CALIFORNIA ENERGY COMMISSION
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DOCKET
07-AFC-8
DATE DEC 29 2008
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December 29, 2008

Wendy Lee Bogdan
Downey Brand Attorneys LLP
621 Capitol Mall, 18th Floor
Sacramento, CA 95814

RE: Carrizo Energy Solar Farm (07-AFC-8)

Dear Ms. Bogdan:

Thank you for your letter of December 11, 2008, sent on behalf of your client, Ausra CA II, LLC (Ausra), requesting information regarding the proposed multi-agency wildlife corridor modeling process.

As I have not seen your name associated with this proceeding previously, it may be that you are not aware of the repeated efforts the California Energy Commission (Energy Commission) staff and the wildlife agencies have made to include your client in the proposed modeling process. Therefore, I'd like to take this opportunity to summarize for you how the corridor modeling process developed and the multiple opportunities your client has had, and continues to have, to participate.

On March 26, 2008, the California Department of Fish and Game (CDFG) submitted a letter to the Energy Commission regarding the Carrizo Energy Solar Farm project. See http://www.energy.ca.gov/sitingcases/carrizo/documents/intervenors/2008-03-27_DEPT_FISH+GAME_TN-45781.PDF. The letter was served on the Carrizo service list, including Perry H. Fontana, QEP, Vice President-Projects of Ausra, Inc., Angela Leiba, GISP, Senior Project Manager of URS Corporation, and Jane Luckhardt, Esq. of Downey Brand, and was publicly posted on the Energy Commission's Docket. The letter stated, among other things:

> The Project is proposed in an area which supports one of the highest concentrations of special status species in California, as well as uncommon native game populations for which the State has committed considerable effort and public funds to re-establish and manage. The site is also in an area identified as critical for the recovery of Federally listed species and is a crucial wildlife movement corridor. The biological studies do not adequately consider this setting. . . . Following are the primary reasons why we have determined the application information is incomplete: . . .
>
> - The biological impact analysis lacks a correct assessment of effects on wildlife movement.

- The cumulative impacts analysis does not consider impacts from specific, known, probable future projects. . . .

San Joaquin Kit Fox: The Project is at the south end of the corridor linking the Carrizo Plains Natural Area (now Carrizo Plains National Monument) to the satellite populations in the Salinas River and Pajaro River watersheds. The recovery plan identifies this corridor as essential to maintaining and recovering those populations and the species. The specified recovery action which applies to this site is as follows:

> *Protect and enhance corridors for movement of kit foxes through the Salinas-Pajaro Region and from the Salinas Valley to the Carrizo Plain and San Joaquin Valley.* (USFWS 1998).

The impact analysis and mitigation must consider the potential impacts to the corridor and corridor functions. The "Wildlife Corridors" section in the application does not recognize the kit fox corridor and mischaracterizes the site as an east-west corridor connecting the Temblor and Caliente mountain ranges. Potential corridor impacts to be evaluated should include, but not be limited to, loss of prey base and refugia for immigrating, emigrating, and dispersing individuals, reduced capacity for individuals to reside in the corridor, reduced genetic flow, increased predation resulting from impermeable fences (blocked escape routes), increased exposure to predation due to night lighting, increased exposure to traffic on the highway due to the impermeable fence, reduced corridor width, and increased animal/vehicle traffic collisions due to traffic increases. . . .

To comply with CESA permitting standards, the Department would have to conclude that kit fox impacts are fully mitigated. Corridor impacts and mitigation would have to be evaluated in a cumulative impact context, including quantified effects of the photovoltaic solar power installation proposed for the same vicinity.

