

MAUI INVASIVE SPECIES COMMITTEE
Thursday, August 12, 2021
9:00am – 12:00pm

MEETING MINUTES

ATTENDANCE: Forest Starr, Kim Starr, Bob Hobdy, Fern Duvall, Adam Radford, Elizabeth Anderson, Elizabeth Speith, Serena Fukushima, Erin Johnson, Chuck Chimera, Mike Ade, Abe Vantze, Adam Knox, Susan Frett, Kerri Fay, Monte Tudor-Long, Marshall Loope, Woody Mallinson, Lori Buchanan

- The meeting was called to order at 9:08 am by Fern Duvall
- Introductions were made around the Zoom screen.
- Minutes from the April 1, 2021 meeting were approved. They will be posted on the MISC website.

1. Call to Order

a. Introductions and Announcements

- Forest: I just had one clarification from the last meeting. There is a \$5,000 loss in purchasing power, because of the lack of raises that is now occurring annually. If we don't get any raises in the next 5, 6, 7 years it will be one year's salary lost cumulatively. We just wanted to give a shout out to Adam, thank you, for standing up for this and for understanding the math and then for bringing it to life in the HISC meeting, and specifically asking for more money for raises for the MISC folks. Thank you for that. While Adam is working to increase wages PCSU is trying to get us more money by decreasing the fee on retirement accounts. A process with the RCUH benefits program has started to lower these TIAA charges, basically offer lower cost alternatives across the entire university, this move could save millions of dollars annually for employees.
- Radford: Thanks Forrest and Kim, it's really a great update for everyone on this call.

2. Plant Priorities and Progress

a. New Species for Discussion (e.g., Asters (*Vernonanthura polyanthes*))

- Forest: This is the tree aster when it's in flower, white and pink, seems like late spring and early summer. It's an Asteraceae and it appears to be able to wind disperse its seeds. We went to this original tree in pictometry before we even went into the field. Pictometry is fixed wing aerial imagery you can find on the county of Maui website. We got a search image for this tree and started looking around. We started seeing it in a lot of places beyond where we originally found it. This photo shows a pineapple field in 2008. By 2015 these little dots are very sporadic and by 2019, the entire pineapple field is filled with this. So that was 11 years until completely occupied. This plant seems to do well with disturbance and then abandonment. It has also jumped across Maliko Gulch into the cane fields. And it's in pastures over here, you can see the ranchers battling it.

- Fern: Looking at the coloration, it looks like some of that is in the heavily forested area adjacent.
- Forest: It could be, it's uncertain. It prefers open disturbed areas, but I would not discount where it can grow. I don't think we fully understand that yet. It has wind dispersed seeds. If it's not growing there, its seed propagules are definitely in there waiting for the right conditions to occur. Take a look at this one with the star. We went back in time and we could watch the invasion across the landscape. This was the oldest site we could find on the imagery, and there were mature trees in this gulch in 2008. They kind of spread this way, and actually there's some new populations. Here there's a clear pasture, then they all come up big and then they mow it down. It's been that long, there's been cycles of invasion and destruction. We originally thought we had it here as you can see on the map. But then we got a job for EMI at the reservoir, we did a survey and found more in a forested area hanging off of a cliff. So, it's probably more widespread than we're aware. This polygon is about 1,000 acres, and there's a lot of private property and some challenging terrain. But that's what we got. That's what we were able to uncover. If you want to add more, Bob, maybe a bit about the history of invasions?
- Bob Hobdy: When I first found it, the first thing I tried to do was identify what it was. I went online and I was able to determine it was in Asteraceae (*Vernonanthura polyanthes*). It was a dead ringer for every detail. I looked at data and it's a tree that grows primarily in Brazil. It was brought by the Portuguese to Mozambique in Africa, which also used to be a Portuguese colony, and was planted there with the idea that it provided nectar for honeybees. And within just a year or two, it started to spread just like what we're seeing on Maui. By 20 to 25 years later, which is really not that long, it went from being something new to being listed in Africa as a regional invasive species. That sounded pretty scary. Coming back to Maui, I was able to get into that area where the pineapple field is, near where the water tank is off of Kokomo Road. As you see in this picture, that's what it looks like inside of that old field. I was able to walk along the edge of Maliko and it's basically a forest that's probably 60-70% burned and there were all sizes of them. There were banks along the dirt roads with hundreds of them coming up as seedlings, and I saw that there was a lot of disturbance in there. There's deer in Maliko Gulch, trails coming up and tracks, and the kind of disturbance that they make is ideal for this plant to spread. It was pretty scary. It looks like it's beyond what we could do anything about. It likes drier areas, it likes open habitat, it doesn't come up under dense forests, like there's Christmas berry all along Maliko Gulch, and as Forest said, there's probably seeds all through there, but it can't compete, it needs the light. It looks like it could be a threat to the whole of Central Maui and even get into some of the drier forest areas. Anyway, that's what I can offer.
- Chuck Chimera: I can confirm all the stuff that you folks have already observed on the ground on Maui. Like Bob said, it really thrives in disturbed areas. I found, first of all, there's a lot of scientific literature on this species. In Brazil, much of it in Portuguese, I did a limited review of the literature in Portuguese using Google Translate and was able to dig some things up, but there may be a lot more information to mine. It would be helpful to have a fluid Portuguese speaker who can go through that information better. In Brazil it is regarded as a pasture weed that that ranchers in Brazil control as an undesirable plant that reduces stocking numbers. One of the things I wanted to ask Bob, did you see any signs of browsing on it by the axis deer?
- Bob Hobdy: No.
- Chuck Chimera: I didn't answer that question in the assessment, but that's another large red

flag. 20 years ago, more than 25 years ago, Steve Anderson and Art Medeiros we're doing an informal survey of land that axis deer were browsing on in leeward, Maui. It was such a large and expansive list that they started switching to plants that axis deer didn't touch in order to kind of set them out. If axis deer don't eat it, it probably has chemicals in it that deter browsing, maybe goats would avoid it as well. That would be just one more thing to give it a competitive advantage. Especially in the leeward forest, where axis deer are so abundant. The other major red flag that jumped out at me, and this is almost more anecdotal. Technically, it's in scientific literature, but I'd like to see more studies done on this or more research, but it is reported to be flammable, and comes back and regenerates rapidly after fire. So obviously, a terrible combination with all the finer grassy fuels in these drier areas. If you have a tree that can thrive in areas with frequent fire, that's just a terrible feedback loop. Given the recent mass of fire we had over on this island (Hawaii), I could see something like this exploiting that fire cause disturbance, along with all these invasive grasses, and then becoming a permanent problem. Just more about its biology, I suspect that you know that it's got perfect flowers, it's probably able to be self-pollinated. I would suspect that an isolated tree can probably produce viable seeds without need for another tree nearby, but I don't know that for sure. I just based that on its establishment and spread, that seems the most likely scenario. I don't know how long it takes to reach reproductive maturity, but in the 25 years that the pictometry is available, it seems like it exploded on the scene. It probably reaches maturity very quickly. It has all of the hallmarks of a terrible invasive weed. There are some other reports that say that it won't establish in the shaded understory of other vegetation, and it doesn't provide light levels or measurements or anything. That's good to know that it wouldn't establish under a dense Christmas berry stand. But, basically, all of our leeward forests except for Kula Forest Reserve are essentially open, almost like disturbance ecosystems with high light levels. Other than, for example exotic pine plantations, wattle stands, really dense plantation type forests or really invaded stands of, say Christmas berry, this could potentially establish just about anywhere on the leeward side.

