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ENDANGERED SPECIES RECOVERY COMMITTEE

November 1 and 2 2016 MEETING MINUTES

Meeting Location:

Kalanimoku Building. 1151 Punchbowl Street; Room #423; Honolulu, HI 96813

MEMBERS: Dr. Scott Fretz (DLNR), Dr. Jim Jacobi (USGS), Dave Tessler (USFWS),
Dr. John Harrison (At-Large), Dr. Eric VanderWerf (At-Large)

ABSENT: Dr. Kimberly Burnett (UH), Dr. Gordon Tribble (USGS)

STAFF: DOFAW: Kate Cullison, Glenn Metzler, Emma Gosliner, Jim Cogswell,
Afsheen Siddiqi, John Vetter, Greg Mansker, Stephanie Franklin, Fern
Duvall, Jay Penniman
USFWS: Michelle Bogardus, Jodi Charrier, Diane Sether

COUNSEL: None.

OTHERS: Tiffany Agostini (TetraTech), Tom Snetsinger (TetraTech), Alicia Oller
(TetraTech); Aileen Kenney (Kawailoa), Loyal Merhoff (Center for
Biological Diversity); Huisheng “Tony” Chen (DKIST); James Breeden,
Marie VanZandt (Auwahi Wind Energy); Paul Conry (H.T. Harvey);
Mitch Craig (SunEdison/Terraform Power), Dave Johnston (H.T. Harvey)

ITEM 1. Call to Order

ITEM 1.a. Introductions of Committee members

Sam Gon can no longer serve on ESRC since he is on the Land Board. Cannot serve on more than one committee at a time. ESRC is looking to fill the position with someone that has similar expertise.

Committee representative is no longer from UH Environmental Center, now the Dean of the College of Natural Science will appoint ESRC member.

ITEM 2. Request for recommendations from the Endangered Species Recovery Committee on all current habitat conservations plans, safe harbor agreements, and incidental take licenses

Kauai Lagoons

VanderWerf asked if golf balls were the reason for take. Metzler lists golf balls, and vehicle collisions as the main form of take at Kauai Lagoons. Fretz says the reports need to explain or identify the cause of take, needs to be consistent. Cullison included that DOFAW admin receives annual reports, but that sometimes there is no way of knowing the cause of death, since resort staff usually find the deceased birds.

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Fretz would like the cause of take included in future reports. Jacobi adds that if we know the cause of take, the committee can recommend ways to minimize for future.

Metzler said the site has tried to reduce the number of vehicle collisions by adding in speed bumps, and hedges along the side of the road. Most of the reported takes have been lethal. Harrison mentioned that one got hit with a golf ball and recovered.

Jacobi asks about predators on Kauai Lagoons. Metzler responds that they have started seeing barn owls in areas, working on how to deal with them. Jacobi asked about the plans with the nene, and if they are still breeding successfully there. Cogswell responded that DOFAW is not moving nene anymore due to loss of funding. DOT is no longer claiming responsibility and is going to assume that nene are going to stay away and reduce the population to current levels and assume they don't recolonize.

Fretz reminded Jacobi that the five-year program has come to an end. There were certain legal provisions for dealing with those birds, and now the authority to move those birds no longer exist. The HCP at Kauai Lagoon is the only legal authority for take to occur that exists for nene at this time.

Jacobi said that nene are bigger and much closer to the airport than stilts at Cyanotech.

Fretz said Tessler and Cogswell on the compliance side are trying to resolve this issue with DOT to comply with both State and Federal laws. No compliance plan reached yet. Jacobi wanted to know if there is a timetable for the plan. Tessler said that it depends on the willingness of staff in coming up with a solution working with HDOT and FAA.

Cogswell clarified that there is a technical team working on hazards, with FWS, DOFAW, and Kauai Lagoons representatives developing hazing program that could be implemented at airport. Not possible yet because we have no compliance yet.

Fretz said that nēnē cannot be moved without proper authorization. Can become frustrating because birds can show up and populate that area and become an air hazard. At the same time the agencies don't want to go in and violate their own ESA.

Harrison noted that nēnē got moved from port all before the agreement ended. Wanted to know how long is it reasonable that there's enough of a population, can we be proactive? Cogswell responded that DOFAW is working on a plan we can implement but there is no funding. Fretz said that DOT needs an HCP if it's their intention to prevent nesting to occur on their property. Jacobi thought wildlife authorities had the authorization to haze.

Fretz clarified that agencies do have authorization, but that both aren't comfortable with the type of hazing occurring, and think that an HCP is a more appropriate authorization. Tessler explained that agreement is currently done through what is called a letter of agent that is a weak article, and we need to do something more appropriate.

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Fretz said the DOT told this landowner that it was their responsibility to haze these birds off the property. But the landowner declined to do that, and pointed out to DOT that it was not their responsibility. The entities have different views on whose responsibility it is and how the HCP will play a role.

Tessler asked if there is a precedence there, for private landowners in proximity to the airport and whose responsibility it is. VanderWerf responded that he was not sure about the precedence in Hawaii, but this is a situation that is common all over North America. There must be precedence for this elsewhere in the country. Tessler said there is a federal nexus with the FWS refuge or another federal entity and often then negotiations between FAA in terms of responsibility. There is also the state operation of the airport and private landowners. There are multiple situations within the state where we have that into play. If there are instances elsewhere in the country where that interplay exists that would be good to know.

VanderWerf noted that San Francisco is a good example, there is also federal land and county land in play. There are also former salt ponds destroying natural habitat. Jacobi said ESRC needs to provide consistency about how wildlife populations are managed relative to the airport issues.

Fretz responded that the issue is not on the agenda but expect that it will come to the committee, DOT needs to do an HCP for all airports statewide for hazing.

Harrison noted of the nēnē translocated, seven birds tested positive for malaria. Jacobi asked if more nēnē would be deposited in the future. At some point the population is going to continue to expand with malaria positive birds, then what? Fretz responded that the State policy continues to be not to move any malaria-positive birds interisland, and want to continue to maintain that policy. Committee wants to know where are these birds are going, what happens if malaria spreads.

Cogswell responded to Fretz's concerns that by translocating nēnē, we're creating problems on the other islands faster. We are re-accelerating that issue by increasing the population. So, it is good news for the species, bad news for relocating birds on those islands for the same issues. Trying to find alternate locations for nēnē on Kauai, and ways to get birds away from the airport. Translocation isn't a long-term solution, working hard to avoid that. Cogswell said that the seven nēnē with malaria were relocated back into the wild up to the north shore by the ponds.

Fretz said that HCP had mitigation for predator control to benefit the birds but it's not detailed or justified how it provides for the species. There have always been predators and nesting data wasn't put together in a manner that shows the benefits to bird populations. Jacobi agreed, and said that predator control doesn't mean setting out just traps. There needs to be some expectation of effective predator control and evaluating it so it makes sense. Discussion we need to bring back to ESRC in terms of what predator control is and what the expectations are.

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Fretz said it would be good to know breeding population at Kauai Lagoons, and reproduction success, or if the birds are just visiting and not nesting. If they are nesting, Fretz said he wants Kauai Lagoons to be able to show that growth over time.

Jacobi requested that a representative of each project be present, so we can ask questions.

Fretz would like Kauai Lagoons to provide demographic data to track population trends, survival, and reproductive success and that it was not put in the report.

Merhoff noted that Moorhen take table is on track to exceed track population, is that a problem?

Fretz said that they have a 30 year permit term, and they are in year 4. Told staff to follow up with them, make sure they are on track.

VanderWerf suggested that what would help the success in not exceeding their take is measures that will help avoid take, and how effective they have been. If they put up hedges or fences to keep animals off the road, maybe the rate would decline, but we don't know what the rate has been over the time. If we have that information, then we know what direction they're going in.

Fretz asked staff to follow up with Kauai Lagoons with that level of take, and to also work on any deterrents to help reduce take.

Penniman asked if the nene with malaria are being removed, wondered if nene come back to the airport since nene like to come back to where they want to be.

Fretz responded that it's another non-lethal take, but associated with air safety HCP. VanderWerf also noted that it is important to distinguish between lethal and non-lethal take because the same bird can be taken non-lethally many times. With mortality, it's only one take, if you don't distinguish the two it's hard to know where you are in the take.

DKIST

Cullison presented on DKIST annual report. Asked Chen about fledglings for the season.

Discussion on burrow cameras

Chen said that DKIST put out almost double the amount of cameras, compared to previous years and that most of the fledglings were found based on the cameras. The team used cameras installed in active burrows and waited until KC environmental didn't see any more activity around early September. So far, they haven't seen the chicks from the burrows so we don't know what's going on.

VanderWerf asked if there are chicks present in the burrows, or if DKIST is not sure. Chen responded that he was not sure if there are chicks in the burrow because the

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cameras only see that adults are visiting or which burrows get used. Chen continued that he didn't want to interrupt petrels but there is more potential of successful for burrows compared to previous years.

VanderWerf asked why cameras were put out in September if chicks don't fledge that early. Chen clarified that some chicks were fledged in September, and as late as mid-November based on cameras they put out.

