting birds and nesting bird buffers (i.e. **Mitigation Measures BIO-1** and **BIO-2**). (*See* Ex. A, pp. 29-30.) He concludes the mitigation is not sufficient to reduce impacts to a less-than-significant level.

Although Dr. Smallwood agrees with the need for pre-construction surveys and buffers for birds at the Project site, he states:

> Whereas I concur that preconstruction, take-avoidance surveys should be completed, in my experience, the majority of bird nests would not be found by biologists assigned to the survey. For instance, I surveyed for grassland nesters, including as part of an intensive survey effort that I performed from March through mid-August 2023 on another Central Valley site. I surveyed the site 30 times. I found that the nests of grassland birds are the most difficult to locate. Cavity nesters can more effectively defend their nests against predators, whereas ground nesters are highly vulnerable to predation, and thus the most cryptic of nesters. Ground nesters, which include bird species that occur at the project site, are highly adept at concealing their nests both physically and behaviorally. Based on my experience, it is highly likely that preconstruction survey would fail to find any of the nests of ground-nesting birds that truly occur on the project site. The IS/MND's implication that preconstruction survey would reduce potential impacts to nesting birds to less-than-significant is unsubstantiated by evidence in the IS/MND. It would help to cite examples of the success of this measure applied elsewhere. (*Id.*, p. 29.)
>
> This mitigation language allows a single individual to make a subjective decision, outside the public's view, to determine the buffer area for any given species. This measure lacks objective criteria, and is unenforceable. (*Id.*, pp. 29-30.)

In addition to pre-construction surveys, Dr. Smallwood recommends several other mitigation measures to help reduce impacts to biological resources on the project site. (*See id.*, p. 30.) In addition to the need for additional mitigation measures, an EIR should be prepared detailing how the results of preconstruction surveys will be reported.

CONCLUSION

For the foregoing reasons, the IS/MND for the Project should be withdrawn, an EIR should be prepared, and the draft EIR should be circulated for public review and comment in accordance with CEQA. Thank you for considering these comments.

Sincerely,

Victoria Yundt
LOZEAU | DRURY LLP

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City of San Bernadino
Planning Department
290 N D St.
San Bernardino, CA 92401 6 December 2023

RE: Hardt and Brier Business Park Project

To Whom It May Concern,

I write to comment on potential impacts to biological resources that could result from the proposed Hardt and Brier Business Park Project, which I understand would add 81,210 square feet of floor space in five new speculative commercial buildings up to 40 feet tall on 5.81 acres located adjacent to Hardt Street and East Brier Drive. I comment on the analyses of impacts to biological resources in the IS/MND and in Hernandez Environmental Services (2023).

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 also 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, wildlife interactions with the anthrosphere, and conservation of rare and endangered species. I authored many papers on these and other topics. I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and Raptor Research Foundation, and I've lectured part-time 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-seven years. My CV is attached.

SITE VISIT

On my behalf, Noriko Smallwood, a wildlife biologist with a Master's Degree from California State University Los Angeles, visited the site of the proposed project for 3.18 hours from 06:43 to 09:54 hours on 23 November 2023. She walked the site's perimeter, stopping to scan for wildlife with use of binoculars. Noriko recorded all species of vertebrate wildlife she detected, including those whose members flew over the site or were seen nearby, off the site. Animals of uncertain species identity were either omitted or, if possible, recorded to the Genus or higher taxonomic level.

Conditions were mostly cloudy with 3 mph southeast wind and temperatures of 54-64° F. The site has been previously disturbed, and at the time of the survey was covered by annual grass and scattered shrubs, some of which have been recently driven over and smashed (Photos 1–3).

Photos 1–3. *Views of the project site, 23 November 2023. Photos by Noriko Smallwood.*

Noriko detected 27 species of vertebrate wildlife at or adjacent to the project site, including 5 species with special status (Table 1). Noriko saw California horned lark (Photo 4), California gull (Photo 5), red-tailed hawk (Photos 6-9), lesser goldfinch and house finch (Photos 10 and 11), Nuttall's woodpecker and northern flicker (Photos 12 and 13), western meadowlark (Photos 14-16), black phoebe and white-crowned sparrow (Photos 17 and 18), northern mockingbird and Cassin's kingbird (Photos 19 and 20), Anna's hummingbird and California towhee (Photos 21 and 22), Eurasian collared-dove and Canada goose (Photos 23 and 24), common raven (Photos 25-27), among the other species listed in Table 1. The site also supports pollinating insects (Photos 28 and 29) and many other types of biological organisms.

Noriko Smallwood certifies that the foregoing and following survey results are true and accurately reported.

Noriko Smallwood

Table 1. *Species of wildlife Noriko observed during 3.18 hours of survey on 23 November 2023.*

Common name	***Species name***	**Status[1]**	**Notes**
Canada goose	*Branta canadensis*		Flew over
Rock pigeon	*Columba livia*	Non-native	Flew over
Eurasian collared-dove	*Streptopelia decaocto*	Non-native	Flew over
Mourning dove	*Zenaida macroura*		Flew over
Anna's hummingbird	*Calypte anna*		Nectared, socialized
California gull	*Larus californicus*	BCC, TWL	Many flew over
Cooper's hawk	*Accipiter cooperii*	TWL, BOP	Hunted just off site
Red-tailed hawk	*Buteo jamaicensis*	BOP	Hunted, perched, socialized
Nuttall's woodpecker	*Picoides nuttallii*	BCC	In riparian area just off site
Northern flicker	*Colaptes auratus*		
Cassin's kingbird	*Tyrannus vociferans*		
Black phoebe	*Sayornis nigricans*		
Common raven	*Corvus corax*		Many, stored nuts, socialized
California horned lark	*Eremophila alpestris actia*	TWL	Many, foraged
Bushtit	*Psaltriparus minimus*		Foraged
Bewick's wren	*Thryomanes bewickii*		Just off site
Northern mockingbird	*Mimus polyglottos*		
European starling	*Sturnus vulgaris*	Non-native	
House sparrow	*Passer domesticus*	Non-native	
American pipit	*Anthus rubescens*		Foraged
House finch	*Haemorphous mexicanus*		Many, foraged
Lesser goldfinch	*Spinus psaltria*		Foraged
White-crowned sparrow	*Zonotrichia leucophrys*		Foraged
California towhee	*Melozone crissalis*		Foraged just off site
Western meadowlark	*Sturnella neglecta*		Many, foraged
Yellow-rumped warbler	*Setophaga coronata*		
Botta's pocket gopher			Burrows

[1] Listed as BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, TWL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (California Fish and Game Code 3503.5).

