

MAUI INVASIVE SPECIES COMMITTEE
DRAFT MEETING MINUTES
Thursday, November 19, 2020
9:00am – 12:00pm

MEETING AGENDA

ATTENDANCE: David Duffy, Adam Radford, Adam Knox, Elizabeth Speith, Elizabeth Anderson, Forest Starr, Kim Starr, Fern Duvall, Monte Tudor-Long, Lissa Strohecker, Kerri Fay, Serena Fukushima, Brooke Mahnken, Marshall Loope, Carl Schwarz, Teya Penniman, Susan Frett, Woody Mallinson, Robert Hobdy, Erin Johnson, Makalea Ane

- The meeting was called to order at 9:00am by Fern Duvall, Chair.
- Introductions were made around the Zoom screen.
- Minutes from the June 25, 2020 meeting were approved. They will be posted on the MISC website.

Response to Covid-19

- Knox: As you've probably seen from the last minutes our operations were impacted significantly by Covid-19. We've managed to continue working through all of those challenges and have a rhythm now, it's kind of become the new normal for us. We've recently updated our vehicle policy, which is helpful, more of an on-demand real-time analysis of risk, as far as how many people are in a vehicle. Radford: What that means is we created a, or Knox, created a spreadsheet that he updates regularly. It tells you how many people can be in a vehicle. It has been really helpful. Knox: It's based on positivity rate on Maui. We're still doing helicopter operations, we're still wearing all of our PPE, masks, etc. Our new facility, luckily, is rather large compared to Piiholo, so we are able to maintain social distancing. We've continued to do the best we can while following all guidelines coming from the various sources: the CDC, the state, the county, the university, etc. We're hoping to get more vehicles soon, we're still waiting for new vehicles to come which will help with our two people per 4-door vehicle policy. We still have quite a few people using their own vehicles and getting reimbursed for mileage. Reimbursement allows staff to meet at worksites and minimize exposure that may occur if riding together in cars. It has not been too much of a problem for staff. The administrative aspect is quite challenging, so thanks to Elizabeth for handling that. Elizabeth: Actually, thanks to Erin, she's the one who has been processing all of the paperwork and it's been quite tedious but she stuck with it. Knox: Well thanks Erin. In February we were all biting our nails, but we've done a great job of making it all work. Anything else to add Radford or Dr. Duffy?
- Dr. Duffy: Please everybody, keep safe and follow the rules, because if we do get a case then there could be a certain amount of hysteria, even though it's more likely that people would get it from something other than work. We really can't afford to have MISC perceived as unsafe. Radford: Thank you, Dr. Duffy, for helping guide us through appropriate action. Knox: Thanks, Dr. Duffy, it has definitely been helpful. We've had a

strong response and expect accountability when it comes to following the rules. We'll continue to stay on that. Dr. Duffy: MISC is probably the leader of PCSU projects in terms of how you are dealing with Covid, and people have stolen from your methodology. So, thank you.

- Fern: Question, I know how it works for the state, but if you have somebody who calls in sick and has gone to their doctor for testing, what is the protocol for MISC? Is it that they stay away until they are given clearance or an additional 14 days just because they thought they had symptoms and have gotten tested? Do you know what that is, what MISC would follow? Knox: Typically, what people have done is if they're sick they stay home, but most of our staff that have been sick have voluntarily gotten tested, and have voluntarily reported those results. That's how we've been operating, as far as protocol, I don't know that we have an ability to mandate that someone tell us what their medical information is, but for the most part, people have been really open about "I'm sick, I'm going to get tested," and it's functioning that way. But I'd be curious to know what the state, if they have a protocol regarding that, reporting requirements or guidelines are. Fern: I think I've shared them before. But just going from memory what they'd be - If you are sick or someone in your house is sick, potentially has Covid, you do not report to work until you have negative clearance. If there is any situation where it's still wait and see, because so many people show no symptoms of it, even though there's been somebody in their bubble, if you will, there's still a 14 day waiting period. If we have staff that goes off island to do work on Molokai, they do a 14 day quarantine before they go back to work, like everybody else, and there's a restricted schedule for who they are interacting with instead of the majority of the people they might run into, so it really has breadth, it has rigor and logical consequences if there is an issue Covid related. So far it has kept everybody healthy.
- Knox: Yeah, we've been trying to follow what medical providers are recommending. We've actually had instances where people are sick and despite them having a negative Covid test, their medical provider required them to still do a 14-day quarantine. So, we've had a few of those interesting situations, but we've worked through it. We haven't had a situation where someone is sick, with Covid symptoms, coming to work or not reporting it or being forthcoming with their plans. I think we've been lucky on that front, because Covid communication has been pretty strong. Anderson: Luckily, there is a special provision for sick leave right now, so if we do ask people to quarantine for 14 days and not work, they're able to get emergency sick leave, which doesn't impact their regular leave balances, and that has been helpful. Knox: It serves as an incentive to take all precautions.
- Fern: Is there anything more to share? Anyone else? Any questions or input? Radford: The only other thing I would say is that Kerri is on the meeting, and not that many other partners, but if you want to see our updated protocols, we'd be happy to share them with everybody, just let us know.
- Forest: Kure Atoll, I don't know if you guys saw the article, they just came back from their summer field camp, which started in Feb., so they missed the whole Covid thing and came right into the middle of it. It is odd times that we're in, and I think we're doing

exceptionally well and moving forward. It will be nice if and when we can come back to normal, but I think we're doing fine as is.