CARE Trials and predator control

Cullison asked why CARE trials are still being done. Chen said CARE trials are needed to do the search efficiency because it tells you how intensely you need to monitor the site. VanderWerf said that old trials could be used if the results were not changing. Has been done since 2013.

Jacobi asked Chen if no carcasses have been taken. Chen said cats probably consume them. Tessler asked if CARE trials were tested prior to the completion of the fence. Chen said one trial was conducted while the fence was under construction. VanderWerf brought up the rodent problem, although there are no cats and mongoose since 2013.

Chen responded that there are rats; they only have installed a rodent grid around the observatory because otherwise it is too large an area to monitor. Last week we finally caught a roof rat inside the fence area.

Jacobi asked if with CARE trials carcasses were getting taken, since the fence has been built. Chen said two of the four carcasses put out were partially consumed, and that they no longer do fall trials, just do spring and summer trials. Jacobi tells Chen that the main intention of the CARE trials is to see if you will have downed birds when searches occur. In this case you're not getting that kind of information, because you're not losing your birds as a result of predators. However, it is still an indication that there are still predators active in the area.

Chen said that last year two birds died from trauma, and that one probably collided with a power line. The carcass found was at least 2 weeks totally mummified. After 1 or 2 days, the predators don't like the carcass anymore. VanderWerf commented that it seemed like the take of carcasses was relatively low, but take occurred when you thought there were no predators. Chen said he never had any success with traps, and the project is required to use live traps. VanderWerf wanted to know why live traps were required over kill traps. Chen said DKIST is the only project required to do so, and have to spend more money to install the traps that cannot be set for longer than 48 hours. VanderWerf asked if that was a requirement or it was a policy. Duvall said that he thought the requirement came from the National Science Foundation.

Fretz brought up predator control effectiveness and methods for discussion to the committee.

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Chen reported that although we didn't catch anything we have a chart of how many birds were predated at our site, and the numbers dropped dramatically.

Chen said only one trap was predated this season 20 meters from the fence. Other than that the number of predations dropped dramatically. Number of predation dropped to almost 0. One of the reasons for live traps was to account for bycatch for birds. Fretz clarified the only method towards predator control is live traps at DKIST project site. Chen confirmed that it was a combination of live traps and A24s. Continued that the HCP says DKIST has to use live traps for cats. Tessler said to confirm that that is in the HCP.

Fretz asked if predator control could more effective in another way, and that the committee should look at that. Wanted to know why we would constrain ourselves to live traps only. Asked the predator control experts in the room about methods or types of traps that should be used at the project site. VanderWerf responded that Havahart traps might not be as effective because animals don't like to go in them. Unless there is some obvious language that prevents the use of kill traps, then the predator control methods should be changed. He highlighted the fact that DKIST has not caught a mongoose or cat since 2013 and not a single rat in the last seven years until last week, even if you know the animals are taking your carcasses. Something is wrong with the trapping methods.

Jacobi asked Chen for clarification on predator presence. Chen said that at both the control site and conservation area there are 10 camera traps put year round and has never had a predator image on those cameras. Rodents are present, but are low in the control site. VanderWerf asked for clarifications on what different types of traps are used and what DKIST is actually catching.

Chen responded that there is grid system in the 300-acre conservation area with another grid by the observatories for rodents. Predator control grid only until the committee and staff tell us we can stop, which he predicted would be around 2019. The rodent grid near the observatories will be maintained for the next 15 years. Two types of monitoring: camera traps for cats and mongoose, and two rodent trap grids, one in control site and one in the conservation site to monitor how effective our rodent control is. In the control site we don't have rodent control grid so the number has been pretty constant.

Jacobi asked Chen if predators were not a problem within the managed area. Chen responded that since the fence was built and predator grid installed there is still some predation on DKIST burrows.

Fretz said the conversation about predator control methods began at the September 2016 ESRC meeting. Fretz gave a general backdrop for people who were not present at the previous meeting. Committee is focusing on why the data indicate that burrow success is low here and that's a problem and reasons why predator control may not be effective. Asked Chen if he thought that predator control is effective at DKIST and reason for low success - is something else going on? Chen responded that predator control is effective because of our intensive management that predation detection rates have dropped dramatically.

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Discussion on burrow activity

Chen reported that active burrow with footprints and droppings are considered active burrows. We know that there are lots of burrows. At the end of February or March they go to different burrows and look around. They come back in May to lay eggs. All kinds of signs from nearby burrows, we have good data of which burrows actually fledged a chick. We don't have a better idea of which burrows are active, can't use a burrow scope.

VanderWerf asked if there was any subset of nests that DKIST can determine contains an egg or chick. Chen responded that there might be a few, but that checking with a burrow scope can disturb the burrow. VanderWerf asked for clarification of how DKIST knew when a chick has fledged, but not if there was an egg in the first place. He suggested that DKIST estimate of nest success is biased low, but that there is a way to see how biased it might be if you have some burrows you can measure.

Fretz asked VanderWerf if you don't necessarily need to see the egg, but if you know the bird is going in and out, would that provide subset. VanderWerf said that it would help, and that there are ways to improve the data, instead of just guessing on active burrows and can improve on that estimate.

Chen said he constantly monitored burrows with toothpicks, and the number of active burrows dropped at the end of July. What VanderWerf suggested might work, would be checking burrows that you can go in to see eggs. Tessler responded that there might be bias associated with that too. If it's really easy to observe, it may be a nest that is less likely to be successful. Could use camera on a subset of nests and randomly assigned, and that might help.

VanderWerf asked what proportion of burrows have cameras on. Chen said it was not proportional, this year we have 17 camera traps in conservation area and 5 in the control site. We used to use around 40 cameras. VanderWerf said that the strategy and timing strategy of cameras aren't getting you the information you need. If you're not putting them out until September and some of the chicks are fledging in September then most of the season has already gone by. You're deliberately placing the camera on a nest that are likely to have a nest fledge. Already biased in that way. Suggest putting them out earlier. If the birds are coming and going frequently, they probably have an egg. The younger birds prospecting for nests will visit less often and one pair visiting several nests will choose eventually one. Put cameras out earlier to get better idea of nest success.

Chen said he is focused on previously successful nests to confirm that this burrow does have a chick. Fretz said the committee could work with Chen on costs when it comes into adaptive management recommendations. If you're not sure at this point whether or not this is successfully enhancing this population that is the most fundamental. Need to first properly monitor to make those determinations. Chen said the only conservation efforts we can implement on DKIST site are that we can only lower the predation rate.

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Fretz said the HCP laid out the outcome that were expected from predator control work was specifically modeled. Wanted to know if DKIST should we keep those targets? Fretz is concerned that DKIST is not meeting the targets which means project is not in compliance. As a manager you need to figure out what to do, if there really is a sink or not when the HCP ends.

Fretz asked Penniman about his experience with predator control. Penniman said he put cameras out in the beginning of the breeding season, but there are only 2 burrows on 2,000 acres. He was able to tell bird attendance throughout the season, can tell which burrows have an egg or chick. With predator control, we concentrated around the area where there are birds. Said that no one else is using live traps except the Park which had an assessment on effectiveness of trapping program by outside source, but that they are keeping it internal. Fretz requested Penniman to provide the information of contractor from the Park.

Discussion on social attraction and behavior

Penniman said the birds might be nesting at DKIST site but are socializing in the Park because they need the social stimulation and it helps get birds ready to be in reproductive cycle.

Harrison noted that DKIST site contained very rugged habitat, burrows are a bit fragile, in among rocks might provide long term burrow network. Asked if it was possible that these peripheral marginal areas constitute former habitat for former populations and now is an outlying area that is not as important in terms of actual reproductive success.

Penniman responded that it was possible but that there is no information of how long the birds have been in the area especially with the cattle grazing that went on, it is hard to tell if there would have been more vegetation and more suitable over the years.

Harrison thought that it might be possible that some of the DKIST burrows have been there for a long time, but are not currently being used. Chen said every year he is monitoring 332 burrows and that not every burrow got used every year. VanderWerf asked Chen for clarification on what he meant when a burrow is “used”, because we don’t know what they’re using it for. We don’t even know how many pairs. 150 burrows were “used” but how many birds are we talking about. He recommended that some change in methodology needs to occur in order to get a better idea of how many pairs of petrels are we talking about how many actual nests are there.

Duvall said that birds are extremely sensitive to the burrow they fledged from, down to its size and what it smelled like. If you have birds moving out from inside the crater, more exploratory birds are finding early concentrations early on and gone by July. VanderWerf stated that he did not think DKIST was getting accurate information about what’s happening in these burrows.

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Bogardus asked a clarifying question about the number of cameras on burrows in September

Chen said he has 80 cameras, and VanderWerf suggested that he put more than 20 cameras out and to put them out earlier in the season while checking nests. Fretz agreed and said Chen should be able to zero in on a subset of burrows after four years that have been used every year. VanderWerf concurred for Chen to absolutely put cameras on burrows that are most likely to be used.

Fretz asked about the type of rock with habitat and social attraction. If that type of nesting habitat is limited in that area is it so limited that it could never achieve the type of social density you are hypothesizing would be needed to fulfill a growing population, are the nests habitat limited? Penniman said it was possible, but that he does not have the data for concentration of burrows or nests.