Photo 4. *California horned lark on the project site, 23 November 2023. Photo by Noriko Smallwood.*

Photo 5. *California gulls flying over the project site, 23 November 2023. Photo by Noriko Smallwood.*

Photos 6 and 7. *Red-tailed hawk comfy-footing (left), and hunting (right) on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 8 and 9. *Red-tailed hawks being harassed by common ravens on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 10 and 11. *Lesser goldfinch (left), and house finch (right) foraging on shrubs on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 12 and 13. *Nuttall's woodpecker (left) and northern flicker (right) just off of the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 14, 15, and 16. *Western meadowlarks flying over the project site (top), stretching (bottom left), and foraging (bottom right) on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 17 and 18. *Black phoebe (left), and white-crowned sparrow (right) on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 19 and 20. *Northern mockingbird (left), and Cassin's kingbird (right) on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 21 and 22. *Anna's hummingbird (left), and California towhee (right) just off of the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photos 23 and 24. *Eurasian collared-dove (left), and Canada goose (right) flying over the project site, 23 November 2023. Photos by Noriko Smallwood.*

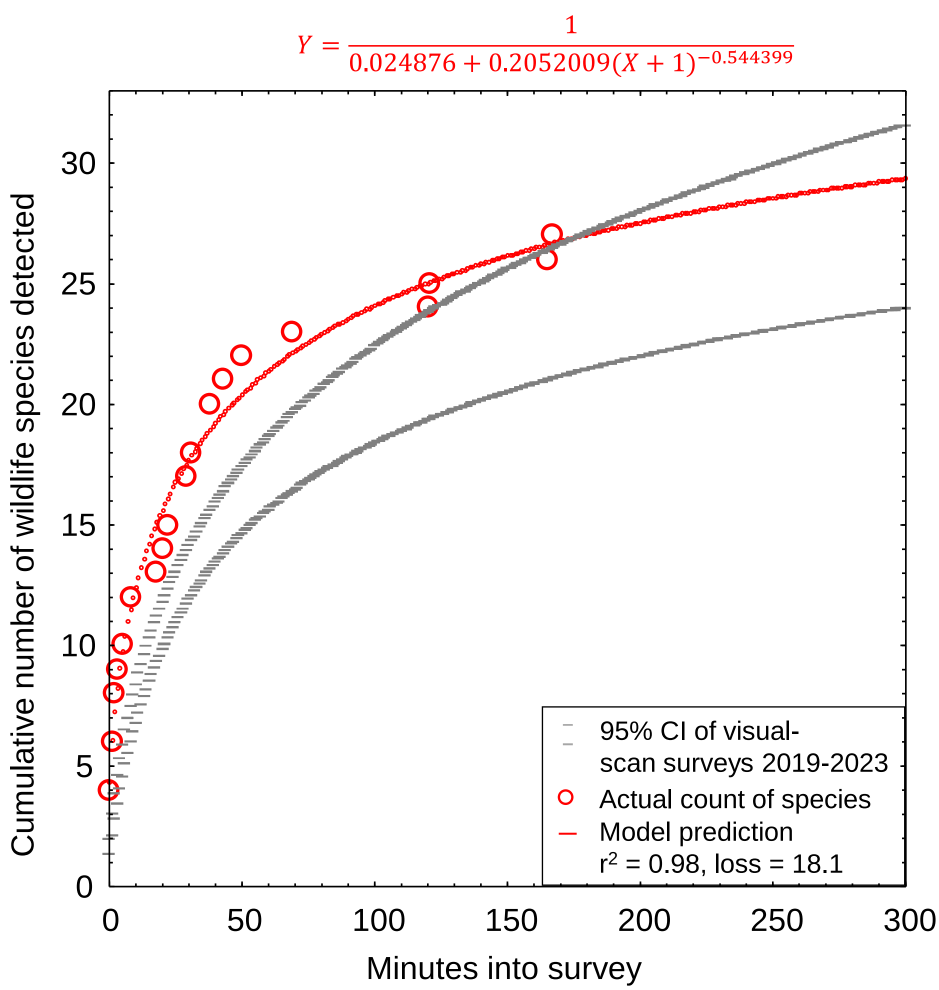
Photos 25, 26, and 27. *Common ravens on the project site, 23 November 2023. Photos by Noriko Smallwood.*

Photo 28. *Common sunflower on the project site, 23 November 2023. Photo by Noriko Smallwood.*

Photo 29. *Honeybees collecting pollen from sacred datura on the project site, 23 November 2023. Photo by Noriko Smallwood.*

I fit a nonlinear regression model to Noriko's cumulative number of vertebrate species detected with time into her survey to predict the number of species that she would have detected with a longer survey or perhaps with additional biologists available to assist her. The model is a logistic growth model which reaches ab asymptote that corresponds with the maximum number of vertebrate wildlife species that could have been detected during the survey. In this case, the model predicts 40 species of vertebrate wildlife were available to be detected on the morning of the 23rd, which left 13 species undetected during her survey (Figure 1). Unfortunately, I do not know the identities of those 13 species Noriko missed, but the pattern in her data indicates relatively high use of the project site compared to 53 surveys at other sites she and I have completed in the region. Compared to models fit to data I collected from 53 other site in the region between 2019 and 2023, the data from the New Hardt project site mostly exceeded the upper bound of the 95% confidence interval of the rate of accumulated species detections with time into the survey (Figure 1). Importantly, however, the species Noriko did and did not detect on November 23 composed only a fraction of the species that would occur at the project site over the period of a year or longer. This is because many species are seasonal in their occurrence.

Figure 1. *Actual and predicted relationships between the number of vertebrate wildlife species detected and the elapsed survey time based on Noriko's visual-scan survey on 23 November 2023. Note that the relationship would differ if the survey was based on another method or during another season.*



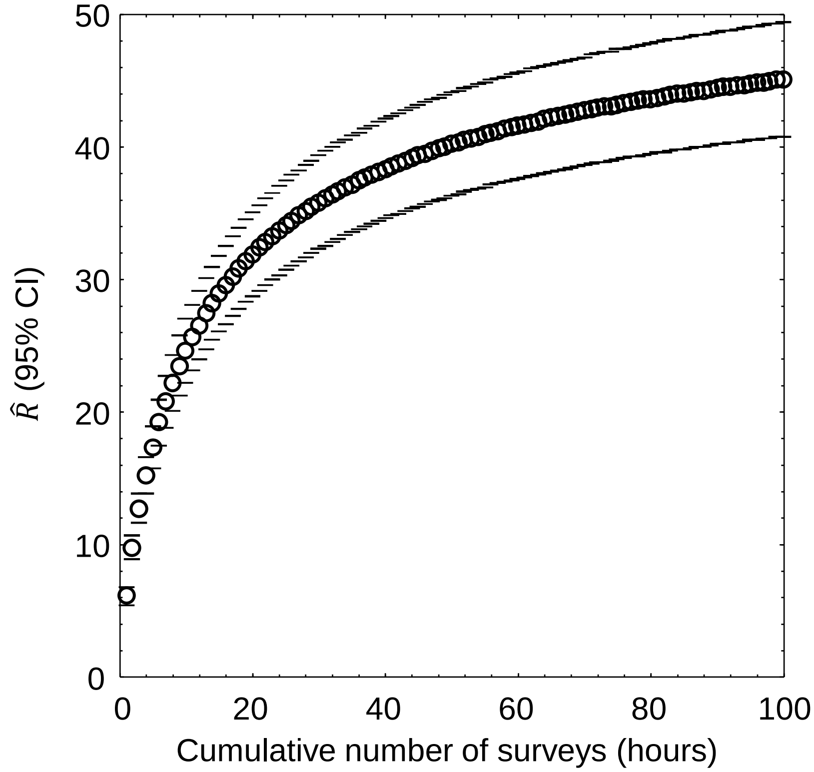
At least a year's worth of surveys would be needed to more accurately report the number of vertebrate species that occur at the project site, but I only have Noriko's one survey. However, by use of an analytical bridge, a modeling effort applied to a large, robust data set from a research site can predict the number of vertebrate wildlife species that likely make use of the site over the longer term. As part of my research, I completed a much larger survey effort across 167 km^2 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 and other consulting biologists 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 the number of cumulative species detected regressed on hours of survey (number of surveys) at the station: $\hat{R} = \frac{1}{1/a + b \times (Hours)^c}$, where $\hat{R}$ represented cumulative species richness detected. The coefficients of determination, r^2, of the models ranged 0.88 to 1.00, with a mean of 0.97 (95% CI: 0.96, 0.98); or in other words, the models were excellent fits to the data.

