**ENDANGERED SPECIES RECOVERY COMMITTEE (ESRC) MEETING**

October 23, 2019 MEETING MINUTES

Meeting Location: Department of Land and Natural Resources, Division of Forestry and Wildlife, 1151 Punchbowl Street, Honolulu, Hawai‘i, 96813

**MEMBERS:** James Cogswell (DLNR), Kawika Winter (At-Large), Lisa Spain (At-Large), Darren LeBlanc (USFWS), Jim Jacobi (USGS), Loyal Mehrhoff (At-Large)

**STAFF:** **DOFAW:** Lauren Taylor, Kate Cullison

**DLNR:** Suzanne Case, Linda Chow

**OTHERS:** Krista Mahan, Caroline Cech, Maxx Phillips, Chris Takeno, Kylie Wager Cruz, Paul Conry, David Ainley, Jaap Eijzenga, Amanda Ehrenkrantz, Andre Raine, Marc Travers, Aaron Nadig, Lisa Bail, Mahealani Krafft, William Trugillo, Steven Montgomery

**AGENDA**

**ITEM 1.** Call to order.

COGSWELL: All right, welcome everyone to the Endangered Species Recovery Committee, October 23rd, 2019. It’s 9:10. We got a short agenda but a lot to discuss I think. We’ll be discussing the Pakini Nui Wind Farm Habitat Conservation Plan as well as the draft Kaua‘i Seabird Habitat Conservation Plan starting with the community, but first we do have some introductions. Jim Cogswell, representative of the Department of Land and Natural Resources and the Wildlife Program Manager for Forestry and Wildlife. The staff we have here: Lauren Taylor is our HCP section, and you have Kate Cullison, another member of our HCP section. She’ll be in and out presenting mostly on the Kaua‘i Seabird HCP. Then in terms of our other ESRC members today we’ll start with Kawika down there.

WINTER: What’d you want me to say? I’m Kawika. Aloha, I’m an at-large member.

SPAIN: I’m Lisa Spain, an at-large member.

JACOBI: I’m Jim Jacobi, representing the U.S. Geological Survey.

LEBLANC: Darren LeBlanc, representing U.S. Fish and Wildlife Service.

MEHRHOFF: Loyal Mehrhoff, at-large member.

**ITEM 2.** Announcements.

COGSWELL: Alright, are there any announcements before we get started?

LAUREN TAYLOR: ESRC members? I have a couple for staff, just a couple for the ESRC. I know Kawika, you had asked about *Abutilon*. The status of the HCP. Just to give you a status update, we're still trying to coordinate with DOT a meeting to discuss this HCP with them before bringing it back to the ESRC.

WINTER: This has been going on for a month. At what point are we going to say that they're out of compliance?

LAUREN TAYLOR: Well we're trying to get a meeting with Dave Smith and their director.

WINTER: He's in the room. Maybe he can…?

CHRIS TAKENO: I'm the one who told Dave Smith to contact the deputy director. I mean after that, they have to coordinate.

WINTER: What's the hold up?

LAUREN TAYLOR: The director of DOT and Dave need to coordinate a meeting to meet up and discuss the HCP. Because they haven't been to any other meetings that we've discussed that.

JACOBI: When is that HCP scheduled to end?

LAUREN TAYLOR: A year or 18 months.

JACOBI: I share Kawika's concern and we've talked about this before. It's really important that we talk about and decide what the next steps are from both DOFAW and DOT particularly.

LAUREN TAYLOR: Just an update for the ESRC. The Haleakalā SHA has been signed by all the agencies and the applicant so that had an effective date of the 12th of August. And I had sent out a Doodle Poll for the annual report review meetings. Based on the responses we don't have quorum for any days this year. So I am proposing doing those reviews with the ESRC in January? Would that be better, to try to get two days back to back?

MEHRHOFF: How close were you in November?

LAUREN TAYLOR: Not close, there was maybe one, maybe two days in two different months, so they wouldn't be back to back and I know last year with some of the reviews that was a concern of the ESRC, not getting all the information at once and not really getting a holistic view of what's happening on all the islands when it's presented piecemeal. So if I can't get two days together that same thing will happen.

Do you have an objection to that or would you like me to push out a schedule this year?

(ESRC discusses schedules.)

LAUREN TAYLOR: Alright if the ESRC has nothing left to discuss we can go forward with the Pakini Nui HCP review. Also, I put on here that this Incidental Take License is for 20 years. It's actually for a 10-year incidental take license. So the project's already been operating. This is for the remainder of their operational life and I think it covers some decommissioning.

## **ITEM 3.** ESRC review of Pakini Nui Wind Farm Draft Habitat Conservation Plan (HCP) dated September 2019.

AMANDA EHRENKRANTZ: Okay, so we're here to present the Pakini Nui Wind Farm Habitat Conservation Plan and just to make introductions: this is Jaap Eijzenga, and I'm Amanda Ehrenkrantz. We're with SWCA. This is Steve Pace, who is the president of the Apollo Energy Corporation who is a managing partner of the Pakini Nui Wind Farm. And basically we want to start by saying that we are actually really excited to be here. We recognize that we're approaching the final steps of ITL approval and that's starting to get really exciting, especially given the USFWS approval of the ITP and so I just want to start out by thanking you for your time and thanking you for the review that you've done of the HCP already. And so we're excited to move forward. A couple purposes of the presentation today: we want to just partly update you on the changes that we made to the document since we were here last year, August 30th, 2018, and then make a request for recommendation for approval to the BLNR. I'll start out by just giving you the background of the project, some of the facts about the project itself. And I think that this is probably information that you likely already know and have heard before so I'm going to just kind of breeze through a couple of these slides pretty quickly. But I also want to just start off by saying if you have questions as we go we're happy to field them as we're on topic. So just feel free to interrupt and let me know if you have items to discuss.

So here's our project location at the South Point of the Big Island. It is owned and operated by Tawhiri Power, LLC. Operations began in 2007. There are 14 wind turbines providing 20 percent of Hawai'i's electrical generation needs. The lands are leased from Kamehameha Schools, and we are requesting a 10-year permit duration. Throughout these slides I've just highlighted in yellow the changes from what has happened since last time we spoke. So basically one change that happened since last time was the ITP approval September 3rd. No change with the design and operation—still 21 megawatts, still a nightly year-round low wind speed curtailment at 5.5 meters per second cut in. Turbines shutting down and blades feathered if the wind speed is 5 meters per second or less.

No change also with the requested covered activities or the requested covered species. There's been no change on the studies and monitoring. When we came last August there had been three recorded fatalities and that's remained the same and we are currently conducting fatality searches with a canine handler team. Ten-year take request, no change, no tiers and 26 Hawaiian Hoary Bats. So that's 23 direct, three indirect.

JACOBI: Quick question on that. Does that 26 include the ones that were have been found since it started?

AMANDA EHRENKRANTZ: No.

JACOBI: Should those not be accounted for? It makes sense that they would be accounted for here. They're part of take. Otherwise I'm not sure how else to address it.

JAAP EIJZENGA: We had a prepared statement because we were anticipating the question. So I'll go ahead and regurgitate that. So right now we're not aware of any federal or state precedent requiring an operating project that is applied for an incidental take permit or license to mitigate for any of the take that may have occurred prior to the issuance of the permit or license either as a precondition, or issuance of, or as a mandatory term in that permit or license or the associated habitat conservation plan. Having said that it certainly was not the case with a recent issuance of the U.S. Fish and Wildlife incidental take permit to Tawhiri. However if this committee does recommend that the state reject this application for this reason and the state concurs with the recommendation, we will review both internally and with the Fish and Wildlife Service concerning what steps we should be taking. So I think historically there hasn't been a precedence for this. Having said that we're obviously open for the review pending decisions.

JACOBI: I guess the question comes back to how those are counted. It really is more of a State and USFWS issue. Is it an enforcement issue? Or is it a thing that we just move on from like the Fish and Wildlife Service?

LEBLANC: For the U.S. Fish and Wildlife Service we have to permit anticipated take. We can't permit previous take. So for us we didn't have any choice in the matter. What the ESRC does, what the State decides, it doesn't have to equate to what the Service should offer.

SPAIN: Can I ask a question? For a take of an endangered species, what would be the regulation? Because there's three (bats)…

LEBLANC: If they had not been working on an HCP it would have been law enforcement. The fact that they were actively working on the HCP we didn't pursue the case. It is slightly different for the existing permitted entities when they were getting their amendments since they already had a permit. Everything as part of the process we could permit but for this without an existing permit, we can't go back and say hey, they took three we're gonna…

SPAIN: So because I'm "bigger picture" as a member of the ESRC: what I'm seeing is that the wind farms that don't have permits essentially are given free potential kills. Because I would like to see, you know, what happened in the first six years of unpermitted operation. We have several other wind farms that don't have permits. It's very challenging for review and if the number's 26. So as a bigger question to understand that as a process as it relates to wind farm permitting in the future. And the other issues we have with unpermitted wind farms.

MEHRHOFF: Yeah, I agree with Darren on the federal side. It's a law enforcement issue pre-HCP. And it's been that they choose to use prosecutorial discretion as to whether or not to bring those cases. That's all I can say on that. For the State, I don't know and we could check with the AG's office maybe to see under 195D whether there's an expectation or a similar sort of

relationship with 195D. That would be the legal adviser on that. But it's not the only instance that we will have of this issue even today.

COGSWELL: We happen to have Linda Chow here representing the AG and maybe she can chime in on a preliminary…?

LINDA CHOW: I think it would be similar to the federal approach to it. If there's no permit that is covering the take this an unauthorized take and subject to prosecution under 195D. So the permit will only cover take that occurs after the issuance of the permit. So anything prior to that the applicant or the person who is causing the take could be subject to prosecution. But again, it'll be a law enforcement call, not necessarily the ESRC's call.

SPAIN: And then the question I would have is the connectivity of process between wind farms being approved and the clear need for every wind farm to head through the HCP process because clearly every wind farm is going to be potentially taking several species. So that that's the process that I think I would just like a bit more understanding on is terms of PUC approval and where we sit, often ten years later, because I think it's no question that every wind farm in the state is going to be taking species.

JAAP EIJZENGA: Yeah, I like to add a little bit of context. So that's the case now. It's something that we're going through with new projects. I don't know about any other additional projects that may be coming in, proposed to be constructed, and what the communication there is between the State Energy Department, the PUC, and the applicants. It does remain a voluntary process and so there's not a clear trigger. So that's definitely a challenge that I'll agree with that but I do want to put into context that back when this project was constructed that was a different era and the amount of information that we have now about wind farm impacts wasn't available at the time. So I do want to make sure we remember that when we're talking about this specific project and separate that from the current process.

MEHRHOFF: This was 2007. I guess I might disagree with that characterization.

JACOBI: We'll get into it a little later on and say I know the monitoring wasn't necessarily the same as what you're proposing for moving forward with and so I have some questions in terms of whether the number that they documented there prior to the issuance of the license actually represents a real number and does it also include a calculation through the Evidence of Absence, which would give us a better picture in terms of what that actual take was. So that's sort of the front-end part of it. This is the other part and we'll get into this later on in terms of discussing your mitigation actions and so forth. I'm hoping that you have confidence that your mitigation actions are going to more than compensate for what your take is and if that's the case it would almost make sense to just add that into it. Then there wouldn't be any question that comes up. But we can talk about that later on when you get to that aspect of it, but I think they're linked together. And I'd rather not have a worry about technicalities and so forth. I mean if you do have a robust mitigation plan, and potentially this could easily be absorbed into it, I suggest you consider that at least.

AMANDA EHRENKRANTZ: It's good discussion. Okay, a couple updates on the HCP. We did add in an adaptive management trigger, which is based on the Evidence of Absence short term test. So it's based on the projected lambda. So we've got more quantification of this adaptive management trigger there and also addition of deterrents if feasible to the minimization language. So I'll take you through the plan for the mitigation projects. The Hawaiian Hoary Bat mitigation—what we presented to you in 2018—really hasn't changed. It's a forest restoration mitigation project located in the Kahuku unit of Hawai'i Volcanoes National Park with Tawhiri funding restoration of 1,200 acres. An estimated cost of 1.4 million dollars plus the bat and invertebrate monitoring costs; the 1.4 million does include the vegetation monitoring costs. And the photo is the Kahuku unit, that is the mitigation project area. Currently what we have done though in this version of the document has just provided some of the clarifications that many of you had asked for. So it was just why I wanted to kind of walk through some of these. Basically planting 90,000 nursery reared seedlings and we did add the exact species of the seedlings that would be propagated and planted totaling 48 50 x 50 meter islands. Each island receiving approximately 1,875 seedlings spacing 1.3 meters per plant. The idea is that this spacing ensures canopy closure and long-term suppression of the grasses. So that's the idea, basically suppressing the grasses so that we can grow native forest there. The alien grasses will initially be treated with herbicides but then also as needed for the two years following planting. Park Service will be out on the site and you know monitoring the general health of the growing seedlings. So they're committed to help to Tawhiri meet their success criteria.

SPAIN: I have a question. Given the map it was a little bit challenging for me to figure it out. Do we know what hazards sub-zone of Mauna Loa this is? Is it on the hazard sub-zones?

JACOBI: It's probably a two is what I'd guess because it's right downslope of the rift. I know the Park Service has been doing quite a bit of restoration there already. Is that already funded by your project or is that Park Service funding?

AMANDA EHRENKRANTZ: Well Park Service used their funding to fence it and then remove the ungulates and then they did a test plot. After that they haven't been doing any other restoration.

JACOBI: I guess one thing that we can come back to again later on more detail is how to parse out that response to their actions versus what your actions are because fencing is a big part of that and so forth. And so that's something we'll come back to but just keep that in mind that that is an important thing that I'm trying to reconcile. You know, how that really relates to the credit for the mitigation and so forth. I think there's an answer to it but it just needs to be clarified.

AMANDA EHRENKRANTZ: I think just keep in mind at this point, it's been tested for over 10 years, right? So if we do the monitoring the year immediately prior to the restoration, that's what we'll be comparing to.

JACOBI: I was hoping that there had been monitoring already going on. That would give us a good baseline because I think one year is going to be a challenge and we know that that monitoring does not necessarily say oh because of this we got X number of bats. But we don't

know that that's for sure. So anyway, we'll come back to that again, but I just want to bring that up when you're talking about this here.

AMANDA EHRENKRANTZ: Yeah. I don't think they've had the funding to have more baseline monitoring than what Tawhiri can provide.

JACOBI: But I'm talking about the bat monitoring.

AMANDA EHRENKRANTZ: So, let's see. A couple just clarifications on the vegetation monitoring is that the Park Service will be on site and monitoring the general plant health. So if you know the discussion that we've had with them is if there's a drought or if there's an unusual circumstance, they will be on site. They want this project to succeed. This for vegetation monitoring initially they were I think 20 x 30 meter plots and we've expanded those to 50 x 50 meter plots. So there would be a baseline. So we've got this broken up into eight restoration sections just because it's such a large restoration that needs to take place over the course of eight years and there would be a baseline monitoring plot within each section the year immediately prior to the forest restoration and then at year 10 of the mitigation project those would all be measured again, and that's how we would compare with any conservation section.

MEHRHOFF: My question is back on the site selection for using the NPS site there. Did you check with Kamehameha Schools since you're leasing land from them and they have their big conservation planning strategy? Were they not interested in trying restoration?

AMANDA EHRENKRANTZ: That's kind of before my time.

JAAP EIJZENGA: I don't recall at the time what conversations took place or didn't take place with Kamehameha Schools. It is a quite a few years ago that we first started working on the HCP. One of the reasons we worked with the Park Service is that we started working with them on the seabird mitigation because there really weren't any other options for that and the conversation continued into this bat mitigation opportunity that was there and they had a need and at the time, you know, we moved forward with that conversation with them. But I don't recall. I don't know if at the time there were conversations with Kamehameha Schools.

STEVE PACE: No, I recall we never discussed directly. Why, are you thinking of doing mitigation somewhere else on the on the Big Island or close to where the project is?

MEHRHOFF: Typically from my perspective it's better to be going towards like the landowner's lands rather than jumping to the National Park Service in this sort of mitigation. So I was just curious whether that conversation occurred and Kamehameha Schools didn't want to do that. It's not an objection I have per se to this thing, maybe a note to the future. If you get to the point where you're looking at a subsequent rebuilding of the site early or re-authorizing of the site in eight years, ten years, whatever that period of time is to not forget about Kamehameha Schools because they have a fairly large conservation program that seems like it would be great and I used to work for the National Park Service. So I kind of understand some of that stuff. So I think they would have probably gotten the point of doing this on their own at some point. It just may split things up, but it makes it harder to parse out the conservation credits for it. So I'm not

objecting. I just was curious and leaving a note for the future: don't forget about Kamehameha Schools, particularly when that the project is on KS land.

AMANDA EHRENKRANTZ: And we did add a 12% upward adjustment to the size of the mitigation project partially to try to account for them.

MEHRHOFF: So I appreciate that. And I may have missed it then, the revisions, but I didn't see where you were talking about that justification for the Park Service was going to do something. I couldn't find that in the revision. Maybe I just missed it, but I didn't see that. You know those comments you made previously and so I know for my comment on that you said well there were some additional text but I couldn't find that so that was maybe my problem, but I couldn't find it.

AMANDA EHRENKRANTZ: I'll pull that up. There have been so many iterations. Yeah, it's hard to keep them straight. And this is my final slide on the forest restoration mitigation. So are there other questions on that project?

JACOBI: No, you didn't really address that second bullet point.

AMANDA EHRENKRANTZ: Oh, you're right. So I'm just focusing on changes here and hoping that you've read the documents, but I can give you a brief description of the monitoring which is kind of coming in three parts. The vegetation, the bad activity, and invertebrate monitoring. And I don't have invertebrate monitoring listed up here because there have been no changes to the invertebrate monitoring. I probably should have highlighted some of this under the bat activity. Just so we're planning to do the acoustic monitoring in the same vegetation monitoring plots. So we'll have two bat detectors in the baseline vegetation monitoring plot. Then also after, you know, a number of years following all the forest growth, we'll put the detectors back out in the same locations.

JACOBI: So you're talking about just the two or for two in each block?

AMANDA EHRENKRANTZ: Two in each restoration section. So there are eight sections. So two for baseline in each section and two for year 10 for each section.

JACOBI: You know, I'm really interested in the monitoring part. I've spent a lot of time working with different projects and so forth. I didn't see enough detail in there for me to really feel completely comfortable in terms of what it is. And I'm sort of asking the question that assuming this project gets approved and moves on and we come to our first or second or third annual meeting in a review in terms of looking with things. Do you feel that the monitoring is going to have enough statistical power to be able to show that changes are actually happening, particularly in terms of the number of bats? I know that's always been a very difficult thing we've dealt with in terms of how does bat activity relate to number of bats. And how do we monitor that and I do certainly have concerns in terms of a limited number of detectors and how useful that is in terms of determining actual increase in bats and particularly when you come down to having to parse out some of it for National Park Service credit too. So I just want to sort of get a little bit more comfort in terms of that you actually do have some depth behind, you

know, that the general statements in both the document and certainly on the bullets right here because I haven't seen that.