On August 5, 2008, a public Data Response Workshop was held at which the wildlife corridor impact issue was discussed. The workshop was attended by numerous representatives of Ausra. At the workshop, Mr. David Hacker of CDFG discussed the use of corridor modeling to predict how animals move. Ms. Luckhardt stated that this was a cumulative concern, and that the county would be permitting the much larger photovoltaic projects proposed for the region. Energy Commission biological resources staff acknowledged the cumulative nature of the corridor concerns, and stated that the Energy Commission staff would be coordinating with the appropriate agencies to ensure that an appropriate analysis was completed. Mr. Hacker referred to the work of South Coast Wildlands as a model for the application of GIS-based tools to analyze the impacts of development and habitat change on wildlife corridors.

As a result of the above, a meeting was scheduled to arrange for a coordinated approach for the analysis of wildlife corridors through the project area. Invitations to the meeting were extended

to Mr. Fontana on behalf of Ausra and to principals of the other two solar projects proposed in the Carrizo Plain region, Optisolar, and SunPower. Ausra, declined to attend, as did SunPower and Optisolar, therefore the meeting took place on October 2nd, 2008 without them.

At this initial meeting, the involved agencies discussed a broad overview of the proposed solar projects and their potential impacts to biological resources. The corridor modeling approach developed by Mr. Paul Beier and others, as outlined at www.corridordesign.org was discussed. The applicability of the corridor modeling approach, and the use of kit fox, tule elk, and pronghorn as focal species was agreed upon. The group further agreed that the modeling effort would benefit from technical assistance from South Coast Wildlands, the leading organization in conducting corridor analyses in California. It is unfortunate that Ausra declined to attend, because Ausra's participation in this meeting would have been informative and helpful in addressing many of the concerns you raise in your letter.

On November 17, 2008, there was a public hearing on California Unions for Reliable Energy's (CURE's) motion to compel further responses from Ausra as to certain data requests. In response to a statement by Ausra counsel that Ausra had only heard of a corridor study, but been offered no opportunity to comment on its development, the Energy Commission's Project Manager for CESF, John Kessler, responded in relevant part as follows:

> MR. KESSLER: We want to be clear that the process, this habitat corridor, may be a new process to the Energy Commission, but it's one that we feel is relevant and necessary for this project in looking at the cumulative effects, direct and cumulative effects of this, as well as the two PV projects.
>
> There are other areas where this type of corridor modeling has been applied and successfully used. And we're bringing on board a specialist in that arena.
>
> . . . [W]e've made available to the parties and anyone who's requested it, or we've distributed copies to them, copies of previous studies and research, write-ups on this subject, just so they could get onboard with it.
>
> We've invited the applicant, as well as the two PV developers, to participate in this process. The first concept of that process was to hold it as a public meeting in the Carissa Plains. And all three applicants chose not to participate.
>
> So instead of that we held just an agency meeting in San Luis Obispo County --
>
> HEARING OFFICER FAY: Just a what meeting?
>
> MR. KESSLER: An agency meeting, --
>
> HEARING OFFICER FAY: Um-hum.

> MR. KESSLER: -- which included San Luis Obispo County, Fish and Game, Fish and Wildlife, and ourselves. And so we are still generating the protocol and the process that we will undertake, the scope of those studies. And as that information is developed we will make it available to all. But I don't think it's accurate to say that the applicant didn't have the opportunity to participate in this process.

Ms. Luckhardt acknowledged the accuracy of Mr. Kessler's comments regarding the invitation extended to Ausra, as follows:

> MS. LUCKHARDT: And I think there's a lot more to that story, as Mr. Kessler's well aware, in that, you know, we were going to participate, but for the other projects not being going to participate. And so we didn't feel it was appropriate to have the smallest of the three projects the only one present at a meeting of this sort where the impact is really being driven by the larger projects. So, you know, -- and I do understand Mr. Kessler gave us that opportunity. But we didn't feel that the opportunity was appropriate, given that the larger projects would not be in attendance at that event. . . .

On December 5, 2008, a telephone conference call was held among representatives of the Energy Commission, CDFG, the United States Fish and Wildlife Service, (USFWS), County of San Luis Obispo staff and South Coast Wildlands (SCW) concerning corridor modeling. The purpose of this teleconference was to initiate the model development in coordination with the agencies and the Energy Commission's newly hired consultant, SCW, and to establish data exchange channels from the agencies to SCW.

