

## ENDANGERED SPECIES RECOVERY COMMITTEE (ESRC) SITE VISIT

February 7, 2019 MEETING MINUTES

Meeting Locations: Hale'iwa Ali'i Beach Park, 66-167 Hale'iwa Road, Hale'iwa, HI 96712; Kawaihoa Wind Power, 61-488 Kamehameha Hwy, Ashley Road, Hale'iwa, HI 96712; and Helemano Wilderness Recreation Area, Poamoho Hele Loa Access Road, off Pa'ala'a Uka Pūpūkea Road, Wahiawa, HI 96786

**MEMBERS:** Scott Fretz (DLNR), Loyal Mehrhoff (At-Large), Lisa Spain (At-Large), Kim Burnett (UH), Kawika Winter (At-Large), Jim Jacobi (USGS), Michelle Bogardus (USFWS)

**STAFF:** DOFAW: David Smith, Marigold Zoll, James Cogswell, Glenn Metzler, Lauren Taylor, Landin Johnson

USFWS: Darren LeBlanc, James Kwon, Rebecca Frager

**KAWAILOA:** Brita Woeck, Adam Young, Jacob Dutton, Tiffany Agostini (TetraTech), Matt Stelmach (TetraTech), Deborah Wilson and Murphy

**OTHERS:** Andrea Woods, Dawn Bruns, John Williamson, J.C. Watson, Crystal Kua, Mililani Browning, Mitchell Craig, George Akau, Lesley Davidson, Keith DeMello, Rebbecca Browning, Sean Moura, Kirk Tomita

### AGENDA

#### ITEM 1. Introductions. Sign liability waivers.

FRETZ: Let's come to order.

FRETZ: In addition to the site visits, there will be an opportunity for the public to comment at the end of each site visit. That's your opportunity to provide the Committee with your comments for consideration.

ESRC members identify themselves by raising their hands and stating their names.

FRETZ: The purpose of these site visits is for the Committee to see these sites that are part of the HCP firsthand and to hear your public comments. For the record, the Committee is not deliberating on anything or making any decisions. This is for the gathering on information on site, and the Committee is required to do that under the law for every HCP.

LAUREN TAYLOR provides instructions on driving to the sites, carpooling opportunities, and signing in, and collects signed liability waivers.

#### ITEM 2. Depart Hale'iwa Ali'i Beach Park for Kawaihoa Wind Power.

**ITEM 3.** Site visit to Kawaihoa Wind Power to inform the ESRC review of the Kawaihoa Wind Power draft Habitat Conservation Plan (HCP) amendment published in the OEQC Environmental Notice on December 23, 2018.

FRETZ: I'm going to start with Brita. Can you give us an idea of what you had in mind to show us in terms of issues related to the HCP?

BRITA WOECK: Yes, Adam's going to give us an overview of the project and then I'll talk about HCP stuff.

ADAM YOUNG: Welcome to Kawaihoa Wind. This project was built in 2012 and went operational late that year. It was developed by First Wind and was sold shortly after to D.E. Shaw Renewable Investments, who have been the owner since that time. Siemens is still performing maintenance on the turbines. There are 30 Siemens 2.3 turbines, 101 meter rotor, 99.5 meter hub height, a 69 megawatt facility that was developed as part of Hawai'i's renewable energy portfolio standard. The project will continue with the PPA through 2022. As you can see, coming up the road you have the Kawaihoa Solar Facility being built as well. D.E. Shaw is a minority stake owner in that project. While two separate and distinct renewable energy facilities, they will be operating together in concert to provide a lot of renewable energy from the North Shore, reducing the fossil fuel footprint for energy on the island.

In operating the wind farm we have a Habitat Conservation Plan. We're really focused on minimizing and reducing impacts to listed species, and with that I'll pivot to Brita.

BRITA WOECK: My name is Brita Woeck, and I'm the Environmental Compliance Manager for Kawaihoa. As Adam said, we operate under an HCP. Later this afternoon there is the opportunity for those who want to go to one of our proposed mitigation sites, Helemano Wilderness Area.