AMANDA EHRENKRANTZ: Well, I think you know the challenges in interpreting the results just as well as we do too. And so I think we didn't want to get too mired in too very set of a plan knowing that there could be other changes such as weather changes, other things out of Tawhiri's control. We wanted to keep this is in, especially the success criteria, very in the realm of what Tawhiri can control and take credit for.

JACOBI: I mean, there's two ways to look for change and sometimes we combine which is really the best situation; one is change over time. So you have a site, you monitor it over time. You see what the difference is there, and the other way is a side-by-side comparison. And when you combine the two of those it gets extremely powerful. But again, we're just, the data that are coming in are bat activity, whatever that means, and how to interpret that is sort of a challenge. And so I mean, this is the thing that our research program, our center has looked at from a batch standpoint, not necessarily any site, which is the conceptualizing what it would really take to monitor bats in an area. We do have some serious concerns that acoustic monitoring is really not enough to be able to give us confidence that actually changes happen and how to interpret that particularly given the variance in terms of what's going to be around the data that are coming in. So I guess I'm just trying to you know, again, I'm feeling pretty uncomfortable with even 16 bat detectors as being what it is and not knowing how that's going to be analyzed and so forth.

LEBLANC: Well the specific protocols are going to be really important. Like are you monitoring bats the same time of year and same weather conditions? All of those things will factor into the amount of bat activity that's going on. So if those circumstances between your baseline monitoring and your future monitoring aren't the same it's really not comparable. So, you know, the more detail you can put into how you're going to try to make sure that it is comparable will give us comfort and being able to measure something accurately.

JACOBI: And this is pretty critical because it does relate to, again, mitigating for the take. How to do that? I realize that we're still some way stumbling ahead with better ways to do that. But we do have better tools now also in terms of you know, thermal imaging and things like that that do help. There are ways that we can come up with potentially translating some of the sample data, accommodating both acoustic and thermal into potentially a number as opposed to just an activity rate. So I'm not completely comfortable with the monitoring for the bats at this point.

AMANDA EHRENKRANTZ: I think too I want to mention our approach was focused more on monitoring the vegetation which is something that Tawhiri can control or has more control over and kind of taking the literature of what we know at the moment to be good habitat for the bats and trying to create that. Instead of trying to account for all these weather factors or you know, the fact that the monitoring is difficult and difficult to interpret. I think we were trying to really hang the hat on the vegetation monitoring, the vegetation characteristics, and vertebrates, and use the science to back that we are creating appropriate habitat regardless of whether they choose to use it or not in any particular one month monitoring period. That being said I would be interested if you had an example of something. I mean, I feel like if you can provide an example of something that we could maybe discuss or think about or shoot towards rather than try again.

JACOBI: Oh, I understand that, and that's part of the challenge. I realize there's obviously nothing I'm going to pull out of my back pocket here right now to say here's the sampling design that you should do. We have talked about it and I realize that there's sort of a time issue here in terms of you want to get the project in hand. I was just hoping that this would be a little bit further developed at this point to have confidence that as you move forward, it would actually be able to give us a picture of what change is and how to relate that change to numbers and so forth. So I'm not sure how best to approach that. We will think about that, will come back more in the discussion in terms of what some suggestions are. Right now I do think it is a weak part of your proposal.

AMANDA EHRENKRANTZ: Any more thoughts on this mitigation project?

MEHRHOFF: Its ambitious because you have such a short period of time to show results so you wouldn't be able to fully offset the bats during that time period because you're still going to be doing the restoration on it, so that gets back to when will the area be expected to be fully operational—functional, I guess that's a better word, functional as bat habitat in your opinion.

AMANDA EHRENKRANTZ: Which I think we addressed in the REA appendix, which I'm scrolling through right now. This might not be the best time for me to find that but the research equivalent of the analysis was based on bat years. And I can find that for you. Really very minimal changes to the petrel mitigation project keeping that very similar. It's within the fenced colony of Hawai‘i Volcanoes National Park. It's to fund more frequent fence inspections to make sure that the fence is not being breached. Funding eight surveillance cameras to monitor the predator ingress and maintaining the fence with the white tape striped deterrents. Funding additional years of nest density monitoring at an estimated cost of $115,000. Really the only change that we've made there is pushing the adaptive management trigger to three years instead of two years. I think that was after a conversation with Park Service that they thought that was a better time frame to assess whether this is going in the right direction.

JACOBI: We know how to grow seabirds. I guess it's what it is doing and what problems are controlling predators, you can count burrows, you can count fledglings and so forth and it gets really good. I think it's exciting. Again the question comes back is how do you parse out your part versus the Park Service. I realize your part is a very small piece of that for sure. But you know, how does that work? How are you doing that calculation? Because they started this fence a long time ago; they've been doing the work there. That's what's gotten moving again, and your part there helps that for sure. But again, is there a way that you're looking at how to properly separate out what is credit for you? Even though I realize it's very small, but just having that calculation I think is important.

AMANDA EHRENKRANTZ: I mean, I guess I can't say that we've really quantified that because I don't know how we would approach that. I think it's just more been an ongoing conversation with Park Service about what they need and how we can help, right? What they think will be the most effective. We're really leaning on them for their expertise and they understand the end goal of you know, mitigating for this proposed take and so I think with us, it's just been a back and forth with Park Service about how we can help each other be successful.

JACOBI: Well, I think is an important point and it doesn't just relate to your project, the other projects too. We've had this come up before and we'll have it in the future too in terms of, again, somebody's doing an action and then you put a mitigation action on top of that, is how do you separate out? You know what goes which way and so forth. I know that's been a real challenge. So I think that's really an important thing to come up with rather than the we're just talking with them and sounds like we're doing good things or so forth, and I realize that the mitigation component is very small. There's actually no question about that, but it's just an important thing in terms of having that kind of documentation I think will really help strengthen. Because there's no question that what they did initially really led to a resurgence of the population in the area.

AMANDA EHRENKRANTZ: But they are having trouble maintaining the fence.

JACOBI: Well this gets back to what Loyal had brought up earlier too and I know this has come up several times in terms of you know, sort of a reluctance to go to a federal entity like the Park Service to put mitigation on top of because again, this is what their mandate is. Yes, everybody is short of cash and so forth to be able to do projects but is that the appropriate way to do it? That's the reason that it is important again to try and make sure that there's a clean separation between what's happening there so that it legitimizes participation in that.

AMANDA EHRENKRANTZ: Okay, any other thoughts on the petrel mitigation project? This is my only slide on this project and this aspect of the mitigation. With Nēnē we've been working with DOFAW on a scope of work to construct a new breeding pen on Hawai‘i Island to maintain the fence and enclosure and have them monitor and band the fledglings at an estimated cost of $30,000. In addition, in this version of the document is the success criteria of them basically producing six 8-12 week fledglings from the pen. Any thoughts on this? I don't have other slides on this project.

A few changes to the compliance monitoring. Using 50-meter circular monitoring plots for the bats. I don't know if you remember that we've been using these elliptical monitoring plots kind of based on the prevailing wind direction. So maintaining that for seabirds and Nēnē. And then adding the MET tower monitoring. So 30-meter circular monitoring plot around the MET Tower, which is 50% of the tower height.

JACOBI: If you're going to be surveying the seabird plots which are larger than the bat plots why are you not surveying those for bats too? Also, I guess I'm confused. Why don't you have the same effort in that larger area?

AMANDA EHRENKRANTZ: Well, essentially we would be running the dogs through the whole elliptical search plot.

STEVE PACE: We're looking for everything for the whole area. I think it's in the definition of what is monitoring system conditions.

MEHRHOFF: Because I think that falls outside of 50 meters.

JACOBI: Well, yeah, I would get to that in a second. It just doesn't make sense. If you're going to be, especially if you're doing with canine searches resumed you're not going to have a bat canine and a seabird canine going to run at different times. And so you're able to find bats within the 50 meters—that doesn't make any sense.

AMANDA EHRENKRANTZ: But the 50 meters is based on the Holenmuer 99% ballistic fall out zone for this size of turbine.

JACOBI: But does that include the wind? And the cliff?

AMANDA EHRENKRANTZ: Well the cliff is sort of another... we can't move the cliff. But things may be falling beyond your 50 meters over the cliff, right? But that's for the model to account for that.

JACOBI: Evidence of absence, is that applicable to this high wind area? Yeah, you're talking about which model; do you talk about the RA? Because I thought there were some questions in terms of the limitations of it for certain wind speeds and so forth. In terms of ballistics particularly.

AMANDA EHRENKRANTZ: We can define the searchable area in the model.

JACOBI: But you need to have things falling in there. But if you rarely have anything falling in there, even that might not give you a good picture of what actually is being impacted, I guess is what I'm saying.

MEHRHOFF: And I thought other projects did outside 50 meters for bats. I'm just asking about how far out they go right now, regardless of the turbine height. The ballistic model which people default to for the bat, I'm interested in that so I'm not complaining even though there's been so much about using the ballistic model in high winds or when you're using high wind speed curtailment potentially skewing the data. Besides that I thought that people were sometimes looking out beyond 50 meters. Am I wrong on that or not? You know, so it seems like I don't see what the downside is, as Jim said, to do that. If you're going for a larger area expanding that for the bats which then makes you more likely to have found whatever you need to find, whatever it is. It seems like that would be a logical thing to do since you've got the dogs out there anyway.

COGSWELL: Additionally of the three bats that were previously killed one of them with outside the 50-meter radius.

STEVE PACE: I guess let's get into my argument here. So that past carcass was badly mutilated. So there's a question of what killed it. But we're trying to stick to a scientifically justifiable search radius and if there's some other scientifically justifiable reason to increase the 50 meters I'm than happy to look at it. Also the monitoring for the bats entails SEEF and CARE trials. So I think everybody realizes as you increase, double the radius you're going to quadruple the area for those SEEF and CARE trials and that's going to impact your detectability in the end. And of course your calculation of take. So I guess if there's a scientifically justifiable reason to increase the SEEF and CARE radius' I would be happy to look at that.

JACOBI: Well CARE doesn't matter. I mean you basically just trying to see how long things last and it's not really related to a radius so much. I mean that's a different thing altogether. The SEEF is just more in terms of our people finding things. That's another issue. That does increase the search area. So I would say that there's an article in the 2018-2019 symposium when Manuela talks about fall out using high wind speed curtailment; that might be some justification for expanding the search area for this particular site, as one example. And then I believe the other justification for doing that would be to make sure that with your site, which has reasonably high wind speeds, that the ballistic model is validated.

STEVE PACE: So let's get into the ballistic model. So the rotor swept areas are facing north-south basically 99% of the time. Either the wind's coming from the east the vast majority of time, 95%, or we get these Kona winds during the winter. Turbines spin all the way around, by the way; during the shift of the wind the turbines aren't operating. There's no wind. Especially at night with our 5 meter per second curtailment. So the rotor swept facing one way or the other. Well north-south what be almost a hundred percent of the time. So what's the probability of a strike assuming winds are in a regime where the bats are going to be flying in those kind of winds? So where's that carcass going to wind up? Either north or south from the turbine. And then the question is does it get blown off the off the pali if the turbine's near the cliff and I have kind of an interesting observation told to Amanda and Jaap a few weeks ago. So I guess it comes down to probabilities and scientific justification for increasing the SEEF and CARE areas and that's really what this is for obviously. We're still searching outside the 50 meter area for other carcasses. So I think if we find a bat outside of that area then we're more than happy to review increasing the monitoring areas.

SPAIN: At what towers were the last three carcasses found?

STEVE PACE: Well the last carcass was found at turbine one. So that's very close to the pali. I think it was turbine ten and 11. Probably still much farther north on the array there.

SPAIN: It would be helpful for me to see your description of the wind and the facing north-west in relation to the map; would be helpful for us to point to it.

STEVE PACE: Go back to your presentation. Actually there's some great pictures in Amanda's presentation here. So we can start there. So this is kind of north looking south; you can see how the turbines are sitting basically on I guess the highest portion of the area out there and these were positioned purposely by our wind engineer to capture the most amount of wind, and then you can see how it kind of it drops off to the west.

SPAIN: That's 14?

STEVE PACE: I can't tell because there's another shadow here. They may be between 13 and 14.

JACOBI: So that's not the real pali. No, that's just the gentle pali.

STEVE PACE: Now here's another interesting picture. Hopefully you guys recognize that wait, these are kind of facing funny directions. Plus the bait blades are pitched out. So this is the one turbine, the next turbine looks like its got its blades pitched, but the winds are obviously very light. It's probably trying to make some power but then the turbine's further down has its blades pitched back out. It looks like from this that the turbines are facing effectively due north. It's a very light wind day and then looking off there you can see the lip of the of the pali, then it drops off down into a lava flow from 1860.

SPAIN: So, you know that one of those was at the tower one, but the other ones we're not sure?

STEVE PACE: I believe it was turbine ten and turbine 11.

SPAIN: It's just from other wind farms we've seen that there's certain towers that tend to be hotspots.

AMANDA EHRENKRANTZ: Right, I think it was fairly certain it was three separate turbines, not multiple at the same turbine.

SPAIN: What you're raising is this whole topography of the pali because am I correct in thinking that I read that between towers one and five there was a great deal more activity of detections along the pali because they felt that the bats were getting into this low wind area?

MEHRHOFF: Wasn't clear to me in the discussion on that point whether it was associated with that part of the wind farms or whether it was just the pali in general?

AMANDA EHRENKRANTZ: I'm sorry. Can you ask the question again?

SPAIN: So I believe between towers one and five there was increased detection and there was a theory associated with the bats using the pali as kind of wind barrier. So there's a lot of back activity around turbines one and five there.

AMANDA EHRENKRANTZ: We did detect more activity with the detector F which was placed along the pali and 2015 had significantly more activity than other years in that zone.

JAAP EIJZENGA: But that was not at the rotor swept zone. That one detector was placed just to see what was going on over the edge. And so those detections were over the edge probably in the lee and we didn't see that once we put the detectors up in the nacelles. We didn't detect that same kind of difference between different spots along the turbine strings if that makes sense.

SPAIN: So, just so I understand, you've got the tower, you've got the pali, you've got a detector down here, and this area is unsearchable.

STEVE PACE: Well, that one detector was placed right at the lip of the pali and was pointed out and was just downwind of turbine one. Okay, we had a detector in the top of the turbine one and then a third detector between turbine one and two at ground level. So three detectors down there. The other two detectors, other than the met tower—there was a detector at the met tower—the

other two detectors were, if you could pan out, one was at the top of turbine 14 and the other was just downwind to 14. So that's where we had detectors placed.

AMANDA EHRENKRANTZ: So we're trying to get a representation of the activity across the site and it was apparent that the most activity was the one that we have specifically placed at ground level serving the cliff.

JACOBI: And you're currently monitoring. You got two monitors out there now? You don't? Why not?

STEVE PACE: Unfortunately, we weren't able to get any mitigation for monitoring. So we terminated that activity.

JACOBI: I'm confused. Do you want to know what's happening in the area in terms of bats as a whole?

STEVE PACE: I think for a scientific basis, we'd love to know but I don't know as a permit process, do we need to do any more than four years of monitoring?

JACOBI: Okay, I guess it just comes down to it. You know again, there's two points to come up, one that's sort of a future one. The first one comes up in terms of how much bat activity is around there and how that really relates to whether your search area is adequate for determining what's going on there? So that's one aspect and I don't know how to bring those two together without any other data. The second one is if at some point you decide to go with deterrents, you definitely want to have a baseline to start with before you start getting into using deterrents and I really encourage going to that direction because I think they do have some real potential. We haven't seen how that's realized here in Hawaii as of yet, but definitely you want to have a baseline because if you do deterrents that's going to help you understand whether it's making a difference or not.

STEVE PACE: Do you think acoustic monitoring is the best technology to use?

JACOBI: No, absolutely not.

STEVE PACE: I think we need to revisit. You know, it's game open at that point.

JACOBI: You know, this is stuff that has been published. It's been brought out. I'm sure you're aware of the studies that you know, our researchers have done in terms of looking at the comparison between acoustic and thermal and bringing that together in terms of a tool. The recent paper that came out Marcos co-authored and bringing insect assemblages into it also in terms of understanding more about what's happening in the area. So I mean, I think there are sharper tools by far than just a couple of bat detectors because you don't get really much out of that other than yep, there's a bat here, but we don't know if there were bats here if we don't hear anything on the detector because 75% of the presence of these are not necessarily detected by acoustics.

MEHRHOFF: I think Jim is underselling acoustics and to some extent it's not as good as having additional stuff, but we had this discussion with all of the wind farms that have come up for amendments. Right now we as the ESRC and the general wind community and bat community as a whole are trying to come to grips with how to come up with activity monitoring at the sites, activity monitoring at the mitigation sites, and then preferably monitoring somewhere else so that we can really see what the bat populations are doing. So having activity monitoring at the site is really important because it's going to tell us first of all, if you're depleting the local population, hopefully we get a system that we like. We don't have right now an off-the-shelf, this is the monitoring plan to do that. That's one of the things that the bat task force has been trying to work on and it needs to come up with so what I would be looking for is for you guys to participate in that when we know what it is going to be, so we're not wasting money, whether we have the right monitoring that we'd be using at each of the wind sites as well as each of the mitigation sites so that we can begin to make sure that mitigation sites are working, for one. Then two, making sure we have as much information as we can to say that the populations of bats near those sites are not being depleted. So that's why those are important. So you may not be doing it now, but you should be in my opinion, and you're willing to work with the group to come up with what makes sense as far as activity monitoring that's more standardized at the wind projects in Hawai'i, then that's what I would be looking at for you guys. I don't want you to waste money on something but I also realize that we need to know that, otherwise we're never going to be able to decide really whether or not these projects are impacting the bats.

JACOBI: That's sort of a pre-announcement in terms of this workshop. We're planning on having a second bat workshop, which we will be getting into more of these details and I'm presuming, I know you participated in the last one. So that's going to be an important point there, but you know, I think there is a potential for acoustic monitoring as being a very useful tool if it's deployed properly, you know, just a couple of detectors is going to be really limited and in some cases I would really seriously question whether that investment of money and time to collect the data and analyze the data, which is particularly a time thing for just a few detectors, is worth the effort. At some point, there's a point where in terms of you know, the viability of what you're doing makes sense. And otherwise, it's you throwing money away because you're not getting anything that you can work with. And so I fully agree with what Loyal is saying there in terms of activity monitoring of the site is really important in terms of understanding what's happening at that site and looking at variability there and how that may relate also to what your take is if you have take or not and so forth. So, I think it is something you really need to put into your view, into your planning, and your budget also. And getting back to a point that you had raised earlier in terms of the you know, the scientific basis for having a larger area. I mean it's the same scientific basis as what you have for the seabird monitoring. I mean, it's the same logic theory. You have a certain area and then that's what you're searching and the concern is, particularly with bats which are hard to find, if you're missing that and I've got some real concerns in terms of what carcasses are going over the cliff in your lower sections and whether what you're finding within a 50-meter radius, even with the Evidence of Absence calculation, will give you an adequate picture of what the take is. So that's why I would encourage a larger search area for the bats making it at a minimum what you're doing for the seabirds too since you're doing that anyway.