- Kim: When it's not in flower, I think it would be hard to pick it out of a crowd if you were not super familiar with it.
- Fern: Let's talk about the pros and cons. It doesn't look like it's something that MISC is going to be able to deal with, or that we should deal with. The recommendations that MISC could give might be really important to Mahi Pono lands, and really important to forestry and wildlife. We are concerned that it will get to that side, where we already have *bocconia* problems. So then we'd have both *bocconia* and *Vernonanthura* problems. I think the recommendations, to start the discussion, if we make the determination that it is too big for us to follow up on, and it's probably not on properties that lend itself to that, what can MISC do? We should have good outreach on it, say that it is a problem that we are recognizing, we hope it doesn't take over on Maui, and get people to tell us if they've seen it elsewhere. Is this polygon really where the plant is at or has it escaped that perimeter?
- Chuck Chimera: One of the things I forgot to ask Forrest and Kim, from all of your imagery, and the sites where you were able to identify populations, which is incredible, do any of those sites look like they're being intentionally cultivated or promoted?
- Forest: No. You can see this pasture, and this kind of speaks to the animals not liking it, this was the horse pasture. And it's such a weedy area. When you see it coming up alone, it's mostly in pastures and waste areas. In yards that are mowed, it doesn't stand a chance.
- Kim: But it is on the edge of the yard, where they are not mowing.

- Forest: You'll see it on hedge rows along residential sites. Coqui guys are probably seeing it and could probably keep track of locations.
- Fern: I wonder if some of that distribution has to do with what the prevailing winds were when the seed set was ready to be spread. It looks like it could be following prevailing winds. A totally different wind pattern might actually cause a different spread in the future.
- Forest: We thought it might be moved around on the pineapple field trucks, how other weeds are. We used the pictometry to look at all sorts of fields all around here, and even on West Maui. This was the only place we've seen it, but there's got to be more. This spot, I didn't see on pictometry or when driving around. It wasn't until I got access to this private parcel that I found it. It's not everywhere yet. Its potential distribution seems much larger than its current distribution.
- Chuck Chimera: Elizabeth Speith raised a good question in the chat about its flowering and fruiting season. I don't think I found anything that documented that in its native or introduced range, but that would definitely be something worth nailing down, even if it's all year round. But if it's only a certain time of year, that would certainly help for early detection purposes, especially for people who might otherwise not notice it.
- Fern: I don't know if the seeds are with achenes that may actually get on deer hairs and things like that. Or if it is just purely wind dispersed.
- Bob Hobdy: I would suspect both, but probably mostly wind. In looking at what we can expect, I think the only way you can control it, for private land, is through intensive management, like, clearing a pineapple field or something. Once it gets into pasture lands, especially remote pasture lands, and then to dry forests, it's almost impossible to stop it.
- Forest: On the pictometry imagery regarding the seasonality, we did have to limit the imagery to around the late spring, early summer, and other times of the year, we couldn't really tell.
- Chuck Chimera: I don't know how this would correlate to Maui, but I did just review one of the references I found in the assessment. It says that, "fruit dehiscence occurs when the climate is conducive to dispersion. Woody plants disperse their seeds during the dry season which seemed to germinate readily, whereas the seeds of species with dormancy are disseminated predominantly in the rainy season." So, it seems to be timed with the dry season in Brazil. But it could change depending on the climate here or it could be happy to seed whenever it wants because Maui's climate is different. But maybe it would become more seasonally reproductive, if it got into a drier area where there was a very defined dry season.
- Fern: I think MISC could put out information with a request: if people are finding it, maybe send a picture, or pictures of juvenile plants. We can get a better idea of the total spread. Then it would be good to have somebody from Mahi Pono come take a look and be informed, here's a potential thing you need to be looking out for, and that your management of it might actually help restrict the movement. Serena could put out a public release, and also request help from anyone fluent in Portuguese. We have papers that we'd like to have a look at and could use help in understanding what's been printed.
- Serena: I have been chatting with the Starrs and Bob about this since May. We plan to do an article this September, and just wanted to get our messaging from the committee. To summarize, it's currently in the Haiku area, but has the potential to disperse further, especially to open areas. If you see it, report it, and we'll have some photos from the Starrs on juvenile and mature trees, flowers, and other identifiable features.
- Fern: It would be good to say, this is where we know it is but we don't know where else it might be. If you're out on your property, and you think you see this, let us know.

- Radford: We also have another opportunity, we were approached by SWCA because they have department of transportation funding to do surveys. I brought this up to them already, that's another opportunity to have them do surveys for us, especially on West Maui. I was going to ask Mike what he thinks, and I know he has a staff of two at the moment on this side, not in Hana, but this is a regional early detection species. It seems to me like it's very ambitious to try to tackle this in Haiku, but looking for it elsewhere would be a logical approach.
- Fern: The district manager may ask, what is MISC going to do about it? It's probably not a MISC target, because it's out of reach. That's why I think we should be thinking about it as a committee, what role can MISC best play?
- Radford: Well, I would actually ask Mike, could we get rid of all this?
- Mike Ade: First of all what I'm looking at is access permission. If access permission is not a problem, then I would actually like to go and kill as many as I can. I want to see how to kill them because I don't know how to kill them. We'll find the best way to kill the big ones first so they're gone. You may not decide to do it. But if it's only in that area, we could probably do it if it dies with initial suppression. The seed bank for this plant is probably a couple years. Whose land is it? Mahi Pono's or possibly land of a coqui frog contact? We'd need to consider what equipment we might use.
- Forest: We're figuring out the techniques, the methodology, and that could be useful for us to be able to relay to others.
- Fern: So the red flag that went up for me when Bob was speaking, is that he was talking not only about these big trees, but also that there were plants of all ages. Even in that pasture picture with large flowering plants, is it really clear that there are not 10,000 that are small, and at grass level out there? That would all be important to know and to catalog. Because I guess if you totally turned over the soil, you know, that may actually help address that. But if you think of a normal bell curve and populations, the large trees will be at the center of the bell curve, but there's going to be lots of tiny ones. And then on the far right of the bell curve will be the decrepit ones that are already dying. I just keep thinking of it. We've got to figure out population wise, what are we actually dealing with?
- Mike Ade: Just looking at this, I think it's going to go southwest, right? If it's following the wind, if the seeds are parachutes. We could get rid of all the big ones that we can first and see what happens. I mean that I'm just saying, maybe it's easy to kill.
- Chuck Chimera: There are papers from Brazil, again, mostly in Portuguese, but they have literature documenting chemical control of the species, again, mostly in pastures, I think ranchers there don't like it. I think you could come up with a method for Maui, that would be great. But just to let you know, it does look like different herbicides are effective against it. And in the converse, there's reports that it re-sprouts and re-grows after fire or cutting or frost, so just mechanical damage, probably isn't going to kill it. But, there are several herbicides that look like they might be effective.
- Mike Ade: Yeah, I think for all the large trees it's cut stump, just to get them on the ground, so they're not as dispersing as much. Probably want to get them when they're not in flower, because we're going to be creating a lot of dispersal, like what we do with mature pampas, it's like, what are we gonna do now, it's all flying away. At least we'll know where these are. But anyway, I would give it a shot. Permission access is the one. It's all Mahi Pono side?
- Forest: It's right on Maliko Gulch, so Abe's got to know who this is.
- Abe: Donald manages that furthest mauka point.