One of the components of our project is an ongoing long-term monitoring plan. We have several dog search teams that are responsible for carrying out our post-construction monitoring surveys. Twice a week they go to all our turbines and search the cleared search plots looking for bird and bat fatalities and injuries. We really take tracking those impacts very seriously. When I'm done talking we'll see a demonstration of a dog search team. Hawai'i is unique in that it's one of the only places that requires the use of dog search teams in monitoring; it's always been at the forefront of being careful and conservative in the way they do their monitoring.

The other thing I want to talk about that's new with the project this year is acoustic deterrents to bats. There's a company now making them commercially available called NRG Systems and they've done several years of mainland testing. 2018 was their second year and they're finishing finalizing their data and will be publishing the results from that, but so far their mainland testing has been very positive. It's at wind farm sites that experience a high volume of bat fatalities. They're seeing upwards of 50%, and in some cases, 100% reduction in bat fatalities when these deterrent units are on. We did a pilot test this year with one deterrent unit you can see installed on this turbine. This is an example of one of the units. It's basically a system of speakers that produces an ultrasonic sound that's above the range of human hearing that extends to the end of the turbine blades and creates an area of almost "white noise" in which bats aren't able to echolocate.



**Photo A: Example of bat deterrent unit.**

**Photo B: Deterrent unit placement on Turbine 30.**

BRITA WOECK: So if bats are foraging around the turbine looking for insects—one theory for why bats are hanging around up there—it creates space they don't go into because they're not able to navigate. It keeps them out of the rotor swept area but they're still able to forage anywhere else around the turbine, so it's not displacing them out of the wind farm.

JACOBI: How big of a swathe is that?

BRITA WOECK: It depends on the frequency. For lower frequency echolocating species like hoary bats, the sound goes to the end of the turbine blades. I can look up the number of meters from the turbine the cone extends from.

ADAM YOUNG: There's a total of five units on this turbine: two down facing, one pointing out on each side, and one facing up, and they're going to project similar to a loudspeaker at your house.

BRITA WOECK: What's exciting about Kawaihoa is although there have been projects that have installed this technology experimentally, we'll be the first project in the nation to have these on all turbines. We're going to install them this summer and we'll be ready to provide some updates as that moves forward. There will be five to six units on every turbine.

ADAM YOUNG: As part of this proof of concept test using this experimental unit, which is nearly identical to the commercial unit that is going into production, we did a 3-D imaging study with Bat

Conservation International with thermal cameras, and the initial results are in line with the mainland studies and we'll hopefully have the rest of that data later this month.

JACOBI: How does that correlate with your ground searches?

BRITA WOECK: It doesn't correlate because there are too few bat fatalities to have any statistical significance. That's why we want to do the camera studies, so we can get eyes on what is actually happening up there. The 2-D video analysis that is going on is showing reduced levels of bat activity on the nights the deterrents are turned on. The 3-D video will be able to show us bat activity in relation to the rotor swept area.

MEHRHOFF: Do you have any idea about bat activity based on the deterrent's elevation?

ADAM YOUNG: We have had ground based acoustic units and at the nacelle height, but for this study the 3-D imaging should show the flight path, if the bats are approaching the rotor from the bottom or the top.

FRETZ: What's the plan for monitoring the results and adaptive management?

BRITA WOECK: Right now our plan is to continue our standard monitoring program. We don't have enough fatalities to do statistical analysis that would show statistical significance.

ADAM YOUNG: As new deterrents come on the market, we'll take a look at those too.

JACOBI: And how you calculate take this year will be the same? This is independent of that?

BRITA WOECK: Yes.

FRETZ: Does that mean you're assuming the deterrents will not be effective?

BRITA WOECK: No, it just means we're not making that adjustment to assume effectiveness since we don't have that number. We hope we'll see a change but we're being conservative.

BOGARDUS: The tier structure is set up to assume a level of efficacy for each one of the three tiers in the proposed amendment. That's how you're looking at levels of efficacy without making an assumption of a level of efficacy?

BRITA WOECK: That's correct.

WINTER: It seems like wind speed would affect the efficacy of the acoustic deterrent. Have you looked at that?