AMANDA EHRENKRANTZ: So my final slide is also no changes with funding. Essentially we have the USFWS and DOFAW contingency funds, added it to the letter of credit, looking at 2.4 million spending towards conservation for these three species and just the way that it gets parsed out in terms of over the course of the 10 years of the program.

SPAIN: When is the project year PPA?

STEVE PACE: April 3rd, 2027. We'll be seven years left coming this April.

AMANDA EHRENKRANTZ: And then we do have some time added in the permit for decommissioning.

JACOBI: And the contingency funds in USFWS and DOFAW; can you just do a real quick refresh on what that money is for?

AMANDA EHRENKRANTZ: It's an assurance so it's not provided unless called upon.

JACOBI: So in case there's a changed circumstances, is that what it's for? It's not for any kind of compliance monitoring or anything like that. That's a different thing altogether.

AMANDA EHRENKRANTZ: Well, I think that the DOFAW contingency is for compliance monitoring should they decide that's necessary.

JACOBI: Is that what it is Jim? Or whomever? I mean, is that what's being done with that?

COGSWELL: Yeah, as far as I know.

JACOBI: So that's going to DOFAW staff to periodically go out and do checks or monitoring or what? I'm not sure what it's for. Or is that for staffing, paying Lauren's salary?

LAUREN TAYLOR: I've billed the project for technical services that staff provides. And that would go into compliance monitoring; it goes into a different fund. And that would also cover if I went out and did a spot check.

LEBLANC: That 10% at least for the Service does not go to us. We can't accept funding like that. It'd have to be set aside to do things that we direct them to do as far as compliance.

JACOBI: That clarifies that. So that is different from the DOFAW piece there.

AMANDA EHRENKRANTZ: I have a description that can read to you, USFWS requested contingency fund will cover adaptive management, changed circumstances, and inflation. In addition, DOFAW requested contingency fund will be available to cover mitigation project management if needed. And that's all I have in terms of the presentation. So again, I just want to thank you for your time and your consideration, your thoughtful questions. I guess open the floor up to more discussion as needed.

(BREAK)

COGSWELL: We'll continue with just a little bit more comments and then we'll get comments from the public if there are any and then we'll move on to the decision. So opening up for more comments and discussion.

MEHRHOFF: Question for you. So again, thanks for putting down responses to comments on that which I have, all the staff comments. For some reason I was thinking there were more.

AMANDA EHRENKRANTZ: They're ESRC comments. But no, we were not asked to provide a comprehensive list of staff comments. We have them, it's many rows long, but no we were just asked I guess for Sunshine Law, the ESRC comments and responses are public.

JACOBI: So I just had a question about your canine searches and you know, that's something that you've instituted and I really support that completely. I think it's really good. Who do you contract to? How does it get done? How are you shifting between different vendors or you know, how is that working and are the dogs trained for all of your target species?

AMANDA EHRENKRANTZ: So it's Teresa Gajate and Makalani you might have heard that before, so they initiated searches on both KWPs and so they're well-trained, both of them.

JACOBI: Yeah, how often do you run your searches?

AMANDA EHRENKRANTZ: Weekly.

JACOBI: Okay, and so they certainly they go between different projects. How well did they do in the higher grass and so forth because I know outside of your pad there's more grass, and then I wanted to talk about the cliff.

AMANDA EHRENKRANTZ: I mean so far they've done amazingly.

JAAP EIJZENGA: Yeah, so the site's most of the years very dry buffelgrass and it's pretty bare and there's some areas where there's little bit of a dip where the grass can get a little bit taller. It's grazed as well. And so most of the time it's really quite short and it's very easy to search but sometimes depending on rainfall and grazing patterns there can be areas where the grass is a little bit taller and that was very problematic for visual searches, but definitely not tall or dense enough to make it too challenging for Makalani the search dog.

JACOBI: And you're talking about the elliptical, the larger blocks, correct? Yeah. So again, I guess I'm confused as to why you're restricting the bats to 50 but you're still searching larger and you're still going to find bats in the larger area. Why not have that larger area for the bats? I don't understand the logic there.

AMANDA EHRENKRANTZ: I think that comes down to the entry in the model of the searchable area. So when you know, we've been advised to fall on the Hull & Muir ballistics. So

that's part of it and then it maintains more searchable area for the bats with the Hull & Muir ballistics model as the basis.

JACOBI: Doesn't make sense. 50 versus the larger one?

AMANDA EHRENKRANTZ: Because of the pali. So the larger area drops off of the cliff.

JACOBI: I understand that but when get your other areas you do have the potential to search that larger area and you do obviously so again, you know for your bats why isn't that included in your search area? And then likewise you've got a truncation of your seabird search area in your lower areas too so you do have a variable size there.

AMANDA EHRENKRANTZ: And with the pali, it's still I think an 87% searchable area, but then with truncating into the 50-meter bat search plot, it makes for bats in the 90% searchable area for the bat.

JACOBI: So far the only found one which is slightly outside of that 50. And your CARE and SEEF: who does that?

AMANDA EHRENKRANTZ: We proctor that. SWCA.

JACOBI: Yeah, how often do you do that?

JAAP EIJZENGA: It's in the plan. I don't recall off the top of my head right now. Obviously Amanda does, she helped write it. A dozen times a year?

AMANDA EHRENKRANTZ: Once the permit is issued we will get into regular SEEF and CARE. We did SEEF and CARE while calculating data for the Evidence of Absence for the permit request and plan to do that again once the permit is issued. We typically do that kind of on a rolling basis so that we can surprise the searcher. So we have a total that we like to do within each season and it's usually an average of twice a month.

JACOBI: For just the SEEF. For CARE you don't need to that quite as frequently.

AMANDA EHRENKRANTZ: Well for CARE we like to use the motion sensor game cameras and so we kind of roll those through too depending on our results.

MEHRHOFF: So going back to the 50 meters, what are the thoughts from the USFWS and DOFAW on the 50 meters for the bats because you're the ones who had the staff that know that Evidence of Absence stuff and what the staff makes of the 50 meter search areas.

COGSWELL: From the staff side we did have a similar comment, just questioning why it was limited to that 50 meters only. The guidance is just a guidance, it's not necessarily just restrict your search area at 50 meters.

LEBLANC: Unfortunately, I was not able to ask our staff person who does Evidence of Absence what difference it would have in the model for predicting take between the 50 and the elliptical. And so that without knowing that answer I can't really say biologically whether it's needed.

MEHRHOFF: I mean the turbine size on these is the same roughly as KWP I and II correct?

AMANDA EHRENKRANTZ: I think smaller.

STEVE PACE: Well the hub height is 65 meters. The tip of the blade is a hundred meters. So that's why I think the Hull & Muir came out with a 50% total height, which was why 50% total height.

AMANDA EHRENKRANTZ: No, it's not a percentage. It's 50 meters for the small turbine class, which is what these turbines fall into.

MEHRHOFF: So they're 70-meter rotor blades. Total height is a hundred meters when the blade is vertical to the very tip of the blade. I wish I knew the black box that was Evidence of Absence.

JACOBI: In the past we've had Diane here with USFWS who's been able to answer those kinds of questions directly. And so I think we're not there today. It certainly is something we'll get into in that workshop. Getting back to your baseline monitoring at the site. Would you be open to considering, you know, adding more detectors to your site to better characterize what's happening in that area? And one thing that we found, our researchers have been involved in a couple of different projects where they paired acoustic and thermal in certain sites and related to the nacelles to be able to better connect the activity that you're getting through to move into the acoustic monitoring plus the thermal. Even a short duration, you know, say like a year or something like that kind of comparison gives you a good baseline set of information. Will you be open to considering including something like that? I mean, again, I'm not advocating for our program to do it or anything like that. We have done it, but it can be done.

AMANDA EHRENKRANTZ: I guess my question is to what end?

JACOBI: To have a better understanding in terms of what the activity is at the site and one of the things that potentially with the thermal imaging is you may be able to get some sort of an understanding in terms of if there is a strike that doesn't land within your 50 or goes over the pali that you might be able to have an indication of something else happening. Then it's just trying to eat down into you know, what really is. What is that take there? In reviewing your project and so forth. I do feel a bit uncomfortable in terms of that search area relative to the bats, you know, and particularly with the proximity of the pali and the wind speed and so forth and it just would help better understand that relationship.

COGSWELL: I think additionally it would also help if deterrents become installed.
You have a baseline, if is decreases due to not the decreased activity but your bat's actually avoiding the turbine.

JACOBI: I think it's a justified assumption that you're trying to do the best you can in terms of minimizing your take and so forth. And so I mean, this is just trying to get in that direction a little bit more and to solidify that level of confidence in terms of that's happening. That's really where I'm coming from on that and I presume you've seen the papers that come out with those comparisons and so forth.

STEVE PACE: How environmentally hardened are those cameras?

JACOBI: Oh very much so. They're also coming down in price considerably. You know, when we first started doing that which is probably five, six, seven years ago they were really quite expensive compared to now and I don't have a price on it, but they are environmentally hardened.

STEVE PACE: So they're in plastic cases? Because have a horrible corrosion problem out there.

JACOBI: We deploy them at least two places that I can think of right off the top of my head, Kawailoa and that project there. And then also in Auwahi, both of those, you know, give you different kind of conditions. Auwahi being much more ocean related and sort of similar to your area. So they're there and it's something that does give you additional information. It's not a question of a long-term deployment of that but it's just to better understand that and then also to again link up better with what your site activity is at the wind farm site. And this is definitely a topic that is going to come up at our workshop in terms of looking at the sharpest tools we have now, which is quite a bit different from what we had five years ago.

WINTER: I got a comment and it has to do not so much with what has changed, but with what hasn't changed since the last time you guys were here. We talked quite a bit about the Band-rumped Storm Petrels. There were no significant changes in this draft of the HCP. It's a State listed endangered species. There's a breeding colony on Hawai'i Island. There have been observations just offshore of the project area with the assumptions of flying over the project area and in our last meeting Fern Duvall confirmed that this is prime breeding habitat for the species. I understand the USFWS has given a determination that you guys don't need to consider for the federal process, but we are not beholden to the federal process. But we are beholden to 195D and I don't consider this HCP adequately addressing all the components of 195D for the species. That's all. That was a comment not a question. Anybody else?

JACOBI: I brought this up with other projects. I'll bring it up again in the next project. We're going to be discussing and so it's a common theme which is I would prefer to see us moving to where a third party, not contracted necessarily by you, but under the auspices of DOFAW would be responsible for the CARE and SEEF part of the work and then periodically, you know shadowing, you know, some of the other things and so forth. It's a greater involvement in that compliance part and it's not saying that you're not doing it right or anything else it's just having much more consistency across all the different projects. I'll be bringing this up and again our next discussion about our next project. That's on our agenda? But I think this is something again. I want to get on the record in terms of I think this is the direction that I really would like to see us go into particularly with the CARE and SEEF part of it. Getting that and it's you know again, I'm not making any suggestions about things not going right and so forth. I think it's a much

cleaner way of doing it and in some ways it may be more efficient or effective or cost effective. It may not but it should be something that at least will give us full confidence across all the different projects that we're doing things in the same way and we have at least a consistent measure. So anyway, that's something to consider in terms of your project but as I say, this is something which has got broader aspirations to the ESRC.

LEBLANC: To back up to the searchable area. Unfortunately, I don't have a copy of the HCP on my computer but our environmental documentation says that the searchable area extends 197 feet open and 295 feet downwind from the turbine bases. Does it specify one species versus another?

AMANDA EHRENKRANTZ: That's coming from where? What environmental documentation?

LEBLANC: It should have been pulled directly from the HCP to go into the EIS.

MEHRHOFF: This is a change you made, right? If I understood that correctly because you have been doing ellipses, you went to the circular. And it will give you a higher percentage of searchable areas, not necessarily capture a higher percentage of bats that are down.
That was probably made after that document. That was since the ESRC meeting right?

AMANDA EHRENKRANTZ: This change is since the ESRC meeting. There have been other federal versions since the ESRC meeting and I get the versions confused.

LEBLANC: Again I don't have final HCP; it depends what the final HCP says. That is the requirement since we've already permitted.

AMANDA EHRENKRANTZ: The 60-90 meter ellipse hasn't changed for years.

SPAIN: So just the bats changed to 50. I'm just trying to line up what we're talking about. The reference you're talking about is the federal HCP for their federal permit to take and it includes this broader area for searches and it doesn't differentiate between birds or bats. Okay the state HCP version that we're now reviewing does differentiate between bats and birds and the search area has been reduced to 50 meters. Am I correct?

LEBLANC: If that is permitted for us, they can't do a smaller search for bats for the state because they're more restrictive.

SPAIN: Thank you for that.

COGSWELL: Any other comments from the committee?

SPAIN: I've raised them and I recognize HCPs need to be forward-looking and I understand that we're only allowed to consider basically the 7.5 years and 26 bats. I don't see any reason that we couldn't look to modeling in the reverse direction. I recognize it can't be a part of this but I just want it basically on the record that there's been six years for sure at least of take that isn't being

accounted for or mitigated at all and I don't want to see projects in the future be given that essentially take golden ticket that I feel has happened here.

JACOBI: We've got some projects that have gone over 20 years that still haven't been completed.

MEHRHOFF: So the plus side, when you look at the amount of area they've put into mitigation, it's 46 acres per bat, which is good and so I don't have to complain about the acreages today on that, which is good. So there's a little bit of a buffer there for those three bats potentially. Again, you may not fully realize that over the time period because it was 40 acres for 10 years, and they won't be fully functional but it is also better than 20. So there is some there I agree with you. I think we need to figure out how we want to be addressing that. In particular when you look if there's a decision to not include something in HCP for example and we'll take this to the next discussion or next item today as well. But if there's no take of species X and then it turned out to be a take on that, for sure in those instances that could be really important to have the HCP cover that. I don't know how you do that, but in particular, I think that would be good. That should not be a quote on quote freebie. But going backwards, that cannot happen. I think it just is the way it goes. It's unfortunate, but I don't see a way around it.

LEBLANC: Hopefully with the new information we have about bats, but even some of the distribution of the other species, we would tell the new applicant, you know, somebody who just got their power purchase agreement, we think you should get an HCP for your bats or whatever the other species are whether it is 8-10, whatever years ago. We might not have known that bats were plentiful on the southern point of Hawai'i Island you know, so I don't think the ESRC or the Service or the State would sort of look at something like this when it was being proposed to be built now and say, ah I don't think you're going to be affecting species. So now we have some existing problems. I don't think we'll have it for future projects. But yeah, I think making that effort to be sure that all power purchase agreements are tied to HCP process from the very get-go and not are voluntary.

MEHRHOFF: But it's considered a voluntary program.

SPAIN: I think that needs to change.

COGSWELL: Further committee comments?

JACOBI. I may have some more but I'd like to hear any public comments and maybe anyone from the public would like to comment?

MAXX PHILLIPS: Aloha, my name is Maxx Phillips. I am the Hawai'i Director and Staff Attorney for the Center for Biological Diversity. We have a few concerns with the habitat conservation plan as it exists in its current form. While we want to applaud the applicant for taking into consideration the ESRC's past comments we do have concerns that the staff comments were not accounted for in this meeting and we're hoping that as you move forward that those will be reflected in the final HCP if it is not approved today. First and foremost as the committee has already spoken to the 50-meter search radius is most likely too small and very

concerning especially as it relates to the area where the one bat detector that was deployed showed increased activity. On that note the monitoring of the site and of the mitigation as it moves forward is likely too small. Site specific monitoring is imperative as we understand not only that bat behavior is in that site, but as we get a greater image statewide for the species for the mitigation sites there's no reason why those detector shouldn't be deployed now as we determine whether or not this is a suitable site for compensatory mitigation. On that note, it's a little bit alarming, as I think some of the committee members have brought up, that the short timeframe for the mitigation site would actually be likely to offset the take of these bats. I think that there is a comment that you folks made in your HCP stating that with assertion. But basically that the applicants here have minimized and mitigated to the maximum extent practicable. However, that's not demonstrated in the document itself. One area where I think additional minimization could be beneficial is an increased wind speed curtailment. Studies from the mainland demonstrate that this has an impact on bat mortality and the 5.5 for only 30 minutes two times a day is likely inadequate to minimize to the maximum extent practicable as required under 195D, our Hawai‘i endangered species law. Additionally with mitigation, as I said, the compensatory mitigation is unknown. That is great as native forest restoration as it is for an environmental benefit for the state of Hawai‘i; there is no science available to demonstrate that that actually has an impact to bats. And so with the take of these species, there's no evidence to correlate that is going to mitigate that species. Other than that the Center would also like to make sure that the applicants are aware that under section 9 of the ESA that they are still liable for the take of the three individuals that they will not have coverage for under an approved HCP and that that could still go to the courts. So it would behoove the applicants to probably include them especially in their mitigation as they move forward. Thank you.

AMANDA EHRENKRANTZ: Can I clarify something? So the time of curtailment is referring to the time of sunset. That occurs around 5:00 or 5:30.

JACOBI: So it's a triggering. I had the same kind of confusion. It's when you trigger your start for that, then goes all night.

COGSWELL: We have another comment in the back.

GLENN METZLER: My name is Glenn Metzler. I just want to say I strongly support Jim's suggestion that all SEEF and CARE, especially SEEF, be done by an independent organization. I think that's really important for all wind farm monitoring.

LAUREN TAYLOR: I have a testimony that was submitted by email. So I will read it for the record. It's for the committee. This was submitted when there was a plan to bring Pakini Nui at the last meeting with KWP to so it sort of references both, but it is really intended for Pakini Nui. So I saved it for today. It's from a member of the public.