- Forest: Yeah, and it's on the edges of these little, kind of like Bob was saying, on the road, little disturbance areas. If you plow a field, and then abandon it. It's pretty clear what would occur.
- Mike Ade: Well, anyway, that's my input. Let's go try and see what happens. We can bring Hana crew out and these are easy targets.
- Radford: Forest. Do you feel like you fully delimited it? Maybe I misunderstood, but that's always my question from a resource standpoint, how big is the problem? How many resources do you have? And I love Mike's attitude of let's just go kill it. But just saying, do we actually feel confident in knowing the extent of the problem?
- Forest: Well, with the pictometry imagery with us and driving around on the ground, this is what was obvious to us. But then we found this, of course, we didn't find them all. We don't know if there are other valleys or if it's just a little bit around this. Knowing that would be helpful.
- Chuck Chimera: I think I know the answer to this question, but I'll ask it anyway. Are there any funds available to do a helicopter survey? Or on the ground drone work?
- Radford: I would actually say yes. We could put funds into that. I don't think it would be that significant. Unless we wanted to survey basically all of Maui in the appropriate elevations, which I don't think is what we're saying. I think just start with what we know now and expand from there.
- Chuck Chimera: Right, just to define this core much more distinctively before you plunge ahead. There could be outliers, way beyond this core population, but at least this is an excellent start. So getting that nailed down before you charge ahead with more on the ground because it could be more massive than anybody thinks. Or it could be discreet enough that you could say, okay, beyond this line, we're going to have a zero tolerance policy and try to prevent it from establishing in leeward forests beyond this arbitrary boundary that you set.
- Radford: I agree, Chuck. That's the direction, including the PR element that I would want to go first. I just want to know a little bit more. This is just my opinion, and I can go a different direction if the committee feels it's most appropriate. But I would just like to know more before we launch into control.
- Fern: We should figure out what are the capabilities that we know of for drones. I know that forestry has one here. This is a forestry threat for the dry forests, so it might be lent there. I have a couple staff that also do drone work. See if it is a realistic spread that's shown here.
- Radford: Yeah, and Knox can fly as well. He's a certified pilot for UAV. That's a possibility. There are three elements to this that I'm hearing that I think all makes sense. There's 1) access permission, 2) what is the known extent, and 3) how you actually control it.
- Fern: There's one more since we have Marshall on, how do we think it got here? Is this a plant that there's some record of people bringing it in for medicinal or other use, that it has escaped from? And so if we are getting rid of it, do we expect that it could actually be eradicated? Or that we'd have to constantly be on the alert for it showing up?
- Chuck Chimera: Yeah, that's why I asked Forest and Kim if it looked like it's being tolerated or even encouraged in any of these areas? Because it was intentionally introduced to Mozambique for honey production. Is there a beekeeping operation that intentionally planted it somewhere? And then there are a whole slew of medicinal uses from Brazil, that are documented in the literature. But if I had to guess I would say, somebody read that it was a good bee plant and brought it in that way.
- Fern: There are bee operations along Haliimaile Road. In fact, maybe, actually within the area.

- Forest: So this is ground zero, and it's in a gulch. At least that's the earliest one we could find.
- Radford: I think we have a path forward. It's what we've been discussing: learn more, start on outreach and education, especially with our partners.
- Serena: I'd like to jump in for my PR action items, just so I have a clear directive from the committee. We are okay to go forward for Kia'i Moku article for September, and I'll send the draft out. Bob gave me really great information back in May. I'm pulling quotes from Bob, maybe Forest and Kim, and Chuck, I might give you a call as well. I could send that if you want to the whole committee or to those involved to review the draft with the messaging that it's currently in Haiku but has the potential to disperse. If you see it, please report it. Maybe MISC is planning to conduct further surveys to determine if it's manageable, or develop a management plan and we can work on that verbiage over email and discussion. Do we want to also do a press release on this? Or wait until we gather more information?
- Forest: The phenology would suggest doing it in the spring. I should go back and look to see what the phenology is like now. But when it's not in flower, it just looks like a green plant.
- Serena: Yeah, so maybe hold off on the press release until it's more identifiable. And then, I've heard, connecting with Mahi Pono, it sounds like you folks have contacts and a handle on that. Maybe connecting with somebody fluent in Portuguese to help read the papers. Adam had a good point with Billy's wife being from Brazil, and I have Brazilian contacts. I think Susan said she has some contacts.
- Fern: Other than a report in the paper or an article, I think there ought to be a pest alert disseminated. Maybe Elizabeth Speith has information for how that could be put out. We know about this from Maui, but maybe it's also on the Big Island. Who knows? Pest alerts like those that the department of agriculture puts out, I think those are really helpful, they go to a lot of places, and a lot of people take notice of that.
- Chuck Chimera: I think Forest and Kim posted a virtual table at the conservation conference (HCC), about this species. There was also a HISC virtual table and we were highlighting beyond the lookout pests that one island or a few islands had, but other islands did not. I don't know how many people that actually reached. But the process of alerting the other islands to its potential invasiveness and to be on the lookout for it has started, but we could definitely do more. I forgot to mention the most vital piece of information, I didn't find any English common names. So the only common names I found were in Brazilian and from Google Translate. The common name is white baitfish. So for whatever reason, maybe somebody can get to the bottom of that mystery.
- Bob Hobdy: I saw the explanation of that. It means like fried fish or something. The Brazilians would take the leaves, and they would rub them with oil and then bread crumbs, and then they would fry them. And they call that a fish because the veins look like the ribs of fish.
- Radford: Good discussion. So just one last thing, though, as an action item is to look at the UAV helicopter flight idea which I would want to talk with you, Forest and Kim, a little bit more about, because you have the search image, and I don't. So anyway, just trying to figure out what that would look like.
- Fern: I'd say before a helicopter flight, you ought to see what can happen with the drone. See if a drone can actually determine that there's all of these large plants, and potentially identify an entire slew of younger non-flowering plants out there. Would a helicopter pick it up as well as a lower level drone flight? I don't know.
- Mike Ade: Also, there's one other tree aster that's growing off of Kokomo. Chuck did the

assessment for that. It's a *Vernonia*. So that's just starting. That would be something else people could be looking for. It's the same type of flower. And I just wanted to ask, Bob, is the trunk smooth or is it rough bark? On the tree?

- Bob Hobdy: It's kind of rough on the mature trees.
- Fern: Are there things that haven't been said that should be considered in the next steps for it?
- Radford: I think access is one of my first concerns and priorities on this topic.
- Chuck Chimera: Another final thought, given how prominent fire has been in the news, both in Hawaii and basically everywhere on the planet now, Siberia, Greece, the West Coast. There's information about this tree's potential fire risk and fire adaptability, it is more anecdotal in the invasiveness reports. Look into that aspect of it and include it in raising concern and alarm and awareness. I just heard Mike Walker on, was it The Conversation? Mike used to work over there. He's now the DOFAW fire lead for the state, and he was talking about fire grants and community grants for fire mitigation and fire prevention. Having just gone through the HISC budget process, and how painful that was, I know, there's not a lot of money out there. But potentially, fire prevention mitigation funding sources might be available to deal with this, where other more conventional sources would be, you know, fought over more fiercely. I'm not aware of any money just waiting for somebody to apply for it. But because it is potentially a fire hazard, that could be an avenue to pursue.
- Radford: Really good point.