ADAM YOUNG: Deep sounds travel long distances and the attenuation rate is relatively slow, whereas high frequency sounds attenuate quickly. Because this is such a high frequency, which is more piercing, we'd have to follow up with NRG Systems but it likely won't be a factor.

MEHRHOFF: Will you continue with the low wind speed curtailment?

BRITA WOECK: Yes. We implement a baseline of 5.0 m/s with a 0.2 m/s hysteresis, so it offsets when the turbine turns off and back on again. We also changed our rolling average from a 10 minute to a 20 minute. The goal is to stop the number of starts and stops of the turbine because that has been shown to be related to bat fatalities.

ADAM YOUNG: Compared to last summer we've had a 75% reduction in turbine starts and stops.

GLENN METZLER: Does the change in rolling wind speed impact energy production?

ADAM YOUNG: Yes.

JACOBI: I would suggest for your monitoring trying to get away from your turbines so you can say if the bat activity decreases whether that was due to deterrents or that there's just less bat activity as a whole, for whatever reason that could be.

ADAM YOUNG: We do have some data from ground level which will be useful with that.

WINTER: Thinking about the acoustic deterrents being effective for foraging bats, I believe there's some theories about bats using these as potential roosting sites during which time they're not using echolocation, so these wouldn't be effective. So the talk about these working 100%; I don't really see that as possible from my understanding of bat biology. It's an important consideration. I don't think we should get away from low wind speed curtailment.

BRITA WOECK: Yes, these aren't intended only for foraging bats but for bats that are travelling through the area. It should be effective for anything that's echolocating.

WINTER: I recognize that. I just don't think 100% effective is biologically possible.

BRITA WOECK: We still plan to continue low wind speed curtailment.

ADAM YOUNG: To be clear, we don't expect 100% effectiveness. The study in Texas we shared happened to have 14 takes the previous year, and zero the year deterrents were deployed. But we're just focused on reducing impacts to bats, whatever percentage reduction in take we can achieve.



**Photo C: ESRC site visit to Kawaihoa Wind Power on February 7, 2019.**

## Dog Search Demonstration

DEBORAH WILSON: My name is Deborah and this is Murphy. He's a six and a half year old Lab. He's been doing this since he was about five and half. Mitch was the one who actually had the vision to bring canines up here for their efficiency over visual searches. They have a usually 30% higher or much better efficiency than visual searches.

I love coming out here. You're going to see when he works he loves his job. In low winds we might be doing eight to ten miles a day; that's when he's at his best.

We've already done ten to 12 turbines today and we've come over here to demonstrate. He's got the nose. His target odors are the Newell's Shearwater, the Hawaiian Hoary Bat, and the Pueo. He knows when something's been on this plot or if something has died. My responsibility is to put him in the right places to find what's out there. Climate, weather, heat, rain, length of grass: everything affects the way we search and that's up to me to figure out. So if you see, this is the way the wind is coming. I like to see if the wind shifts, because he may not be going the way the wind is coming and it will affect whether we'll be upwind or downwind. The higher California grass, we may need to get closer to it. Anywhere the wind might ramp, there might be a dead spot by the hill or eddy, depending on the wind direction. It's difficult around the turbine. We have to get close. There may be a dead spot or swirling on the back side of that.

Why does he work so hard? A reward system from when he's young. We work around a tremendous amount of distractions, cows or sheep. So we start with a "hasty" search pattern and then if I'm not next to traffic, I'll hook him up on his leash and we'll start to detail along transect lines. I want as many chances as possible to find anything. If there's low winds I have to go closer, but if there aren't any winds we could walk right over something because I'm looking for hazards and looking to put him in the right place. I'm trusting him to find anything.

We have a search area, but if he pulls me outside the plot, I will let him. He's been trained to find these things so I'm going to let him find them. You can see him tracking an odor. It moves like smoke. His trained response when he's at odor is to sit. It's a very clear indication.

SPAIN: You mention he hones in on three species. What if there was an unexpected species that was taken?

DEBORAH WILSON: If he finds something, for instance, a dove, or a frigate, by default he will tell me what's in his plot. He will find a fatality. He will find what he's rewarded for.