"Aloha ESRC chair and members. I am a 40 year resident of Ka‘ū on Hawaii Island. I can attest that the declining population of Hawaiian hoary bat in our area. It seems that an area was so many acres of both native forests and disturbed by lightly settled properties would support a growing population of bats. But the opposite is the case. We used to have dozens of bats flying the one and a quarter miles of hedgerows that form the sides of Ka‘alu‘alu Road, now there are

none. My personal theory is the vog that poured over Kaʻū for many years wiped out the vast majority of insect blooms that formerly fed our bats. Another theory posed by a friend of mine concerns local farmers release of wasps a number of years ago to prey on fruit flies affecting their crops. The wasps have thrived and may have preyed on the bats insects before the bats get to the insects. I strongly support your efforts to determine your bat guidance as 20.3 acre versus 40 acre is unfounded in scientific findings. Your consideration of the bat habitat quality and availability of prey is based on sounder reasoning than acreage is essentially pulled out of thin air. Well, not under consideration at this meeting but today it is. I'm particularly alarmed with the contrast between the Pakini Nui Wind Farm plans at it is near my home and the wind farm HCP those before the committee for approval today—meaning KWP II that already came—the the KWP II HCP has both a research and a habitat management component while Pakini Nui has just the heavy reforestation of some National Park lands with absolutely no bat research at all. I encourage the committee to continue the guidance revision work based on the ongoing research to find out why our bat populations have such an extreme decline and to prevent extirpation of the few remaining Kaʻū bats. Your wind farm HCP bat studies will provide valuable knowledge that will give our bats the best chance of survival. Thank you for the committee's continuing efforts." And that was from Sandra Demoruelle on Hawai'i Island. She wanted that read today.

COGSWELL: Further comments?

JACOBI: So final discussion just bounced off on a couple of ideas and reiterated some of the things we are still trying to better understand. How to determine how many bats are in an area and how that changes over time. We are further along now than we were five years ago on this, but we still have a long way to go to come up with kind of a good quantification, but we're trying very hard to do that and I really see the opportunity and projects such as this and KWP II and Auwahi and all the other ones that are doing it as an opportunity to mix in not only the obligations you have relative to the mitigation, but also to have that as an opportunity to look at better understanding, you know, how to monitor and have an adaptive component into that monitoring in terms of now we have more tools for trying to figure this out. Because it is a benefit to all of us and to also just the conservation of species like the bat to better understand this so that we can minimize the impacts that we have on there. So I think this is something that I would just urge you to consider in terms of the potential for expanding some of the opportunities that you have both on your site as well as on the mitigation site to include more of that kind of research that would help us all move further ahead. Not just on your project, but on other ones as a whole.

MEHRHOFF: So for the staff comments, I mean in the past, we've always gotten a fair amount of feedback from both USFWS and DOFAW staff on some of the issues that they were kind of taking care of and rectifying and have really gotten cleaned up. There's no problem in that kind of stuff. So I kind of don't feel like we're getting that as much now, so I'm concerned about that as far as making it easy, and I'm being selfish here to some extent, being easy on me to be able to look at the things that are important to decide how they actually relate to whether we recommend issuance or not for a project. So I'm concerned about that. I don't know whether that's just in my mind that that's going on or what but both your staffs really are the ones that do the bulk of the review and sorting out what needs to be done and troubleshooting those with the applicants beforehand so that it's alleviated. So I'm worried about that and I need some

reassurance or some way to make sure that that's happening or how we get it back on track if it wasn't on track.

COGSWELL: I agree. I think a lot of that's due to concern that a lot of staff comments are more just editorial, just non-consequential, so there are normally a lot of staff comments. So I think part of it is trying to avoid just putting all that out.

JACOBI: In the past, for almost every agenda item we've had that asked for comments or a decision we have received before the meeting a sort of summary of the major points of DOFAW comments and not the editorial things and so forth and I agree with Loyal that's the thing that I think has been missing in fact, and for example today, I mean I haven't heard really any DOFAW comments, you know coming into the discussion here and so forth. And so I think that is the thing we as a committee would really benefit from also.

COGSWELL: Okay, I'll bring that up.

SPAIN: I would agree because we've typically even seen staff recommendations. Not just the summary of their comments, but then recommendations given and that isn't present and that's a disturbing shift.

COGSWELL: Okay, I'll bring that up.

MEHRHOFF: Yeah, it's not only more helpful for us, but it also ends up with a more effective conservation project. So I don't know how to address that.

COGSWELL: For the record all of our comments were mentioned here.

JACOBI: So that means that you agree with everything?

MEHRHOFF: That is important to know. It's not like I'm trying to support or not support DOFAW comments but knowing what they are, I can say yeah I agree or not agree or they've already been fixed and I don't need to dwell on that.

SPAIN: Can I ask one more question about the application to the feds? So in the end, so given the search area in the federal HCP and given that an endangered species incidental take permit has been given. Did the Evidence of Absence model for bats use the larger search area?

LEBLANC: Again, I don't have the HCP. I'm assuming that our environmental documents match the HCP. The Evidence of Absence model would have included whatever was in the final HCP.

SPAIN: But the number is the same, hopefully 26.

LEBLANC: Well if it's not the same then we have an issue we have to address because it's in all of our environmental documentation, the 195 to 300 basically feet and so if that's not what it's actually going to be we're going to have to go back in and look at modifying things. See if that

changes our analysis. So first thing I'm going to do when I get back to the office is look at that final HCP.

COGSWELL: Okay, does the committee feel like taking a little five-minute break and collecting thoughts before moving to the fourth agenda item which is making a recommendation? All right. Thank you, five minutes.

(BREAK)

## ITEM 4. ESRC vote to recommend to the Department and Board of Land and Natural Resources to approve, amend, or reject the Pakini Nui Wind Farm Draft HCP

COGSWELL: Coming back together for agenda item number four. ESRC vote to recommend the Department of Land and Natural Resources to approve, amend or reject Pakini Nui Wind Farm draft.

JACOBI: Can I add one more quick clarification? We don't see anything or maybe I missed it in terms of any carcasses that you find then are sent. Right now it's coming to USGS for sexing; that would be important to make sure that's part of that carcass collection protocol. So I presume you have no reason not to do that. I mean we just need to make sure we have that process in place.

JAAP EIJZENGA: I think Amanda is better equipped to respond to that but I'm pretty sure that that's included in the protocol and that's just part of the overall protocol. That's in fact in the standard protocol that is used by all.

JACOBI: Okay. Excellent. Yeah. I just want to make sure that was there. I'm also hoping that we'll be able to build on the shoulders of what you already have here in terms of trying to expect more in terms of the monitoring to help us better understand what's happening both at the wind farm site as well as the mitigation site. If we move forward on this, it's hoping that within a year which will be after our workshop that we'll have a better idea in terms of how to move that and I presume that you would be open for incorporating that type of thing into your projects.

WINTER: I'll make a motion to amend to address the concerns of inadequacy in this HCP that include but are not limited to the inclusion of the Band-rumped Storm Petrel.

STEVE PACE: Kawika, clarification if I might. Is the Band-rumped Storm Petrel state listed?

WINTER: Yes, endangered. As it says in the HCP.

STEVE PACE: And the evidence that it's at the site is?

WINTER: As stated in the HCP, it breeds on Hawai‘i Island, has been observed offshore of the project site, has assumed a fly over the project site and I mean we got in this situation with the bats years ago because of the assumption that nothing's going to happen, but they're all over the

place. It's also prime habitat as confirmed by DOFAW staff. So it seems inappropriate that it not be included.

JACOBI: Maybe this is the thing that both agencies need to address in terms of why you decided not to include it. Okay. Again, it's a voluntary thing, they can decide whether they want to do it or not.

WINTER: And I believe they've stated that they decided not to.

STEVE PACE: For us, the HCPs are based on an applicant driven process. We evaluated if we thought any other species besides the ones that were in the HCP were likely to be taken because if we do decide that we can't issue it because we can't issue a permit that would result in violation of the ESA. We determined that based on the information we have now, we have no evidence that it should be included.

WINTER: Yeah, which is very much exactly what Michelle said last time. I just disagree with that and we're not beholden to Fish and Wildlife Service determination.

MEHRHOFF: So can I ask a question? If they said they would mitigate for any take that did occur in addition to seeking an amendment, so they don't have to go back and rewrite it and come up with…

WINTER: That's why I'm saying amend.

MEHRHOFF: Well, they have to amend, it's not in there but they would mitigate that unlike the three bats that already happened. So in other words they wouldn't have to amend it, it would just say they don't think there's a chance of taking. If a take then occurs we will seek an amendment which they'll do probably and we will mitigate for that take.

WINTER: Yes, we don't want to get into another situation where there's another freebie, right?

MEHRHOFF: And they did not even indicate they would do that, but I'm saying would that alleviate your concern if they did that?

WINTER: Commitment to a mitigation plan if observed take happened, yes.

LEBLANC: If they think they're going to have to amend those anyway, because it's not included in the federal permit.

MEHRHOFF: But that bird wouldn't have to be counted and wouldn't have to be mitigated for. I'm just asking whether or not that would be adequate for you.

WINTER: Possibly, I'd have to see what's written.

JACOBI: So your main concern is making sure if take does occur that it's counted, it's not just saying okay the clock starts after this, right? I understand that. Whereas that's not an obligation under the federal, but it would be an enforcement.

MEHRHOFF: I'm just trying to find out if there's a way to do this without a major rewriting of the HCP.

JACOBI: So what you're suggesting is not making a major rewrite. Not putting any kind of mitigation plan for that species. Just saying that it would be included if something did…

MEHRHOFF: We'd seek an amendment and we would mitigate for that take and potential future take.

LEBLANC: Add that statement to the existing HCP?

MEHRHOFF: That would be my suggestion but I don't know whether that would satisfy Kawika.

WINTER: For your hypothetical question, I'll give you a hypothetical yes.

SPAIN: So along with that recommended motion to amend I would add that the HCP be amended to make the bat search area the same as birds.

COGSWELL: The same as the federal?

SPAIN: Yes.

JACOBI: Yes, following the same footprint as the seabirds.

AMANDA EHRENKRANTZ: Quick clarification. We did pull up the federal HCP final that was published online and it does have the 50-meter bat search area.

JACOBI: I would support Lisa's amendment. If for no other reason than you're already searching that area and why not? It just doesn't make sense to me. I still don't understand why you would not make more sense because you find something in there you're going to report it anyway. It's just a question of how it gets into the calculation.

MEHRHOFF: It doesn't get into the calculation if it's outside.

JACOBI: Exactly, it just becomes an incidental.

SPAIN: And I do know that was a DOFAW staff comment as well, was a request to change the bat search area to match the seabird search area.

JACOBI: We would support that amendment.

COGSWELL: Do we need to restate that in clear form?

SPAIN: So as I understand it, we are recommending to amend the HCP to include a statement about Band-rumped Storm Petrel that should there be a take, that take will be included in a future mitigation plan and it will move forward with a full amendment of the HCP. Second, is that the bat and seabird search area would be the same area. Third, that activity monitoring be included at the wind farm site.

LEBLANC: Is that based on if we amend that way we pre-approve, or do we want to see those changes made before we vote again?

SPAIN: I want to see the changes myself. I'm saying to amend and not approve at this point.

WINTER: The motion is to amend.

MEHRHOFF: Well we have several options. If I remember correctly that we have straight approval, we have approved with an amendment.

LAUREN TAYLOR: The statute reads as approved, amend, or reject. The caveat that the ESRC has put on other approvals recently with these minor changes is essentially an approval just hoping that staff, you know verifies that, versus like the first time Auwahi brought their amendment and you sent it back for amendment. And then the second time they brought it I think you had approved with a few additional amendments like language changes.

WINTER: I'm not comfortable with going that far.

JACOBI: So the question is is it a vote for approval with amendments assuming that they're minor or just send it back again as an amendment?

WINTER: The motion is to amend; to me it's not that difficult to amend it, but that's my motion.

JACOBI: I'm trying to figure out where it fits between a full amend, take it back and come back to another meeting, as opposed to if we were to vote approval on it to approve with assurances that those changes have been made and that is verified by staff that those changes have been made as we've done before. So in other words, it's what side of that spectrum we're on right now, and I guess I would throw it back to the applicants in terms of do you consider the suggestion to be major or minor amendments? Because that's going to help us decide which direction you would go in on this at least to me. So the suggestion on the band-rumped seems relatively straightforward in terms of some of the language that Darren had suggested.

MEHRHOFF: Part of this too is when we've done the approve with amendments the applicants say, yes, we will do that. When we've done the amend that wasn't necessarily the case. So it does go back to Jim's question to you guys as to whether you would be able to commit to those three items and I'd come back like, go back and work it out with staff. Although that's still not necessarily going to fix Kawika's issue there, but I'm just trying to sort out what the options are. Whether you think these are unreasonable requests, for one.

JAAP EIJZENGA: Well, for the record I think that what was proposed in the HCP is based on the best available information. So you know, we're in a conversation going on that. But I'm not the decision maker.

WINTER: We could potentially take an early lunch so you guys can figure it out?

STEVE PACE: I am not going to make a final decision in this room without conferring with my partners and internally with my company. Okay. So I think if you guys aren't ready to approve, the question I have is on the monitoring. We're going to agree to monitor but what are the details there? How many monitors do you want? How long do you want? You want him out there? 24/7, 365? What type of monitor?

JACOBI: I think that was part of my initial question when I first brought them up. I just don't see enough detail in there to know how that actually is going to be analyzed to give us a picture as to whether we know that something is different and I don't want to see you spending money on monitoring that doesn't give you value. That's wasted money. I'd rather see if it takes just a little bit more to kick it up to a good level or rearranging your design then that's a better thing that you get that will be more beneficial.

LEBLANC: And actually there's a monitoring bullet in asked ESRC comments. It says, no further bat activity monitoring is proposed in the new HCP. Specific activity patterns that were identified in the previous year long monitoring should be further evaluated. Bat activity monitoring to detect spatial or temporal patterns should be added for at least three additional years to further establish patterns of activity and if necessary to determine what minimization action may be effective in the future to reduce take.

STEVE PACE: That's just strictly using some meters? And then how many song meters and where would you like them placed?

JACOBI: I guess that's what we're asking you in terms of getting us that that amount there. I mean we're willing to work with you both as a committee and say like the workshop setting or with local expertise in terms of helping to determine that, but it's not a thing that I think we can hammer out today.

STEVE PACE: Well, then next time we show up here because it looks like we're going to have to show up again, what do we put in our HCP?

MEHRHOFF: That's a great question. My suggestion, because we have a bat task force committee that is trying to work on that specific issue for the long term, is to say that you're making a commitment to bat activity to some minimal level that Jim can give you. But the details will be provided and at some point in the future you will agree that you will do those.

STEVE PACE: So do you guys have recommended language we could put in today?

WINTER: How about to do two per turbine. One of the nacelle and one on the ground.

JACOBI: Your concern and I think it's a very valid concern is in terms of how much more is it going to cost us and I understand that completely. And no, I don't think we can resolve it today but it's something that we could work on. It's a question of whether this is a thing that you already have in your budget as far as changed circumstances or contingency fund that it's going to cost more, again maybe it won't cost anything more, it's just a question of redesigning what you've already got. But it's not a thing we can resolve today, I know that for sure. May I can give you advice but I don't think that's the right thing to do right now.

AMANDA EHRENKRANTZ: I'm confused whether the issue is with the mitigation project monitoring or the site monitoring.

JACOBI: Both, I feel it's both.

SPAIN: But in particular the site monitoring.

JACOBI: Yeah, and I think the other thing too, which I think is certainly an opportunity is, for example, our research program has a big commitment in terms of trying to understand what's happening with bats and linking the work that H.T. Harvey and other groups are doing and mainland groups and so we are also finding funds from other sources not just from mitigation to try and address these kinds of issues, a real sort of win situation would be to be able to put some of our expertise integrated in with what you're doing there by bringing in additional funds to be able to overlay on top. That would be a real good situation because I think the NPS Kahuku site actually is one of the better places to at least come up with a good monitoring scheme for. The on-site monitoring, the activity monitoring on site is something that we have every single project that's come to us in recent years, we've said got to have that. That's partly for knowing what the activity is relative to what your take is. Then secondly is the baseline for if you do get into the deterrents, this is happening in Kawailoa. They've started putting deterrents on there. We wish you had that baseline; we don't have it. So we're trying to get ahead of that curve right there. Again, I don't want to see good money put into something that really doesn't give you answers that you need. We want to help.

MEHRHOFF: I am okay with your mitigation monitoring. I'm not okay with your activity monitoring at the site.

SPAIN: So that leaves us at the point, as I understand it, because there's not like a commitment to approve with simple amendments we're at the point where we will be requesting an amendment or the motion is to amend the HCP with three main pieces to it. The petrel, the search area, and the site monitoring.

JACOBI: Yes, I would have to include the mitigation monitoring too.

WINTER: Just to clarify the inclusion of storm petrels in my opinion includes them in the search area as well.

JACOBI: Oh, yeah. Everything that's recorded in your searches are included.

WINTER: Does your second still stand?

JACOBI: A second on the third amendment.

STEVE PACE: So I still have a question here on the monitoring. Are you guys going to propose or do we need to come back with our proposal?

JACOBI: The way it technically works is you put together a proposal in terms of the committee and then we respond to it. That being said is we have a couple of opportunities. We have one in a greater venue which is that workshop which is coming up in January-February or whatever that's going to be and that's an opportunity that all these issues are going to be brought up in and we may come up with a good resolution at that sense. The other way is outside of the context of the committee, is working with experts, such as staff and other people to develop a plan and we're certainly open to helping in that sense right there. But technically the way that this works is that you put together the proposal that's got it and it comes back to the committee. How you put that proposal and who helps you on that is up to you.

MEHRHOFF: My perspective is come up with a monitoring plan that is okay with USFWS, which you've already kind of done, and DOFAW for activity monitoring at the site and address Jim's comments. So whatever you come up with DOFAW I'm okay with it.

STEVE PACE: So then what specifically are the questions that you want?

MEHRHOFF: I want activity monitoring at the site to be able to show trends with enough rigor and power to differentiate trends in bat activity levels at the site using the 80% percent power. That's a high bar.

JAAP EIJZENGA: Then what are we applying that knowledge to once we can gather that knowledge in the context of the HCP?

MEHRHOFF: Whether or not the population of bats at your site is changing.

LEBLANC: It's for departmental determination of whether adaptive management should be implemented. It's another component of how much activity is at the location and whether you're likely to exceed the take amount.

MEHRHOFF: And whether you're impacting the local population which is the ultimate thing that we're after. So does that make it a little bit easier? But if you come up with DOFAW staff being okay with that level of rigor then I'm fine with that. That should be good for me. There's additional things that need to be done for your mitigation stuff for Jim. He can speak to what he needs on that.

JACOBI: Yeah we would be very willing to work with you, the experts on our staff, to help you develop a strategy in terms of something that would meet our needs.

STEVE PACE: Well, let me ask this question, what's being done at the other facilities? Can we just model duplicate that effort?

MEHRHOFF: We had discussions on activity monitoring at the other ones that came up for recent amendments and some of those were resolved and some of them were not. So it should be something you can get from that. In particular I think Kawailoa, we talk about the level of activity that they were doing and they would continue versus not continue. And I think there was a plus up there to get them to the level that was adequate. So I would go to Kawailoa and look at that.