As you know, on December 15, 2008 a workshop was held near the project site. This workshop was particularly significant because participating representatives of the Energy Commission, CDFG, USFWS attended and were prepared to address any corridor modeling issues, including those set forth in your letter of December 11, 2008. The Energy Commission came with a handout containing the latest information about its proposed corridor analysis approach. This handout was provided to your client and its counsel. The transcript of that workshop is not yet available, but Energy Commission staff have advised me that it will demonstrate the fact that Ausra declined to participate in any detailed discussion of corridor modeling issues at the workshop. Given Ausra's decision not to participate in discussion about the corridor issue with Energy Commission staff or the wildlife agencies, I find it surprising that Ausra is "startled" about any resulting schedule slippage.

Please be advised that on January 7, 2009, the Energy Commission will be holding a web-based meeting at which corridor modeling issues will again be addressed and discussed. On December 24, 2008 we were informed that Ausra intends to participate in this upcoming meeting. We are hopeful that the developers of the other two solar projects proposed for the Carrizo area will also participate. This is probably the single most effective thing Ausra can do to expedite the project.

We would value Ausra's input into this important issue that many large solar-thermal projects may soon be required to address.

Your December 11, 2008 letter evidences a concern on the part of Ausra with exactly how and when the details of the corridor modeling plan will be developed. While some of the modeling steps associated with your questions are still under development, we have provided an attached document that lists your questions and provides responses to the extent currently possible.

Some of the questions you have posed about the timing of the corridor modeling analysis depend to a significant degree on the degree and timing of the participation and cooperation the Energy Commission receives from other involved parties, specifically including Ausra but also including the involved government agencies. As to such questions we are not yet able to provide a specific date when we believe the modeling will be complete. In general we can state that the current schedule listed on the Energy Commission website provides for the Final Staff Assessment to be completed by February or March 2009. Although that is an ambitious schedule, we hope that with Ausra's full cooperation and participation we can make that date. Therefore we again respectfully request that Ausra begin cooperatively participating in the corridor modeling process.

We look forward to working with Ausra, to efficiently process and complete the CESF Application for Certification proceeding.

Sincerely,

TERRENCE O'BRIEN
Deputy Director
Siting, Transmission and Environmental Protection Division

cc: Docket (07-AFC-8)
Proof of Service List
Perry Fontana, Ausra
Susan Jones, USFWS
Dave Hacker, CDFG
Mark D'Avignon, U.S. Army Corps of Engineers
John McKenzie, SLO County
John Kessler
Darren Bouton, Deputy Cabinet Secretary, Governor's Office
Jane Luckhardt
Caryn Holmes
Michael Doughton

ATTACHMENT A
RESPONSE TO QUESTIONS

Question 1 - Prior discussions and decisions between and by the Energy Commission, USFWS and CDFG regarding the wildlife corridor modeling process, as well as an estimate of when future discussions will be held and the subject of those discussions.

Response 1 – Prior discussions regarding the wildlife corridor study were as follows:

1. August 5, 2008 – Public Data Response and Issue Resolution Workshop held in the Carrizo Plain for the CESF Project, at which time. Mr. David Hacker of CDFG identified the need for corridor modeling;
2. October 2, 2008 – Initial meeting of San Luis Obispo County, CDFG, the Energy Commission and USFWS at the county offices to lay groundwork for cooperatively developing the model; All 3 solar developers declined to participate.
3. December 5, 2008 – Teleconference between the above listed agencies and SCW to identify information needs and establish data exchanges to enable setup for the modeling; (This was the earliest opportunity to teleconference following the Energy Commission's contract procurement process that established SCW as the modeling consultant.)
4. December 15, 2008 – Public Preliminary Staff Assessment (PSA) Workshop for the CESF Project held in the Carrizo Plain to discuss comments on the PSA, including potential wildlife mitigation measures; The draft modeling scope of work was distributed for review and comment (*Draft Habitat Connectivity Planning for Selected Focal Species in the Carrizo Plain*). At this meeting, CEC staff encouraged the three solar applicants to participate in the corridor modeling process, hoping that the draft scope of work would encourage input and alleviate earlier concerns that the process had not yet been described.