FRETZ: The search area is the mowed area?

JACOB DUTTON: The staked out area is the 35 meter circular plot. It's mowed a little further than that.

DEBORAH WILSON: We go beyond the search area quite often.

BOGARDUS: This is why we worked on the protocol for how to count covered species found outside of the search area or the search day. Right now that is the unobserved take in the model output, but if you find something we want to be able to document that. So the question was how to document that without screwing up the model input and output.

WINTER: How frequent are your searches?



DEBORAH WILSON: Every tower twice a week. Each search may be ten to 15 minutes long, but it varies; if the wind is down, we do a lot of walking. We try to come up here by 5:00 am to avoid the heat and operations. Wind and cool weather is important.

GEORGE AKAU: Have you used your dog to find any endangered species or live burrows out in the forested areas?

DEBORAH WILSON: Not here, but he has found live birds on the plot and he doesn't do any harm.

BOGARDUS: Can you remind me what the searcher efficiency was prior to the use of dogs?

MITCHELL CRAIG: That was a long time ago, but maybe no more than 60%. The dogs have pretty high efficiency in the outer areas, whereas humans, it got worse the farther you went because of the vegetation. I think with the dog it's in the 95% range.

JACOBI: If there was a carcass that a scavenger came and took away, could he still find that?

DEBORAH WILSON: He might find it, but I'm not going to understand the reason why. If there's fur or a piece, he might sit. We call for someone to come make the determination. He can find all kinds of things. He can find a butterfly. He's found a Hawaiian snail.

JACOBI: Is anything planted out here?

BRITA WOECK: No, this is just a demonstration of a real search.



**Photo D: Deborah Wilson and Murphy.**

FRETZ: How often do you perform searcher efficiency trials?

DEBORAH WILSON: I don't know. It's blind for us. If we find something, I don't know if it was placed there or not. We treat every search the same.

FRETZ: Any more questions from the Committee?

WINTER: Does the search plot correspond with the rotor swept area? Blade length is not a consideration?

MATT STELMACH: No, it corresponds with the distance weighted proportion of the fall area. There were three years of intensive monitoring that informed the data.

FRETZ: If you did a larger search area as part of your operations and you plugged that into your project take over 20 years, would that change the way that take is projected?

MATT STELMACH: It decreases the uncertainty, so the numbers come down a little bit. But changing the search area is supposed to be accounted for within the modelling.

FRETZ: Yes, but it also projects you out at 256 bats. Is it a way to project less?

MATT STELMACH: It doesn't affect the projection much. When you model ahead, it takes into account the take rate as well as the uncertainty. The search area will impact the take calculation as of today but at the end of the permit term, it wouldn't affect the projection.

BOGARDUS: I understand that the search area does not affect the uncertainty of the take projection as much as other factors affect the take projection.

JACOBI: Have you looked at the possibility of smart curtailment?

BRITA WOECK: We have but we think this technology is more promising. That is more effective with migratory bats, but we see bats all year round.

MATT STELMACH: The implementation of acoustic deterrents limits what you can do with acoustic data collected at the nacelle, and smart curtailment is focused on acoustic detection.

FRETZ: All the turbines are mowed this way?

ADAM YOUNG: Yes.

MEHRHOFF: Are any turbines in a more forested environment?

ADAM YOUNG: No.

MILILANI BROWNING: How does the mowing schedule correspond with the bat searches?

JACOB DUTTON: We search first, then they mow.

#### **ITEM 4.**      Opportunity for public comments.

FRETZ: Are there any public comments at this site for the Committee? Seeing none, let's move towards the cars within ten minutes.



LAUREN TAYLOR provides instructions on driving to the afternoon site visit.

## ITEM 5. Introductions.

SCOTT FRETZ calls the meeting to order and states that Marigold Zoll is going to direct the site visit.