- Fern: Marshall, does the Department of Agriculture have similar protocols to the Department of Land and Natural Resources? Marshall: Yes, pretty much the same, don't report to work, get tested, and 14-day quarantine.

Facilities / Moving

- Fern: It'd be good to get an update on the move, and the thing that really intrigues me is how well it will work to have a conservation campus. Old Maui High seems like a gem for proposing that.
- (Screen-share) Knox: This is a west, northwest facing shot of property with a drone. This is Old Maui High School, the site of our new facility. On the right-side of the screen there are two buildings, we're in the farthest right, that's our new office. It's analogous in space and size, maybe a little bit bigger, than the two yurts as well as the locker room where we used to have the restroom and everything. The challenge right now is that we have unreliable internet, we're working on that and hope to have that resolved in the next month or so. We have power, which is good, but we don't have water. That's a complicating factor of the property, but we're also working on that. Adam, might share some updates on the water situation. (Screen-share) Everything, basically, from the tree line or the hedge to the top, you see a driveway, there's two driveways, that's our new one, right there, everything to the left of that, where Adam's cursor is going, that is our new operations area. We were extremely lucky, and for perspective, just to back up, this entire property was completely overgrown, really difficult to just walk around in. Most of what you see in the bare ground was tall cane grass. Between our staff and with help from the state guys at DOFAW, they brought in their machines and moved some stuff for us, got vegetation cleared so it was workable. They brought in gravel and hauled trash for us, so we have some roads through the property we can utilize to access basically all of the infrastructure and area designated for MISC use. There are 4 concrete pads, I think they were footers for the old chicken houses, so we have nice concrete pads where we can set-up crew meeting areas. Hopefully, we will have containers on there to have small individual baseyard units, if you will, for storage for different crews. That's a primary goal. As the road goes back, in the middle of the screen as well, you see this big white concrete pad, that's another area where we are keeping a lot of our equipment, our forklifts, some of our citric acid, pumps, it's another really useful space. If you think about it, at Piihola, we just had that little tiny concrete pad right next to the locker room, now we have all this usable space we can use to fix things and store things, and drive our forklifts on. Then, as you go farther, we have this old basketball/tennis court, and this was completely obscured, it had trees growing up through the middle of it, we didn't even know that there was concrete underneath here. This has been completely rejuvenated and revitalized, and it has got containers on it, right now. What we hope to do is bridge the gap between these containers, with a steel roof, so we have large 3,000 or more square feet covered areas. That would be primarily to cover our citric acid inventory, I think we're on par to get 600,000 lbs., as well as cover our coqui barrier

project supplies. It's an extremely useful space, and as you can see in the front we have a giant field and ample parking compared to what we had at Piiholo, so we're really excited about having lots of space for staff and visitors to park. Like Adam said, we're in phase 2 or 3 of 20, we're still working on it here, there's a lot to do and improvements to make, but we're way farther ahead than where we thought we'd be at this point in time. I think that's mostly accredited to the DOFAW team coming in with their heavy machinery, and also our staff. Our staff are super excited about this property, you can see it in their faces and their eyes, putting stuff together, working on different projects. People are making it their own, which is great, sort of in a fingers-crossed situation here with getting that long-term lease. We managed to have a really good relationship with Friends of Old Maui High and we're just hoping that we can move things forward and finalize a lease with the county.

- Radford: Thanks Knox, that's a great summary. It's very exciting for sure. Maybe Teya, if you want to weigh in on this one too, because Teya has been dealing with most of the right of entry and long-term lease issues.
- Teya: Sure, I was also going to give a little bit of an overview for people. Knox, if you could put up the other picture, the overview to orient people, to see how this fits into the larger scale. The main thing I also want to acknowledge is the county, RCUH, and PCSU. We would not be here without the huge support of the county, thank you Makalea for everything you did to help move that forward. Also, the parks department has been super helpful and supportive. And RCUH/PCSU, we've had so many meetings to move this forward, so just want to give a big shout out to everybody for helping make this happen. (Screen-share) This is just that bigger picture overview, it's not completely how it is now because they've added the gravel to the roads and there has been more clearing, but just to see and highlight the area we've looked at. All of the rest of that at the top part of the picture is the historic Old Maui High School and we're in that building there. Friends of Old Maui High is in the building right there. One of the things that the Friends wanted to be sure of, even though we are so big, is that we aren't really visible, when people drive-by or come onto the property, they don't see MISC but what they see is still the historic part of the property. We're really working to make sure that stays true. The other key thing that we are working on now is to get a longer-term lease, currently we're under a right of entry. While we're functional, we don't have running water, and that's super important. To make appropriate kinds of investments in the property, we're going to need that longer-term lease. And as part of that, of course, we need to have the community support and engagement to ensure that the community is ok with it. But the county just recently spoke with Lyell from the parks department, and basically, we can submit a proposal for a 60-yr lease. It would be awesome for MISC to have that kind of long-term pass, this is where we are, and build up the infrastructure. Down the road, of course we're excited about the possible expansion for it being a broader conservation campus. That would be a part of the visioning process with the county. And I would also just open it up to Makalea to see if she has any comments, or thoughts, or perspectives on it.
- Fern: You touched on three things I wanted to ask about: lease progress – what are we looking at, is it something that's going to happen in the next couple months, is it a longer-term thing, more than a couple months from now? Is there/do you need collaboration to