Fretz said it will never be a linear hypothesis because it will never work OR it is a matter of time for enough birds to create a population.

Penniman said he does not know if it is a sink. The reproductive success numbers are not good enough to make a decision about lower overall productivity. There's a huge wall when they come out of their burrows they can take right off. These birds out in larger rocks are in a much flatter area and cannot drop into the crater and become airborne.

Fretz advised the applicant to modify their monitoring to a method more amenable to data collection to better understand demography and nesting success. He asked staff to help Chen with that, and to put something together that is a set of recommendations.

Cullison asked about recommendations for cat trapping strategy for DKIST and suggested that DKIST could incorporate kill traps as an adaptive management strategy.

Penniman asked why DKIST continued the trapping grid over the entire area where they never caught an animal in that entire grid, and wanted to know the value in trapping an area with no birds or habitat. Chen responded that the HCP specified that it must protect within 50 meters of the colony. Fretz said the committee needs to be conscious of the cost in the budget and the control area might be an area where you can save time and effort. Removing traps in areas that aren't catching anything in the middle of nowhere of the control area.

Discussion on predator control in control site:

Fretz asked if DKIST should continue doing labor and efforts in the control site. Cullison said DKIST indicated concern that they were going to lose something by giving up that site. Up to the committee to recommend if they should continue.

Harrison asked if there are many potential burrows in the control site. Chen said the percentage of potential burrows is higher in the control site. Bogardus expressed concern

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about doing a control site until the agencies proposed a revised mechanisms for managing. Fretz asked that even with the control site, if there is enough data and enough years of statistical confidence to begin with. Bogardus said the difference is at this point, agencies look at the managed site before and after and compare these two sites against each other.

Bogardus suggested a summit of everyone working on the crater. Fretz agreed because DKIST has 300 burrows out there that we don't even know what is happening.

VanderWerf suggested stopping the use of control site because the site doesn't perform a value comparison anyways. If you're trying to free up time and resources and decide if there's only 13 burrows in control site, more beneficial to spend money on managing the dense area. Harrison agreed that the control site might be useful but is it cost efficient? Given that the funding resources are so limited, one of our jobs has to be that funds allocated in most effective way possible one of the overall goal of the process

Fretz asked how robust the statistical analysis on the main site is. He asked if DKIST would be able to detect a gain of 20%. Is this a robust enough data that it's enough time for a before and after comparison, it seems like it would be with 80 cameras and a lot of burrows.

Tessler said we have current data with a limited temporal walk of data and some anomaly 30% of the time here. A lot of other factors that influence the data set and does not think we've captured the variance.

Fretz asked if everyone (staff) is in agreement that it is advisable for DKIST to stop spending time down at the control site as a recommendation?

Chen said that next year that site would be wildlife sanctuary. Fretz reminded Chen that he would need a wildlife sanctuary permit.

Fretz asked for public comments.

Merhoff representing the Center for Biological Diversity asked about downed birds DKIST finds on top of Haleakala and wants to know if the buildings play a role in downed birds. Chen responded that DKIST monitors the main construction site, observatory and the FAA communication tower. So far, haven't found any birds or evidence of birds killed. Fretz clarified Merhoff's question on the owners of the buildings at the top of Haleakala. Chen responded that multiple agencies, private observatory, UH, and universities from all over the world have ownership of buildings. Merhoff asked if all of those entities are covered by HCPs.

Fretz said that some are, and Cullison included that DAGS is in progress. Need a broader document to cover everyone up there. DAGS tower has federal nexus from military side.

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Jacobi asked about the sense of the magnitude of the potential problem area. Bogardus responded that it was reasonably high, and documented. The issue is how to deal with so many entities because it is hard to contribute take to individual entity.

Tessler said that DKIST is one of the few entities trying to account for their collision take specifically and you have all of these other actors that may be contributing to take but aren't stepping up to the plate. It's impossible to tie collision mortalities to anyone because it is circumstantial. Would be good to work with these other entities.

Jacobi said USFWS and state should see if other entities fit in with the other projects and why DKIST if taking the burden of all of the take. Tessler said the process is driven by the applicants. Agencies would be the ones that have to sit down and have a meeting and probe interest to an applicant-driven process.

Fretz recommended that DKIST work with Eric VanderWerf, Jay Penniman, Afsheen Siddiqi, and John Sprague to come up with recommendations, put them in writing and come and report back to committee on what you come up with.

Cyanotech

Cullison explained that Cyanotech is in the process of extending and renewing its permit. Trying to identify a suitable mitigation site. Asked the committee how creative agencies can be in looking for a stilt farm since Cyanotech is not asking for a huge amount.

Jacobi said it wasn't clear to him how the efforts Cyanotech was putting out was producing stilts.

Cullison said Opae'ula site no longer an option as of last year. Kamehameha Schools and Cyanotech have no current agreement, and the wetland might not even be suitable from predator control unless fenced. Currently still looking for a new site.

Fretz asked if Opae'ula was shut down. Cullison responded that the work is still going on but Cyanotech is no longer paying it. Fretz reminded the committee that Kamehameha Schools was saying all along that Cyanotech is only doing a part of the labor yet getting credit for all of the results and led to KS declining to renew the agreement.

Cullison asked about potential sites such as the man made ponds at Pu'u Wa'awa'a due to previous control and fencing.

VanderWerf mentioned that the Pu'u Wa'awa'a pond is used as a fire suppressor and needs to be kept deep. Cullison responded that it contained shallow edges that are high and dry. Floating ledges could compensate for adjusting water levels and would create good stilt habitat.

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Bogardus asked if agencies had considered pond habitats on National Park land. Cullison responded that they had but the Park was not sure they have adequate predator control options at this time.

VanderWerf asked if the Park site was suitable, if Cyanotech wants to use it. Cullison responded that the property next door has a cat problem, there was talk about hazing out but would just distribute the cats. Fretz asked who was doing predator control at Pu'u Wa'aWa'a, Cullison responded that Elliot's group was.

Jacobi asked staff to bring back suggested sites.

Bogardus raised a point about waterbirds on the Big Island. There is no predator control to protect them and the remaining habitats are down to wastewater treatment plants and a couple of small ponds. She said that there is a waterbird problem on Big Island. Cullison agreed that there is no suitable habitat for stilts if they max out of space at the limited current ponds. Harrison suggested to build a pond.

Fretz asked if there are any public comments. No public comments

Kenai Industrial Park

Jacobi asked if plants were in manicured plots because that is not considered a wild population. Metzler said the plants are not viable without a lot of work and pulled weeds.

Fretz said the issue with the mitigated plants was that they were producing a lot of seeds but they were not germinating. VanderWerf asked how long the 123 translocated plants can be expected to live. Jacobi clarified that the round-leaved chaff flower is not a long living plant.

Metzler agreed that that could be an issue, but they are producing seeds so they can propagate more. Jacobi responded that it depends on how we define "successful". Currently the mitigation is a manicured garden situation, not a wild population. Asked what endpoint the committee considers success as and need to be consistent. Is it when evidence of seedlings coming up, or mature plants that are reproducing and producing more mature plants. Intention was to get wild self-sustaining population with some degree of management.

Tessler said that the endpoint should be defined in HCP. Jacobi said that population structure is one that demonstrates some degree of self-maintenance. Fretz asked if applicant is doing management of weeds only, or are they providing water also.

Jacobi asked if this strategy is how plant mitigation would normally go, or if it would grow in a matrix of other species. Fretz said it sounded like HCP could have provided a more natural community as opposed to a monocrop. Jacobi said the site has potential, would like to see more community matrix and population structure that is more self-sustaining. He has a different idea of success for this project.

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Jacobi said to foster a wild population you need to plant other things other than seedlings. Fretz said refuge's plan is to restore area with native complements.

Tessler said it is important to look at long term success in terms of how plants survive without intensive work. Looking at survival and propagation of next generation is important. Fretz responded that the way HCP is structured is that the refuge is doing restoration work, outplanting these plants to achieve those goals.

Jacobi said this project doesn't have the ramifications in terms of when you meet success criteria that trigger other things. Better management plan to produce a better population (of plants). The intention of project is to get a self-managing population.

VanderWerf had a question regarding the significant development of seedlings if they were all the same group or if they are they new ones that popped up. Suggested putting flags up to monitor survival. If producing seedlings that all die in one year than that's not moving forward. Jacobi responded that natural density of mature plants isn't the seedling density. At a certain size is when you start counting them. Noting that they are there is important.

Tessler said that if you have plants with a reproductive lifespan of 10 years and you are not getting reproductive progeny in a few years then you have problems. Jacobi said he is excited to see seedlings, but not ready to walk away from this mitigation project. VanderWerf asked if the 123 plants is all the project is going to get from all the mitigation.

Fretz mentioned that the report said there are additional criteria that state any species covered within the planting plots will be greater than 25% by year five. Jacobi commented that it looks like the project is moving in the right direction, but we're not there yet. Would be interested in having a presentation by monitoring people and refuge people with what their long-term strategy are. Would be useful to help understand where project is going and to have more explicit management plan.