3. MISC's Strategic Plan

- Radford: It's an updated version of the existing strategic plan. I want to see if there were any comments, questions or concerns about it, for those of you that had a chance to review it, but it's basically just a revision that I want to get approved by the committee. So any comments?
- Speith: Can I ask a question, because a lot of work that we do now at HISC are metrics that we provide everyone with about how well we're doing our job; it's almost entirely based on the strategic plan. Is there any thought of maybe utilizing some of that? Or do you already with the MISC Strategic Plan?
- Radford: Well, I think there's complementary components to all those different plans, including ours, what's not in our plan, and I agree, it's a good point you're raising is there are not clear metrics, because it's a longer term plan. But there are clear metrics for all of our proposals and reports. If you want to look there, which are all available on Google drive, or I can make them available to anyone that's interested, but you can see what is clearly stated. And so, in the strategic plan it is a little more general than you're describing, but it's captured in other places.
- Elizabeth Speith: Okay, I guess I was also mentioning it because I found it to be a useful process and it might be helpful as a touch point for MISC every once in a while.
- Fern: Elizabeth, is there a document that we could look at that shows us that?
- Elizabeth Speith: I can send it out after this, for HISC it's more of a guiding doctrine. We're constantly going back and constantly talking about whether or not we're hitting all the different parts of this strategic plan.
- Radford: One other thing that's been discussed is just having a Google sheet. We've actually put this together before, I don't know if it was shared with you, Beth. It outlines all the things you're talking about, like, what are the things we said we were going to do? How do they align

with the strategic plan? And what are the numbers behind that. Or is it a yes or no, because some of those things are kind of yes or no questions; like, did you do it or not in the last calendar year, or fiscal year or whatever time frame you want to pick. That's something we could revisit, because like I said, we've already put that together in the past, so just updating it wouldn't be hard. I totally get your point that is really super helpful for not just leadership of the project, but staff in general. For example, what am I shooting for as a crew member, coordinator, etc.?

- Fern: So I know, I've made comments on the strategic plan, but looking at it now I think it would be really useful to include how we go from early detection to rapid response, then some hints about how we do that. How we move from plant detection to possible eradication, or maintenance of it. I think maybe that would be a good thing to somehow add in here. I think what people look at when they come to MISC at a fair or wherever, is what is MISC doing about it? I get that question from Scott Fretz about various things that he hears about MISC doing or MISC goals. I know we've had the discussion before about why don't we deal with axis deer? Why don't we deal with blackbuck antelope? Why don't we deal with etc, etc. I think that might be something to have in the strategic plan, just how do we move, or the assessment between early detection and response, rapid or otherwise? Because miconia, for example, is a response, but it's certainly not rapid. So there's species that fall into that, same with coqui, that's a really high risk. But we move at it differently than if it were to be a brown treesnake found at Kanaha Wildlife Sanctuary, that sort of thing. I think it'd be helpful in the plan to have some sort of a segment describing how we move from rapid, or from early detection, to a response? And then it would be sort of like it was a flowchart rapid response, leading to eradication incipients or recommendation for containment by others, or by everyone in critical areas.
- Radford: I like that idea because it also offers transparency in the process of how this project works. How did the decisions get made to go from response action, eradication, management, wherever they may fall? Good suggestion.
- Fern: Another good example, one that's sort of not specified in my mind, is a skunk. How do we deal with a skunk? Like the skunk at Poli Poli or the skunk at Costco? Those are not resolved. Is that a rapid response, meaning Marshall and DOFAW are involved and we're going to just throw activities at it. Are they sort of equivalent to a brown treesnake? Maybe not.
- Radford: Or rabbits, rabbits are a really good example of one that we do respond to regularly, both on Maui and Molokai. So, yes, I agree.
- Fern: So anyways, last time I looked through it, I just thought, well, that's a section that's not in here that I think people would look through this in order to detect - how did they make the decision not to deal with species x, but they're dealing with species y? Maybe Kerri Fey knows from TNC, they must do some sort of a ranking for decision making processes.
- Radford: So, the question is, what kind of decision making structure does TNC have for taking on target species? And how could that fit into MISC's strategic plan or just using it as an example of the way you go through that process. MISC has gone through a number of iterations of a decision making structure, we do have that as well. But what kind of a system is in place at TNC?
- Kerri Fey: There is not a formal system, but if it's a habitat modifier, then we will go after it. Because we're protecting the natural areas, but not like any kind of framework.
- Radford: Well, I like it, that's a pretty yes or no answer.

- Chuck Chimera: I was going to mention something too. I don't know if anybody saw, Springer Kay had a poster at the HCC and this is specific for plants. But BIISC has been developing a target prioritization process for which invasive plants they should go after. It incorporates a whole bunch of different parameters, including, effect on ecosystems, accessibility of the terrain, the weed risk assessment results are thrown in there. But there's a whole bunch of other non-biological factors to consider as well. And one of them is funding. That is sometimes one of the most important factors. Here, we have money for you to go control this miconia so the MISC crew goes and controls it, because they're getting paid to do that.
- Radford: Good one, Chuck, that political element is really big. Another example would be, and this is absolutely true, is a council member who is completely committed to keeping our entire Hana crew employed. It's almost not even really about miconia. He's concerned about that, too, but it's job creation. That is a really big element to consider when you're trying to decide what you can actually take on or not.
- Chuck Chimera: This BIISC tool, I know in the ideal world, they want to plug in all the information prior to the control and say this is going to direct our efforts. But I've always kind of made the point that in the end, you're probably going to do what you're going to do, intuitively, but this kind of really thought out documentation is a good record to describe why you did what you did and then look at it later. When people ask, why did you target this species or this one? You have justifiable processes to back up the decisions you made. And if one of them is funding, you could say, yeah, that's the reason why we did it, because this work costs money, and we don't have unlimited resources or an endowment where we can go after whatever anybody wants us to. I'm sure Springer would be willing to share that with you. I'm not suggesting that MISC needs to use the same one. But something similar could be a good way to have a record and be able to go back 10 years from now and ask why did we go after this tree?
- Radford: I think you were there, Chuck, when we went through this a while ago in terms of strategic planning. Brooke created a spreadsheet that would auto calculate based on different factors. For example, risk, feasibility of control, etc. It's a good point you're raising and we have gone through this process during other meetings.
- Chuck Chimera: Yes, my point is that ultimately, what it comes down to is, you're not going to be overruled by some algorithm, the committee is going to still decide in the end what to target. But backing up that decision with whatever tool or process you use helps, as a historical record. It helps to explain to people and you can show the model for why you did it.
- Radford: Yes, exactly. Thanks, Chuck, for sharing that. I didn't see that poster, and I would be interested in looking at it.
- Fern: Maybe there could be an appendix. How does the Department of Agriculture decide which things are actionable species? How does MISC decide which are actionable species? We already heard from Kerri Fey, if it's really that black and white, it's like, oh, habitat modifier. Those sorts of things could be as an appendix. We have a model, our response that the committee takes based on what is known. If people are going to criticize you, there's something that you fall back on. I think that it would be helpful to have a 1.11 or something in the plan describing making the change from detection to response to no action or simply raising awareness.
- Radford: I agree. So it sounds like I'll make some amendments to the plan.