JACOBI: And also to realize that is we are learning as we go along; every new project, every new year we get more information. And so we may be thinking differently than we did before. So if we were having this discussion five years ago we wouldn't be anywhere in the same arena. We didn't know much. So now we know more and we're just trying to get the point there. Ideally we want to get to the situation where there is no take; that's where we really want to go. So we don't have to worry about mitigation. So that's where we're trying to go on this.

STEVE PACE: Speaking of take, if we do realize additional take in the meantime, is that going to complicate issues here?

LEBLANC: From the service standpoint the permits have been issued. You're set at 26 right now.

STEVE PACE: Okay on the federal side. I guess my question is on the state side because this is a state meeting, right?

LEBLANC: Technically our permit isn't legal until y'all's license is issued. But the take amount won't change. The take amount has been permitted at 26 for us. Any take from the point the permit was issued, even though it's technically not legal, counts.

COGSWELL: From the state side the risk is that it takes a long time. These are just minor amendments. We want to make sure they get done like within the month or as soon as possible.

LEBLANC: When is the monitoring workshop coming out? I guess that's going to be in January?

MEHRHOFF: I would not wait for the workshop.

SPAIN: So we need to take a vote. Are we going to amend?

JACOBI: We're going to amend and hopefully this will come back fairly quickly. Good news is we're having a lot of ESRC meetings so there's a lot of opportunity to discuss. The bad news is we're overworked.

JAAP EIJZENGA: But at least we can come back. We don't have to rehash everything.

SPAIN: Exactly, don't let us waiver off into a whole new zone. Nail these three and then as painful as this was when we went through it with Auwahi, then you're at the point where there was just some little small minor things to be dealt with.

JACOBI: Again, I'm pleased with the efforts that you put in so far. I mean we can help push that further along and I know you're committed to making this work right, so we want to support that.

COGSWELL: Call for a vote, all in favor of request for a recommendation for amendment, say aye.

SPAIN, JACOBI, MEHRHOFF, WINTER, COGSWELL, LEBLANC: Aye.

COGSWELL: Any nays, opposition, or abstain? Everybody is aye. Unanimous.

JACOBI: We look forward to getting this moving. Thank you for your time.

## **ITEM 5.** Draft Kaua'i Seabird HCP and Participant Inclusion Plans (PIPs): Agency Staff Presentation and Request for Comments

COGSWELL: We are on item 5, KSHCP. We will start with some agency review and then a request for comments.

KATE CULLISON: We're regrouping because this HCP was so large, so we broke it into several different meetings and we had a presentation from Lindsay on September 30th about the main HCP document which is mostly the mitigation plan. And then we had our site visits October 7th and 8th, but we were only able to conduct those during the day so we weren't really able to evaluate the light issues at the sites, but we went and saw the applicant sites and talked to the applicants. And so today we're going to regroup, see if there's any remaining comments that we haven't gotten to talk about for the main HCP and then we'll go into comments related to the PIPs. And we have the people from Kaua'i Seabird Project here to answer any questions because they've been doing a lot of the seabird work themselves. So if we have any specific questions, they're here to answer those. Are there any from the committee or the public, comments on the main HCP?

MEHRHOFF: For the ESRC members who weren't on a field trip, it was really good. So, really nice, but I had a couple specific recommendations for the HCP as a whole and then some more regular suggestions that were not like as important, but in general I was pretty pleased with where things were on that HCP with a couple exceptions and I had three recommendations to try to fix those from my perspective. The first one is I think for all of the issues associated with the HCP one of the ones that needs looked at and more explanation now we have some of the people here who are experts on the SOS studies that were done. I mentioned when we were on the trip that literature cited in the HCP on the SOS program is not available if you go to the websites for the group that did those, so you don't have those. So we need to get those. I still don't have them yet. So I do need those to be able to look at and see how closely the recommendation that 80% of

the birds brought into the SOS program are non-lethal take. There are a number of references there, but they were just not accessible to me in the public. So I need to get those, we need to get that improved in the HCP itself, but other things it would be really good to have in the HCP, a better graph showing what the actual population expectations are for the next 20 years or so for Newell's Shearwaters and the others with and without the HCP. So just to see what the impact of the agency would be. But the most important recommendation, thing that really needs to happen is I think that I'm going to hit DOFAW for this, Jim, sorry; I think that DOFAW really needs to in the HCP to commit to doing searcher efficiency trials and CARE trials for each of the participants. That DOFAW is in charge of that rather than having nine people try to do that on their own and my recommendation is to do that not this year but next year; the first one after the signing of the license. After that is approved to go back and do the searcher trials next fallout season, not this fallout season. Go forth with what we think we got from the SOS and modify that forward like we do with the wind farms and everybody else based on searcher efficiency and CARE trials. So I think that would be really important. Obviously then if you find that there's not a very good searcher efficiency there, not very good carcass retention, then the applicants or participants can then fix that up and ask for a recast to modify their calculations of take. So I think that would be the right thing to do. I think a representative sample of each of the participant's properties need to be documented with photographs at night showing what it looks like so that you've got that documented and can track that over time and I then would think it would be really good if again, DOFAW, not part of the searcher efficiency, not part of the SEEF trial per se, but to bring over dogs and see how the dogs do. Preferably coming out of Maui or Big Island, where you have dogs that are working on the wind farms for seabird searching, bring them over for a couple of nights' chance to see whether or not it makes a difference to what you're finding at the participants, not part of their SEEFs, but it has an informative thing so that people could see how they might be able to improve their searcher efficiency if they use those and then more accurately reflect their take. So those are the things I would like to see DOFAW commit to and be incorporated into the HCP and the PIPs, saying that the participants would participate in and make sure that those happen in the next fallout fledgling season. So by doing that then it kind of takes out a lot of the guessing associated with using the SOS data and how well the applicants or participants are actually being able to go out and look and find the birds that are down, because I think that was a big question mark in most people's minds when we were on the field trip as well, is how much predator control you need to do on a site. Because most of the applicants said if we see a cat we go out and get it, but on the visits we saw a lot of cats so that wasn't an absolute sort of thing. And if carcass retention trials are showing that there's a lot of carcass retention is not necessary to do the cat control then fine, you don't worry about it. If there is not much in the way of carcass retention, then there's a good opportunity to get that fixed and reduce the levels of estimating take. So those were the big suggestions and there are other ones that I had but those were the big ones that I think changes to the HCP and PIPs on those would take care of most of the issues that I had, from my perspective. So that was my overall comments. Thank you.

JACOBI: Loyal discussed some of the PIPs and not just the broader picture, is that fair game or do you want to go over the presentation first?

KATE CULLISON: This isn't really a presentation, it's just some pictures we were given in case anybody wanted to see things at night. So we were just going to go over the main components that were expected in the PIPs and then get your feedback on it. At this point, I don't think it's appropriate to really go PIP by PIP and discuss individual applicant issues. I wanted to get sort of across the board comments from the committee on how they wanted to address certain questions on how things were calculated or presented in the PIPs and what justifications were there. We have eight applicants. Some of them have multiple properties, some have just one. We did do site visits to almost all of them, but we had to select because we were limited by time. So for Alexander & Baldwin, we just saw a couple sites. We didn't get to see the cruise ship at all because it didn't happen to be in port that night. So I do agree that nighttime photos of all the applicant sites would be really good. To see photos that compare their operations during non-seabird season to the seabird season just so we can see that it's obvious, because some of them have put significant effort already into minimization. So I think it would be neat to see how effective that looks. The main minimization objectives are obviously predator control, so that if a bird is down it remains alive until it can be found and turned into SOS, and then seabird friendly lighting. Both of those things involve staff training, especially the searcher efficiency issues. That's the kind of thing the committee can evaluate the PIPs for, and then for the commercialized properties like the resorts, they have outreach and education pamphlets that are all in the appendices of their PIPs that you can look at. We did a lot of discussion about minimized lighting when we were at the site visit and we saw a lot of what looked really cool during the day, but it was very difficult for those of us who are not used to evaluating these things to know what it would look like at night. We saw a lot of shielded lighting, full cut off lighting, downward facing, but then when you see it at night, it gives you an idea of whether that particular technique is effective for that particular light, and there's a lot of variation on what works and what doesn't in different places. Such as at the Sheraton, where some of the lights are completely under the overhang and not visible to a bird, but the large globe things are out in the open. There are lights hung over an outdoor bar area, which at night look pretty bright, and there is a bounce back. We were only able to do a portion of the site visits at night, and one of the biggest issues we saw during the night was bounce-back light; the fixture may have been shielded but depending on how it is hung there can be bright bounce-back light off surfaces including walls and car roofs. For safety lights such as those in exterior stairwells, they could be mounted in such a way as to minimize bounce-back light off light painted walls, or paint that portion of the walls darker.

JACOBI: Paint the walls black.

KATE CULLISON: That is the barge port. They have these LED lights they demonstrated for us during the day. They were very bright during the day even. They crank them up to 100% when operations are on and then lower them I believe to 50%. They have a dimmable function which is great, however, those are really, really bright at a 100%. So just these are the kinds of things we weren't able to evaluate at night on our site visit. These we did see when we were at the Port Allen site. Everyone has called out that particular light on the right as you walk from the shops toward the water. I do believe Marc has said that light is notorious for bringing birds down and it has been on notice since way before my time from Norma, who told them that light was a

problem. So with specific lights that have a history of issues there should be a request to have them somehow modified.

This is DOT Port Allen. And then this part we saw at night and has also apparently been an issue for birds and not because of the lights themselves, because of the bounce-back. So we didn't take a really super good picture but that whole side of the building has a lot of reflected light and those lights are necessary to light up that whole area when people are working in there. But if they were lowered maybe ten feet and then positioned slightly more out so that they are still lighting up the pavement but not lighting up the building itself, the safety function would be served while greatly minimizing potential take. Marc said that a bird was observed flying right into the end of the building because the whole side of the building has huge glowing spots, and it faces the ocean. So minimization efficacy is something that could be looked into more. So as Loyal mentioned if we could get more photos we could make more specific recommendations for additional minimization that might reduce each applicant's take level. We can't do any more nighttime site visits, but we'll try to get pictures and send them to you.

For the take request and discovery rate in the PIPs: they did use SOS averages and then an estimated discovery rate. Any applicant has the right to try to justify a higher discovery rate, you need to evaluate the PIPs based on what that individual applicant is asking for.

JACOBI: And there's two aspects: one is calculating what your estimated take is going to be, and the other is determining what your actual take is. This is setting what your requested levels are going to be and you can use whatever information you got for that but it's what actually is the take that counts and that's where I'm going to make sure that we're getting a very good understanding, not estimate, of what the take is.

KATE CULLISON: An applicant that has really good searcher efficiency and really good predator control is going to find their take is going to be mostly non-lethal. Their take number in their permit won't change, but they won't have to mitigate for as much of it. This is where I would like to open it up for comments to the committee on these issues.

JACOBI: Where my focus has been is on determining the actual take. The effect the training of the staff monitoring in the field is knowing that we've got a good monitor in terms of who's finding things and how well they're finding things. And I'd like to go on record to change SEEF; that's a good acronym but let's call it searcher efficacy rather than efficiency. Efficiency means something else, it means how fast you can do it whether you do it, right or wrong. Efficacy means whether you do it right or not. And so I'd really like us to think more in terms of efficacy. So, you know making sure that whoever is doing the monitoring is capable of doing that and that's going to come down to that SEEF trial in terms of how well they are and we've known from previous things that it's going to vary by site by particular observer, how well the observer is trained and how well they're looking and so forth, and whether it's a canine, he's got a nose, or a human who just has eyes. So that's one issue. Having that good estimate of the SEEF is really critical. I saw reading through all the PIPs and everybody seems to go on back to the 50% and I can understand using 50% for calculating your estimated take in terms of what your limits are that you're trying to shoot to keep under, but when it comes down to what your actual searcher

efficacy is on the ground, I think that's going to be different. And so I really feel strongly that that needs to be not just estimated at 50%. I talked to Dave about you know, where that came from and I think it's misapplied in the case of making the assumption that the observers who are walking around the grounds and so forth are going to be finding 50% of it just across the board. I just don't buy into that. I don't think that's right. So I really feel there needs to be SEEF trials put out regularly. Then the other part is the CARE trials. I see in all the PIPs that there's predator control and in many of them, they're saying yes, we're doing predator control and so forth; again, that's going to really depend on how effectively that is being done and in some places you can catch a cat every night, but you still have this huge reservoir and you're not really changing the population at all. And so the real key thing there is how long the carcasses are available for discovery. And so I really feel that doing CARE trials at the various sites on a somewhat regular basis is really important depending on what that time is going to change and when the conditions will change but we need a real estimate of what that is. I think that's really key. The thing that I guess is sort of an overriding concern that I've got is that it seems like everybody checked the box that we're going to do it, you know do all of our monitoring and all of our trials ourselves, so really it is self-monitoring. I've got some real concerns in terms of how that actually plays out across so many different groups. There's no question that a resort has staff and walks around all the place, but they're not all looking in the same way and I'm really concerned that that's not going to give us a real accurate picture of what the take is. I would really like to narrow that down so it's done better.

Getting back to our previous discussion on the previous project that we talked about, I am fully in support of trying to get a consistent third party that does both the SEEF and the CARE trials and I would really like to see that as being under the auspices of DOFAW and that doesn't mean taking what you have on your staff and just doing more work. It's figuring out how to channel some of that funding into DOFAW so that they have the capacity to do that and to do it effectively and efficiently. So those are my main concerns. And the effectiveness of predator control is not based upon words and say we're doing predator control. It's really how does that affect the carcass retention for discovery? And so that's where the CARE trials are really critical and those should trigger an adaptive management strategy that if it goes below a certain point you need to change the strategy and do more predator control or do a whole lot more frequent searching. So I think those are the things that need to be done.

I can imagine a situation where the CARE and SEEF is done under the auspices of DOFAW, they can contract out to somebody else but at least it's under their control. So it's a third party, you have the opportunity where appropriate to bring in canine searching, you know, because I think it applies from many places. I don't think it applies for every place. But I think there are some places where the canine searching would be really good. Especially when you have broader areas. I look at some of the search paths in some of the DOT places and I saw that they really seem to be sort of very large areas. I couldn't imagine you get a hundred percent coverage in areas like that. And those are ideal for a few nights search. I think when you're talking about halls in small areas and walkways and resorts that's a different kind of situation. Maybe it would be applicable there. If you could get a good dog that people were excited about and so forth seeing but it's you know, I think it's something we should try and bring in as much as possible

because we want to be able to pick up our effectiveness in terms of searching. So coming up with a strategy in terms of how to implement that I could also see a team like that and not doing all of the searches because I don't think that's feasible because I think the staff that you have at the different places can do the searches but we need to see how effective they are. And then periodically have this DOFAW auspice staff shadow them or come back after they've done their searches to see how well do you did and so I think we need to have that kind of calibration and validation so that we can feel more comfortable in terms of what it is, just as it was presented in the PIPs. I just don't feel comfortable that we're getting a good accurate picture in terms of what take would be. So that's my main thing.

KATE CULLISON: So in line with the things that you just mentioned we did bring the Kaua‘i Endangered Seabird Recovery Project over here to answer questions because they've got a lot of experience in searching for these birds. Specifically ones brought down by light attraction. And they gave me some really cool pictures that we could use. So if one or both of you could pop up for a second and tell a story about searching for birds. Not just how difficult it is, so that you can see what searcher efficiencies are based on, but also timing.

ANDRE RAINE: Kate asked us to put together some photos on you know, what it looks like when you find a bird that's on the ground from light attraction. And obviously sometimes what you basically get is a bird circling around, attracted to lights, and then it comes down on the ground. Sometimes it might hit something first and then comes down; other times it might just be grounded without collisions. And then their first instinctive reaction is just to sort of sit there and look absolutely stunned to what's happened to them because they came from a nice safe warm burrow up in the mountains in the darkness; now they're surrounded by cars and cats and people and there’s lights and everything. So they'll sit there for a bit and then their instinctive reaction is to go to safety and a seabird’s response to safety is this kind of thing. (Photo of bird trying to hide in vegetation). These are fallout birds that we found. We went to this area during the day to look for birds and we found birds in places like this. So you can hardly see that bird on the right, but that's in the sort of drainage tunnel. It's just that little speck at the end. There's another one in another drainage tunnel, a little more obvious. And then the bird on the top left is in a structure where it's about this high, this there's this much space for them to crawl under. You know, that's classic for them because they come from small narrow burrows. They're quite good at squeezing into things. So trying to locate birds in areas just by walking around is really, really difficult, you know, and that also speaks to things like searcher efficacy, is also you can't just sort of randomly distribute carcasses on the ground because that's not how you're going to find them. You're going to find the them stuffed underneath vegetation and in crawl spaces. There's two more under here so actually you have three different birds. That one on the top left, and there were two in there. In fact, you can see its backside in the second one. That's the backside pointing away.

JACOBI: Are those juveniles?

ANDRE RAINE: Those were adult fallouts. So that might be an indication of where those were. That was during the day. This is Kokee Air Force Station when we had a big fallout event. When we went there, maybe it's during the day. We got there during the day and we had a search

around the facilities first just to see if there were birds on the ground because no birds were reported from the night before, and we found somewhere in the region of 20 odd birds stuffed in all these different crawl spaces, and then as night fell more and more birds started shuffling out from their hiding places. That's another thing they do is they hide all day and then as it gets dark they start coming out again, and then we had a whole bunch of fallout which we collected and we had to leave, because we had a lot of birds, and we told the staff to keep looking but they, you know, they were not trained to look for birds and it's not their function. The next day they said they hadn't found anything yet and we went up there before dark and we found more of them. So that speaks again to that you really need training when you're looking for downed birds because they're really hard to find. I mean the coloration is also tricky, they're dark birds in a dark space and if their belly or their neck isn't facing you basically looking at something that's black inside something that's black. You need to be down on your hands and knees. I was looking with a light or head torch. See if you can find the birds in these two examples here. I would say there are obvious only because the photograph is specifically of the bird. But these I chose, these are fledgling fallout from Kauaʻi. The one on the left was found in Waimea and you can see the bird's bum of vegetation looking like another leaf. That was actually in a pretty broad open area, but it just searched for the one place where it could hide which was a bush and it stuck itself under there. So if you imagine someone who's just walking along like casually looking for birds and not paying close attention, that kind of thing just blends into the plant itself. And then the photo on the right. I actually got this from a friend who texted me from Anchor Mall. There's a big model train station there but it's a huge train track and the train goes round and round and his kid was looking at the train and as it was coming around something like stepped off the track and shuffled to the side and it was a Newell's Shearwater that had actually been hidden in the tunnel of the train station. So I think these just point to the fact that it's certainly not easy. You know, saying that you find 100% of something is impossible.