Harrison said it is hard to work on dual species, because all of the attention goes into one species in that community. Would like to see a HCP process for the community assembly and would like to talk to Rick Barbosa about what we did at Black Point we approached that without using a single species. The whole idea out here was to create an assemblage which is a very different process than preserving a garden. Something is missing in the process.

Jacobi said the committee needs to be a lot clearer with plant recovery HCPs and Safe Harbors to make sure the connection is there to the community composition so it can actually maintain itself. Fretz said the intent and framework of Plan was set up to be integrated into a natural community but did not go far enough into implementation detail of expectations. Acknowledges that it was a little too general in HCP and a little too general in report. Committee can work with them and give them more specific targets.

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Tessler said moving forward with HCPs coming it will be important to elucidate the difference between success criteria and stopping intensive management. Need to consider HCPs for mitigating the losses they are creating and not relying on intensive management for perpetuity. Project management really needs to be considered with measures of outcome.

VanderWerf wanted to know what would happen after the HCP is finished, when there is no longer any funding. What happens to the plants then, the refuge does not have enough biologists and would not be able to rely on refuge without outside funding. Tessler responded that the end point should be that someone doesn't need to be responsible.

Jacobi said this would be a good project to have a workshop or longer meeting/discussion with people doing the work on the ground like Rick Barbosa, his crew and the refuge. Help flesh out a strategy and how to monitor it. I think we can be successful with this one.

Fretz asked for public comment on the project.

Merhoff said that he reviewed mitigation for plant 20 years ago, and no restoration examples were successful in the long run. If you're planting 155, and the seedlings they are producing actually grow up and make future plants. Some of the early mitigation work at James Campbell was successful as long as they were heavily managed into 2nd/3rd/4th generation. Once that control stopped, then populations started to die.

Abutilon

Metzler asked about the status of plantings at Pouhala Marsh. Mansker said it was not a viable site.

Tessler asked how the DHHL 26.5 acres at the Contingency Reserve Area (CRA) differs from the 30 acres. Mansker responded that there were problems when they first surveyed the area. Once surveyors put the fence in, they figured out that it was 30 acres instead of 18. But the 26.5 and 30 acre numbers are supposed to be synonymous values. Mansker said that the contractors were responsible for the 26.5 value.

Jacobi commented that this project has two issues. The first is where this project is in achieving the three wild populations of Abutilon. The second issue is how to deal with the CRA.

Mansker said the committee needs to make the decision to give up on the site, or get a firm commitment from DHHL that they will not develop it. It's going to be under high pressure.

Tessler asked the legal difference between a preservation easement and conservation easement. Fretz said that according to the Board submittal, Land Division seems to be

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interpreting the HCP to say that that easement would only exist until 2021 anyways unless goals are met. Mansker wanted permanent assurance that this land will not be developed. Fretz responded that it is worth working with DHHL as a partner in conservation to see if we can find a way to conserve this area.

Jacobi said there is an obligation to meet the long term goals of three wild population. If they [license-holder] don't meet criteria then they're in violation and license revoked. Fretz responded that according to the HCP they may not be out of compliance after all. Fretz said the Board can revoke the HCP and would only do so after an investigation by the committee.

Jacobi asked where the project stands now to meet the long term criteria of the HCP. Fretz said regardless of what language says about short term goals, we need the CRA beyond the next five years. The HCP is potentially not even in compliance and could be revoked.

Jacobi asked if the committee sees a trajectory to compliance. Fretz said the land is valuable to DHHL and there could be a long term plan to lease the land. Mansker responded that the land is commercial property by default. It could become a parking area, and is very close to the rail site.

Jacobi said that he sees tremendous potential for restoration that would work in the 18 acre parcel with good substrate conditions. We just need to be creative in how to approach restoration. It is a land locked site, but if we give up, we give up on Abutilon. Mansker responded that the site is surrounded by urbanization, and questioned whether it would be a functioning ecosystem. Fretz asked who the contact person for the project is at DHHL is. Mansker responded that it is Darryl Ing, who has been involved since day one.

Jacobi asked where HCP stands in terms of compliance and establishing a wild population. Mansker said they have met the recruitment goals at one site in Honouliuli and long term criteria goals at the end of the five year period. Jacobi said he was excited by the way Honouliuli looked but was nervous about its long term viability. He does not think Pouhala Marsh was an appropriate site, due to the flooding of marsh water. Jacobi inquired how far along HCP is in the process. Mansker responded that another 15-20 years is needed to reach the goals of the HCP and that it took 10-15 sites to get three good ones. He does not think there are any available sites left on Oahu.

Jacobi mentioned projects in progress with the Molokai Land Trust, and suggested their strategy might work better for Abutilon by first thinning stuff out, getting the invasives out, planting a matrix and then bringing in the other elements. He also suggested that he would like to see new ideas in how to approach this project and to build on what has been done. Would like to bring in Rick Barbosa to bring in new strategies as it can be good to bring in new people to look at things from a different angle.

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Jacobi stated he was not excited about the new Kahuku site, and suggested a site by Makapu'u cliffs out of the flood zone and little weeds. Mansker did not think that site was practical and said there is no budget for planting a matrix of other species. He continued that from the beginning there was the intention of a monotypic planting of abutilon.

Fretz told Mansker that he may not hit the necessary targets during the life of the HCP. There are two options then, can either abandon it and not hit any of the targets, or adapt and modify the plan and someone else is going to pay to finish it. Fretz asked about the status of the budget if it will make it the rest of the five years, and asked why Mansker was focusing on CRA if it's no better than other sites. Mansker said it is because it is a place where the plants survive, but the site has not recruited for 10 years. Going through a change and succession, not the same site it was 10 or 20 years ago. Mansker stated that one guy cannot manage 18 acres and another 10 acres halfway across the island while additionally keeping a greenhouse.

Fretz asked staff to go research and carefully read HCP tell us if the CRA can be taken per the HCP. Mansker said that DHHL can take it but it does not say it anywhere in the HCP. The ITL said if you meet short term goals then you can take the CRA. If we can keep out there until 2021, then the area stays. Tessler said these are questions for state counsel, and need to explore with landowners and what their intent is.

Fretz said the committee recommends for staff to confirm what the status of CRA is on 2021 in the ITL and HCP, and to report back to Committee. He asks: does the committee want to ask DOFAW to talk to DHHL to agree to set aside CRA for conservation purposes. Committee members concur. Fretz told staff to follow up on confirm that CRA is going to go away and become a parking lot and see if we find an agreement to set that aside for conservation purposes. Jacobi recommended more discussion on how to approach restoration of different sites by bringing in some new people.

Fretz asked staff to follow up on whether HCP is in compliance. Depending on how it is written, the project could fail and DOT could still be in compliance. Staff to work with AG and make determination and if there is something in the HCP that requires that these be successful for these to be in compliance. It might say that DOT spends this amount of money and that's how they meet their obligations and are in compliance. It is a legal question that needs to be looked into.

Tessler asked what the intent of the request of designating the 18 acres is. Wondered if it is because there is a preservation easement and DOT has an intent to honor the easement. He said it was unclear why they would go through the motions.

Public comment:

Merhoff had a question on Kahuku site did you like that one because it has great limestone. Mansker answered that he would ask for state land we could do something with. Previously farmed, so soil conditions are not too bad. It doesn't like that upland

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area. This is borderline upland, not limestone. Right next to Kahuku. Isn't that much land we have to work with. It was intended to go to the wind farm.

Safe Harbor Agreements

Pu'u O Hoku Ranch

Fretz asked if the ranch held an ITL, but if the SHA itself is long gone. He said we've been working on getting these agreements but there's no one yet so they have no obligations to do anything. Tessler said that the permit itself is in perpetuity.

Jacobi asked why Safe Harbors will expire but the license will still be intact. VanderWerf said he was working at FWS when this happened. He suspected that language was put in place to get them to sign since the applicant wanted more assurance that they wouldn't be accountable for something down the road. Allow them greater comfort in signing in the first place.

Franklin said that currently there are no signed SHA for Piholo, Puu o hoku or Haleakala ranch. Duvall asked if the baseline was zero. Vetter said that theoretically applicant could ask DOFAW to take all the birds off of their property. Tessler asked if that was still the case now because the agreement is expired. Vetter said that DOFAW is still allowed access because the permit holder allowed the pen to be built. The birds can just be there the permit holder does not have to manage anything.

Tessler wanted to know if the State is still obligated to remove the nene if asked. Vetter said yes as long as they returned to baseline.

Metzler asked if permit holder is allowed to return to baseline if the State does not want to move the birds, what would they be allowed to do. Franklin said it would be removing the pen. She said that DOFAW has a good relationship with this landowner even without the SHA being valid. It has been business as usual but with no protection on landowner side. At this pen all of the birds that have been released always come back and nest. Pen has been overcrowded and losing goslings along with predation issues with a lot of cats. Have had to change trapping techniques with night operations. A lot of cattle egrets there during nesting season, and has seen nene predation by cattle egrets at Piiholo Ranch. All birds on Molokai are banded, keep hoping to see unbanded birds but it hasn't happened. Jacobi asked if nene are seen outside of the breeding season other places on the island. Franklin said we do see them next door at Dunbar Ranch. Talking to other landowners such as Molokai Ranch and Land Trust land. No applicants in programmatic SHA due to legality issues because the ITL that would go to the new landowner would not be current.