4. General MISC Updates (With Focus Areas Bulleted)

a. Little Fire Ants

i. Nahiku Blitz Surveys

- Monte: We did a blitz survey at the Nahiku sites, it's the first time we've attempted to survey the entire roughly 175 acres all at once. It was an ambitious goal that we did not quite achieve. But a huge number of vials were placed and a lot of data was collected. I feel like the data suggests that the aerial treatments we are doing are incredibly effective. There was almost two dozen people for about a week out there, setting up, laying vials and setting up a big campsite. 2,300 vials were placed. Of those, I think only 17 vials came up with LFA. Most of those had just a few ants in them. They were largely isolated to two small areas. Whereas almost the entire site had no LFA found. There's a lot more surveying that needs to be done. Brooke hopes to do another blitz later this month. Those are the basics of what has happened with the Nahiku blitz.
- Radford: Monte, correct me if I'm wrong, but it looks to me like the areas with LFA were on the makai side of the infestation.
- Monte: Correct. I don't know exactly where but very close to the ocean, and right on the edge of treatment zones.
- Radford: Right. Just to reiterate what Monte said, these are incredibly encouraging results and will result in a much smaller treatment area going forward. Monte, correct me if I'm wrong, this big survey effort we're calling the blitz is something we'll do every year?
- Monte: Yes, I think it needs to be done at least once a year. Based on what we learned in June, the blitz in June was two dozen people surveying for three days and only with about a third of the work done. A lot more labor will need to go into either preparing trails or the week itself or something like that.
- Radford: For the committee, just for perspective, we've been drawing pretty heavily on the Hana crew to help with some of the trail preparation and I know Fern you brought up maybe getting the DOFAW field staff to help as well. We're learning as we go on this, it's such a big effort. Really kudos to Monte and Brooke for organizing it. It's a lot of logistics, it's challenging.
- Chuck Chimera: Are you guys able to do any sampling above ground? I mean, like, arboreal, in vegetation above head height. I know there's really tall trees and stuff in there. But have you been able to check to see if there's any presence at the canopy level, but I just mean something other than ground placed vials?
- Monte: The answer is not really. Often, we'll place vials as high as we can reach, especially in super susceptible trees, like mango trees, and bananas. We have experimented a little bit with shooting vials up into the tops of coconut trees, and leaving them there and then pulling them back down with a crazy string system. But we haven't really pursued that in Nahiku. My sense from other sites is that if there are ants that have retreated to the top of a tree and are hiding there, and whereas everything else is eradicated, they're found below the tree fairly easily because they fall out of the tree, or they routinely reach the ground, or eventually reach the ground. So it would be great if we had an easy way to regularly survey the tops of these tall trees. We talked about using drone imagery to try to figure out which trees are the ones where an ant colony could live happily, never touch the ground, because they're so high up and finding ways to target those for treatment or better survey.
- Radford: Chuck, the other thing we've talked about just in general is, especially with that site,

because it's so big, is random sampling. Using grids, essentially, and try to just have a sense of what's going on. It's big and so time consuming to do all of that survey work. I'm not saying it's not worth it, it absolutely is, but it's a challenge. We could use an army, we could actually seriously, if somebody knows how to deploy the National Guard, we could do that.

- Monte: The Nahiku site, to be honest, that's the one site where I'm least worried about ants at the tops of the trees. Because the bait is being applied from above, whereas everywhere else it's applied from below. In Nahiku, what we were most worried about is that ants would survive on the ground, not in the canopy, and if the bait never trickled all the way to the ground. The survey suggests that is not the case, that there are no ants on the ground throughout most of the site. Whether that's because we couldn't get into really dense areas or not remains to be seen.
- Radford: I think everybody at this meeting knows, but there's a ton of hau out there. It's a lot of uluhe and it's a really hard place to work and be systematic. So, the aerial application is huge. I mean, the other indicator to me, from having actually helped with the surveys as well, is nobody got stung. Which is how we found the infestation to begin with, the Hana crew found it.
- Knox: It's important to remember, most of you have seen on the maps, it looks like a giant honeycomb grid of 1,000s of these, essentially honeycomb spots. That's the guide to have an even distribution in the sampling. That's why it's so important for us to do these blitzes because we're trying to cover each one of those little honeycombs for the whole thing. So we have the real distribution mapped out. I think like Monte said, we're probably a third, maybe close to half of the way there. Until we get everything surveyed, we're reserved and saying, this is working but there are unknowns. We're saying that the results are very encouraging, because they are. But the goal is to try to get that even distribution sampling, so it's really solid. So we can go to our partners on Guam, we can go to our partners other places in the world and say, here's the full body of work, these are the results, this is how we did it. We're working to try to get that prepared. But having been in there, and having seen some the site analyses that Monte and Brooke have done, it's extremely convincing already. Monte, I don't know if you mentioned the analysis you guys did, where you basically had a sampling that ran right through the middle of the infestation, and then continued going well outside the infestation. That shows when you're in the infestation, there's no ants found at all, because the bait is killing all the ants, right? As soon as you get outside, you're starting to find a variety of different ant species. Luckily, no fire ants, but you're finding this variety of ant species, which would indicate that the bait is working. There's a lot of little tidbits that we have gone to in order to help us along.
- Radford: We're still counting LFA in the vial to give a density estimate. Even if you find LFA where we knew they were before, are there more or less? It's clearly less. Right, Monte? At some point, we will publish this in a paper, but we're not quite there yet. It's pretty exciting. Like Knox said, we have partners from Guam and French Polynesia, and lots of other places really interested in what we're doing.
- Chuck Chimera: This technique is still emergency use authorization just for the Nahiku site, right?
- Radford: That's correct. It's a special local needs label that's just for that site.
- Chuck Chimera: It sounds like a really promising method (aerial application) for any tree infested area. Even on Maui, where you can't get good coverage from the ground.
- Radford: In an ideal world, if it was my helicopter, I'd be all good with that. But our vendor

who you know, very well, is a little hesitant to do that kind of an application in a residential setting. That is a limitation on that approach. But I agree, I actually think this is perhaps more effective than our ground approach. But also to clarify, at a lot of our other sites, where we've had big palm trees and other things, we've had tree trimmers help us apply baits and do sampling. We've tried to explore every option, really. We try to be three dimensional in our approach, regardless of the site.