And as you point out it all speaks to the complexity and size. So if you have a large area with a lot of complex terrain and a lot of crawl spaces, then to properly search you really have to search really, really hard because those birds, once they hit the ground they're going to go and hide. That's what they want to do because they're afraid and then on top of that you have predation. All these areas will have cats for sure. I mean cats are unfortunately—or fortunately if you like cats—but unfortunate if you are a native wildlife, there's cats all over the landscape and so cats are going to drag birds off especially if they're warm and wriggling. And then you have pigs that are all over the island as well. I mean I have them coming to my garden and I'm in an urban area. So predation of these downed birds or dead birds is also a big problem. And so that's why I think the PIPs have all of the cat control as part and parcel, but you know, we've dealt a lot with cat control on Kauaʻi, particularly up in the mountains. Cats are a huge problem for breeding colonies, and the one thing that's really abundantly clear is unless you trap constantly cats are going to keep coming in. That's what they do. They're everywhere and it's even worse in urban areas, because in urban areas you have people busy feeding cat colonies your cat colonies are 30, 40, 50, 70 cats and so you have to keep on catching and removing because the cats, they're like this never ending wave coming into these areas, and on top of it if there's areas were cats are being fed people just dump their unwanted cats on top of it. So it's a self-perpetuating cycle. So I think like a cat control project that's related to preventing the removal of downed birds needs to

be a constant thing, particularly in the lead up to the fallout season and then through the fallout season, because if you just do it when you see a cat you're not going to be effective at all.

JACOBI: If you were to use a CARE trial to assess your cat predation issue, what threshold level would you want to kick it down to besides zero? I mean in terms of you know, if you're doing the carcass removal mean, how you want to get it down to what target?

ANDRE RAINE: I think you just keep on trapping. You just keep on trapping to as low a level as you can, and if you're trapping and there's still a lot of predators your CARE trial will show what your carcass removal is like. And then on top of that you've got pigs running in and out. So large areas where there's a lot of land, especially next to the woodlands, are going to have the pig issues as well. And the pig predation is interesting because a pig, it's like putting a bird in a trash compactor. It just takes the whole bird and eats the whole thing up. It's just destroying, demolished. Whereas a cat might shred the bird up a bit and they'll still be evidence to find the bird, a pig will just hoover the whole thing up.

JACOBI: Have you used canine searching much at all?

ANDRE RAINE: No, we haven't but I think this kind of thing really lends itself to canine searching, particularly because if the search is a thing that is carried out during the day your chance to find birds is pretty slim but if you've got a dog that will certainly increase your searcher efficiency because the dog's nose is much better than a human's vision, right?

And this is just more: these are the cast of characters here which we deal with all the time. But you know, these are these the predators that the seabirds face on Kauaʻi. We've got cats, black rats in a lot of urban areas as well. You've got Norwegian Rats. Even worse much, much bigger animal, Barn Owls, which we've actually had: a downed bird in Koloa near the cannery, the fledgling that had been grounded and was attacked by an owl. And this one shows a pig eating a wedgetail carcass that was being used in a CARE trial.

JACOBI: Have you ever seen a Pueo predating?

ANDRE RAINE: Pueo are in all our sites, but we've never seen an instance of a Pueo targeting a seabird. Marc could speak a lot to your observations at places like Port Allen where you've seen birds circling and being grounded.

MARC TRAVERS: I guess I'll just add the way these birds circle lights is often ping pong between the different light sources when they are over top of light, and they will move on to the next light source, and in that circling process a lot of times, they'll land just outside lights in a dark area. So the search should include nearby dark areas. It seems like the birds almost intentionally land there. Maybe they're confused and they think it's water. So it shouldn't just be in the lit up areas. And then any lights that are facing towards the ocean are far worse than a light that's inland even though inland lights are still bad, an ocean facing light is going to be a lot worse.

WINTER: Marc, do you have any recommendations on the search radius in the dark areas that should be used?

MARC TRAVERS: We could look at some data to try and figure that out. Definitely Port Allen's a good example, like if you know where the old grinds used to be, just beyond that there's a huge number of birds over the years and that's the darkest area in the nearby region. We watch the birds circling. They go in towards the shopping center and often will peel back towards the power plant out to sea, come back in over the over the pier, and eventually they almost seem to choose a spot to land, whereas if there is interference or collision with a powerline or building they may fall there. Yeah, so I'm not totally sure the exact number but in that case it would be less than a hundred meters outside the lit area.

ANDRE RAINE: The last bird gotten by us this year was in that area.

JACOBI: Another aspect in terms of discovery of potential take would be say you've got a light source right here, but it's on somebody else's property they actually fallout into, and you know, trying to come up with a real estimate in terms of what your take is. Like on a resort site, if you're searching all of your property you may be missing a component. Is there any way to figure out how to bring that component into a determination of take?

MARC TRAVERS: One of the things we've been wanting to do for a very long time is quantify light pollution at a bird's eye view 46 meters up, at the height they usually circle. So if you can measure light pollution where the birds are, and then have the applicant turn their light out and take another measurement, then you can quantify their contribution at least to a measure of brightness. It's not looking necessarily yet at the wavelength per se but that would be one way to start to quantify these things.

ANDRE RAINE**:** I think one of the other issues that goes on as you reach a threshold, but that is an area like if you look at Port Allen, it's a combination of all these lights that may create that one massive glow that brings birds in, and if all the lights are going down you reach a point where the light attraction is counteracted by everything else the bird's facing so it's quite tricky.

JACOBI: Or turning that around the other way. If you have certain lights there and you do a reduction of some of those you still may not be getting below that threshold, it's still too bright. I think that's one of these doubts in terms of the minimization and trying to quantify them some way and one way you can do that is just by comparing what your take is with and without that minimization.

MARC TRAVERS: And along those lines too, the number of lights in a given region allows the bird to continue to see light everywhere it flies. I think that also adds to the overall effect of bringing birds down.

JACOBI: Is there a way you can use that to your advantage and make these pathways of lights to the ocean?

MARC TRAVERS: I don't feel like that would be helpful because I think a lot of the juvenile birds that fallout have already made it to sea. They've already been out to sea and they see our lights from the ocean and then they come back. Yeah, if you look at most of the hot spots on the island they are all areas that have coastal facing lights. And there's areas where there shouldn't be very many birds leaving from the mountain, but when those areas are lit up they have fallout

meaning the birds are traveling around the coast. They see the lights and come in. And at Port Allen when we're watching, most of the birds we see are coming in off the ocean.

SPAIN: I couldn't make it to the site visits, so I'm just wondering if we can take a few steps backwards and kind of start from the beginning and kind of get an overall, general, high level view of the situation of the birds on the island in general. I know we gotta jump in and go to comments. But I know at the last one, we had a very specific presentation on the mitigation site and I was under the impression today was kind of going to be like this overview and then you kind of move in, and because Jim's learning something new about what age of birds are flying in and out, but the point is that I think we need an understanding of this and where we're at.

KATE CULLISON**:** You bring up a really good question and we did actually intend to have them come and give a full presentation on the status of seabirds on Kauaʻi, what they've been working on, what the current threats are, what projects are going on. But some other people said we can't just do Kauaʻi, we have to have a seabird workshop for the whole state. So we are planning that for later. They will come and have at least probably half a day just for Kauaʻi stuff. I do feel like a lot of times when we're dealing with these HCPs we're looking at specific, finite projects and not looking at how is that particular species being managed statewide. You have the right people here to give you an overview of seabirds on the island. Originally there was an 84 page slide show in the works, and we had to cut it down for time. So you can give her the paraphrase in one minute.

ANDRE RAINE**:** They're doing terribly. Kauaʻi is really important for the Newell's because we got about 90% of them, and roughly about third of the Hawaiian Petrels of the Hawaiian Islands. And our radar surveys between 1993 and 2013 showed a massive population crash. So we're talking like 94% for the Newell's and 78% of Hawaiian Petrels. Areas where we stop loads of birds going over are pretty devoid of birds now. Colonies that existed in the past, you know, even in the 90s are ghost colonies now, you go there and there's just empty holes everywhere and you know, one of the main issues is powerline collisions, which Marc will talk about I guess when we have the whole day thing. Other things are light attraction and predators and changes in habitat. But the SOS data is a really good example of how badly the birds have done because you know, 20 to 30 years ago, they were getting two thousand birds in a year and now we're down to like a hundred to hundred twenty depending what the moon phase is like, so really those show the crash of the species. That's why the KSHCP which I've helped with and I've seen this progress for a long time now, I think it's one of these projects which is absolutely fundamental it goes ahead. It's a great project to have a social attraction site up in the mountains in an area where the birds are protected with a predator proof fence. We need to get these actions going. We're constantly working on these birds and watching them die, but very little is happening. We need to really push to get things like this through. I think these kinds of projects are really important.

SPAIN: I would like to know for us looking at Kauaʻi, the percentage of take that is from light attraction versus both powerline strikes and things like that. Maybe a pie chart.

MEHRHOFF: I think it would be nice in this HCP to talk about how this social attraction site does interact with an island wide conservation plan because by itself, I don't think these are. They're important for the species but not as much the ecosystem. They're like captive propagation; it is very important, but they're not the long-term solution, right? Exactly. So putting it in perspective would be good, but that's more a recommendation. I also think this would be a good HCP to see completed and I had those comments that I thought of from my perspective, but the stuff you brought up was what came out a lot in our field trip and the discussions there. That's why that was an exceptionally good field trip for us to learn. Even Jim would have learned a little. There's been a ton of work that some of the applicants have done to reduce their light attractiveness. That doesn't mean that there's not a lot more that can be done but for some of the things we've done a lot. Now we have to figure out how to make sure that they get some credit for that and then reduce as much as you can. The other minimization stuff, it was a good introduction to what has happened already. And some have basically done almost everything they're going to do, so they've done their minimization. It's just a matter of how much take that they're going to be responsible for going forward.

KATE CULLISON: So one of the things that I was going to ask Marc about was the timing of searches. Most of our applicants are doing two searches, one earlier in the evening and one in the morning and is there a recommendation that you would have for when those searches would be most useful?

MARC TRAVERS: Yeah. Any visual search during the daylight will only find dead birds if you're searching in open areas, unless you're crawling under things like Andre and I did in those slides. Because, so if you look at our data set, the proportion of birds we found alive decreased to zero by sunrise because either they've been squashed by a car and that's why they're still in place and we can find them or they've been removed by predators or they are hiding. We have a number of examples of birds crawling out the next day or finding them in hiding. So searches should be done during the night, and the last search should be just before you get any hint of light in the sky. So sometime in the very late night. And then maybe dogs could be used during the daytime because they can sniff out birds that are hiding. But for finding birds that are out in the open you should be doing it in the darkness.

JACOBI: It sort of gives you two pieces of data; one is how many are down on the ground, whether they are dead or alive, it doesn't matter. That's a count number which is good. The other one is sooner you can find them that you can treat them if that's what you want to do. So I think that's why it also gets to the question in terms of searches, is it adequate to do a search in the first two hours after sunset and one before sunrise or should you do it more several times during the night in an area? Is there a preferred time when they come down?

MARC TRAVERS: It seems that overall the fledging seems to happen across the entire night, but there may be some evidence that there is a large amount of it that occurs in the first three hours. And the first circling bird we've ever observed was 42 minutes after sunset so that kind of gives you a window of after that. Definitely don't start too early. But yeah, I think we have recommended in the past to growers to turn their lights on if they have to at nighttime in the

morning than in the evening based on this kind of idea, but I don't know, I think it should be looked at a little bit harder exactly the how fledging goes) across the night.

JACOBI: How much territory can a searcher cover? How many searchers would you need for site A versus site B, or what's the best way to gauge that?

MARC TRAVERS: Well even within our own team their searcher efficacy changes through time and whether they think that I am doing a trial or not. So it's extremely difficult to do these trials effectively and you need to make it resemble reality because these things are very rare. You don't go put ten birds out, because many nights go by searching and maybe one goes out. And then because most of these birds presumably come down alive and they may move maybe you randomize the point in which they come down. But then part of your trial has to be some component of the bird allowing itself to hide. So I think it's a challenge to do that really well.

JACOBI: Where are you doing the SEEF trials?

MARC TRAVERS: We don't do them anymore. We were doing them as part of our initial work.

KATE CULLISON**:** So Marc you also were going to give us an explanation on how you would define searchable area where the team and sort of what they could cover in a given space.

MARC TRAVERS: Yeah, so, in an open area for us it was the visual field. We had three people covering 30 meters and that was if it was considered an open area. If we can't see clearly, like it's not a mowed lawn, you're not going to find the bird. We found that even mowed areas with drivers driving at 20 miles an hour missed most birds. On a mowed area.

JACOBI: So you wouldn't buy into fifty percent of the time people find birds just as a general thing that we can use?

MARC TRAVERS: 50% is better than all the professional biologists. That's scary.

MEHRHOFF**:** Is there any option of doing something like setting up safe burrows as safe hiding areas?

MARC TRAVERS: Maybe, but I guess some of these sites are pretty big. I don't know how you'd have to set up all because these birds crawl to the closest, safest spot. Yeah, there's fallout all over the place but a really bright light and bring him right there. Searching, you know, we were showing these guys some bushes near what seems to be a very searchable area. And the bushes are only, you know a little bit wider than this table, but it's impenetrable. We can't search it. If a bird was in the middle of that or got pulled in there by a cat, we would never find it. This is the area we saw six cats. It appears like this is a perfectly searchable area. But there is this hedgerow; in that we will never find a bird.

SPAIN: So on a fallout night across the island, if you were to have the right composition of search teams, how big would that be for the eight applicants?

MARC TRAVERS: On the key nights, it's a lot of work to do. One thing that you can do I think to get quick pictures of how big the problem is you can observe birds because you'll have way

more circling birds than you'll ever find on the ground. So you can get more information quickly on the sort of relative impact of areas by watching birds circle.

JACOBI: Would it be useful to have videos cameras set up at certain strategic areas to sort of cue you in terms of we should go there? Would that help or is it just everything gets sort of flooded at the same time?

**M**ARC TRAVERS: We used to do observations from the roof of the power plant at Port Allen and so you need an elevated perch above the lights and then you can you know have a 360 view to watch where the birds are going. In really light polluted areas, you don't need night vision.

ANDRE RAINE**:** We have used cameras in Kokee where the fallout occurred in areas where we found birds crawling under a crawl space or crawling through the fence, but at that point the lights were turned out. So we've never actually had a single bird on those, although what those cameras do give you is you really get an understanding of the predators in the area.

SPAIN: So if you have one dog team on the island you're going to be able to search one site in one night?

MARC TRAVERS: So in 2011, we worked all night for 50 days straight or 60 days with a three-person team. So two people per night. It was pretty hard on us, but we covered lots of mileage. That's when we were doing highway and road surveys.

JACOBI: So, how were you doing that? And what kind of perimeter do you go up to?

MARC TRAVERS: So driver was responsible for the road and passenger was responsible for everything on the side of the road. And we drove the whole route in both directions.

JACOBI: Your efficiency effectiveness was for that?

MARC TRAVERS: I think at times we got as high as 32 percent.

JACOBI: And you calibrated that by actually going out and doing very detailed searches?

MARC TRAVERS: Yeah, but again, one of the challenges that is because it was a three-person team and the person putting out the carcasses on their night off is working. Right? So what we would do is put out multiple carcasses. I didn't like doing that but it's just kind of a function of how we did it and because once the team finds the first carcass they know you're out there. So you try and do it in such a way that they don't believe you're working that day, but once they find the first one they start looking a little harder. But the thing that blew me away is that it can be on a mowed lawn and something about the shadows, you think it's impossible to miss that bird and it can be missed and also the color of the birds didn't matter. When we put up Tropic Birds, they weren't found any better than Newell's Shearwaters or Wedge-tailed Shearwaters. And one of the biggest reasons why carcasses disappear is due to lawn mowers and so that was a major factor in removing carcasses. This is like big industrial mowers, not, you know, push mowers. And then you know fatigue of the searchers, all that stuff needs to go into account.

JACOBI: So if you're doing a search and you find a bird, and it's 9:30 at night, then what happens? How long can you hold it, I guess, and does that affect whether it's releasable or not?

MARC TRAVERS: We would hand over either night or the next morning, and no bird is released before the next morning. Then after that it's due to the waterproofing, or injuries.

ANDRE RAINE: And often the injuries aren't evident at all. We've seen multiple cases where a bird looks like it's absolutely fine and it dies. Could be some neurological issue, collision with a wall or something. We have been tracking birds that have been released from SOS as well to look at their survival rates and comparing birds in the wild with those are immediately released, held for under two days, or over two days. And the survival rate, which is the amount of time that the bird transmits, decreases statistically over time depending on how long it's in care; a wild bird will transmit longer than any bird that goes through SOS. It's a good thing, a lot of those SOS Birds survive, but there's certainly a health issue with keeping them. And even just the birds circling round and round and ending up on the ground is obviously not a good thing for it.

MARC TRAVERS: And birds that have hit something: most of them don't have a sign that they've hit something which was surprising to us. There's not a lot of broken wings or obvious injuries in a number of the collisions. When they do have signs of injuries, it's broken bills and removed feathers from the forehead, face, or under their bill. Those are the typical injuries that you would find for something that hits something.

JACOBI: What is found in a necropsy of those without obvious injuries?

MARC TRAVERS: We actually haven't really spent much effort on that.

JACOBI: Oh, really? Yeah, that would be really interesting to do, just to see what kind of injuries you're seeing.

MARC TRAVERS: It seems to be brain or neck.

JACOBI: So what do you see the solution to be?

MARC TRAVERS: Well when we turn the lights out you don't get birds.

ANDRE RAINE: Kokee was a great example of that. It went from fallout to no fallout in a snap. I think just understanding the issues that are inherent with this. I'm thinking about what it really means to monitor fallout. Training, having good searcher efficiency and carcass removal rate trials. Understanding the processes involved in thinking seriously about dogs. I mean dogs are a great solution. I don't think it's insurmountable. But just really thinking about all the issues that we're talking about.

JACOBI: I assume you've read through all the PIPs. Do you have any specific recommendations that you can share with us in terms of how we can help decide on what to do in this?

ANDRE RAINE: To be honest we haven't really read the PIPs because we've been dealing with another larger issue, but I would say that the two things that keep coming up are understanding about how easy is it to find a bird and all the things you talked about how to make it more easy to

find birds; and then cat control, keeping that control going all the way through, not just a single response when the cat's seen because it's not gonna cut it.

JACOBI: Are cats the main predator? I mean obviously for Barn Owls you can't do a general thing for those.

ANDRE RAINE: Yeah, Barn Owl is the one out of all the predators while I have been working on Kaua'i that is the trickiest one and the most time intensive to deal with, and when you've got a colony with 40 cats and one Barn Owl that may come by every few nights, you're going to focus on the cats. Yeah, then with the lighting.