I projected the predictions of each model to thousands of hours to find predicted asymptotes of wildlife species richness. The mean model-predicted asymptote of species richness was 57 after 11,857 hours of visual-scan surveys among the 46 stations of my research site. 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 would have detected 13.2 species over my first 3.18 hours of surveys at my research site in the Altamont Pass (3.18 hours to match the 3.18 hours Noriko surveyed at the project site), which composed 23.15% of the predicted total number of species I would detect with a much larger survey effort at the research site. Given the example illustrated in Figure 2, the 27 species Noriko detected after her 3.18 hours of survey at the project site likely represented 23.15% 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, Noriko would likely detect $27/_{0.2315} = 117$ species of vertebrate wildlife at the site. Assuming Noriko's ratio of special-status to non-special-status species was to hold through the detections of all 117 predicted species, then continued surveys would eventually detect 22 special-status species of vertebrate wildlife.

Because my prediction of 117 species of vertebrate wildlife, including 22 special-status species of vertebrate wildlife, is derived from daytime visual-scan surveys, and would detect few nocturnal mammals such as bats, the true number of species composing the wildlife community of the site must be larger. Noriko's reconnaissance survey should serve only as a starting point toward characterization of the site's wildlife community, but it certainly cannot alone inform of the inventory of species that use the site. More surveys are needed than her one survey to inventory use of the project site by wildlife.

Nevertheless, the large number of species I predict at the project site is indicative of a relatively species-rich wildlife community that warrants a serious survey effort.

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. Note that the location of the study is largely irrelevant to the utility of the graph to the interpretation of survey outcomes at the project site. It is the pattern in the data that is relevant, because the pattern is typical of the pattern seen elsewhere.*



EXISTING ENVIRNMENTAL SETTING

The first step in analysis of potential project impacts to biological resources is to accurately characterize the existing environmental setting, including the biological species that use the site, their relative abundances, how they use the site, key ecological relationships, and known and ongoing threats to those species with special status. A reasonably accurate characterization of the environmental setting can provide the basis for determining whether the site holds habitat value to wildlife, as well as a baseline against which to analyze potential project impacts. For these reasons, characterization of the environmental setting, including the project site's regional setting, is one of CEQA's essential analytical steps. Methods to achieve this first step typically include (1) surveys of the site for biological resources, and (2) reviews of literature, databases and local experts for documented occurrences of special-status species. In the case of the proposed project, these needed steps have been inadequate.

Environmental Setting informed by Field Surveys

To CEQA's primary objective to disclose potential environmental impacts of a proposed project, the analysis should be informed of which biological species are known to occur at the proposed project site, which special-status species are likely to occur, as well as the limitations of the survey effort directed to the site. Analysts need this information to characterize the environmental setting as a basis for opining on, or predicting, potential project impacts to biological resources.

Hernandez Environmental Services (2023) performed a reconnaissance survey of the project site on 5 November 2021 "to document the existing habitat conditions, obtain plant and animal species information, view the surrounding uses, assess the potential for state and federal waters, assess the potential for wildlife movement corridors, and assess for the presence of critical habitat constituent elements." Performing a survey with six objectives must have been a challenge. Surveys for biological resources should include no more than two objectives.

Hernandez Environmental Services' first reported objective is habitat assessment. The most effective methodology for habitat assessment is a survey of sufficient effort to determine whether each potentially occurring species truly occurs at the project site. The presence of a species confirms the existence of habitat of the species. This most effective methodology, if implemented, would simultaneously achieve the first two of the reported survey objectives. The weakness of this approach is that undetected species might truly occur on the site, either because the survey failed to detect the species that was truly present or the habitat was unoccupied at the time of the survey. Each detection of a species provides certainty of the presence of the species' habitat whereas lack of detection provides uncertainty unless a compelling argument can be made for true absence. Given this uncertainty associated with all of the species that were not detected by Hernandez Environmental Services' reconnaissance survey, Hernandez Environmental Services' stated objective of determining presence/absence could not be achieved.

Two biologists from Hernandez Environmental Services walked transects separated by 50 feet, but otherwise no methodological details are reported. There is no report of what time the survey began, nor how long the survey lasted. No checklist is shared of habitat elements that the biologists might have used during their survey. No explanation is provided of whether or how animal behavior data or other evidence contributed to the biologist's assessment of the site for its importance to animal movement. It is therefore difficult to assess survey outcomes relative to survey effort and methods.

Hernandez Environmental Services (2023) reportedly detected only two species of vertebrate wildlife on the project site. These species included rock pigeon and song sparrow. During her survey on my behalf, Noriko did not detect the song sparrows on site, but she did detect 26 species that Hernandez Environmental Services did not. Noriko detected 13.5 times the number of vertebrate wildlife species detected by Hernandez Environmental Services, and she did it at the same time of year and over only 3.18 hours of survey. In fact, within only the first minute of her survey, Noriko detected twice the number of species reportedly detected by Hernandez Environmental Services. Furthermore, Noriko reported that the site was very active with wildlife throughout her survey. She observed large flocks of house finch, western meadowlark, California horned lark, and American pipit, as well as four red-tailed hawks on site, one of which was on site for the entirely of her survey. There were also numerous common ravens on site throughout her survey. Based on Noriko's survey, the existing environmental setting of the project site is entirely different from the setting characterized by Hernandez Environmental Services (2023).

Considering all of the above differences between what Hernandez Environmental Services found and what Noriko found, Hernandez Environmental Services must have been distracted by other survey objectives, or lacked the skill needed to perform the survey. The findings of Hernandez Environmental Services are not credible.