- Monte: I would just add that if any of you missed Brook's presentation at the conservation conference, I think they're all available to the public now. There's a lot of good maps, explanations, but I'm happy to answer any questions if anyone else has any.
- Fern: I want to thank you and Brooke, for all the work you do, this is really amazing. Good work protecting Maui.
- Monte: Thanks. I have to confess, I'm not as involved in Nahiku, as a lot of other people are. Folks like Brooke, Darrell, Shane, Mikiala, Betsy, Joe, and Adam Knox have been main drivers of that work.
- Fern: It's amazing work that you're all doing.
- Radford: Thank you, Monte, very much for joining us and for taking the lead on the update. I appreciate that.

b. Coqui

i. Acoustic Monitoring

- Susan Frett: We've had 17 monitors out since January. Conservation Metrics (CMI) started giving us reports on those in early June. This is from July 22. They were able to build the algorithm and it's able to recognize calls per minute. Also, they're doing something, I think they're calling it energy per minutes or sound to noise ratio, it's a new kind of way to analyze data for them. They're still figuring out how to describe it. But I think I understand it best as the level of noise at the site, of the frogs. It can distinguish between, a lower number of frogs that are maybe more spread out versus the sites that are an insane level of frogs. That's shown here. The number of calls per minute is shown by the height of the graph, and they are able to go up to 30 calls per minute. The ones that are all the way at the top, those are 30 calls per minute or beyond, that's just what they could parse out. Then the color is that sound to noise ratio. With the more yellow equals more, which I always get a little confused by because I feel like purple should be more but if you look here, we have the monitors spread out. What they wanted initially was to be able to have a good range of coqui levels so everything from just a few frogs to a lot of frogs, so that they can get that set up in their system. We have quite a range here, the middle of Maliko it's pretty high. But then we have Lani Kai, where the crew has been doing a great job to make it quiet. It's super, super low, and not much of that energy. It's really interesting to look at this and compare it to what you know has been going on at each of these locations. Now we've moved into a phase where we've relocated a few of these monitors, we've also purchased a few more monitors. We were able to use some UH Foundation money for that and put those out too. We have a couple new monitors out at the Jaws location and then a couple that are in the Loki Lau Gulch that's adjacent to Maliko in the Haiku mauka neighborhood. We put those out at least three weeks ago, and the CMI people wanted us to put the monitors out and then leave them for three weeks with no treatment, and then go in and blast the area with citric and then leave the monitors for at least three more weeks and send them those data. They want to look at what kind of effect the spray treatment

had, and also start to judge the rebound of the frogs after treatment. So we'll be getting that. The next time we plan to check the monitors is the end of August, and Carl has been taking the lead on being the one to check the monitors. I think the coqui crew will take on the couple monitors we have at Jaws since they're doing a lot of work out there right now. We'll have more information on that probably by the next meeting. So far, it's really interesting, we've got a few more things here. This is analyzing the calls per month and they were able to break that down. This is really cool, it shows each of the locations with the coqui monitors showing the amount of calls and energy per call based on the size of the dot and the color. This monitor is the Haiku Hill neighborhood where we have the community program that has been going for the longest. They actually skipped both of their second quarter spray weeks because they didn't have any frogs calling that they could reach either with the pipeline that they have installed in their neighborhood or by the truck. CMI, when they first showed us this, they thought something was wrong with this monitor. It's on the edge of a bulge, but it's showing a really low level of frogs. We thought that was probably indicating the level of success that they've had in Haiku Hill with their community program. Umi Falls is the closest next monitor and see it's a much bigger dot. Here's the Haiku Hill activity per night, and then Umi Falls is this one. It's a lot higher and I talked about this a little bit in my HCC presentation, too. It'll be really interesting to see what happens once we're starting to compare the actual spray operations with the acoustic monitoring. They also noticed with the data that we sent them for June, a big drop off in all of the levels, and they didn't think there was something wrong with our algorithm. We thought that was probably because of the weather, it started to get really dry, and the coqui noise dropped off. A lot of the locations, like Haiku Hill, went down to nothing, even Giggie Hill is really low. You can see this drop off from what it had been, and some more than others, but it's definitely kind of an interesting thing. We have one weather station out in the Haiku mauka neighborhood. I also got weather data from Jay Penniman where he's been collecting weather information every day for years. We've got that to compare this information to at some point, I haven't done anything with it yet. But I think it's definitely interesting to be able to compare the weather data to what we're seeing with the frogs, because we all kind of know, anecdotally, they get quiet when it's dry. So it'll be interesting to see that in the data as well.

- Fern: That's really excellent. I wonder what effect rainfall or drought period has on them. From their locations, if we got torrential rains would they be pushed to a new area?
- Susan Frett: It's hard to say. But I'm starting to draft a proposed webpage to share more information about this with folks that are interested in the science aspects. Hopefully, we'll have something for that out soon. I can share it with whoever's interested or you can find it on our webpage once we get that published. It'd be good to share this info with people that are hosting these monitors on their properties, they are really interested to find out what we're learning. We've been trying to keep them updated at least verbally when Carl and others go to the sites.
- Radford: I would just add one comment about it. I agree. It's really exciting. But also what we wanted to do was have essentially a third party assessment of if we're making progress or not. So that's why we contracted with Conservation Metrics.
- Forest: What is the cost per year for the Conservation Metrics?
- Radford: It was just over \$35,000 for this contract. That included building the algorithm. Plus the cost of the monitors, so let's say around \$40 or \$45,000.
- Susan Frett: I think the monitors we're using, the minis cost \$500 apiece, plus, if you want two

microphones you have to order them separately. The little microphones cost about \$75 apiece.

- Radford: The goal for this project, what we talked to Conservation Metrics about, is for them to build the algorithm and at the end of the day, they would provide support services, but for us to basically continue this work on our own.

ii. Coqui Barrier

- Knox: We had an opportunity with the CIP funding from the state to work with DOFAW on constructing a coqui barrier in Haiku between 2.5 to 3 miles or 5 miles, depending on, I guess, the section, if you will. But the idea is to try to put up this fence to mitigate the coqui movement in some of the high risk areas or areas with the most traffic, gulches, and at strategic choke points. We've been moving forward with this for the last two years and we've gone through the whole iteration of trying to identify the sites that make the most sense, from a priority perspective. Abe has done a really nice job, looking at all the data from yesteryear, as well as current data, and knowledge of the whole landscape and trying to put together feedback on prioritized areas. We decided on those and moved through the procurement process, all the items that we needed, and put a whole proposal together. Peter Landon, Scott Fretz and Fern have been really helpful in getting this all going. We have a lot of the materials, I think almost all the materials on hand now to actually construct this fence. The next step is to start the bidding process to actually have a contractor bid on the job to build this fence. The next phase is a pre-bid conference where we're going to invite people who are interested in bidding to come out and we're going to walk them through a tour of the sites and explain exactly what it is we want them to do. Hopefully, we'll get a bidder who wants to do this job and will have it constructed, we'll be in a consultation and oversight role. That's where we're at right now, approaching that phase. It's an exciting project at two injections at \$750,000 and we've got a few years to complete this. It's pretty specific and unique work. The difficult part is the vegetation removal, and brushing to make this fence work as it should, each side has a 20 foot buffer to try to mitigate frogs from jumping in the trees and over the fence. Some of these areas are extremely dense with really difficult vegetation. Our big interest is just to find contractors who have the machines and the talent, and expertise, to do that type of work. The fence itself is also unique and no one's ever really done it on this scale. We've basically taken a design that CTAHR put together many years ago and improved upon it. It's going to be a pretty big fabrication effort for whoever takes on the contract to weld everything together and put all the raw materials together. It's exciting because I think it'll be a great demonstration project for the community to see as well. We already have community members, and Abe might be able to speak to this a little more, who have constructed their own barrier fences that have a similar design based on what they had seen. We're actually hoping to tie in this fence into some of the barriers that community members have created themselves. Hopefully that'll spawn more of the community to take that initiative as well throughout the Maliko area. The design has a 90 degree angle at the top and overhang because the frogs can climb up, but they can't really go inverted. The mesh material itself is not conducive to them sticking to it. So it does have some unique properties that are anti-frog, if you will.
- Radford: Thanks Knox. Any questions?
- Elizabeth Speith: A very future thinking question, are there plans to procure funding or do a multi-agency approach to maintaining the fences after they are installed?
- Knox: Good question. It's one we haven't fully worked out yet, which is going to be, I think,

the crux of this whole thing. I mean, what good is a fence if you can't maintain it, right? Once it's built, sort of leverage its utility into trying to get more resources to maintain it for the future, whether that's a contract or funding, or whether it's through our own staff with increased resources to MISC. It's definitely on our minds, how we're going to do this moving forward and keep it maintained for the future.