MARIGOLD ZOLL: Thanks everyone for coming. This is the Helemano Wilderness Area (HWA). We closed the purchase a few months ago, and we purchased it in part to conserve bats. It's about 3,000 acres comprised of four separate parcels. There are different land practices that happen on all of them: wild land with native and non-native forest, previously farmed agriculture land, and active ranching. We had several funding sources and we have a variety of deed encumbrances on the property from the U.S. Forest Service, the USFWS, the Navy—a restricted use permit—Pittman-Robertson funds for hunting opportunities, Land Legacy funding, as well as from Kawaihoa for bat mitigation funding. We are in the process of writing up a management plan for the area. We committed to going through a public process where we would get input from community interest groups, rather than writing the plan and asking for public comment after on the finished plan. That doesn't always feel authentic. This is an opportunity to receive public comment that is more meaningful.

Today we're going to see some previously farmed pineapple lands. You can see they're prime for conversion into some other land type. This acquisition came about because I found out Dole had these lands up for sale and our access to the Poamoho Forest Reserve was at risk. We had an MOA with Dole to access the road that leads up to the reserve and that MOA could have been terminated if Dole sold to a third party. So we looked into buying this property and all the things we could do here within our mission. Five years later, it happened.

The idea is there is suitable native habitat for bats, and there's previously disturbed agricultural land that could be converted into something the bat biologists think could be good for bats. We'd also like to have camping areas, grow forest products, have recreation opportunities like riding horses, have common native seed orchards for use after forest fires... there's a lot of things we could do here.

WINTER: For the occupancy and distribution study, would there be monitors up here?

MARIGOLD ZOLL: There was a monitor up at the cabin and we got some hits, and the Army has done some monitoring around here and we've got some hits. But we haven't put bat detectors up here ourselves because we didn't have access to it until we purchased it.

BOGARDUS: You hold the deed now?

MARIGOLD ZOLL: Yes, and we held a public hearing about adding it to the Forest Reserve System and only one person showed up. We're going to proceed with making a recommendation to the Board to add it as a Forest Reserve.

MEHRHOFF: Since there's a hui of people who put into this, how are you divvying up the mitigation credits?

BRITA WOECK: We're the only ones seeking mitigation credit.

DAVID SMITH: There's a possibility of enhancing the property to increase the number of bats we felt benefited from the purchase.

JACOBI: Will there be a robust bat monitoring program initiated? That would help us understand what these acquisitions do for current mitigation and future increments of mitigation too.

MARIGOLD ZOLL: We'd like to. We've engaged a graduate student who's interested, and a post-doc with hoary bat experience who's interested in doing research on O'ahu.

FRETZ: That's a question for the applicants.

BRITA WOECK: Not as part of this acquisition, because that mitigation was fulfilled by the purchase. If we were to restore an unforested portion of Helemano, yes, we'd have a before and after acoustic and vegetation monitoring program.

DAVID SMITH: If we could figure out a way to fund baseline monitoring, maybe through the Legislature, we could put together a package.

JACOBI: Being able to make these recommendations would be useful in the bat guidance document.

MATT STELMACH: Did WEST end up selecting all 100 sites for their study?

JACOBI: I'm not sure. I think this would be something good to bring back to the ESRC though.

MILIANI BROWNING: This acquisition is for Tier 4 of the amendment?

BRITA WOECK: Yes.

JACOBI: And the restoration is an option being considered for Tier 5.

GEORGE AKAU: How much is fallow agriculture land and how much do you propose converting?

MARIGOLD ZOLL: I haven't measured it out but I would guess just under a 1000 acres of the 3000 acres is fallow agriculture land. We'll have to see how we lay out the patchwork of the activities across the landscape.

MARIGOLD ZOLL provides directions on driving up to the site and carpooling opportunities.



**Photo E: ESRC site visit to Helemano Wilderness Recreation Area on February 7, 2019.**

**ITEM 6.** Site visit to Helemano Wilderness Recreation Area to view the land acquisition preserved for Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) habitat as a take mitigation measure in the Kawaihoa Wind Power draft HCP amendment.