The IS/MND (page 61) reports, "no special-status wildlife species were observed onsite during the field investigation conducted on November 5, 2021." However, whereas this report could be factual, it is misleading to the readers of the IS/MND. Reconnaissance surveys for wildlife are not designed to detect special-status species. Special-status species can be detected during such surveys, as Noriko demonstrated at the project site, but these surveys are not formulated to detected them, nor are there minimum standards to be met in these surveys to support absence determinations. For the latter purpose, protocol-level detection surveys have been formulated by species experts. Hernandez Environmental Services (2023) did not perform any detection surveys. Based on Hernandez Environmental Services (2023), the IS/MND's characterization of the existing environmental setting is therefore incomplete and inaccurate.

Environmental Setting informed by Desktop Review

The purpose of literature and database review and of consulting with local experts is to inform the field survey, and to augment interpretation of its outcome. Analysts need this information to identify which species are known to have occurred at or near the project site, and to identify which other special-status species could conceivably occur at the site due to geographic range overlap and migration flight paths.

Hernandez Environmental Services (2023) did not review eBird (https://eBird.org) or iNaturalist (https://www.inaturalist.org) for documented occurrence records at or near the project site. Instead, Hernandez Environmental Services (2023) queried the California Natural Diversity Data Base (CNDDB) for documented occurrences of special-status species within the nearest CNDDB quadrangles. By doing so, Hernandez Environmental Services (2023) and the IS/MND screen out many special-status species from further consideration in the characterization of the wildlife community as part of the existing environmental setting. CNDDB is not designed to support absence determinations or to screen out species from characterization of a site's wildlife community. As noted by CNDDB, "*The CNDDB is a positive sighting database. It does not predict where something may be found. We map occurrences only where we have documentation that the species was found at the site. There are many areas of the state where no surveys have been conducted and therefore there is nothing on the map. That does not mean that there are no special status species present*." Hernandez Environmental Services (2023) and the IS/MND misuse CNDDB.

CNDDB relies entirely on volunteer reporting from biologists who were allowed access to whatever properties they report from. Many properties have never been surveyed by biologists. Many properties have been surveyed, but the survey outcomes never reported to CNDDB. Many properties have been surveyed multiple times, but not all survey outcomes reported to CNDDB. Furthermore, CNDDB is interested only in the findings of special-status species, which means that species more recently assigned special status will have been reported many fewer times to CNDDB than were species assigned special status since the inception of CNDDB. The lack of many CNDDB records for species recently assigned special status had nothing to do with whether the species' geographic ranges overlapped the project site, but rather more to do with the brief time for records to have accumulated since the species were assigned special status. And because negative findings are not reported to CNDDB, CNDDB cannot provide the basis for estimating occurrence likelihoods, either.

In my assessment based on database reviews and site visits, 134 special-status species of wildlife are known to occur near enough to the site to warrant analysis of occurrence potential (Table 2). Of these 134 species, 5 (4%) were recorded on or adjacent to the project site, and another 34 (25%) species have been documented within 1.5 miles of the site ('Very close'), another 24 (18%) within 1.5 and 4 miles ('Nearby'), and another 61 (46%) within 4 to 30 miles ('In region'). Nearly half (47%) of the species in Table 2 have been reportedly seen within 4 miles of the project site. The site therefore supports multiple special-status species of wildlife and carries the potential for supporting many more special-status species of wildlife based on proximity of recorded occurrences. The site is far richer in special-status species than is characterized in the IS/MND.

Only 43 (32%) of the species in Table 2 are analyzed for occurrence potential in the IS/MND. Of these, the IS/MND concludes that all are "not present," which is another way of saying they are absent. Except for species whose habitat is compellingly absent from the site, absence determinations are inappropriate based on the evidence gathered by Hernandez Environmental Services (2023). Absence determinations are supportable only after species-specific protocol-level detection surveys have been completed to the standards of the protocols, and the species were nevertheless not detected. No such surveys have been completed. It is inappropriate to conclude that a species is absent simply by looking at a site, and it is especially inappropriate to do so for 43 species of wildlife. The findings of Hernandez Environmental Services are not supportable.

Of the special-status species that Hernandez Environmental Services (2023) claim to be absent from the project site, two – Cooper's hawk and California horned lark – were found by Noriko either on site or immediately adjacent to the site. Occurrence records of another 11 supposedly absent special-status species have been reported within only 1.5 miles of the site, and another 9 have been reported within 1.5 and 4 miles of the project site, and another 17 have been reported within 4 and 30 miles of the project site. The findings of Hernandez Environmental Services are not credible.

Consistent with the pattern of absence determinations applied to wildlife, Hernandez Environmental Services (2023) concludes all special-status plant species are absent, except for smooth tarplant, which is reportedly present. However, the IS/MND reports that Hernandez Environmental Services (2023) had found no special-status plant species during its reconnaissance survey in 2021. The discovery of a CNDDB occurrence record of smooth tarplant on the project site from 2003 prompted a follow-up survey on

20 May 2023, when Hernandez Environmental Services (2023) found 300 individuals of smooth tarplant. The CNDDB record must have been the reason for the follow-up survey and the update of Hernandez Environmental Services's report from 2001 to 2003. As an annual that blooms in spring and summer, the 5 November 2021 reconnaissance survey was the wrong time of year to survey for smooth tarplant, as the follow-up survey demonstrated with the finding of 300 individual plants. Surveying at the right time of year can obviously make a large difference in survey outcome.

However, not even the follow-up survey of 20 May 2023 met the minimum standards of the CDFW (2018) reconnaissance survey guidelines for plants. Hernandez Environmental Services (2023) did not perform multiple surveys in the blooming season, nor did it survey a reference site or summarize the qualifications of its survey personnel. Just as the 2021 survey failed to detect smooth tarplant, the 2023 survey was ill-suited for detecting multiple the other potentially-occurring special-status species of plants on the project site. The minimum standards of the CDFW (2018) survey guidelines for plants have not been met. The IS/MND is incomplete and likely inaccurate.

The analysis in the IS/MND includes additional flaws on the issue of special-status species of plants. According to the IS/MND (page 60), "Smooth tarplant is ranked as a 1.B1 CNPS species and is not state or federally listed as Threatened or Endangered or listed under Section 670.2, Title 14, of the California Code of Regulations and is thereby not declared to be endangered, threatened (as defined by section 2067 of the Fish and Game Code) or rare (as defined by section 1901 of the Fish and Game Code)." Smooth tarplant is indeed ranked 1.B1, but the last phrase of the statement in the IS/MND is in error. CDDB defines "The plants of Rank 1B" as "rare throughout their range with the majority of them endemic to California." It defines the subscript, ".1" as "Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)." The CNDDB ranking of smooth tarplant as 1B.1 meets the CEQA definition of a special-status species, as the ranking identifies the species as rare, which is one of the three key terms in CEQA that qualifies a species as a special-status species.