- Radford: It's definitely on the conversation list for us, we've been talking about it and have a bunch of different ideas. But like Knox said, we'll build it and see who comes in, we'll figure it out from there. It could really, potentially, be a full time position just to maintain it. We recognize that. It's a really good question.

c. Outreach and Education

i. In-person Outreach Events

- Radford: A question I wanted to raise to the committee, thoughts or feelings about doing in person events again? We're getting a lot of requests for that and just wanted to see how we should respond. And Serena, you can weigh in as well.
- Serena: We got some verbiage from East Maui Watershed in their protocols that they've been using with COVID. It just shows how fast this has been spreading with Delta and PCSU is still deliberating with the governor's new mandate that he put out yesterday. I don't feel comfortable right now going in person in classrooms. My only caveat is potentially outdoor spaces. But even at that level, I don't know if this is the right time to go back in person, unfortunately. We've had a lot of requests to do in person classroom visits over the last couple of weeks with schools resuming. But I'm assuming that with the changes in the state mandates that also may be changing as well.
- Fern: I think it's really the correct decision to sort of stand down. I don't know whether there's a zoom way to accommodate some of these teachers that have requested things or not.
- Serena: Absolutely, yes, and I've been able to do several virtual classroom presentations, presentations to the master gardeners, townhall community meetings, etc. It definitely is possible. I've been also working on and have been implementing sort of a quasi-hybrid home curriculum where I can come in and do a presentation in the class. But ahead of time, I'll drop off a little fire ant testing kits or other materials that we would usually provide, with some modifications to the curriculum. I think Monte was saying that they've gotten the most LFA testing kits back at one point, because we have 200 students out there testing at their school and in their backyards, and, it's a good practice for them to do and to take home as well. With all of the current factors, I'm okay with going back to virtual, I don't know if we can quite get the reach that we've had during in person outreach events, and classroom visits. But I think we can still reach a lot of people on this platform, and people that are comfortable and familiar with it too. But any suggestions from you folks on ways to further reach out virtually? I really appreciate all of your recommendations.
- Fern: I think that what you're doing is correct. I think it's a good use of time to look into virtual possibilities, because some people are now saying that COVID is going to be around for two or three years into the future. We're going to have to get even more used to virtual audiences and programs, likely. I like the idea that you're taking some of the props if you will, to the classes beforehand. That's a really good move.
- Radford: What Serena has been doing, dropping off props and testing kits to facilitate activities for the kids seems like it's been really successful so far.
- Serena: Yes, they're not only testing in the schoolyard, but they're testing at home, which

previously if we were doing in classroom outreach, maybe not have been happening. It's another good way to teach the students how to do this and there's the potential to find ants. With the Maui Mauka presentations, we had some discussion about doing in person hikes with certain partners. We're all working together and each agency is a little different. And so again, with everything changing, that might not be an option anymore.

- Abe: I'm just wondering what everybody on the committee thinks about investing some time and resources into fully transferring the Hō'ike o Haleakalā curriculum, etc, even Maui Mauka into a full online course structure that will allow full scalability. We can reach the entire state and the world actually, in a way that we could never could in person, not saying don't do in person, but to have it into a modern course structure for engagement with that large reservoir of material that I know appeals to more than just school kids.
- Serena: That's actually something that Allison and I have been talking about. Right now, increasing the capacity of the Hō'ike o Haleakalā curriculum is difficult for us to do within our own capacity. But that is a good segue into if we wanted to discuss the position for the Hō'ike o Haleakalā curriculum and Maui Mauka Conservation Awareness Training person. That was something we talked about, and I don't know if this is the appropriate place to talk about that. But if we did have that capacity to scale up Hō'ike o Haleakalā, that's definitely on our radar. I've personally been in touch with a lot of teachers as well, just reaching out to my contacts to share that this curriculum exists. Like Abe says, out to the world, it'd be great but at this point what is our capacity to scale up, it's likely not feasible.
- Abe: I'm not suggesting doing it all at one time, because you could also pick one lesson and just transfer that in. In the same way that you can only teach one lesson at a time when you go into schools. I think that's something we could look at within our capacity, whether it's you Serena, or whether it's Susan, who's a community engagement person, or anybody else can get quite a lot done in the same amount of time it would take to drive to a school, do that and come back, piecemeal over time. Definitely build it with a vision and consistent effort.
- Fern: It sounds like an intriguing idea that I think should be explored. I was wondering, Serena or Abe, if you're in contact with Jeff Bagshaw, he does outreach and education for DOFAW, and plugging into that. Or reaching out to the HEEA, is that something that you're already contemplating, it could be an assist to getting this done.
- Serena: When I was on the board of HEEA, I really tried to push Hō'ike o Haleakalā for some initiatives that we were planning but weren't able to do because of the symposium. But now at the upcoming symposium this year, I did reach out to Meredith Spiker, who's their chair to just offer any help and also share this curriculum since it's something that they are trying to disseminate, especially with place-based curriculum around the state. But yeah, I definitely would love to reach out with Jeff and work with Jeff a little more.
- Fern: That'd be good. Jeff is for Maui Nui district and Joshua Atwood is on the statewide level. Jeff and Josh work together. So that's another good thing to investigate.
- Serena: Absolutely. Maybe I'll touch base with you and we can touch base with them as well. I would just like to say for Hō'ike o Haleakalā, before we start scaling things up, I'd like to first talk about that position. That was in the work plan, I think, and a part of the position description for that. So before jumping the gun, maybe outside of our capacity, exploring that position to scale up. Any other thoughts that you folks have on in person outreach, or ways that we can better adapt virtually? I know you folks are doing a lot of different work in your own organizations. I'm also involved with the HISC Public Outreach Working Group and also check in pretty frequently with the other ISC outreach staff. We check in with each other

pretty often, along with Beth.