COGSWELL: Can you talk a little more about your experiences with the cats in the areas you had to search?

ANDRE RAINE: Port Allen is a classic example. We were just down there the other day and those areas are notorious for cat colonies. We don't get into the whole cat colony feeding behavior issue, but cat colonies are part and parcel in urban areas and all these areas have lots of cats. Just walk down there and some of them slink away but a lot of them come trotting out because they think you're going to feed them. And one of those colonies that we looked at just the other day is near where we literally found a Newell's right there and we found six cats without trying so there are a lot of cats. And like I said, when you do cat control if you take a cat out and remove it from the area it's just going to be filled right back in again there. There's so many of them on the landscape, particularly urban areas.

AARON NADIG: Pigs are an issue at certain sites, like at the site visit in the Kaua'i Coffee. You saw pigs quite comfy in those fields.

ANDRE RAINE: The Kaua'i Coffee fields, sometimes it's like the Great Plains of Africa. You see like 50 pigs thundering through there like what the heck's going on here. There's a lot of pigs in those larger areas.

MARC TRAVERS**:** And cats there too. Yeah, I watched a Newell's come down and there was sound involved with it and I ran over and grabbed the bird and within less than a minute a cat appeared right on the scene. It's almost like it might have been a coincidence, but it almost seems as though it was cued in on the sound that was associated with the bird coming down.

MEHRHOFF: I can see how the canine searches would be very useful for helping you calibrate your searcher efficiency. I think that most of these sites are kind of small. So it seems like it's gonna be really hard to come up with a canine search scheme for every night during fallout for all these different areas. Having said that I can see where it's obviously very important to help calibrate what your effectiveness is for the searching and maybe in some of the areas with higher fallout rates, maybe targeting those areas. But for some of the sites that we think might have relatively small amounts of take I don't know whether it would be very efficient or cost effective.

ANDRE RAINE: We could trial it out. Maybe it's not the solution but see if it helps, and by how much, maybe get percentages. Maybe we could try it in some of those, you know, at night or during the day, whatever.

MARC TRAVERS**:** Yeah, it'd be interesting to me if that were to go ahead to pair it with observers to relate circling numbers with potentially discovered birds on the ground because maybe that's not something you could do in the future, to just correct for grounded birds based on observations, which are easier done and you can do that systematically.

MEHRHOFF: Again, I can see how to do that on a spot perspective but not on a reoccurring perspective for two months. And I don't think it's a tool that can be applied in all places. I mean, it's more limited in terms of that.

JACOBI: But it's not just trying to come up with you know, how many birds are actually down, but it's can you, based upon how many are coming down, manipulate the lighting at a site? Or predator control? So you have a greater chance of those birds either not coming down or surviving so that they can be released. That's the real challenge.

MARC TRAVERS**:** Yeah, like to me that picture of this stairwell seemed… You could make lights that are both safe and not illuminated like that. And on the pier, you could have those posts that have lights that just illuminate the ground so people don't trip.

JACOBI: I was impressed reading through the PIPs with a few exceptions, you know, some of them like DOT they can put all the lights to show these are the lights we have and the changes we've made. But is that enough of a change to make a difference? Has it crossed the threshold of being you know, so it makes a difference or does it really feel like you have to go down that much further, and like you said there may be some strategic places that you need to change. And so I think working that, I mean, I think every effort should be not just saying hey, this is what we're going to be doing, really searching for them, and we have to mitigate this and that's the end of it. It's everything you can do to minimize what that take is for to maximize the survival of those that have gone down.

ANDRE RAINE: What the slide was showing and the comment that you made as well is it's always, bear in mind that reflectiveness of the light on wall, you know, like it could be a actually a really good light but if it's tilted slightly towards the wall and the wall is white then it just kind of makes a bigger glow. Seems a lot of times it just exacerbates the issue. So just slightly moving the light out of the way, that massively reduces the attractive quality.

WINTER: A theoretical ecology question for you, with climate change seeing corals not spawning when they're supposed to and fish not spawning when they're supposed to, is it a lot of observations of that? Trophic ramifications throughout the ecosystem. So a lot of the HCPs we're looking at are really based on assumptions of predictability of migrations of certain species. Have you guys noticed any shifts in timing of the return of birds, of fledging of birds, or that kind of thing?

ANDRE RAINE: No, and we do have the data to look at that. It's currently an eight year dataset; we have song meters out before the birds come back, we listen for the first calls, we have cameras set up on burrows to look at first arrival days. And then we have a camera set up to look at fledging dates so we can look at that for potential change over time. And that's actually one of the reasons we do it because you know, it could pinpoint a particular issue in a given year if the

birds all arrive late or early, things like that. One year they did arrive a couple of days late. It is possible that those kind of things could happen in the long run for sure.

COGSWELL: Taking advantage of the lull, I was wondering if you could actually ask the public if they have any comments.

JACOBI: Before you do that, can I ask whether any representatives of the organization of those eight applicants are here in the audience that can help us understand what they're doing and can we get some comments from them?

LISA BAIL: I'll start because I represent the biggest group of applicants. So I represent Princeville, and NCL, and Marriott, and A&B. And across there you have a really broad range of facilities, right? We have a cruise ship with controlled access to pumping stations and remote areas of the mountains that only have lights on for emergency purposes when somebody is there for emergency services in nighttime hours. So I think as we're talking about some of the search issues, we need to take that into account that these are not all hotel facilities. They're not all shopping mall facilities. You saw some of them; you did not see all of them. But you know historically with this searcher efficacy discussion, this isn't new. So this is something we've been talking about as we've worked on these permits for the last ten years and we've gotten extensive technical assistance which we're very grateful for both from DOFAW and Fish and Wildlife Service. But searcher efficacy trials are not something that's ever been required before and then the draft of this permit that was prepared for us by the agencies, searcher efficacy has not been required. And part of that is because these facilities are in an urban environment and they're so different than a remote wind farm site. We have human impacts, we have some areas that are very highly manicured and maintained with staff people responsible for geographic areas of a facility whether it's a deck of a ship or maintenance of landscaping on a part of a hotel. I think the other thing the ESRC needs to keep in mind from the site visit, is even during the site visit you saw different facilities and companies in very different stages of what they're doing. So Princeville Hotel has extensively worked on this issue for more than ten years. They've been working on seabird issues. I view them as a leader. They were the subject of a very complimentary video that DOFAW put together for some of the good work that they've done with lighting control.

But still we're seeing downed birds. We saw downed birds the year that hotel was dark in I think 2008 when it was under renovation. Completely dark property, we still had downed birds that year. We now see downed birds, and I was very interested in the discussion today about the impacts of neighboring lights because the hotel is now dark during seabird season and we suspect and I don't know if I can prove that what we're seeing are birds down on our property from neighboring lights and I'm beginning to wonder if we're now the darker property among some brighter properties if we're not actually attracting birds to our property by being dark because they're looking for those darker places at the edge of the brighter light sources to hide. So should they come down on our property then yes, we are actively searching and turning them in.

Contrast them with NCL which is you know, it's a vessel first of all, so it's subject to MARSEC requirements. So I'm not quite sure how we would have somebody come on and hide a dead bird on the property. Similarly for some of these hotels, right, honestly, you're going to be followed

by a security person or a video camera perhaps as you're trying to hide a bird. That cruise ship, I don't think you can even get on board to hide a bird. The cruise ship, if you look at our application it does have that comparison and our appendices to the PIP, we do have the description of seabird season and non-seabird season lighting so you can see the ship under both lighting protocols. So that's something if you wanted an example, you could look at that. The ship is dark, the ship has not had any birds down for the last five years. So when you look at our take calculations, we have zero birds, even though we're still applying for birds because we don't know, you know what happens in the future and there's some uncertainty there.

Jumping into the predator control issue. I know we don't want to talk about cat colonies, but there is kind of a desperate cry for help from some of these applicants with the cats, which are going to be a never ending problem. Now as the KSHCP is drafted, we have that full year one to minimize our lighting and bring the predators under control on our properties. That all happens in year one. And that hasn't started happening yet with some applicants, but the cat colonies especially for my clients and there's one A&B property that has a neighboring State property with actively fed cat colonies on it. We need help and it is just like, Andre's exactly right: it's a never ending wave of cats. There will always be that replacement and so while it can be our goal to have zero cats on the property, I don't know that that's achievable. And one example that I wanted to share with everybody today was from A&B where they have cat trapping that they do now as these colonies become if nothing else a nuisance. I mean setting aside the whole seabird issue, at some point there's a health and nuisance issue when people are feeding cats. So we've had situations where A&B has trapped a cat. And dutifully brought the cat to the Humane Society. Somebody releases it from the Humane Society and brings it back to the property. We trapped the same cat again and bring it to the Humane Society, somebody releases that cat from Humane Society and brings it back again. So there's kind of a futility and frustration, especially when the cats come from the neighboring properties. Marriott is in the same situation; those facilities down in Nawiliwili we suspect but we haven't verified that there's another cat colony. They're being fed. We think they come across the bridge and it's just going to be a never ending stream of cats that come onto our property. So in some of our PIPs, we actually put in the PIP that we're asking for help. This is as much as we can do on our properties.

We need help when we have the cat colonies nearby because we can't go onto those properties and tell people to stop and frankly, you know, when we try to trap cats people run over the traps with their trucks, people throw the traps in the ocean. People don't like trapping cats and there will be vandalism of the traps too so it's really a cultural shift that needs to happen for the whole island.

I guess the final kind of general message is that because we've all worked on this for ten years, there's a very delicate balance of expense and cost in this project, where I can tell you my clients have really made sure that financially this is something they can commit to and something that will be successful. So I can understand the need for more data and really wanting to have a third party do this searcher efficacy trials, but that's going to add cost and right now the question that's going through my mind is well, how much is it going to cost and are my clients still going to be able to hang in there? And I think you need to realize that this first group of applicants, some of them have been at this for more than a decade spending a lot of money already on lighting modifications. Really sharing everybody's interest here and wanting to get this project off the ground as quickly as we can and get this mitigation site built this year. At the same time,

answering questions about could you use canines to kind of calibrate your search efficiency? Yes, we'd love to know that, but at some point we need to be really sure that the questions we're answering are not academic. I'd request that this group of applicants really be allowed to do their own searcher efficiency. I think we're going to have to do that for NCL first of all because we can't give third party access to the vessel. And I don't know that it's appropriate at a hotel with security that we're going to have people, you know, also hiding birds. And so we really need to think about these applications in a different way and I just hope there's a recognition that some of these applicants have really been at this for a long time. We're very, very eager to have this permit issued and would like to get it done. At the same time, it really is a very delicate balancing of cost and already this is a very expensive permit that we're applying for, you know. We look at the cost that Appendix G of the KSHCP that has the cost over the life of the permit and it's already an extraordinary amount, and that doesn't include the on-site minimization and monitoring for the all the on-site efforts that are being made. And now to add to that by gosh, now maybe we're going to have a third party to the searcher efficacy trials; that's adding another pot of money. That just makes me very concerned. We might not have that delicate balancing of costs that we've worked so hard to achieve over so many years. So those are kind of I guess my general messages I'm interested in understanding.

JACOBI: Those are valid. And just to be very clear, I'm not interested in efficacy of the searching and so forth just from an academic standpoint. It really is, how can we be more appropriately and efficiently finding birds that have come down so that there's a greater chance of their survival. That's what it really comes down to, how fast can we turn it around. It's not just what's your actual take so you have to do more mitigation over here. That's one aspect. That's not really the real one as far as I'm concerned. It's really how do you minimize what the take is? So, if you're only finding 30% of the birds usually when you're doing searches, that 70% is being taken and that's when we see if you can get more of those and get them released, that's a whole lot better. That's the situation. So that gets to the minimization which to me is the most important part. So it's not just an academic exercise.

LISA BAIL: That comment actually brings up another thing I was thinking about when Andre was talking, which was how wonderful if we could we have those slides that you showed us just now as we're doing our training right now. So we have all of our training PowerPoints attached to our PIPs, but it would be great to be able to show people those examples of how these birds are actively hiding from people. It's not like searching for an Easter egg. These birds are actually retreating to the farthest corner and might even be moving around as you're trying to search so to have those slides and also like, you know to step back so you can see where the bird was in relation to the landscape.

ANDRE RAINE:I can send those around.

JACOBI: Also potentially a training module. You folks come to a particular facility and just sort of walk around with various staff and say here's the place you need to look also because this is the kind of situation we can find something more than just simply walking along the path.

LISA BAIL: And that's what our seabird biologist does for everyone. We don't use outside parties to do that. Unfortunately, he can't be here today. So I'm left to me answering questions from knowledgeable scientists with the kind of a lawyer's perspective. It is Reggie, but I guess

my request would be you know to the extent we're, you know, we're kind of studying searcher efficiency. I agree that everybody needs to document their searcher efficiency. But if there are some kind of broader questions about searcher efficacy, that that cost be spread among other parties, not just the applicant's particular PIP because we've been working hard at this for a long time. We're willing to take a leadership role or willing to be you know, part of an overall solution for cat control, but we cannot do it all just with this group of applicants.

ANDRE RAINE: The issue with the Humane Society, the frustrations we all have are something you could perhaps help on. This issue of taking a cat there, then the next day finding it's back, then taking it back. You know, it's like ping-pong with cats. Talking some about that and also the new changes that they made in terms of charging people when they bring cats in, those kind of things could be really useful to talk to you and understand like, you know what are people supposed to do with feral cats that they catch on landscape because it's a really big issue.

SPAIN: Can I ask what is the current status of the statewide cat working group?

SUZANNE CASE: I don't think the statewide one is active, and the Kaua'i one is done. We have the same issue at small boat harbors. If it's a managed cat in a colony it will have a chip, and any cat taken to the Humane Society with a chip is released because the chip identifies the place of residence of the cat as these locations. It it's not chipped, it's a feral cat, then they will take it in. The Humane Society has a lot of proponents of managed colonies, so I'm not sure they have balance.

KATE CULLISON: And there are a ton of cats that aren't currently being trapped. But let's say in year one of the HCP they're going to start trapping but those cats are chipped as belonging to the colony that's three blocks away. How is it for Port Allen? They have a legal obligation to maintain a relatively predator free environment. How can they deal with that when there's a colony over there, and while that colony may be tolerated by the Humane Society, if they are constantly egressing over into someone else's property? If you keep catching them on property that is not supposed to be part of the colony? I don't understand how they can keep being foisted back on A&B who is just spending a lot of money retrapping all the same cats; it doesn't seem fair. And in the meantime those cats are removing birds right and left in those bushes that we looked at. Where the other night we stood in the exact same place where we were with Sean O'Keefe, on the side there, and Sean said if we see a cat we trap; yet we stood in exactly the same place two nights ago and without moving we saw six cats. We were just standing there chatting. And we also saw a bird go down and couldn't find it. No bird that lands there would last more than an hour if it went down.

ANDRE RAINE: There's a big colony of about 80 cats just one block up.

KATE CULLISON: So how is A&B supposed to in good faith demonstrate that they are trying to meet their legal obligation of having a predator free environment so that we can see the birds are going down on a property, if outside of their control there's this other confounding issue. They keep re-releasing them and they're not contained.

MEHRHOFF: Like the discussion we had earlier on that wind farm. The carrots and the sticks record. When was the last time that there was a prosecution for taking endangered species in Hawai‘i? By the federal government or by the State? Other than monk seal?

SPAIN: So what's the possibility of lethally taking the cats as they come on A&B property? Can’t A&B do better trapping?

LISA BAIL: There’s also community relations issues.

SUZANNE CASE: As I understand it, if it’s chipped it’s a pet. It’s a problem.

AARON NADIG: Across the applicant pool, there's going to be employees also in that mix as well that are feeding cats and maintaining cats and properties as well. So there's also employee education and employee relations as well. So it goes beyond just the community. It's actually within employees as well.

LISA BAIL: Employees are different because they're under the control of the person whose property it is, so that can be made part of their job. They could be disciplined, they could be terminated if they don't comply. So there is a cultural shift that needs to happen and those employees need to understand that, you know, there needs to be a zero cat tolerance on these properties. Are we going to have cat incursions? Yes, even if our goal is zero, but we're still going to continue to have incursions. But we can't stop the people that are feeding the colony that's right nearby or the people that return the cats to the colony. And that it just makes it feel very futile and frustrating. So we'll do what we need to; if our permits are written to say we have to trap cats, we will trap cats. But it's going to be a never ending process and those traps will be vandalized. And we'll have to pay for replacing the traps. But that's our legal obligation to trap cats. We will, it's just it's not going to be a complete predator control. I really like the idea of fencing the cats in.

ANDRE RAINE: There was a cat ordinance committee on Kaua‘i that two years ago tackled this issue. It's a big issue and it's one that has been left hanging and needs to be dealt with, and it ended–it got canned without any resolution. But you know, it's a huge issue that needs to be dealt with because they are a major issue to native wildlife on the island.

LISA BAIL: There is some shift that can happen as a result of this permit. So when we do our annual employee seabird awareness training the cats are part of that training and hopefully we will get that cultural shift within the employees. We can add, you know, don't feed the cats to the literature that goes into the guest rooms and things like that. I understand there was not literature in the guest room during the recent site visit, but that has been immediately corrected.

WINTER: Per Linda’s comment about the pet cat, the cat lounging on the beach at one of your properties, how is it possible that there’s a pet cat on the property (Marriott)?

LISA BAIL: Yes, the cat should not be there and we believe it's related to the tenants of the property that operate Duke’s and we've been following up on that since the site visit but again, remember this is pre-permit so we don't have to have all of our lighting minimization or predator control done till the end of year one. So as we were talking about preparing for the site visit this isn't something that needs to be done yet. And yes, we are following up with that tenant that we

think is causing that cat to be there. And Kaupena apologized, he really wanted to be there for the site visit; due to scheduling concerns the site visit had to be when it was and Kaupena, who's the head of security for Marriott, who has worked on this permit for ten years could not be there during the site visit. He wanted to come today to show his respect and acknowledgement to all of you and concern for the things that were observed during the site visit and I got an email at 5:30 this morning saying he got sick. Sounds like he has the flu. So please know that he did want to be here and show respect to this group and let you know that the things seen during the site visit were immediately addressed and we will, you know, as we move into the permit term have all of those things done in line with the schedule.

COGSWELL: Is there any other comment from other applicants?

CHRIS TAKENO: I have a lot of the same things Lisa commented. We've done a lot of minimization and you saw the light minimization at the harbor. Okay, the Port Allen thing we're going to take a look at it. There's a lot of issues with as you know safety like you saw on the picture. You saw all of those on boats that were on the side of the pier. They come in at like 7:00, they are the sunset cruise. So again, it's a safety and security issue for the lighting. We don't want people to fall out or let's face it, that's going to be a problem. But anyway, I know we're gonna have to take a look at the lighting at Port Allen because it was pointed out about the reflection of the building again. I don't know what the solution is, but we'll take a look at it. But again I echo what she said. We did put a lot of effort into minimization and with the cat issue. Same issue. We understand people do drop off cats at the pier or the harbor area. It's just an issue.