The IS/MND (page 60) next asserts that "removal of the onsite smooth tarplant during Project construction would not constitute as a significant direct or indirect impact through habitat modifications, on any species identified as a candidate, sensitive, or special status, and no mitigation would be required." This assertion pretends that smooth tarplant is not a special-status species, and that its removal would qualify as take only if it is regarded as habitat to some other special-status species. But smooth tarplant is a special-status species. Destroying 300 individuals of a rare plant species would easily qualify as a significant impact.

Considering the inaccuracies of the IS/MND's characterization of the existing environmental setting, a fair argument can be made for the need to prepare an EIR to appropriately characterize the existing environmental setting. The IS/MND's impact analysis directed to smooth tarplant demonstrates the need for an accurate characterization of the existing environmental setting. The City needs to understand the nature of the biological assets that exist on the project site.

Table 2. *Occurrence likelihoods of special-status bird species at or near the proposed project site, according to eBird/iNaturalist records (https://eBird.org, https://www.inaturalist.org) and on-site survey findings, where 'Very close' indicates within 1.5 miles of the site, "nearby" indicates within 1.5 and 4 miles, and "in region" indicates within 4 and 30 miles, and 'in range' means the species' geographic range overlaps the site. Entries in bold font indicate those species detected by Noriko Smallwood during her reconnaissance survey.*

Common name	***Species name***	**Status**[1]	**IS/NMD occurrence potentials**	**Data base records, Site visits**
Delhi sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	FE	Not present	In region
Monarch	*Danaus plexippus*	FC		Nearby
Quino checkerspot butterfly	*Euphydryas editha quino*	FE	Not present	In range
Crotch's bumble bee	*Bombus crotchii*	CCE	Not present	Nearby
Western spadefoot	*Spea hammondii*	SSC	Not present	Nearby
Arroyo toad	*Anaxyrus californicus*	FE, SSC		In region
Western pond turtle	*Emys marmorata*	SSC	Not present	In region
Blainville's horned lizard	*Phrynosoma blainvillii*	SSC	Not present	Nearby
Orange-throated whiptail	*Aspidoscelis hyperythra*	WL	Not present	Nearby
Coastal whiptail	*Aspidoscelis tigris stejnegeri*	SSC	Not present	Nearby
San Diegan legless lizard	*Anniella stebbinsi*	SSC	Not present	Very close
California glossy snake	*Arizona elegans occidentalis*	SSC	Not present	In region
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	SSC	Not present	In region
Two-striped gartersnake	*Thamnophis hammondii*	SSC	Not present	In region
South coast gartersnake	*Thamnophis sirtalis pop. 1*	SSC		In range
Red-diamond rattlesnake	*Crotalus ruber*	SSC	Not present	Nearby
Fulvous whistling-duck	*Dendrocygna bicolor*	SSC1		In region
Brant	*Branta bernicla*	SSC2		In region
Cackling goose (Aleutian)	*Branta hutchinsii leucopareia*	WL		Very close
Redhead	*Aythya americana*	SSC2		Very close
Western grebe	*Aechmophorus occidentalis*	BCC		Nearby
Clark's grebe	*Aechmophorus clarkii*	BCC		Nearby
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, CE, BCC	Not present	In region
Black swift	*Cypseloides niger*	SSC3, BCC		In region
Vaux's swift	*Chaetura vauxi*	SSC2, BCC		Very close

Common name	***Species name***	**Status[1]**	**IS/NMD occurrence potentials**	**Data base records, Site visits**
Costa's hummingbird	*Calypte costae*	BCC		Very close
Rufous hummingbird	*Selasphorus rufus*	BCC		Very close
Allen's hummingbird	*Selasphorus sasin*	BCC		Very close
American avocet[2]	*Recurvirostra americana*	BCC		Very close
Mountain plover	*Charadrius montanus*	SSC2, BCC		In region
Snowy plover	*Charadrius nivosus*	BCC		In region
Whimbrel[2]	*Numenius phaeopus*	BCC		In region
Long-billed curlew	*Numenius americanus*	WL		In region
Marbled godwit	*Limosa fedoa*	BCC		In region
Red knot (Pacific)	*Calidris canutus*	BCC		In region
Short-billed dowitcher	*Limnodromus griseus*	BCC		In region
Willet	*Tringa semipalmata*	BCC		In region
Laughing gull	*Leucophaeus atricilla*	WL		In region
Heermann's gull	*Larus heermanni*	BCC		In region
Western gull	*Larus occidentalis*	BCC		In region
California gull	*Larus californicus*	BCC, WL		**On site**
California least tern	*Sternula antillarum browni*	FE, CE, FP		In region
Gull-billed tern	*Gelochelidon nilotica*	BCC, SSC3		In region
Black tern	*Chlidonias niger*	SSC2, BCC		In region
Elegant tern	*Thalasseus elegans*	BCC, WL		In region
Black skimmer	*Rynchops niger*	BCC, SSC3		In region
Common loon	*Gavia immer*	SSC		In region
Double-crested cormorant	*Phalacrocorax auritus*	WL		Very close
American white pelican	*Pelacanus erythrorhynchos*	SSC1, BCC		Very close
California brown pelican	*Pelecanus occidentalis californicus*	FP		In region
Least bittern	*Ixobrychus exilis*	SSC2		In region
White-faced ibis	*Plegadis chihi*	WL		Nearby
Turkey vulture	*Cathartes aura*	BOP		Very close
Osprey	*Pandion haliaetus*	WL, BOP		Very close
White-tailed kite	*Elanus luecurus*	CFP, BOP		Nearby

Common name	***Species name***	**Status[1]**	**IS/NMD occurrence potentials**	**Data base records, Site visits**
Golden eagle	*Aquila chrysaetos*	BGEPA, CFP, BOP, WL		Nearby
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP		Very close
Sharp-shinned hawk	*Accipiter striatus*	WL, BOP		Very close
Cooper's hawk	*Accipiter cooperii*	WL, BOP	Not present	**Just off site**
Bald eagle	*Haliaeetus leucocephalus*	CE, BGEPA	Not present	In region
Red-shouldered hawk	*Buteo lineatus*	BOP		Very close
Swainson's hawk	*Buteo swainsoni*	CT, BOP	Not present	Very close
Red-tailed hawk	*Buteo jamaicensis*	BOP		**On site**
Ferruginous hawk	*Buteo regalis*	WL, BOP	Not present	Very close
Zone-tailed hawk	*Buteo albonotatus*	BOP		In region
Harris' hawk	*Parabuteo unicinctus*	WL, BOP		In region
Rough-legged hawk	*Buteo lagopus*	BOP		In region
Barn owl	*Tyto alba*	BOP		Nearby
Western screech-owl	*Megascops kennicotti*	BOP		Nearby
Great horned owl	*Bubo virginianus*	BOP		Very close
Burrowing owl	*Athene cunicularia*	BCC, SSC2, BOP	Not present	Very close
Long-eared owl	*Asio otus*	BCC, SSC3, BOP		In region
Short-eared owl	*Asia flammeus*	BCC, SSC3, BOP		In region
Lewis's woodpecker	*Melanerpes lewis*	BCC		Nearby
Nuttall's woodpecker	*Picoides nuttallii*	BCC		**Just off site**
American kestrel	*Falco sparverius*	BOP		Very close
Merlin	*Falco columbarius*	WL, BOP	Not present	Very close
Peregrine falcon	*Falco peregrinus*	BOP		Very close
Prairie falcon	*Falco mexicanus*	WL, BOP		Very close
Olive-sided flycatcher	*Contopus cooperi*	BCC, SSC2		Very close
Willow flycatcher	*Empidonax trailii*	CE		Very close
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE, CE	Not present	In region
Vermilion flycatcher	*Pyrocephalus rubinus*	SSC2		Nearby
Least Bell's vireo	*Vireo bellii pusillus*	FE, CE	Not present	Very close