Tessler wanted to know how much is spent per year on the 35 nene. Franklin said she would have to look, any funding for Molokai would be going there. Said it was not an issue for last five years from DOT funding for translocation. She said birds moved to Maui and Big Island from Kaua'i tend to move around. Tessler asked where the nene

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were translocated from. Franklin responded the captive breeding facility, Olinda. VanderWerf commented that it is convenient that nene come back and nest in pen because then you know where to trap for predators. Also asked if project could produce more goslings by building a bigger pen. Franklin said it would not happen until the SHA is in place because the landowner wants protection. VanderWerf said they still have the license and could go back to a zero baseline if they wanted to.

Fretz said relationships with landowners, can be difficult. Have been trying to get a bigger pen, a second pen built, and a SHA for years. All the complications result in a lack of progress and success. Said it was possible that the state is going to acquire a piece of land on Moloka'i east of Kamalo that would be from summit to ocean and has a fresh water pond at the ocean. If we acquire that, we might be able to stop investing in this and move everything over to there.

Duvall said all birds with great genetic diversity were sent to Kauai with hope to fly to other islands. The birds that were sent to Puu o Hoku never bred well in captivity and were difficult to work with.

Tessler said the state land possibility is really interesting. From the captive population and the birds from Kauai would get movement. Would be really interesting and remove some of the nervousness or investment on some of these agreements. Fretz asked Franklin if Kalaupapa sites were considered to collaborate with NPS. Franklin responded that NPS would need to get involved; it has been considered.

Franklin said the State revamped predator trapping grid and bait, changed height on fence, by adding overhang. VanderWerf asked if predators trapped outside of the pen. Franklin said they trap inside the pen when it's not the nesting season.

VanderWerf wanted to know how big the pen is. Franklin said two acres. Fretz asked where she would get birds from for new pens. Franklin said she would like to bring over birds from outer islands. Jacobi asked if there were only 3 translocated birds and the rest of the birds raised on site. Franklin confirmed that, and said of the 74 translocated to Molokai, only two of those are left, and the rest are the offspring.

Jacobi said this SHA is going well and not to abandon the site with potential Dunbar site. Fretz said that the Dunbar deal fell through because it is hard to get landowners to agree. Couldn't come to an agreement what kind of maintenance they were obligated to do.

Jacobi asked what was happening with the state land if it went through. Fretz said we are waiting for FWS to approve appraisal, \$3.3 million in grant funds. FWS has to certify the appraisal then we can offer that amount to the seller.

VanderWerf had a question about the original site. The landowner wants another SHA in place but if there's a new one in place, what would the baseline be? It wouldn't be zero. Their new license would be higher for what they already have. They would be worse off with a new one with a baseline of 35 nene. They still have a license where baseline is 0

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not going to be better than that. Fretz asked why the landowners even need an agreement if they already have a license. Wondering if FWS is pushing for an agreement, when they are better off not having an agreement.

Committee recommends continuing to develop this site with enhancements.

Programmatic SHA for nene on Molokai

Franklin said they are keeping options open, spreading the word. Looking at this as an option, there is some legal issues.

Fretz said Franklin is referring to AG advice that state law doesn't allow the state to approve programmatic SHA but state did. It's been approved. State can do multi-landowner HCPs but cannot create an agreement and then bring people in. When a new person comes in, they have to go through the public disclosure process. What you can do is hold public hearing, post notice, go through the process and then include the landowner. Tessler said if State has interest with landowners then can just do an individual SHA.

Piihola Ranch

Franklin said they did have people who were interested in purchase. Put stuff on hold when the shutdown of HC&S on Maui occurred. In limbo right now depending on what happens.

Tessler asked if there had been a SHA. Jacobi asked if they had fulfilled the obligations of the agreement. Franklin said they had until it got to the point where they couldn't keep up with it anymore, getting successful fledglings every year. So DOFAW stepped in and managed it.

Tessler asked if the ITL is attached to a property. Franklin responded that DOFAW has the pen, and then the landowner mowed the pasture. When first started there, it was an active cattle ranch. Tried different things to make money on the ranch. Fretz asked if this site been producing birds. Franklin said estimated population is just for the ranch. Jacobi asked if this SHA is also successful. Franklin said yes, birds are always coming back and nesting, every time we survey we're seeing birds. On this site, we saw cattle egret predation as an issue, this year we noticed during the nesting season always three pueos circling overhead. We never saw it, but the fact that they were always there during the nesting season may indicate predation.

VanderWerf asked that given that the management has changed and asked why nesting is different this year. Franklin said there was no staff for a while this year, lost our technician. Fretz asked if there is any way to document birds that were produced here as part of the population estimate island wide that have come from here. Franklin said there are weekly surveys on the entire island, read bands. Everything looked at separately put in GIS. Not just individual pocket populations, flying and interacting with other

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populations on the island. Fretz asked if Franklin was confident that these birds have increased in numbers and are now dispersed across the island and breeding elsewhere. Franklin said yes.

Fretz wanted to know how many birds on Maui are banded. Franklin estimated between 150-200 birds. Unbanded birds mostly come from the west side where there is more hiking around to look for them.

Fretz said there is a new SHA in process, but owner is looking to sell their land. Tessler said it might be worth waiting until there is a new landowner. Franklin said landowner sent in a letter before agreement expired. Last time it came back, made sure everyone was ok with the changes that came back. We're doing the management at this point.

Haleakala Ranch

Franklin explained to the Committee that the Safe Harbor has not been signed, but an ITL is issued. There is also an HCP agreement with KWP 1 as a mitigation site, funding the nene pen. KWP 1 receives credit for all the nene fledglings at Haleakala Ranch. She explained that there had been a revision in the agreement that for next 9 years the baseline cannot go back to 0 to keep mitigation going for KWP 1. KWP 1 says if it goes back to 0 then they're in trouble and will be unhappy because mitigation efforts put into this will be void.

Jacobi said it is the responsibility of KWP to come up with mitigation. He included that if the landowner pulls out of the SHA, KWP 1 is responsible for finding another property. However, Franklin said that no one from the KWP 1 HCP has been able to find paperwork that holds them responsible to any other mitigation.

Fretz commented that it was odd that KWP 2 claimed not to know they were taking on a mitigation site that would also have a SHA in place because KWP 1 and 2 had the same person representing both. FWS had said they did not want to issue the SHA because it was set as a KWP mitigation site, and if they go back to baseline that will remove their mitigation. The site told KWP that their only way they can use Haleakala Ranch as mitigation is if you agree to take on the responsibility of finding another site if the SHA goes back to baseline and they agreed. Fretz wanted to know how the KWP representative agreed for KWP 1 but not KWP 2. Metzler responded that there is no safe harbor represented with KWP 2, it is only KWP 1.

Fretz said that FWS wrote a letter to KWP 1 that created the agreement to find an alternative mitigation site if the SHA was signed. Franklin said the state does not know what the landowners are going to say each time they bring revisions to the SHA. She said that ultimately if it doesn't go back to baseline, KWP 1 is able to get credit for the birds.

Fretz suggested moving some of the birds to an alpine site in a natural habitat that is not a golf course. Tessler asked about the number of translocated birds, if they were a percentage of the total number of translocated, or if it represented the number from a

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particular cohort. Franklin responded that the number represented the total number of translocated birds subtracting fatalities.

Harrison asked if there were problems with predators. Franklin responded that there has never been a cat but that there are a lot of mongoose. So far, no mongoose have ever gotten into the pen due to extensive of grid trapping during nesting season.

VanderWerf asked how often surveys were conducted. Franklin said a minimum of once a week. She also made sure someone is doing predator control. She mentioned that right now doing they are visiting the site two or three times a week since there are three goslings on the ground currently.

Umikoa Ranch

Fretz asked what enhancement and management the ranch has claim to have done. It was confirmed that a fence and predator control. Jacobi stated that this SHA is a disaster and should be terminated. Jacobi stated that unless DOFAW decides to step up like on Maui, then should get out of it. Keeping cattle out and fencing, and have failed on both of those.

Tessler asked other committee members if the level of predator control and monitoring efforts was clearly laid out. Jacobi agreed that it had been laid out clearly and there was an agreement to go out on a monthly basis. Since the fence has been completed, it has been voluntary monitoring by the landowner. Tessler asked if the amount of predator control being done right now was not in accordance with the SHA.

Jacobi said the landowner is not maintaining the fence, and have very little documentation of the work occurring up there. Fretz stated that the SHA was never a great situation for the ranch because there is no management area, and got dragged into it because of the former landowner.

Fretz said that for the last five years we have the same discussions with them. The committee does not have a report from them. Suggested that instead of having the staff keep trying to talk to landowner, instead revoke the agreement so the ranch will not have state protection. Fretz alternatively suggested maybe the state should try a different approach instead of one that doesn't work and asked if there was a contact person. Metzler responded that the land manager is always busy, and difficult to communicate with. VanderWerf said having a non-functional agreement barely hanging on looks bad, they don't turn in their reports, and gives a bad name for safe harbors. Jacobi said the only way he would support moving forward with this SHA is to take it over and redo it.