Question 2 –The study's commencement and estimated completion date, as well as the basis used to calculate those dates. USFWS indicated that the process will be complete in January of 2009, but we would like confirmation from the other agencies as to their estimate of the completion date and the basis for the estimate.

Response 2 – Based on the chronology above, the first meeting commencing the corridor study was held on October 2, 2008. Energy Commission staff hopes to complete the initial modeling by January 30, 2009, with possible additional analysis carrying into February to explore mitigation options. Because CEC staff has no prior experience with this type of corridor modeling, we are unable to be absolute about schedule. Another factor driving schedule will be the level of cooperation extended by the three solar applicants.

Question 3 – Any assumptions held by the agencies regarding the project and the other two solar development projects, which assumptions will be used to provide inputs for the modeling.

Response 3 – Energy Commission staff believes that while specific assumptions are not currently available, some general principles can be highlighted as follows:

1. The three proposed solar developments will be evaluated on a CESF only basis to establish the project's direct impacts, and then with all three projects combined to analyze the CESF's contribution to cumulative impacts.
2. The analysis approach noted above will provide a basis to apportion the mitigation according to the individual project's contribution to direct and cumulative impacts.
3. The mitigation approach will include consideration of a potential suite of measures.

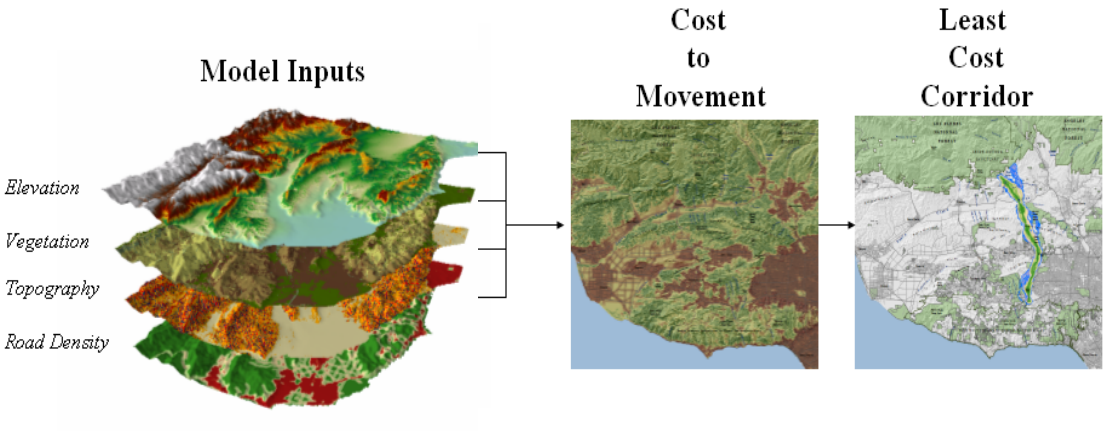
Question 4 - The model's methodology, landscape context, alternative routes in the vicinity to be assessed, as well as historical use of the model relative to agricultural landscapes.

Response 4 – We will first evaluate baseline conditions. Then the project footprints of each of the three proposed solar projects will be evaluated individually and collectively to assess cumulative impacts. A description of the approach developed by SCW follows:

Task 1: Model Baseline Conditions of Habitat Connectivity in the Carrizo Plain for Select Focal Species.

Step 1: Landscape Permeability Analysis & Coordination with Experts

Landscape permeability analysis is a GIS technique that models the relative cost for a species to move between core areas based on how each species is affected by habitat characteristics, such as slope, elevation, vegetation composition, and road density. This analysis identifies a least-cost corridor, or the best potential route for each species between targeted core areas (Walker and Craighead 1997, Craighead et al. 2001, Singleton et al. 2002). The purpose of the analysis is to identify land areas, which would best accommodate select focal species living in or moving through the linkage (Beier et al. 2005).