Common name	***Species name***	**Status[1]**	**IS/NMD occurrence potentials**	**Data base records, Site visits**
Loggerhead shrike	*Lanius ludovicianus*	SSC2	Not present	Very close
Oak titmouse	*Baeolophus inornatus*	BCC		Nearby
California horned lark	*Eremophila alpestris actia*	WL	Not present	**On site**
Bank swallow	*Riparia riparia*	CT		Nearby
Purple martin	*Progne subis*	SSC2		In region
Wrentit	*Chamaea fasciata*	BCC		Very close
California gnatcatcher	*Polioptila c. californica*	FT, SSC2	Not present	Nearby
California thrasher	*Toxostoma redivivum*	BCC		Very close
Cassin's finch	*Haemorhous cassinii*	BCC		In region
Lawrence's goldfinch	*Spinus lawrencei*	BCC	Not present	Very close
Grasshopper sparrow	*Ammodramus savannarum*	SSC2		In region
Black-chinned sparrow	*Spizella atrogularis*	BCC		Nearby
Gray-headed junco	*Junco hyemalis caniceps*	WL		Nearby
Bell's sparrow	*Amphispiza b. belli*	WL	Not present	Nearby
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	WL	Not present	Nearby
Yellow-breasted chat	*Icteria virens*	SSC3	Not present	Very close
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	SSC3		Nearby
Bullock's oriole	*Icterus bullockii*	BCC		Very close
Tricolored blackbird	*Agelaius tricolor*	CT, BCC, SSC1	Not present	Very close
Lucy's warbler	*Leiothlypis luciae*	SSC3, BCC		In region
Virginia's warbler	*Leiothlypis virginiae*	WL, BCC		In region
Yellow warbler	*Setophaga petechia*	SSC2	Not present	Very close
Summer tanager	*Piranga rubra*	SSC1		In region
Pallid bat	*Antrozous pallidus*	SSC, WBWG:H	Not present	In region
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC, WBWG:H		In region
Canyon bat	*Parastrellus hesperus*	WBWG:L		In region
Big brown bat	*Episticus fuscus*	WBWG:L		In region
Silver-haired bat	*Lasionycteris noctivagans*	WBWG:M		In region
Spotted bat	*Euderma maculatum*	SSC, WBWG:H		In range

Common name	***Species name***	**Status[1]**	**IS/NMD occurrence potentials**	**Data base records, Site visits**
Hoary bat	*Lasiurus cinereus*	WBWG:M		In region
Western yellow bat	*Lasiurus xanthinus*	SSC, WBWG:H	Not present	In region
Western small-footed myotis	*Myotis cililabrum*	WBWG:M		In range
Miller's myotis	*Myotis evotis*	WBWG:M		In region
Little brown myotis	*Myotis lucifugus*	WBWG:M		In range
Fringed myotis	*Myotis thysanodes*	WBWG:H		In range
Long-legged myotis	*Myotis volans*	WBWG:H		In range
Yuma myotis	*Myotis yumanensis*	WBWG:LM		In region
California myotis	*Myotis californicus*	WBWG:L		In region
Western mastiff bat	*Eumops perotis*	SSC, WBWG:H	Not present	In range
Mexican free-tailed bat	*Tadarida brasiliensis*	WBWG:L		In region
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	SSC	Not present	In region
Northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	SSC	Not present	In region
Pallid San Diego pocket mouse	*Chaetodipus fallax pallidus*	SSC	Not present	In range
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE, CCE, SSC	Not present	In region
Stephens' kangaroo rat	*Dipodomys stephensi*	FE, CT	Not present	In region
Los Angeles pocket mouse	*Perognathus longimembris brevinasus*	SSC	Not present	In region
San Diego desert woodrat	*Neotoma lepida intermedia*	SSC	Not present	In region
Ringtail	*Bassariscus astutus*	CFP		In region
Southern grasshopper mouse	*Onychomys torridus ramona*	SSC	Not present	In range
American badger	*Taxidea taxus*	SSC	Not present	In region

[1] Listed as FC, FT or FE = federal candidate, threatened or endangered, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, CCT, CCE, CT or CE = California Candidate threatened or endangered, or California threatened or endangered, CFP = California Fully Protected (California Fish and Game Code 3511), SSC = California Species of Special Concern, SSC1, SSC2 and SSC3 = Bird Species of Special Concern priorities 1, 2 and 3, respectively (Shuford and Gardali 2008), WL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (CFG Code 3503.5), and WBWG = Western Bat Working Group with priority rankings, of low (L), moderate (M), and high (H).

POTENTIAL BIOLOGICAL IMPACTS

An impacts analysis should consider whether and how a proposed project would affect members of a species, larger demographic units of the species, the whole of a species, and ecological communities. The accuracy of this analysis depends on an accurate characterization of the existing environmental setting. In the case of the proposed project, the existing environmental setting has not been accurately characterized, and several important types of potential project impacts have been inadequately analyzed. These types of impacts include habitat loss, interference with wildlife movement, and wildlife-automobile collision mortality.

HABITAT LOSS

Habitat loss results in a reduced productive capacity of affected wildlife species, but the General Biological Assessment makes no attempt to estimate this lost capacity for any of the wildlife species potentially affected. In the case of birds, two methods exist for estimating the loss of productive capacity that would be caused by the project. One method would involve surveys to count the number of bird nests and chicks produced. The alternative method would be to infer productive capacity from estimates of total nest density elsewhere.

Because the project is located within an area that has undergone severe habitat fragmentation, the habitat that remains in fragmented patches probably no longer supports its original productive capacity of wildlife (Smallwood 2015). However, several studies have estimated total avian nest density at locations that had likewise been highly fragmented. Two study sites in grassland/wetland/woodland complexes within agricultural matrices had total bird nesting densities of 32.8 and 35.8 nests per acre (Young 1948, Yahner 1982) for an average 34.3 nests per acre. To acquire a total nest density closer to conditions in California, I surveyed a 12.74-acre site in Rancho Cordova 30 times from March through the first half of August. The Rancho Cordova site was surrounded on three sides by residential developments, so was also a habitat fragment. Total nest density of birds on this site was 2.12 nests per acre on the portion of the study area that was composed of annual grassland with a scattering of trees and after omitting all the nests that were in trees (leaving only ground nests). On 4.29 acres of grassland in the San Jacinto Wildlife Area, Noriko tabulated 2.79 bird nests/acre last spring. Applying the mean total nest density between our two survey efforts to the 5.81 acres of the project site, I predict the project site supports 14.3 bird nests/year.