PAUL CONRY: I might add a few other issues too. Looking at what DOT has been doing over the past five years with their lighting. They've actually gone through and done a lot of work with the light minimization efforts with putting in shielded lights, you know in all of those areas. And so you point out the one that was identified the Port Allen that was a wall-mounted shielded light that's pointing down and full cut-off shield. But again, it's got that reflective issue. And so I mean some of those solutions could be, you know, can you lower it down so it's not got as big of a glow down and things like that. Another thing, I think the committee noticed there was a lighting that was coming through the skylight. Again that is in that particular incident was the staff that would normally be gone by then but he had his car inside and when he turned it on the light came on. But I mean, it's something that you know, there was a skylight for light during the daytime, but it's unusual. But I think all of the facilities, once they've got the operations that are complete for the day, the lights are on timers to turn off about 9:00 pm, although there are security lights that are on all night.

And when there are or have been cats they are just like the neighbors with those urban areas, but DOT has put out an actual policy to its employees. There will be no provisioning of cats on their property. They have taken that step to make it clear that it's not acceptable and they've got some enforcement and they do follow up when there are reports with their tenants as well.

If you look at the Nawiliwili to what they've got going with their lights. There are night operations only a few times a week, and other nights they're supposed to be on their security setting which is about I believe 50% of what night operations are. But when there are ships being unloaded, quickly unloaded that lights are on for operations. That occurs a couple times a week. They also have if there's a ship that's in port, they will have additional lighting just for the ship's

cruise passengers for their safety, but they are taking active steps to minimize those lights when it's not needed.

The airport again, very similar situations, they have to have their lighting there for both public and security purposes. Once last flight is off they'll turn off the terminal areas, but they've got operations going on and there are cargo operations that go on throughout the night, but they are focusing in on responsiveness to when operations are no longer needed to go ahead and turn those lights off except for supplemental security lights. Again there for cat trapping they do have a contract for Wildlife Services to conduct cat trapping. All three of those facilities are in urban areas and subject to similar issues with cats.

MAHEALANI KRAFFT: County of Kauaʻi. We have the same exact concerns. As most of you know the County has been in the process for ten plus years to do as much minimization as possible, to the tune of six million dollars retrofitting facilities. The feral cat problem has been a huge issue for the County. As far as the advisory committee, the County got sued and the County lost.

WILLIAM TRUGILLO: Parks and Recreation. Like Mahea said, we echo what Lisa mentioned, the cat population is a big issue for us. And as a snapshot the County has over 200 sites, ranging from wastewater sites to business offices, and so the types of properties that we're monitoring and the sizes, and so when you're talking about needing to monitor and searches, it's going to be all over the map. I agree that I could see us needing or wanting to do more training for our staff, whether we're talking about self-monitoring or to bring another person, party to come in, again the types of landscapes and properties that we have all over the map. For the County, we've also basically stopped our high level of use during recreations. So stadium lighting, the ball field lighting is all stopped when the fledging season. I think we've done most, if not all of the minimization we can of existing lights.

JACOBI: I know the County and many of the other entities in the room here have been involved in this for many, many years and so forth and I know that at some point there was some degree of resistance, especially when ball games were starting to change. Are you seeing a change in the community in terms of greater acceptance of this? I mean are people starting to be more positive or is it still sort of at loggerheads?

WILLIAM TRUGILLO: I think, I wouldn't say it is positive to be a hundred percent honest. It is what it is. And the initial strong resistance, the vocal resistance against it has kind of quieted down and then like okay, this is what it is. So what we're talking about is the ball field lighting has stopped doing the fledging season, which means Friday night lights high school football in particular. That's the hot topic, which is right in the middle of football season. And so I would guess six of the nine games that are played have to be during the day. It's been many years since that whole thing started and now it is kind of a balance of it is what it is, take what we can. These issues are extremely important.

JACOBI: It's hard to do and especially because it is a cultural change. I mean, I think many times I compare Hawaiʻi with New Zealand. In New Zealand everybody sees native birds on their currency and their stamps and they know the different birds and they see them in front of them where as you know, we have a different situation here because we don't have that right in front of

us and I'm hoping at some point we're going to start catching up a little bit more but it takes that real positive attitude to get really the kind of community support and pride in terms of our resources. And that's a challenge.

WILLIAM TRUGILLO: I will say, we've been doing this lights out for about seven years now, and as I did education to the youth students that were helping with the monitoring, I'm realizing the kids that are in high school now like for the most part don't know the difference between lights on and lights off period so it's kind of coming to that period of next generation comes in.

COGSWELL: I think that's all the applicants. Any comments from the general public?

KYLIE WAGER CRUZ: Earth Justice. We represent Hui Hoʻomalu I Ka ʻAina, as well as Conservation Council for Hawaiʻi, Center for Biological Diversity, and the American Bird Conservancy. We do have a couple of the members of the client groups here and they'll be offering some more specific comments as well. I just want to start by talking about the minimization issue with respect to feral cats. I do think that this is a major problem and I think everyone knows it. I think that the HCP can be strengthened to include more specific requirements for the trapping and not releasing a feral cat. Although the plan does say that there's a prohibition against releasing at the facility, these cats shouldn't be released anywhere on the island after they're trapped. And also with respect to the requirement to bring the cats to the Kauaʻi Humane Society, I echo a lot of the comments that I've been hearing that the Kauaʻi Humane Society has been not only engaging and releasing but charging really high fees for bringing feral cats there. And so I think that there must be some sort of alternative place that we can require the applicants to bring these trap cats because I think that Humane Society at this point is a non-starter. Also with respect to the County of Kauaʻi and please since you're here please correct me if I'm wrong, but we've noticed in the PIP for the County there's no commitment at all to trap cats. And yes correct me if I'm wrong. But if that is true, then I think that's unacceptable for purposes of meeting the goals of minimizing take to the maximum extent practicable.

MAHEALANI KRAFFT: The county hasn't come to a complete plan as to what we will do.

KYLIE WAGER CRUZ: With regard to lighting, right now we just have a general menu of options for minimizing lighting, and we think there should be some minimum standards. We know that there are a number of factors that go into the ability to minimize take based on lighting impacts. And so there should be some requirements about the spectral composition of the light. The plan talked generally about short wavelength and long wavelength light. But what we really need is a specific standard written into the plan as well as specific standards for brightness because we understand that there's been a strong movement for choosing light-emitting diode fixtures that have both a lot of brightness and that are very white and based on our understanding of the best available science, that's not good for either sea turtles or seabirds. So I think there should be sort of these like baseline criteria that are requirements rather than guidelines that are imposed on the applicants. Moving on to mitigation, we are still in the process of reviewing our formal comments for this but we do think that the proposed predator proof colony, it looks like the benefits of that are going to be seen like decades out into the future. And so we know that there are existing seabird colonies throughout the island that could be protected and provide

benefits immediately such as like fencing those kind of areas and keeping the predators out. So we're wondering if it could be considered as part of this stage with the HCP.

This issue, the methods for determining take is what I'm going to talk about next and you kind of touched on this but I'll just note that we thought that the 50% searcher efficiency rate was very generous as a starting point. And then for some of the applicants to claim that they have a 100 percent or 90 percent searcher efficiency rate is really unrealistic. The HCP doesn't talk about that if you're going to veer away at 50% that you need to come forward with data and information verifying but that's true and so far we haven't really seen that and so we want we want the PIPs to at the very bare minimum include very specific detailed information about how those numbers were reached. With respect to monitoring, I'm going to echo a little bit about what Mr. Jacobi said. So with respect to the client compliance monitoring, what we are seeing in the current HCP is basically a review of annual reports on compliance. And we support that concept of annual review, but we think it should occur during the pre-seabird season so that everyone's kind of on the same page of what they're supposed to be doing before the birds start returning to the islands. And also there should be some sort of independent contractor or independent party, possibly through DLNR, that's doing unscheduled checks throughout the season to make sure that all the minimization and measures are being implemented because if we wait till the end of fallout season, and after the fact, then there isn't the opportunity to provide immediate real-time benefits and improvements to the various measures that are supposed to be implemented. And then finally on the issue of take monitoring, we saw in the plan that there was an option for self-monitoring and DLNR monitoring. But then we are unable to find in the plan any description of what DLNR take monitoring would look like and how it would be funded. So we think that generally speaking, self-monitoring, we highly advised against it because of the inherent bias against doing really good search of your take. And so I think that the next round of the HCP should really include some sort of non-applicant monitoring of take. We talked about various concepts of what that might look like here, and we're still forming our own opinions, but I think that self-monitoring is something that we should be scrutinizing very carefully. That's all I have for now, but thank you for the opportunity to submit comments.

STEVEN MONTGOMERY: Oʻahu biologist. I'm really pleased that we have quite the attendance here and I want to compliment the County for leading the way on dealing with feral cat issues through their having hired Peter Adler and doing mediated meetings and coming up with a plan. I hadn't heard how we resolved in court, but you said it kind of lost and it's a matter of going back to public meetings in a formal process and establishing regulations such as that people can't release cats unless they certify they have the approval of the landowner. Some way to have cat colonies registered and regulated in a fashion that would start to make progress on this issue. Because we just heard about continual releases of problem cats even in areas where seabirds are vulnerable. So I'm hopeful that now this court case is resolved we can go back to square one and go to the rulemaking process and Kauaʻi can continue to be one of the counties and it's appropriate because as a county with no mongoose—and only Lanaʻi and Kahoʻolawe share that distinction—you have the most to lose because the seabirds are there. And I think we owe it to educators like David Boynton who wrote now and talked too many years ago at the Discovery Center and was a strong advocate for birds having worked at the Kilauea Point Refuge on some of the summers, and I can recall him talking to me about shearwaters that were found near the Kokee look out at Kalalau, the first look out along the trail. So the remains of seabirds that were eaten by cats. So I'm hopeful that this plan can chart a path forward that will deal with

the cats. And I think there are signs because of the private catteries are coming up; there's one on O‘ahu who has several hundred cats on the Wai‘anae coast and there is one on Lana‘i. And I believe it is Stuart Scott, one of the advocates of feral cat allies on Kaua‘i who set up a catio on his own private property because he could see the looming regulations in coming years that would restrict the release of cats in the wild and the feeding of cats in the wild at least on government property. So I think there is a way forward. I think we should pick up the consultation report that Peter Adler put together with all the input from all the different advocates on both sides of the issue. And Kaua‘i can continue to lead resolving this problem and I hope the plan can reflect that all that effort has been additive because it's a long process, but I think we're getting somewhere. Thank you.

MAXX PHILLIPS: Center for Biological Diversity. Yes, I think one of the biggest errors that the Center finds with the—and first we want to say nothing is more important than getting this HCP through, our birds as we just heard from Andre are barreling towards extinction and if we don’t start to act yesterday, we're going to see it in our lifetime—so it is as important as possible from the state side as from the federal side organization, and for us to be minimizing to the maximum extent practicable and mitigating the offset of those takes. Unfortunately as it stands the Center can’t support this draft of the HCP and the biggest and most glaring reason which Kylie's pointed to is that there aren't meaningful standards in the HCP as it relates to the lights. And so what would be more reasonable and more responsible is that if Kaua‘i could set an island wide ordinance, and in the light of that not happening that instead there be established standards. Not only required color spectrum, but also required lumens and shielding, so that each applicant knows exactly what's required of them for their properties. There's really no reason why that shouldn’t be included in this document and we've seen that in other jurisdictions for sea turtles as well. And I think it's important for the County to understand that in no way would this HCP, as it goes forward without the countywide ordinance, shield them from liability from these indirect takes, so there's an eleventh circuit case on that exactly. And so the Center really wants to say that out right now as the County is in your room. We recommend that the County still do implement lighting ordinance that will require these specific standards. And again, it can happen in the ten year season with a requirement for new development to meet it automatically, but this is something that we need to do especially if we see in the past and you know, I'm young but in the past 15 years I can remember I've seen that island get brighter and brighter as LEDs become more and more. I'm from the Big Island. So we know that we can keep things dark. We do it for astronomy all the time. Other than that, there is something in the mitigation to decide about whether or not it's going to be compensatory in the fact that it's not going to be really coming into full effect until its 27th year. So that's something that really does worry the Center. Again, got to get this through so that it can benefit the species.

MEHRHOFF: Question for Maxx. So what lumens and wavelengths do you recommend? We had a rousing discussion on that as a small group on our field trip on Kaua‘i.

MAXX PHILLIPS: Yeah, I don't have the report that the Center has been working on in front of me, but I can get that to you.

AARON NADIG: Yeah, like when we were out and we did the site visit, Florida has done a lot of work with sea turtles specific lighting. We saw some lighting that Saint Regis had done and we're looking at loggerheads and Saint Regis Hotel had used that sea turtle lighting and it

actually didn't work and actually attracted seabirds. So it would work in Florida. It didn't work here at Saint Regis Hotel.

MAXX PHILLIPS: It has to have more stringent requirements in place beyond the sea turtles which means more effective. So at least there's a starting point and a few years of experience from there.

MEHRHOFF: When we were doing our discussion, one of the things that came up was whether it was more important to be looking at the lumens brightness and the wavelength or the positioning of lights with respect to things like reflected light. Am I correct in that discussion that we had there, and at that might be more important?

MAXX PHILLIPS: I think it's a variety of different mechanisms that we can use because again, you can have a shielded downward light, but if it's over a parking lot with a white car it's having the opposite effect. If it's over a pond, you know, and it's a water surface it is having an opposite effect. So a lot of instances it does have to be site specific, but that goes back also to independent monitoring and to having an expert eye on each of these sites which you folks were talking about with before and after pictures.

KYLIE WAGER CRUZ: We'll just add one thing to what Maxx was saying about the spectrum. There has been a study that Jay Penniman from Maui Nui Seabird Recovery Project participated in involving the Newell's Shearwater and it looked at various parts of the spectra having effects on a variety of species including the Newell's. And so that one paper came out in 2018.

(BREAK)

COGSWELL: Back to order: comments about the PIPs?

MEHRHOFF: Not all of the PIPs said when they would be compliant for their light fixtures. Some did, some did not, but the most glaring thing on the differences between them was the calculation of an estimated take. I just talked to Aaron, and I think that's been looked at least by Fish and Wildlife Service but the take estimates were not consistently done and that needed to be fixed. And confusion on searcher efficacy or efficiency and the amount of area that's searchable. Those are not related. Two different concepts. So that that part was not clean across all of them. And I did think that there needs to be some clarity on how some of the participants would be dealing with situations like say, the Port Allen pier that we were on; a piece of that was Navy which was black or dark most of the time but then lit on the other part and then other times the Navy might be having really bright lights on supposedly at night where the County facility or Department of Transportation facility would be darker. So how you're going to deal with that, how you're going to look at searching, and what the search would actually include in that relation to the property boundaries and how that was going to be partitioned I think needed to be addressed for some of those. Some issues may be the same at Princeville, for example, if there was fall outside of the property but in general the same thing fell through. There looks like a lot of work has gone into all of those. There's a lot of minimization going on. It was just when that was going to get done wasn't clear in all the PIPs. There is stuff in the HCP proper, but I didn't see that always carried through in the PIPs because some of those did tailor some of their stuff in my mind outside of what was actually in the HCP. And the other kind of concern was for the

County in particular not requesting take of turtles. That might be one they want to revisit. It still seemed like there was a fairly good chance that you would be taking turtles at some point. It wasn't a very convincing set of arguments that there would be no take on that given some anecdotal discussions on the fact that there had been I think hatchlings found in, near, around the areas in the past. Overall for the rest of them I didn't have too much issues on individual PIPs other than what I've already brought up. I still think you probably will take plants inside the mitigation area. I'll be shocked if you don't.

JACOBI: Just a question in terms of timetable. Where are we? What are we looking forward to next?

KATE CULLISON: Well the public comment period closes November 7th. We have an EA that's going to come out and close by the end of the year I hope. Then we give our comments back to the applicants. There's no deadline to force them to get back to us. There's eight applicants, so this is not going to be as easy a process to track as when you have single ones. We will make the comment changes to the main HCP document and the applicants will make their changes to their PIPs.

JACOBI: I gave my comments verbally. Do I need to give them in writing also, I mean, hopefully they have it captured? I would prefer to have that given my timetable but…

KATE CULLISON: When we type it up if we miss something then you can look at it, but anyone who has typed up theirs, it would be greatly appreciated to have comments in writing.

JACOBI: Are we sort of potentially looking forward to this being resolved before the next bird season?

KATE CULLISON: Yes.

JACOBI: So sometime early next year? We'll probably see it again.

KATE CULLISON: Yes.

COGSWELL: Wider community or public do you have comments on the PIPS anything further. If not, meeting adjourned.

## **ITEM 6.** Adjournment

# Testimony to Endangered Species Recovery Committee
# August 29, 2019 Meeting

Aloha Endangered Species Recovery Committee Chair and Members,

As a forty-year resident of Ka'u on Hawaii Island, I can attest to the declining population of Hawaiian hoary bats in our area.

It seems that an area with so many acres of both native forests and disturbed, but lightly settled, properties would support a growing population of bats, but the opposite is the case. We used to have dozens of bats flying the 1.25 miles of hedgerows that form the sides of Kaalualu Road – now there are none.

My personal theory is the vog that poured over Ka'u for many years wiped out the vast majority of insect blooms that formerly fed our bats. Another theory posed by a friend of mine concerns local farmers' release of wasps a number of years ago to prey on fruit flies affecting their crops, and the wasps have thrived and preyed on the bat's insects before the bats get to the insects.

I strongly support your research efforts to determine your bat guidance as the 20.3 acre vs. 40 acre is unfounded in scientific findings. Your consideration of the bat habitat quality and availability of prey is based on sounder reasoning than acreages essentially pulled out of thin air.

While not under consideration at this meeting, I am particularly alarmed with the contrast between the Pakini Nui Wind Farm plans (as it is near my home in Ka'u) and the wind farm HCP that is before the Committee for approval today. The Kaheawa Wind Power II HCP has both a "research" and a habitat management component while Pakini Nui has just the heavy reforestation of some National Park lands with absolutely no bat research at all.

I encourage the Committee to continue the "Guidance" revision work based on the ongoing research to find why our bat population has had such an extreme decline and to prevent extirpation of the few remaining Ka'u bats. Your wind farm HCP bat studies will provide valuable knowledge that will hopefully give our bats the best chance of survival!

Thank you for the Committee's continuing efforts!

/s/ Sandra Demoruelle
Sandra Demoruelle