Permeability Model Inputs: elevation, vegetation, topography, and road density. Landscape permeability analysis models the relative cost for a species to move between core areas based on how each species is affected by various habitat characteristics.

The relative cost of travel will be assigned for each species based upon its ease of movement through a suite of landscape characteristics (vegetation type, road density, and topographic features). The

following spatial data layers will be assembled at 30-m resolution: vegetation, roads, elevation, and topographic features. If necessary, data layers (i.e., vegetation, roads) will be updated using recent 1-m resolution aerial photographs prior to conducting the analyses. We derived four topographic classes from elevation and slope models: canyon bottoms, ridgelines, flats, or slopes. Road density will be measured as kilometers of paved road per square kilometer. Within each data layer, we will have experts rank all categories between 1 (preferred) and 10 (avoided) based on focal species preferences as determined from available literature and expert opinion regarding how movement is facilitated or hindered by natural and urban landscape characteristics. Each input category will be ranked and weighted, such that: (Vegetation * w%) + (Road Density * x%) + (Topography * y%) + (Elevation * z%) = Cost to Movement, where w + x + y + z = 100%.

Weighting allows the model to capture variation in the influence of each input (vegetation, road density, topography, elevation) on focal species movements. A unique cost surface is thus developed for each species. A corridor function is then performed to generate a data layer showing the relative degree of permeability between core areas.

Running the permeability analysis requires identifying the endpoints to be connected. Usually, these targeted endpoints are selected as medium to highly suitable habitat within protected core habitat areas (e.g., National Forests, State Parks) that needed to be connected through currently unprotected lands. However, since habitat areas to the north of the proposed project are not currently protected, we will need to define a targeted core habitat area in order to give the model broad latitude in interpreting functional corridors across the entire study area.

For each focal species, the most permeable area of the study window will be designated as the least-cost corridor. The least-cost corridor output for all focal species will then be combined to generate a Least Cost Union. The biological significance of this Union can best be described as the zone within which all three modeled species would encounter the least energy expenditure (i.e., preferred travel route) and the most favorable habitat as they move between targeted areas. The output does not identify barriers, mortality risks, dispersal limitations or other biologically significant processes that could prevent a species from successfully reaching a core area. Rather, it identifies the best zone available for focal species movement based on the data layers used in the analyses.

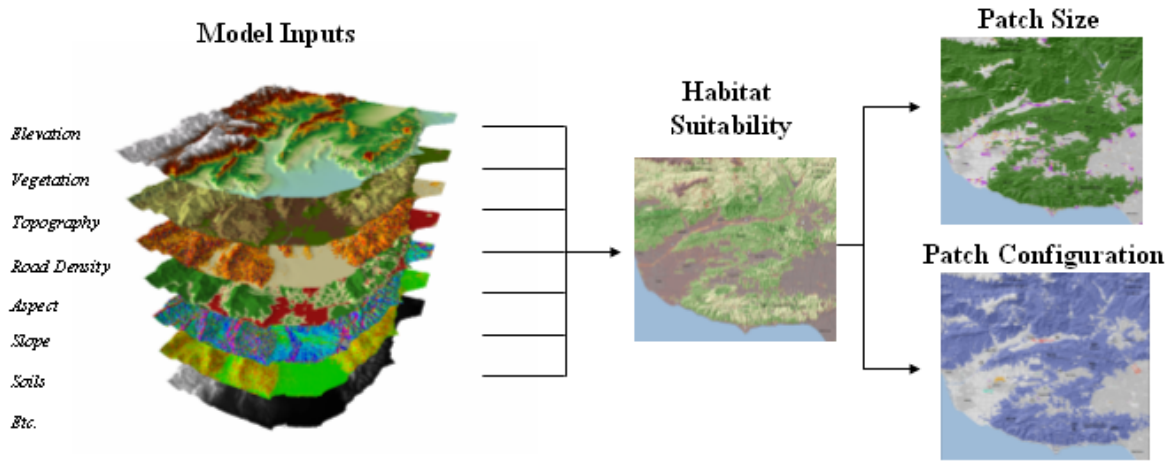
We will coordinate with biologists in the region who are considered experts on the selected focal species to rank the criteria for the analyses. Clevenger et al. (2002. Expert-based models for identifying linkages. Conservation Biology 16:503-514) found that expert-based models that did not include a literature review performed significantly worse than literature-based expert models. Therefore, we ask each participating expert to assemble all papers on habitat selection by the focal species or closely-related species. This is important because we want to document how our models were parameterized. Careful use of, and citation of, the literature will give us a more credible product, and one that is more likely to influence conservation decisions.