The loss of 14.3 nest sites of birds would qualify as a significant project impact that has not been quantitatively addressed in the IS/MND. But the impact would not end with the immediate loss of nest sites as nest substrate is removed and foraging grounds graded in preparation for impervious surfaces. The reproductive capacity of the site would be lost. The average number of fledglings per nest in Young's (1948) study was 2.9. Assuming Young's (1948) study site typifies bird productivity, the project would prevent the production of 41.5 fledglings per year. Assuming an average bird generation time of 5 years, the lost capacity of both breeders and annual fledgling production can be estimated from an equation in Smallwood (2022): {(nests/year × chicks/nest ×

number of years) + (2 adults/nest × nests/year) × (number of years ÷ years/generation)} ÷ (number of years) = 47.2 birds per year denied to California. At least 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.

INTERFERENCE WITH WILDLIFE MOVEMENT

One of CEQA's principal concerns regarding potential project impacts is whether a proposed project would interfere with wildlife movement in the region. Unfortunately, the IS/MND's analysis of whether the project would interfere with wildlife movement in the region is flawed and misleading. According to Hernandez Environmental Services (2023:10), "Usually, mountain canyons or riparian corridors are used by wildlife as corridors. The project site is flat and surrounded by urban development. No wildlife movement corridors were found to be present on the project site." However, these conclusions lack supporting evidence. Hernandez Environmental Services (2023) reports no survey methodology designed to determine whether wildlife rely on the site for movement in the region. There was no sampling regime and there was no program of observation to record wildlife movement patterns, nor to quantify them or to qualitatively assess them. Based on what is reported, Hernandez Environmental Services (2023) did not record or measure wildlife movement in any way. The conclusions of Hernandez Environmental Services (2023) and the IS/MND regarding wildlife movement on the project site are speculative and conclusory.

Furthermore, whether the site includes or is within a wildlife movement corridor is not the only consideration when it comes to the standard CEQA Checklist question of whether the project would interfere with wildlife movement in the region. The primary phrase of the CEQA standard goes to wildlife movement regardless of whether the movement is channeled by a corridor. In fact, a site such as the 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, due to its elimination of at least 5.81 acres of vegetation cover and due to its insertion of 5 new buildings into the aerospace used by birds, bats and butterflies. would cut wildlife off from one of the last remaining stopover and staging opportunities in the project area, forcing volant wildlife to travel even farther between remaining stopover sites. This impact would be significant, and as the project is currently proposed, it would be unmitigated.

TRAFFIC IMPACTS TO WILDLIFE

Project-generated traffic would endanger wildlife that must, for various reasons, cross roads used by the project's traffic to get to and from the project site (Photos 30–32), including along roads far from the project footprint. 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.

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

Photo 30. *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 31. *Mourning dove killed by vehicle on a California road. Photo by Noriko Smallwood, 21 June 2020.*

Photo 32 *Raccoon killed on Road 31 just east of Highway 505 in Solano County. Photo taken on 10 November 2018.*

For wildlife vulnerable to front-end collisions and crushing under tires, road mortality can be predicted from the study of Mendelsohn et al. (2009) as a basis, although it would be helpful to have the availability of more studies like that of Mendelsohn et al. (2009) at additional locations. My analysis of the Mendelsohn et al. (2009) data resulted in an estimated 3,900 animals killed per mile along a county road in Contra Costa County. Two percent of the estimated number of fatalities were birds, and the balance was composed of 34% mammals (many mice and pocket mice, but also ground squirrels, desert cottontails, striped skunks, American badgers, raccoons, and others), 52.3% amphibians (large numbers of California tiger salamanders and California red-legged frogs, but also Sierran treefrogs, western toads, arboreal salamanders, slender salamanders and others), and 11.7% reptiles (many western fence lizards, but also skinks, alligator lizards, and snakes of various species). VMT is useful for predicting wildlife mortality because I was able to quantify miles traveled along the studied reach of Vasco Road during the time period of the Mendelsohn et al. (2009), hence enabling a rate of fatalities per VMT that can be projected to other sites, assuming similar collision fatality rates.

Predicting project-generated traffic impacts to wildlife

The IS/MND does not report a predicted annual VMT. Fortunately, I have maintained a data base of VMT and floorspace of proposed warehouses in California. It is unclear whether the project would include the same type of traffic as typical of the warehouse projects that contributed to my data base, but the type of traffic is likely near enough in volume and trip lengths for the purpose of demonstrating how traffic-generated impacts to wildlife can be analyzed. Among 26 warehouse projects, mean annual VMT/square foot pf floor space was 20.57. Applying this mean to the square footage of the project would predict 1,670,490 annual VMT.

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 cars and trucks × 2.5 miles × 365 days/year × 1.25 years = 22,242,187.5 vehicle miles per 12,187 wildlife fatalities, or 1,825 vehicle miles per fatality. This rate divided into the predicted annual VMT, above, would predict 915 vertebrate wildlife fatalities per year.

Based on my analysis, the project-generated traffic would cause substantial, significant impacts to wildlife. The IS/MND does not address this potential impact, let alone propose to mitigate it. Mitigation measures to improve wildlife safety along roads are available and are feasible, and they need exploration for their suitability with the proposed project. Given the predicted level of project-generated, traffic-caused mortality, and the lack of any proposed mitigation, it is my opinion that the proposed project would result in potentially significant adverse biological impacts. A fair argument can be made for the need to prepare an EIR to appropriately analyze the potential impacts of project-generated automobile traffic on wildlife.

CUMULATIVE IMPACTS

The IS/MND presents a flawed analysis of cumulative impacts, including to biological resources. The IS/MND asserts that "... potential Project-related impacts are either less than significant or would be less than significant with mitigation incorporated." And, "Given that the potential Project-related impacts would be mitigated to a less than significant level, implementation of the proposed Project would not result in impacts that are cumulatively considerable when evaluated with the impacts of other current projects, or the effects of probable future projects." The IS/MND contrives the false standard that a given project impact is cumulatively considerable only when it has not been fully mitigated at the project level. The IS/MND implies that cumulative impacts are really residual impacts left over by inadequate mitigation of project impacts. This notion of residual impacts being the source of cumulative impacts is inconsistent with CEQA's definition of cumulative effects. Individually mitigated projects do not negate the significance of cumulative impacts. If they did, then CEQA would not require a cumulative effects analysis. To summarize, the IS/MND presents no cumulative effects analysis as defined in two ways by CEQA.