Tessler responded that someone should reach out to landowner themselves for the possibility of turning the SHA around. He continued that he does not want this agreement to be a black mark on safe harbors and would like to have it live up to the agreement, if not, then the state should revoke the license.

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Jacobi said that the landowner signed the license and it is their responsibility to be held to it. He continued that if taking the route to revoke, must be clear in the landowner's obligations, so it is clear what needs to be met, and what is not being done so the license holder has an idea of what needs to be done to turn it around.

Fretz said the first step on the state side is for staff to reread the agreement and formulate opinion on whether we can revoke the license. Then, take the opinion to AG and ask for concurrence of assessment before bringing it to the Board to have it revoked. The same process would occur for FWS as well. Fretz commented that committee should not continue to let a SHA operate with no obligations or management.

ENDANGERED SPECIES RECOVERY COMMITTEE MEETING PART II

Meeting Location:

Kalanimoku Building. 1151 Punchbowl Street; Room #423; Honolulu, HI 96813

November 2, 2016 9:00 am

MEMBERS: Dr. Scott Fretz (DLNR), Dr. Jim Jacobi (USGS), Dave Tessler (USFWS),
Dr. John Harrison (At-Large),

ABSENT: Dr. Kimberly Burnett (UH-Hilo), Dr. Gordon Tribble (USGS), Dr. Eric
VanderWerf (At-Large)

Kawailoa

Discussion on Ukoa Pond

Metzler asked if the bat lanes at Ukoa Pond were in place yet. Snetsinger responded that there were not.

Jacobi asked how to assess or evaluate the effectiveness of the bat corridor by enhancing or channeling bats in the area. Snetsinger responded that Kawailoa has a lot of acoustic monitoring data from the site, and will enhance bat habitat by using a combination of creating more open water and bat foraging in the area.

Jacobi asked how Kawailoa can evaluate an offset of 54 bats. Ultimately trying to answer, if you do this (mitigation) then we'll get these results. Important to understand how it relates to take and offset. Craig responded that Kawailoa realized the original mitigation idea was never going to work, and that the best idea based on other research is that the implementation of those things successfully completes the mitigation.

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Jacobi stated that the bigger picture is what we can learn from this for site management, and other potential site management. Where can we take this, how can this be folded into a better understanding of this management is worthwhile.

Tessler asked if traps were used in the area that is going to be cleared and if there was predation. Craig responded that it wasn't very successful, we stopped putting floating traps in the water. Jacobi asked if waterbird monitoring was part of mitigation. Snetsinger responded that baseline monitoring has been completed due to grant funding.

Fretz asked for more details on waterbird monitoring that was not included in the report. Snetsinger responded that right now surveys are done in the open water area. Baseline survey showed more nesting and moorhen activity on larger area and up in the open water area portion. Surveys were reinitiated following management activity to monitor for moorhen. Fretz confirmed that Tetra Tech was not monitoring nesting every year because they just got the baseline and are going to monitor after management.

Jacobi asked Kawaihoa representatives about predator control, its effectiveness, how it is being carried out, capture rates, and if it is making a difference. Kenney responded that Kawaihoa Wind is managing the operations. She did not have specific on capture rates, but have been successful using traps. There are still some pigs, but trying to manage those. Can be a challenge because there are other land uses in the area.

Jacobi said, that predator control is about reducing target species. He also wanted a better understanding of whether the predator control effort is worth it or not, something that Kawaihoa should keep in mind. Continued by saying the whole intention of doing predator control is to offset any potential losses in the long run. If you're not at a threshold of viability, not worth doing it. Kenney agreed that it is not cheap to do predator control and if we are going to spend the money it might as well be spent effectively.

Jacobi asked if the land owner has a long-term vision that fits in with what you are doing. Kenney responded that they have walked the landowners through it and that they were pleased. Other activity in pond they need to coordinate on is managing for bats. One thing that held it up from the beginning was the right to access parcels for the term of the permit.

Jacobi mentioned that the area has the potential for interesting habitat for damselflies.

Discussion on Bat Take

Fretz asked a question about the increase in bat detection in last three years, and if Kawaihoa was inferring that bat presence is increasing? Snetsinger responded that there were similarly high rates during the summer in 2012 and 2015. Tessler asked what the sampling efforts was. Craig answered SM2s.

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Jacobi asked how we [the Committee] deal with this large sampling of bats. A bigger concern, since none of us expected it, is such a magnitude of take. We can keep amending and amending, this is where initiating curtailment has shown some good response. There may be other deterrents to push harder for in terms of trying to reduce in terms of that amount of take.

Snetsinger reminded the committee members that all they can say is that Kawaihoa is 80% confident that take is 54 bats or lower. Jacobi clarified that the amount of bats being found is still high.

Tessler made an observation about the bat activity graphs around the sites are interesting in the last year and qualitatively different than in previous years at both sites. Craig responded that there was a change in microphones to newer versions, since the older version was less reliable. The data in last year is more representative because equipment has changed and a better assessment than previous years. Tessler asked if there had been more sensitivity in certain frequencies and less data gaps and failure rates.

Craig responded that the rate of take had been pretty consistent since beginning curtailment at the start of the project. Take numbers are not dropping off which would mean that bats are no longer around. Jacobi said that if bats don't seem to be around, means that predators are not being depressed either. Craig said there is onsite bat data at Kawaihoa and not at Ukoa. Look at the effect of wind speed on activity and percentage of feeding buzzes.

Jacobi ask how Kawaihoa thinks the project is going, what are the challenges, where is the project headed. Kenney responded that the project itself is operating well, in terms of physical site. Tetra Tech taking over the HCP has been smooth. Currently only have one dog handler and need to add a second one. Continued to work on mitigation options with the amendment in acquiring land, making efforts to spend money wisely and making bat lanes as valuable as possible. Kenney continued to talk about Ukoa Pond restoration work is a lot work and effort from a project owner point of view especially trying to figure out how to do it and how to do it well. Kawaihoa needs amendment to go through and will be in front of the Committee in another month.

Jacobi said that deterrents are a big problem, and asked if Kawaihoa had any new ideas for deterrents. Kenney said she spent a lot of time doing deterrent research. There is focus on it, but nothing has worked. Tetra Tech will help put that forward. Craig said that his former supervisor is deploying sound deterrents on a site in California and developed a system that they are testing. That research is not this year but coming up and should see results and see if any of those become viable.

Snetsinger said one of the main challenges though is going from mainland to here. Jacobi said that the mainland bats have more of a migratory problem as opposed to a resident problem. Craig said that it takes years to prove, and spend \$10,000 to \$20,000 per turbine to install devices and do it by faith to begin with.

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Tessler asked if people in deterrent research are looking more deeply into UV. Oller mentioned a windfarm in Colorado that is testing UV as a deterrent.

Fretz asked if there are any public comments. No public comments.

Auwahi

Discussion on Seabird Mitigation

Fretz asked if the burrows were just prospected early on in the season and not actually used for nesting. VanZandt responded that if the burrow was only prospected once or twice in the beginning of the season it was no longer considered active. Fretz asked if there were cameras on the active burrows. VanZandt said that Auwahi used 22 game cameras with a 38% reproductive success, and used the toothpick method with a 26% reproductive success. She continued that she felt more confident in camera success. Fretz asked if Auwahi continued monitoring the toothpicks all the way through August-September. VanZandt responded that they replaced toothpicks from March-November, baiting once a month.

Jacobi asked if there were cats in the area. VanZandt responded that there have been a couple of cats that show up during the fledgling time, but no evidence of predation or documentation of cats removing chicks from burrows. The site is not currently fenced, but are planning on enclosing the fence beginning March 2017.

Harrison asked if there have been any improvement on burrow collapses. VanZandt responded that there have been a few from goats, not sure if that caused failed nesting. Fretz stated that land owners and managers need to decide how they want to remove the goats. Without an ungulate removal plan in place yet, that might be a delay.

VanZandt said Auwahi is working with the Department of Hawaiian Homeland on an ungulate removal plan. Fretz responded that constituents need to be a part of the process.

Discussion on Bat Take and Mitigation

Jacobi asked about the collection of native seeds. VanZandt responded that Auwahi has been having a hard time fulfilling the obligation. Difficult to collect seeds, with a long wet season that reduced the seed production. Jacobi asked about the progress and challenges Auwahi has experienced this past fiscal year. VanZandt responded that she thought Auwahi's biggest problem was its two years of operation without curtailment. With the higher than expected take, we started implementing curtailment two years ago, up until this July we were on track to show that curtailment was effective. In the last four months we had double the take in previous three years with seven bat fatalities. This completely blew our argument that curtailment was effective at our site. We have gone back to drawing board with an amendment for a revised take request and assumptions on the effectiveness of curtailment. Auwahi is continuing with curtailment and still have 5 meters per second year round.

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She continued that Puu Makua had 40 acres outplanted, if you do site visits, that's the site we're most proud of. USGS is at the site now, mist nesting for two years. The petrel sites have three years of predator control and four years of reproductive success monitoring. She thought it was time to look at an adaptive management strategy for the petrel population there.