Step 2: Habitat Suitability, Patch Size & Configuration Analyses

Although the Least-Cost Union identifies the best zone available for movement based on the data layers used in the analyses, it does not address whether suitable habitat in the Union occurs in large enough patches to support viable populations and whether these patches are close enough together to allow for inter-patch dispersal. We therefore conduct patch size and configuration analyses for all focal species and adjust the boundaries of the Least Cost Union where necessary to enhance the likelihood of movement.

A habitat suitability model forms the basis of the patch size and configuration analyses. Habitat suitability models will be developed for each focal species using the literature and expert opinion. Spatial data layers used in the analysis will vary by species. We will generate a spectrum of suitability scores that will be divided into five classes using natural breaks: low, low to medium, medium, medium to high, or high. Suitable habitat will be identified as all land that scored medium, medium to high, or high.

To identify areas of suitable habitat that are large enough to provide a significant resource for individuals in the linkage, we will conduct a patch size analysis. The size of all suitable habitat patches in the planning area will be identified and marked as potential cores, patches, or less than a patch. *Potential core areas* will be defined as the amount of contiguous suitable habitat necessary to sustain at least 50 individuals. A *patch* will be defined as the area of contiguous suitable habitat needed to support at least one male and one female, but less than the potential core area. Potential cores are probably capable of supporting the species for several generations (although with erosion of genetic material if isolated). Patches can support at least one breeding pair of animals (perhaps more if home ranges overlap greatly) and are probably useful to the species if the patch can be linked via dispersal to other patches and core areas.



Model Inputs to Patch Size and Configuration Analyses vary by species. Patch size delineates cores, patches, and stepping-stones of potential habitat. Patch configuration evaluates whether suitable habitat patches and cores are within each species dispersal distance.

To determine whether the distribution of suitable habitat in the linkage supports meta-population processes and allows species to disperse among patches and core areas, we will conduct a configuration analysis to identify which patches and core areas were functionally isolated by distances too great for the focal species to traverse. Because the majority of methods used to document dispersal distance underestimate the true value (LaHaye et al. 2001), we assumed each species can disperse twice as far as the longest documented dispersal distance. This assumption is conservative in the sense that it retains habitat patches as potentially important to dispersal for a species even if it may appear to be isolated based on known dispersal distances.

For each species we compare the configuration and extent of potential cores and patches, relative to the species dispersal ability, to evaluate whether the Least Cost Union will likely serve the species. If necessary, we add additional habitat to help ensure that the linkage provides sufficient live-in or "move-through" habitat for the species' needs.

The analyses described above will be performed for the selected focal species to determine baseline conditions.

Task 2: Evaluate Three Proposed Solar Projects in Relation to Baseline Conditions to Measure and Illustrate the Impacts to Connectivity

To quantify impacts of the three proposed solar projects we will evaluate the configuration and extent of each project as proposed in relation to baseline conditions for the selected focal species to measure and illustrate impacts to connectivity, and to determine each project's proportion of the cumulative impacts. We will provide maps and spatially-explicit descriptions of existing and proposed impediments to wildlife movement through the assessment area.