MARIGOLD ZOLL: We drove through the agricultural lands and you can see there is active ranching. On the left hand side there were some paddocks, and on the right hand side, that's what much of the property looks like: Albizia forest overstory, Guinea Grass understory. A lot of potential for improvement. We're looking across at the parcel with native forest on it: Ulehe, Koa, 'Ōhi'a, Sandalwood. It's got non-native stuff too: Strawberry Guava, Eucalyptus. There's a gulch and another plateau which has Paperbark Trees with an understory of Ulehe and Bushybeard Grass. It has an interesting open understory.

Any questions?

DAVID SMITH: It's like remnant native forest with disturbance on the edges?

MARIGOLD ZOLL: No, it's like a broad flat plateau with Paperbark Trees and Ulehe understory. Completely different from the other areas of open Guinea Grass grassland, Albizia with Guinea Grass, or the native forest.

FRETZ: Is there a delineation on the map of the proportion of the purchase that represents the acquisition for bat habitat?

BRITA WOECK: No because all the funds go into one pot. There's not acres assigned to each dollar.



**Photo F: ESRC's view looking across at native and non-native forest parcel at Helemano Wilderness Recreation Area.**

FRETZ: Don't you need to do that if you want to perform mitigation?

BRITA WOECK: For Tier 4 we have some maps in the appendices of the HCP which show the areas we can make assumptions are good habitat as they stand, maybe a little less than half of the parcel. If we conducted mitigation it would be in another area, like one of the more open areas that we would not consider as it stands to be good habitat.

SPAIN: In terms of all of the folks who put in funds towards purchasing the parcel: how is the split being made because of the Federal funds and how mitigation can't occur on Federally funded land?

BRITA WOECK: We pulled out the acres equivalent to the Section 6 funds which got excluded. Then we were left with the remaining acres and we just made some assumptions based on what we know as good bat habitat. So the native forest can provide roosting habitat, and whatever was left over could be on the table for management activities for Tier 5 or 6.

SPAIN: The concern is how do you count bats on top of the bats you've already mitigated for, and how do you divvy out the parcel given the complexity of the acquirers.

FRETZ: If Federal dollars bought x acres here, is there a reason an applicant cannot do reforestation for mitigation for bats after the acquisition is complete?

BOGARDUS: There is no reason why that couldn't happen. The challenge is you have to parse out the value of the mitigation associated with the land purchase, versus the value of any mitigation associated with the restoration activity. It's not simple because you have to assume the bats that are on the parcel right now are protected because of the land acquisition; in order to justify how restoration would be further mitigation to compensate for the take of this other group of bats, you need to be able to say you're going to do something substantial to the land to increase the ability of the land to support this greater number of bats and increase a part of their life history, like fecundity.

BRITA WOECK: It's good to get people's thoughts on that because it is not straightforward.

MEHRHOFF: And if you're relying on that for your later tiers, what if someone else comes and say they want to restore this parcel next year? You might not get to use this place.

BRITA WOECK: That's true. We want to put enough flexibility in the amendment so we have some good options.

BOGARDUS: It takes years to plan. We've been encouraging all our applicants to not wait until a tier is triggered, but start planning for upcoming mitigation three or four years before, so that by the time a tier is triggered they're already on the ground doing that work. And potential mitigation at Heleman would not be all of Tier 5 mitigation; it includes a range of options.

GLENN METZLER: It definitely would not be all of it.

FRETZ: I know you mentioned the management plan will be developed with community input, so you don't know what the plan will look like now, but what kind of management do you envision DOFAW would do that would potentially be compatible with mitigation in their HCP?

MARIGOLD ZOLL: It's such a moving target. I'll think the Albizia forest is bad and someone will say it's good. We'd like to do recreational things, plant forest products, still partner with the rancher to keep the fuel load down, which might continue to provide beetles that the bats like to forage on.

JACOBI: What are some incompatible uses that need to be stayed away from? I know you have a palate of opportunities, but some things, like a dirt bike trail, will they be compatible with the management of a bat habitat? I don't know. But that's going to be a challenge, how to have some degrees of constraint that will compatible with mitigation needs.

MARIGOLD ZOLL: Yes, we want to make it clear with the community planning that we do have these deed encumbrances and constraints to account for, and that will ultimately rule our options.

FRETZ: Bats aside. What is your overall vision for things like invasive species control, ungulates in the area, or fences in the nicer habitat?