Table 3 includes an example of how a cumulative analysis can begin. Table 3 includes a recently proposed project in City of San Bernardino – the Amazing 34 project, which I predicted would result in 500 wildlife-vehicle collision fatalities annually. Several other currently proposed similar projects are listed, as well. The City's web site includes 28 industrial/commercial projects in the planning phase, all of which should contribute to an expanded version of Table 3. But even considering only the four projects in Table 3, 15,519 annual wildlife fatalities are predictable based on the volumes of traffic that would be generated by these projects. This is an example of cumulative impacts to wildlife that has not been addressed in the IS/MND.

Table 3. *Project attributes of some of the projects recently built or under consideration in the City of San Bernardino, and which contribute to cumulative impacts to wildlife. Entries in red font are Annual VMT I predicted based in my data base of annual VMT predictions as a function of square-footage of floor space of 26 other industrial buildings that I reviewed.*

Project	**Acres**	**Square feet**	**Annual VMT**	**Annual wildlife fatalities**
Amazing 34	3.84	77,562	913,213	500
Truck Terminal Facility	4.02	89,475	1,840,501	1,008
The Landing	53	1,153,644	23,730,457	13,003
Industrial Warehouse	4.02	89,457	1,840,130	1,008
Total	64.83	14,101,138	28,324,301	15,519

At least a fair argument can be made for the need to prepare a new EIR to appropriately analyze potential project contributions to cumulative impacts to wildlife in the City. To do this, ongoing development in the City needs to be examined for its contributions to habitat fragmentation and how this fragmentation is affecting wildlife movement in the region. It also needs to examine City-wide annual VMT and to what degree this VMT is contributing to wildlife-vehicle collision mortality.

MITIGATION

Mitigation Measure BIO-1: Nesting Bird Survey.

Whereas I concur that preconstruction, take-avoidance surveys should be completed, in my experience, the majority of bird nests would not be found by biologists assigned to the survey. For instance, I surveyed for grassland nesters, including as part of an intensive survey effort that I performed from March through mid-August 2023 on another Central Valley site. I surveyed the site 30 times. I found that the nests of grassland birds are the most difficult to locate. Cavity nesters can more effectively defend their nests against predators, whereas ground nesters are highly vulnerable to predation, and thus the most cryptic of nesters. Ground nesters, which include bird species that occur at the project site, are highly adept at concealing their nests both physically and behaviorally. Based on my experience, it is highly likely that preconstruction survey would fail to find any of the nests of ground-nesting birds that truly occur on the project site. The IS/MND's implication that preconstruction survey would reduce potential impacts to nesting birds to less-than-significant is unsubstantiated by evidence in the IS/MND. It would help to cite examples of the success of this measure applied elsewhere.

Mitigation Measure BIO-2: Nesting Bird Buffer. *If nesting birds are encountered, a qualified biologist must establish an avoidance buffer zone around the nest (buffer zones vary according to species involved and shall be determined by the qualified biologist). No activities that would adversely affect the nest shall occur within the buffer zone until the qualified biologist has determined the nest is no longer active and the young are no longer dependent on the nest.*

This mitigation language allows a single individual to make a subjective decision, outside the public's view, to determine the buffer area for any given species. This measure lacks objective criteria, and is unenforceable.

RECOMMENDED MEASURES

Road Mortality: Compensatory mitigation is needed for the increased wildlife mortality that would be caused by bird-window collisions and 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 traveling to and from the project's buildings.

Landscaping: If the project goes forward, California native plant landscaping (i.e., chaparral, grassland, and locally appropriate scrub plants) should be considered to be used as opposed to landscaping with lawn and exotic shrubs. Native plants offer more structure, cover, food resources, and nesting substrate for wildlife than landscaping with lawn. Native plant landscaping has been shown to increase the abundance of arthropods which act as importance sources of food for wildlife and are crucial for pollination and plant reproduction (Narango et al. 2017, Adams et al. 2020, Smallwood and Wood 2022.). Further, many endangered and threated insects require native host plants for reproduction and migration, e.g., monarch butterfly. Around the world, landscaping with native plants over exotic plants increases the abundance and diversity of birds, and is particularly valuable to native birds (Lerman and Warren 2011, Burghardt et al. 2008, Berthon et al. 2021, Smallwood and Wood 2022). Landscaping with native plants is a way to maintain or to bring back some of the natural habitat and lessen the footprint of urbanization by acting as interconnected patches of habitat for wildlife (Goddard et al. 2009, Tallamy 2020). Lastly, not only does native plant landscaping benefit wildlife, it requires less water and maintenance than traditional landscaping with lawn and hedges.

Thank you for your consideration,

Shawn Smallwood, Ph.D.

LITERATURE CITED

Adams, B. J., E. Li, C. A. Bahlai, E. K. Meineke, T. P. McGlynn, and B. V. Brown. 2020. Local and landscape-scale variables shape insect diversity in an urban biodiversity hot spot. Ecological Applications 30(4):e02089. 10.1002/eap.2089

Berthon, K., F. Thomas, and S. Bekessy. 2021. The role of 'nativenes' in urban greening to support animal biodiversity. Landscape and Urban Planning 205:103959. https://doi.org/10.1016/j.landurbplan.2020.103959

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.

Burghardt, K. T., D. W. Tallamy, and W. G. Shriver. 2008. Impact of native plants on bird and butterfly biodiversity in suburban landscapes. Conservation Biology 23:219-224.

CDFW (California Department of Fish and Wildlife). 2018. Protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities. https://nrm.dfg.ca.go

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.

Goddard, M. A., A. J. Dougill, and T. G. Benton. 2009. Scaling up from gardens: biodiversity conservation in urban environments. Trends in Ecology and Evolution 25:90-98. doi:10.1016/j.tree.2009.07.016

Hernandez Environmental Services. 2023. General Biological Assessment for Assessor's Parcel Numbers 0281-301-17, 20, 21, 0281-311-06, 07, 08, 11, 12, 18, and 19, City of San Bernardino, San Bernardino County, California. Prepared for EPD Solutions, Lake Elsinore, California.

Lerman, S. B. and P. S. Warren. 2011. The conservation value of residential yards: linking birds and people. Ecological Applications 21:1327-1339.

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.

Mendelsohn, M., W. Dexter, E. Olson, and S. Weber. 2009. Vasco Road wildlife movement study report. Report to Contra Costa County Public Works Department, Martinez, California.

Narango, D. L., D. W. Tallamy, and P. P. Marra. 2017. Native plants improve breeding and foraging habitat for an insectivorous bird. Biological Conservation 213:42-50.

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. 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.

Smallwood, K. S. 2022. Utility-scale solar impacts to volant wildlife. Journal of Wildlife Management: e22216. https://doi.org/10.1002/jwmg.22216

Smallwood, N. L., and E. M. Wood. 2022. The ecological role of native-plant landscaping in residential yards to birds during the nonbreeding period. Ecosphere 2022;e4360.

Tallamy, D.W. 2020. Nature's Best Hope: A New Approach to Conservation that Starts in Your Yard. Timber Press.

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.

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Curriculum Vitae

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

Ecologist

Expertise

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

Education

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

Experience

- 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 basedon 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 founds 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 interspersion 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.