- Radford: I would just offer one comment about that position, which I'm still supportive of. One of the questions we were facing was, what does it look like? Because it's not a full-time job. How could we potentially combine different duties into a full-time job? If it's not a full-time job, many people are not interested. So just raising that as one of the challenges with the position.
- Serena: That would be good to talk further about because I am a little confused, too. I know it was part-time. But then, I think in one of our last conversations, when we decided to close the current opening, to re-evaluate and re-recruit, there was some discussion about it being a full-time position. But if it is strictly part-time, even just 10 hours a week on Hō'ike o Haleakalā would do a lot.
- Radford: I agree. Well, I think that my point is just that as a management team, we need to revisit this conversation and figure out what we're trying to recruit for. And, the reality is it gets back to the question, do we have an ideal candidate that would be interested in it? Anyway, I'm just raising that it's a little more complex than just hiring for the position. I agree with you, Serena. I'm totally supportive of it. It's just figuring out how to make it work.
- Serena: Absolutely. I do have several interested candidates. When the last round was happening, I was spreading the word about it and still have people who are interested. So I don't think that would be a problem trying to fill it.
- Radford: Good.

d. Funding

i. General Update

- Radford: Funding, I don't know for sure what we're getting from the county, but my suspicion is it's basically flat. That's what all appearances suggest. That'd be \$2.46 million from the county. Again, I don't know, all our proposals were submitted, but I haven't gotten a final word on what we're actually going to get. With the state, with the HISC funding, they're still adjusting a little bit. It sounds like we'll be at \$838,116 with the state, which is \$10,000 more than last year. I'm actually quite happy with that and then you add in roughly \$100,000 in random funds, so other grants and donations and things like that. I guess at the end of the day, the short version is we're at least flat if not a little bit flush from last year. To me, that's really good, given the current climate we're in and general challenges with the economy. My big thing with funding, though, that I would raise just as a consideration, is I really want to do raises this year, which would be in October. We haven't done raises in years and I feel that's really unfair, and was part of my argument to HISC during their budget deliberations. That being flat is not necessarily flat, given the increasing costs of living everywhere. Anyway, my goal is to do that in October, and that'll be when we'll know with certainty what our budgets look like with the state and county, but right now, it's looking pretty good. Sorry, that's a pretty fast update, but let me know if you had any specific questions.

e. Response to COVID-19

- Fern: We're getting close to where we can consider severe levels of COVID. So that does a lot of things. For helicopter operations in the state, it would mean only sling loads, no personnel transport. One person per vehicle or for a special request, we could get two people who are vaccinated with masks in a vehicle with windows down, but that has to be authorized for whatever the activity is. The state has a deadline of close of business on the 16th to have

vaccination status of personnel. And of course, the thing that is out there is that if you're not vaccinated, you must do testing two to three times a week. What are the university's procedures going to be?

- Radford: It's problematic. On Molokai, our crew hasn't been in that office in over a year because that's TNC's policy.
- Kerri Fey: I'll comment on that, and then I have another question, but it's kind of unrelated. So, TNC was just about to go through a process where we were going to determine if offices can open back up again, and then the second round of COVID hit. We haven't really heard anything yet, we're kind of in standby mode, but we are able to do essential field work. I think it's two people per truck, windows down, masks on, and then we distance in the field. We can have meetings if everybody has a mask covering on and we're outside or it's open air. But, I have something else I wanted to bring up that I'm curious about - the rose-ringed parakeets. I have witnessed them on the west side of Kauai and they are really bad. I'm just wondering what's happening with those?

5. General Partner Updates (& Rose-ringed Parakeets)

- Radford: We caught one and we've been working with a bunch of different partners to catch more. What happened was, we thought we knew where they were, and we went with mist nets and everything and they weren't there. Recently, though, we found them again. We need to figure out how to actually capture those that we know of. To our knowledge, there have been five recently on Maui and there are four left, and one is in captivity. Knox or Fern, you can expand on that if you'd like. That's the gist of it, Kerri. I would suggest if you have more info or want more information just contact Knox or me or Fern, but it's pretty simple right now, there are four birds left and we have to figure out how to catch them.
- Susan: Can we talk briefly about Maui Orchid Whisperer?
- Marshall: Last night we did a survey over there. We talked to Mark, the property owner. I'd say there were probably over 20 coqui in the nursery, but in the surrounding area, it didn't sound as bad as I thought. But we definitely are doing the same thing with Kihei Gardens. He's going to have to come up with a written plan for his nursery and I told him that MISC isn't a pest control company, you have to take charge of this yourself. They're looking for ideas of how they want to move the plants to their new nursery. Maybe if everything was bare rooted at the site now and dipped, it just sounds unrealistic to even bring plants there from his old nursery. He's working on that plan now. I told him right now he's not allowed to move plants out of the nursery. We actually have authority over him because he's a certified nursery. That's the reason we can do that. Kihei Gardens came up with a written plan. I don't know if you had time to look at it Abe, it wasn't that impressive. But I think the first thing they wanted was to decrease the amount of coqui. Aut and I were both told them that they had to eradicate it. It's not about just limiting the numbers in your nursery. So they're still working on the plan. We gave them a few pointers on their plan for what they needed to do. That's still an ongoing process. But I do believe we need to go ahead with the county council like we discussed. I think that just has to go in motion. I'd love to hear what you guys think. But that's kind of the situation right now. It's ongoing. He has obviously been working on this for a long time. Did you have a chance to look at the plan, Abe?
- Abe: Yes.
- Susan Frett: We did start a draft of a letter to be sent by the county council. That's in the

works. But I was going to let you know, I got a text from Alexis this morning. She wanted to know if they could use or rent one of our acoustic monitors, because we have one in their nursery right now. She's asking if they could rent one or use it or buy one to put in their new place. Because they want to make sure they don't bring anything to the new greenhouse, and the Department of Agriculture is threatening to take their certification away. She also mentioned taking everything out of its pots and treating them.

- Marshall: They had so many plans, and it didn't seem realistic to me. I didn't say yes or no, I just said, let's see what you can come up with. There's a lot of literature out there, start reading. I didn't want to give them all the answers. Talking to Mark, he said, as soon as those guys move out, he's going to scorch the earth the place. He's not sure what it means. But he said he's going to get radical over there.
- Radford: So the county council, I'll start on that today. But the first step would be just talking story with the members, making sure they're on board.
- Marshall: Yes, get that in motion. Keep the pressure on Kihei Gardens. I feel like we're not going to DLNR quite yet. We're just going to have these guys make progress on their written stuff. But I feel like we got to get the county council involved.
- Radford: Yes, I'll work on that today. Any other thoughts?
- Abe: I think we're in agreement about plants not moving from the orchid nursery because that's going to move frogs.
- Marshall: Is there any possibility that they could be confidently treated?
- Abe: Maybe, but I would put money that frogs would go there, even if they did it. It may be a lot of money.
- Chuck Chimera: I just had one real quick update. Randy Bartlett left the HISC interagency coordinator position. His position will not be refilled for now because Josh Atwood's old position is now being funded by HISC funds. So to save some money from that they're going to leave Randy's position unfilled for now and people like myself and Elizabeth Speith are going to be picking up some of the responsibilities that Randy had in the past. For now, it looks like I will be the HISC representative for future MISC meetings as well as Elizabeth Speith.

6. Action Items

- Check stats for MISC Meeting Minutes on website.
- Strategic Plan: Transition from detection to rapid response, how do we decide what is an actionable species? Add an appendix. How do different entities make these decisions? Addition to strategic plan.
- Explore more online learning options for Hō'iike.
- Outreach on the aster. Next Kia Moku article. Get out info and request reports. Pest Alert.
- Find someone who can read the Portuguese articles on the aster.
- Reach out to Mahi Pono, Leeward, West Maui re: the aster.
- Research the best way to control the aster on Maui.
- Explore possibility of helicopter or drone survey to define the core.
- Maybe do a press release in the spring.
- Figure out permission access.
- Get the MOU back from NPS

7. Next Meeting Date - December 2, 2021

8. Pau