DAVID SMITH: Maintain native forest to the extent that it's cost effective, like we do in all of our Forest Reserves. Not all of our Forest Reserves are fenced and animal free; we have animals, public hunting. We manage for a whole suite of things. When we have native species like 'Ōhi'a we want to maintain native species to the extent possible. We don't want to have management programs that erode our native ecosystems.

MARIGOLD ZOLL: For a hunting opportunity we'd probably have liberal hunting regulations because we'd want to partner with the hunting community to reduce animal damage on the landscape.

MATT STELMACH: Does the acquisition change hunting access up here?

MARIGOLD ZOLL: Yes.

DAVID SMITH: For the hunters this is the perfect kind of thing. Secondary forests and old agriculture lands, it's a blank slate. In the native forest we don't want to mess around and have any animals, but down here it provides a lot more areas for hunters to hunt where we don't have to worry about the impacts to native species, like in the upper watershed areas. It's accessible too. Most areas on O'ahu we've opened up for year round daily hunting, and it seems the hunters are happy with that. That's the trend and where I'd really like to go. I don't think a lot of areas need game management. No bag limit and you couldn't get rid of them if you wanted to. I don't think you need to worry about managing pigs and goats.

MEHRHOFF: I'm not sure you can maintain your native forest doing it just that route.

DAVID SMITH: There will be continued erosion around the edges for sure. But we also can't afford, and don't have the social license, to fence all our lands so they are animal free.

MEHRHOFF: Not all of them.

DAVID SMITH: We have to prioritize. We have a lot of work to do and areas like this will probably never be completely fenced and animal free because we don't have the money for it. But if we did, that would be great and I'd be all for it. There might be pockets of money if we found what we call a priority area. It's a push and pull between watershed protection and people who want to see a lot of animals in the forest.

GEORGE AKAU: A couple things you could do right off the bat could be removing barbed wire on the property and not cutting down tall trees during the pupping season. Getting that in the management plan could save some bats.

DAVID SMITH: Yes, we always provide those recommendations whenever people send us consultation letters, so we sure better not be doing it!

JACOBI: I really like your idea of trying to have a broader landscape planning effort. Before an island wide effort, this gives you an opportunity to look at those different issues a lot more and to see if your management actions are doing anything or not. I think this landscape is ideal for bat monitoring techniques to establish a baseline and I think it's going to be really enlightening in here.

DAVID SMITH: There's two crux moves here. Monitoring and limiting factors, what we can do to improve bat success here. Monitoring here is easy but where do we get the funding to do that?

JACOBI: The only thing I can think of is in the context of an HCP that should be a component that's written into it. For Tier 4 that's a different thing because it was just writing a check, but Tier 5 is another issue. I feel that monitoring is something that should have been required to be written into plans and so let's make sure that going forward in the future, that's what we do. That's part of the adaptive strategy we have to have.

FRETZ: But the mitigation also funded the WEST study to do island wide monitoring which is a really good snapshot. The idea is that that should be robust enough to be repeatable in five, ten, 20 years, and you can infer what's been changing.



MATT STELMACH: There is an opportunity here. Both DOFAW and USFWS, part of their mission is to protect and preserve endangered species, and this parcel is an opportunity to do experimental management to look at what the impacts to bats are here. You could do either no management, or some management, to see that. There's been limited before and after control studies on what management actions have on bats, and that's been a question that's been hoped to be answered by the ESRC's research. I don't know if you think we're getting the answers we were hoping for?

JACOBI: We've taken a step forward. We're not there yet.

MATT STELMACH: Are there Section 6 funds that could be used to do that kind of experimental treatment?

DAVID SMITH: All of our Section 6 funds are locked up right now. We'd have to find some new funding source.

WINTER: Graduate students are great.

JACOBI: I am a fan of graduate students myself but you don't want to say we're just going to use graduate students. You need to have a framework, a strategy of how that person fits into that. It's got to be integrated and designed from the start.

DAVID SMITH: What can we do on the ground to actually increase the number of bats?

JACOBI: We don't know clearly what the major limiting factors are that are manageable.