Task 3: Model Proposed Mitigation Strategies to Evaluate their Effectiveness to Offset Habitat Loss and Fragmentation

We will model proposed mitigation strategies to evaluate their effectiveness to offset habitat loss and fragmentation caused by the proposed solar projects. We will provide a description and mapping of alternative mitigation strategies to maintain adequate buffer width and habitat connectivity, with a recommended strategy for conservation action.

Task 4: Draft Report and Peer Review

We will coordinate with the scientists who provided the rankings for each focal species to review the results of the model output for scientific accuracy. Draft reports will be circulated to all project partners and to our Science Advisory Panel to review the conclusions and provide comments on the report.

Task 5: Final Report

The final report will incorporate comments from project partners and peer reviewers. We will provide a digital version of the final document, along with one hard copy.

Question 5 – Any basis that supports using the model, assumptions, inputs, and methodology to predict the Project's impacts on highly disturbed agricultural land located within a landscape dominated by agriculture as opposed to landscapes with less disturbed land.

Response 5 – The extent of the analysis window will be at the landscape scale, far beyond the boundaries of the three proposed solar developments, thus encompassing a diversity of habitat types in addition to agricultural lands. However, it is not likely that all agricultural lands will be ranked the same for each focal species. Some types of cultivated lands may provide forage for pronghorn, while elk may prefer areas that are ungrazed by cattle. Thus, we will differentiate between the various types of agricultural land in the vegetation/land cover data input.

Question 6 – The inputs that will be used for the model and how they will be weighted (land cover, focal species, elevation/topography, drainages, etc.).

Response 6 – The primary model inputs for the landscape permeability analysis are vegetation/land cover, road density, topography, and elevation. Species experts will rank and weight the criteria for each of the selected focal species (e.g., Dr. Brian Cypher for kit fox).

The primary model inputs for habitat suitability will vary by focal species and will be based on the literature and expert opinion.

The primary model input for the patch size analysis is home range size of each of the selected focal species.

The primary model input for the patch configuration analysis is dispersal distance of each of the selected focal species.

Questions 7 – How agricultural lands will be weighted against other lands.

Response 7 – The factors that are weighted for the landscape permeability analysis are vegetation/land cover, road density, elevation, and topography. Each vegetation or land cover type will be ranked by a species expert on a scale of 1 to 10 with 1 being best and 10 being worst. As mentioned above, some of the selected focal species may utilize some types of cultivated lands, which would likely get a lower score.

Question 8 – How the model will prioritize public and private property?

Response 8 – The models are all based on biology irrespective of public versus private property.

Question 9 – The expected outputs of the model.

Response 9 – Please refer to the reports for the South Coast Missing Linkages project on our website at http://www.scwildlands.org/reports.aspx

Question 10 – Who will be performing the modeling task?

Response 10 – South Coast Wildlands, with Kristeen Penrod acting as the principal consultant, will be performing the modeling in coordination with review and input from the agencies, applicants and public along various stages of the process. In addition, Ester Rubin and Wayne Spencer of the Conservation Biology Institute would serve in an advisory role to the modeling effort.

Question 11 – Whether the model has ever been applied to a landscaped dominated by agricultural lands.

Response 11 – The model has previously been applied to landscapes that have an agricultural component (e.g., Tehachapi Connection, Santa Ana-Palomar).

Question 12 – URS provided a wildlife movement figure in their cumulative assessment – how the model output may differ from what has already been assessed.

Response 12 – We are not currently at a stage where we can compare the model's output to URS's wildlife movement figure and assessment.

Question 13 – How the model may differ from what has already been assessed in the USFWS Recovery Plan for San Joaquin Valley upland species.

Response 13 – The model is not expected to differ with the general principles established in the USFWS Recovery Plan for San Joaquin Valley upland species, but instead will serve to refine in greater detail the principles for the three focal species of this study.

Ausra has been invited to participate in the upcoming web-based workshop scheduled for January 7, 2009 at which such questions may be further addressed.