Tessler asked VanZandt for her guess of why the sudden mortalities happened when they did. VanZandt responded that there were some unusual weather patterns that came through the channel where wind farm is located. It occurred at a smaller scale a few years ago around the same time with three bat fatalities.

Tessler asked if there was a similar correlation seen at other sites and if high wind events are associated with higher collisions rates anywhere. Duvall responded that it is not the high wind but the change in pressure. There is a strong correlation between that and rate of change where it goes back up. Seven sounds like a big number, trying to look at it statistically, it may not be a big number.

Craig said there was no unusual number of takes at Kahuku, and the project has not found a bat for three or four years. Tessler asked about thoughts on rapid change in air pressure. Johnston said bats and birds tend to be on the move. Some of the work done in California suggested just prior to storm coming, higher number of fatalities, on the cusp of storm coming. From a migrant point of view, they get ready to leave stopover areas and on the move, in Hawaii you don't have that, so I can't explain that.

VanZandt said Auwahi is right on the channel, and she didn't feel any of the effect on of the storm on the leeward side. It is hard to pin down exactly when a fatality did occur, but when we find them we look at wind speed intervals for past four days. We did offer to provide wind data to USGS to look at the phenomena. Duvall said that after some of those storms came through there were increases in lepidopterans bats may have been feeding on.

Fretz asked for a clarification under take monitoring in the report under adaptive monitoring. The report said Auwahi was monitoring 100 meters around the turbine, Fretz wanted to know what the search area was before, and if all 100 meters is searchable and being searched. VanZandt responded that for the first three years monitoring, there was low searcher efficiency. Auwahi met with FWS and DOFAW, and company saw it as a safety hazard by searching a much larger than typical pad and proportion of area bat or bird would actually fall in, and decided to reduce search area. 100 meters from the turbine covers 76% of the searchable area.

Harrison asked if Auwahi was planning on continuing acoustic monitoring. VanZandt responded that acoustic monitoring was only required for first two years of HCP, and have fulfilled that obligation.

Discussion on Petrel Mitigation

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Fretz said for the petrel mitigation, the fence is important to keep the goats out. Do you see that the reproduction is too low to support a stable population, and asked what Auwahi's interpretation is, and if predators are playing a role. VanZandt said it was difficult to say - we see similar number at DKIST site, haven't be able to compare ours to NPS' reproductive success. Not sure if they have predator control or ungulate removal in their area. It's hard to tease out if the reason is the goats, or that this population is younger, so they're leaving earlier in September.

Jacobi asked if there was a way to facilitate pooling data results of data from Haleakala. Fretz responded that he was planning on talking to Natalie about it. Jacobi said it would be useful for the broader picture and would help with restoration. Would like to facilitate that getting done, for staff or the committee.

Fretz asked if there are any public comments and there were none.

KWP 1

Discussion on Take Estimates

Craig said he used different software that gave him different outputs for his observed bat take. He gave a little background first, he was using version 1 of the evidence of absence software up until this year. Typically, we just add additional data to existing multiyear modeling. There are changes in a single year module actually producing different results. Went back and reentered and changed- the format the old single year version doesn't work with new one. Have to take previous years and reenter into new format. The exact same data entered in slightly different formats ended up with different results that are way lower.

Jacobi asked how different the two algorithms are. Fretz asked if the values of the inputs are different. Craig said the "simple" answer is that probability value generated for each year entered into a multi-year module are higher than they were before. What exactly is different is not yet known, but has noticed some change around the carcass searches.

There are two parts to it, you have a length of time for each year that effects probability value for a set of data. Shorter time period has a lower probability and the longer the time period the tighter your estimates. A variable that allows you to change something when you add wind curtailment speed if you make judgement how it will affect greater take. If there are 365 days and only half are sampled there is a variable where you can put .5 instead of 1. In the past, when you have a period of time that is less than a year you end up multiplying some portion of year to get a value is the way we used to do it. What I'm saying is the person developing the software is creating an updated version and is producing different results.

Jacobi said that the original version that is peer reviewed is what we have adopted as our standard. He assumed that if things are being updated, it would be made for peer review then we can decide how to reign it in. He cautioned working with new numbers, until we have that change over, need to remain consistent.

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Craig said assuming it's correct, it is going to change our projected take estimates for the amendments. Tessler asked for a timeline of when to expect a paper to be out, or for peer review to happen. Craig said there is a USGS document that has been passed around to different people over the past year, and has helped by going back and forth helping make corrections.

Jacobi clarified on timing of USGS documents. Before it goes to the USGS publication office, it has to be completely peer reviewed and evaluate it for what needs to do for reproduction. Evaluation can take two to three months, where it then goes back to agency approval and may take another six months to a year to get published. Once it gets the agency approval then you can use it and it is distributable. Reminded Craig that it is important to work with them to fast track it and look at differences between version 1 and 2. Craig said that KWP I is putting out estimates and developing mitigation and tiers, and then six months later there is a new version and that changes the estimate. Paid for mitigation that we're not actually in that tier yet since projects must plan and fund next tier when 75 percent through current tier.

Tessler noted that the table Craig distributed for KWP I updated software estimated 32 petrels rather than 35. He said the numbers changed significantly for petrels but not bats. Craig said that the numbers seemed to be increasing for nene relative to what it was three months ago as well.

Craig said part of the HCP requires the project to search for new alternative sites for doing mitigation. Acoustic monitoring occurred in a number of areas to determine potential restoration site, for Newell's which we haven't taken yet, and also have petrels recorded there. Jacobi stated that he is concerned about the pueo, and would like to hear about research projects going on.

Craig talked about the Makamakaole mitigation site in its third season. KWP has two more seasons to demonstrate a nesting pair. One enclosure is for HAPE and one is for NESH and nests have not followed despite signs. We've had nests recorded on the ground, this year have not recorded any petrels on the ground and continued to do regular surveys. We know that petrels are still there flying around using acoustics. Nest recorded for first time on enclosure on right. Beginning to show up in A. A month ago we opened all of the burrows and found some signs of feathers in 6 total burrows. Actual signs of three at each site. One of the burrows in B had nesting materials, but no egg or fledgling. Bulwer's continue to be present. The fact that petrels were not landing in B is a concern perhaps. We know in other situations wedge-tailed shearwaters will come into petrel colony and toss petrels out of colony but there is no evidence of Bulwer's doing that. Different birds tend to keep other species out.

Duval commented that KWP was playing both species calls at the site. Matt Stelmach said there were more birds on the ground when one species per speaker played, otherwise sending mixed messages. Craig said he asked Jay to gather NESH and petrel calls from Maui and was not aware that he sent a mix that had NESH and petrel together. It was not

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until he was watching a video and heard NESH calling in HAPE area. As soon as he heard that, he asked to discontinue that and now we're back to just one call. We had NESH landing in HAPE area with HAPE calls.

Craig stated that KWP I has not produced a single petrel and have consistently been taking them. Not only is KWP I taking more petrels but the loss productivity is adding up and starts to go exponential so at the end of 20 year period if 5 petrel taken, we would owe 200 petrels or something. One of the ways that the agencies and I have tried to deal with is by paying mitigation for lost productivity so it is not going to keep accruing over time. This project is \$187,000 in a NFWF account for a conservation plan on Lanai for predator control there in order to make some birds.

Lanai management plan discussion

Fretz asked to clarify that doing conservation work on Lanai is taking up a portion of lost productivity. Craig said it is not intended to cover the original take, lost productivity is not added to that number, and it is separate. Fretz asked how discussions are with land owner, and if they are interested in receiving the money and they will do the conservation work or if a contractor will do it. Sether confirmed that the money is in the NFWF account, and once a plan is finalized, a priority will be identified and then the money will be used to fund action.

Fretz asked if the land owner has certain obligations connected to critical habitat or if this action is considered separate or double dipping. Sether responded that Lanai has a MOU that they have committed and must do good things for the species so there are specifics in timeline for various species.

Sether stated that as far as active management of petrel colony they already do predator control for colony. Terraform/SunEdison would be providing in addition to management that is expected to be performed by Pulama Lanai. Jacobi asked when the expected start date is. Sether responded that the management plan was supposed to be earlier this year, but should be ready to go next quarter. Fretz asked which DOFAW staff was working on it. Franklin responded Andre Raine and Afsheen Siddiqi. Jacobi said he would like to hear more about that in a detailed update in an upcoming meeting.

Jacobi stated that if this is going to be a mitigation component we need to see what is happening and coming out of it that is tangible. Fretz said that when new landowner took over, Jay's team left, and it has been unclear since then what is being continued there. Jacobi asked if the work started as mitigation for met towers on Lanai. Fretz confirmed, and continued to say that for the met tower HCP they had done some guava eradication and restoration.

KWP I Discussion on dog searching

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Tessler asked Craig if the 5.5 curtailment has been the case since inception. Craig said it started out with no curtailment and began in August 2014. Better SEEF results with dogs and, since implementing dogs a year ago, KWP I has found one bat.

Jacobi asked how dog searching was working at the site, and asked if they plan on continuing to use that method forever, and if Craig was contracting it out. Craig responded that they are contracting a dog professional person to fly from Big Island every week to search. Efforts to keep Mauka (the dog) working and reduced staff and search area still requires a person than is currently employed by Sun Edison. Not a whole lot more expensive to add another person to do search.