DAVID SMITH: Because we don't know that much right now, that's why I think a landscape level pool of the applicants, like a mitigation bank but not technically one, where we have an overall conservation plan and monitoring plan, if we could show that we're overall increasing the number of bats, we'd be okay. Trying to monitor for these small projects with all these confounding factors, you don't have treatment and control, it's really difficult to demonstrate what exactly is going on. You see an increase here but may see a decrease over there. If we were all in a hui where we could show with a broad scale monitoring plan that overall the numbers were going up, we'd be okay.

JACOBI: Or going down, and we're not okay.

DAVID SMITH: Right, and we'd have an adaptive response to that.

MEHRHOFF: That's why you need an island wide plan, because I might come and say you're focusing all the conservation on State lands and you haven't shown that's enough to do restoration and recovery for the species. If you've got that island wide plan, you can buy into funding conservation on State lands because you can see the big picture including private lands and how you're going to get to an increase or stability of the species.

JACOBI: A hui of the wind farms might even have less cost per individual but possibly greater value in the end.

DAVID SMITH: We could have a suite of options because we'd have a plan and we'd begin to have more confidence that we're increasing numbers through the broad landscape prescriptions set out.

MEHRHOFF: Trying to get answers to questions that we leave up to the wind farms, there are questions that are only going to be answered properly if the State does it, like how close do we want mitigation to

wind farms? Rolling all the needed restoration into one plan eliminates a whole suite of negatives that you will have if you just do it from a bat perspective.

## ITEM 7. Opportunity for public comments.

FRETZ: Are there any public comments?

GEORGE AKAU: From the HCP standpoint, I've been receiving guidance that managing projects on private land would be more beneficial than on State and Federal land, and from what I'm hearing it would be preferred that mitigation projects be done on State land. Maybe on the Federal side, could you speak to the preference of private versus State or Federal lands?

DARREN LEBLANC: What we look at is not just whether it is protected but who owns it. And typically, if it is owned by the State or Federal government or even a local government entity, it already holds some type of protection that private lands don't. So the lift you get from protecting Federal lands, or State lands, protected lands, is lower than the lift you get from private lands. Because a private landowner could basically do anything with his land within the law without permission, and most State and Federal lands you can't do that.

DAVID SMITH: I'm not saying it's a preference, I'm just offering it up. Our lands are available, but if you want to go to private lands, no problem.

GEORGE AKAU: Seems like it would be more beneficial to the species, beneficial to the lands that are not protected.

JACOBI: Most private lands, and there are some major exceptions, but most private lands are in the reconstruction mode—it's not even in terms of restoration mode. It's start from scratch almost.

DARREN LEBLANC: What Dave was talking about was somewhat about State lands, but to do that management plan you would want to look at the State lands anyway. The larger that management plan is, you may be able to do private lands adjacent to State lands and basically you're expanding a protected area. That gets you a whole lot more lift than just doing it on the State lands themselves. The problem with private lands where you may not get as much lift is if the entire thing, say, if you had a ten acre park in the middle of Honolulu, you're not going to get a whole lot of mitigation credit for that regardless of who the owner is just because of the surrounding activity. If you've got a large area of private lands doing the entire thing as opposed to a smaller area it gets you more lift. It's situational and depends on a lot of factors, but you do typically get a little bit more lift on private lands than Federal.

JACOBI: Depending on protection status and particularly if that includes an "in perpetuity" clause.

DARREN LEBLANC: Even on State and Federal lands, if there's an existing management plan to manage the species in a certain way you'd get less credit for that than if there was somewhere like this with no management plan at all yet but you're building a management plan to be specific to the species in question.

JACOBI: Unless there's a critical component that the State is not doing the management for.

DAVID SMITH: If we have raw land and we don't have the money to manage it and someone wants to take the money to manage it that's a lift, right? You could do the same thing on private, or Federal.

GEORGE AKAU: Has that offset been worked out?

DAVID SMITH: That's what we're trying to work out.

FRETZ: Are there any other public comments or questions? Okay, very good. Meeting is adjourned.

**ITEM 8.**      **Adjournment.**