Jacobi stated that dog searching should be a standard part of everyone's protocol. Would be nice to have consistency across projects and have a conservation of cost, by using a single entity to do all of the different projects. This is a technique that seems to be working and a good tool that we're using everywhere.

Johnston said he came out with a paper a few months ago talking about the advantages of increasing searcher efficiency so then can search smaller area. We did that by dogs, can get search efficiency greater and costs go down if searching smaller area.

Fretz stated that that is what KWP I did, reduced the search area to 29% combined area with a really high SEEF rate, and asked Craig if it reduced the costs. Craig said that even an expensive dog handler on Maui is not more expensive than a person around \$45,000 plus 35% overhead, is what we pay dog handler. Fretz noticed that even the human searcher efficiency rates were very high. Craig responded that the area the project is searching now is smaller and even a human can do well. His experience at Kawailoa is different and most evident in areas that was far away in denser areas. Recently expanded KWP I search area for bats 37% now its 48% for bats. Stretching it out and managing the area. We've gotten permission to do in middle of season with permission from Stephanie Franklin.

Oller said to keep in mind the consistency across projects it may not be best to use dogs because the dog handler makes a difference. She also mentioned that while she saw the value of using dogs it could be more problematic when searching sites like lava fields.

Discussion on Makamakaole Mitigation Site

Jacobi asked Craig about Makamakaole and if KWP continues to be optimistic even while looking at alternative sites. Craig said it takes time, but once it gets going it tends to escalate. More signs of birds than last year, but not petrels which is our target. Expensive project, about \$50,000 a year in just time, and another \$750,000 for 50 years. Probably far cheaper to put money into Lanai and it is not hard to build or maintain a fence. Might be better for KWP to give up and spend our money where we can get results, but will continue doing this as long as the committee agrees.

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Jacobi shared his opinion that the site has a lot of merit and is even somewhat successful, especially since there are limited available sites and management. He was in favor of continuing this project. Craig suggested that because the fence is maintained, it could be a site for translocation. Ultimately not easy to establish an artificial colony in the social attraction site when there is stronger colony nearby.

Fretz asked for public comments and there were none.

ITEM 3. H.T. Harvey & Associates [Dave Johnston] proposal presentation. “Basic research of the home ranges, seasonal movements, habitat utilization, diet, and prey availability of the Hawaiian hoary bat on the island of Maui”

Tessler asked Johnston if he was using Hawaiian Hoary bat reference calls. Johnston confirmed that he was, from his own recordings.

Duval stated that looking at habitat type, we’ve had a lot of bats in Piipholo near pineapples. The highest was 19 bats at one time and were feeding on pineapple flowering beetles. Another hotspot of bats on Maui on ranch land near a bridge. Feeding on eucalyptus forest beetle.

Tessler asked if Johnston’s proposal included kiting, or putting bats on a string and recording reference calls. Johnston called it the trip line, but does not see any purpose in doing that. Tessler suggested it may help to have a reference library for Hawaiian hoary bats if there is a diagnostic in identifying it. Johnston responded that the level of detail you need to get a call to start separating out individuals is so fine that putting them on a trip line would corrupt any chance of separating detail. A better way is to put a light pad on the bat and follow it free flying with bat detector. Put an elastic band on neck and it flies as you record it as it’s tethered to a line.

Jacobi asked where Johnston is in the permitting process and if it is surmountable. Conry replied that they are working on getting a scientific collecting permit, we’ve had previous USFWS and DOFAW permits. Probably don’t need NARS permit. Johnston said he had to add Maui to USFWS permit and extend it to begin in March 2017. Jacobi stated that acoustic detector deployment is challenge on the ground due to the combination of land owners and access.

Fretz asked about the status of contract with Mitch. Craig said it will be another aspect presented at the next meeting. Fretz said the committee wants to make sure the data is accessible and goes into a database that is accessible to the agencies.

Jacobi asked what the outcome of the study is besides defining suitable habitat in the study site. He continued to ask Johnston how he envisions the outcome. Ultimately want to be able to characterize the landscape, here is an area we might want to do restoration or don’t want to do mitigation. He asked Johnston how he is looking for an output and outcome of this relative to defining that suitable habitat. Johnston responded that he envisions larger habitat use maps, overlaid on different levels. One level is acoustic data,

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quantitative analysis with no parameters. On a GIS basis maps that show what the characters are based on topography better seen in a GIS format. Tessler said Johnston is elucidating the study by parameterizing acoustic and telemetry data.

Johnston said he is worried about the mist netting time and the amount of effort putting in there, still really hard to catch bats. He has talked to SunEdison to expand the scope to include more mist netting time and effort to catch enough bats to make this a meaningful study. Without radio telemetry data, it will be a limited study. Would also like to add a roost behavior component to the scope as well.

Tessler asked if Johnston has done acoustic attraction for mist netting in the Hawaiian Islands, and if he was not going to trip line or tie the bats how did he previously record bat calls. Johnston said it is easier with only one species of bat when we get a clean clear call it is recorded.

Fretz asked for public comment.

Agostini asked when the proposals would be publicly available. Fretz responded that the committee still wants to get all additional comments and complete review of proposal. Still figuring out what parts are confidential and which are public information under government records.

KWP II

Update on nene predator control on Maui

Franklin said there will be a new RCUH technician position that will work with wild nene populations that have never had any management before. Taking baseline of fledglings that we have without management and then whatever is produced over that based on predator control. Fretz asked if this will occur in natural sites that don't have pens. Franklin responded that the two sites aren't really natural sites, but above the aquapond where there are always nests and fledglings predated by dogs and cats.

Fretz said the longer term management plan for nene on Maui is to identify places where nene can be recovered in areas where you would want to encourage nene nesting. Franklin said the west side Maui population is largest on island. Last year we lost many birds on west Maui from predation, wild dog packs annihilating them during the nesting season.

Kahikinui Discussion

Jacobi stated that several parties are helping with that project. It is going to be a challenge to use the baseline to definitively say that there are more bats until we get farther along with that research.

Fretz clarified that ungulates were removed from the whole 3500 acres, not that there were 680 goats in entire mitigation area for the project.

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Jacobi noted that he hopes that as the project goes along with more management on ground, it will get a clearer picture. If we get bats to where the nene are we'll be in excellent shape. Fretz said that the bat money used for habitat restoration was put into restoration that was ongoing.

Craig asked if the committee had any questions on the amendment asking for increased numbers of bats and nene. Fretz asked about the status of amendment and timeline. Craig replied that Fish and Wildlife have received format for the state version, and should finish it this week. The HEPA document is almost complete, and EA should take short period of time. Everything should go into public forum by January.

Fretz noted that this is the first amendment coming through with new bat research recommendations. Harrison asked if the amendment was going to focus on HT Harvey proposal, or if the bat research was going to be parceled. Craig responded that specific proposals are going to specific fundings. Most of the USGS studies funding will come from KWP 2 or Kahuku. Most of the USGS proposals go to Tier 3 of 4 for KWP 2.

Fretz asked if there are any public comments and there were none.

Kahuku

Craig mentioned that the amendments for KWP II and Kawaihoa have converted juvenile bats into adults, but have not done that for Kahuku yet so the actual adult numbers is lower than that. Kahuku is budgeting to cover additional bats for mitigation, but has not attributed a project to that yet. Barn owl control is in the last part of mitigation and it will finish at the end of the calendar year which completes mitigation requirements for seabirds; there has been no take of seabirds at Kahuku. Pueo mitigation is paid for, and still working on second bat tier mitigation.

Jacobi inquired about the pueo project. Metzler said that Siddiqi has come up with funding a grant to study demographics of pueo on Oahu.

Jacobi said the plan was referred to in several documents and wanted to confirm that all the plan is, is just one single Oahu study. He said he is interested in the objectives and methodology of what she proposed. Vetter said that Siddiqi has a RFP process, and has a draft scope of work prepared.

Fretz said that the HCPs that mention pueo research is broad and would be good to get an update on what the pueo update is going to be when it is ready. Vetter said the idea is to get a better understanding of distribution on Oahu, breeding habitat and population size. He also mentioned other research on different islands like Maui with Fish and Wildlife.

Jacobi said that a Maui study would be a bigger study, since it has wider distributed population even though it is not currently listed for that island. He suggested that it might

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be a good place to get more realistic understanding of population since there aren't as many birds on Oahu as on Maui.

Metzler said there is more public interest for pueo on Oahu due to recent press generated and controversy. A congressman has even conducted a public meeting recently that Siddiqi attended. Cullison included that most urgent calls from public about pueo on Oahu turn out to be barn owls.

Jacobi asked if waterbird mitigation at Hamakua Marsh was successful. Craig responded that it was successful and that Kahuku has a bit of a surplus of some species, and thinking of convincing another project to buy them from us. Some other entity can take that on if we have surplus.

Fretz asked if there are any public comments and there were none.

ITEM 4. Announcements.

Site visit November 15 and meeting for Kamehameha Schools Safe Harbor Agreement on Big Island.

ITEM 5. Adjournment.