go to the county to work on obtaining a long term lease – what’s the actual status of that? Has there been progress on when and how for the public meeting? What is the progress for obtaining water, what collaboration is needed for that?

- Teya: Good questions. The lease process: we have the application form that the county would like us to use. One of the things we’ve been waiting to find out is the potential duration of a lease, we recently got clarity on that, it affects whether the lease is between RCUH or University of Hawaii. I think we’re already leaning towards the University of Hawaii because anytime you are doing facility type things, they’re going to get involved. The right of entry right now is with RCUH, that was a simpler way to do that. So we have clarity on that. One of the things we need to do is have a clearer plan, a physical written graphic for where things are going to go. That’s something I see as one of our next highest priorities, to collectively put together a draft plan. I’m looking at you, Brooke, for some graphic help in that department. But I also want it to be something that is not just the, you know, those managers who sit in the office, but not to say all managers in the office, but to get the input from the people who are in the field, like what’s working, and what’s your best-case scenario? Or what a functional operation would be. I know Brooke, you already have that. What about for coqui project for example? At any rate, this is our opportunity to make it how we want to make it as well as thinking longer term.
- Fern: That would be one for what MISC foresees the site to be like. But is it going to be an impediment if we don’t have public input before it’s completely clear where and how MISC is going to do things? I know that the state regularly runs into problems like, “Oh, well, why didn’t you involve us during the preliminary stage, now we can only react to what you’ve already planned on doing?” And I wonder if there is any feeling from Friends of Old Maui High, like, when and how it’s best to incorporate going to the public?
- Teya: Yes, those are great perspectives. And absolutely, you’re correct, that we can’t do it as, “hey, here’s what we’re doing, what do you think?” I see that as two different things. One, is we need to be clear internally, what our preferred vision is, where things would go. Related to that, and related to this question about how we engage with the community to get their input, I think it’s a several step process. We have talking points developed, we need to further refine those, but we need to go out to talk with individuals. Talk to our elected officials, and other key community people that we’ve identified, and we’ll continue to identify. You, the committee members, could really help us to do that. That might be something we could actually spend some time on, maybe call a separate meeting to help. For example: here’s what we’re thinking of, who are the people we’re thinking of, who do you know, who do you think we should talk with? Also, to do individual outreach, here’s what we’re thinking, get their input, and then do the broader community outreach so that when we have, for example, a meeting at the Haiku or the Paia community center, we have people who already know what we’re doing, who can attend and ask helpful guided questions, and we won’t be surprised by the kinds of input that we might be getting.
- Radford: Fern, you would be really helpful in terms of crafting. Teya and I already worked on it, in terms of a list of key stakeholders, but input is appreciated. It would be good to have a separate meeting about this, I agree I’d like to really refine the approach.

- Teya: I think all of our committee members could be very helpful in that process. So that's kind of the vision in terms of timing. We're working on it now, but it will be ongoing for the next several months. The right of entry is good for one year. But the other key elements, for example, you asked about water, what are we doing about water? We can't really do anything until we have a long-term agreement. I mean, we're not going to start drilling a well, we won't be able to go out for CIP funding, for example, or whatever we end up deciding is the best approach for water, unless we know we have a long-term agreement. We do benefit from the fact that Friends of Old Maui High had funding a bunch of years ago, when they were looking at doing a whole revitalization of the campus, and they had these massive documents where they did work on archaeological issues, water issues, planning, and identified all the different regulatory agencies that might apply to any kind of development. We really benefit from that, including a whole separate thing they did for water options. I won't go into those details now but the work they did gives us a good running start on things. David, did you want to pipe in on, correct or add to anything that I said?
- Dr. Duffy: No, you got it. I guess the question going forward is working with UH, making sure we don't offend RCUH, but I think they're going to be happier that we do the long-term lease through UH for liability reasons. And fortunately, there are a lot of Maui people at UH, and some of them are dealing with really unpleasant things at the same time. So, this is almost something nice that they can achieve without getting hit over the head by unhappy faculty or legislators or whatever. So, we've had good support from them. We don't know what hurdles will come up. But I've just been really happy at the positive tone of things. And also working with Maui, Maui as a no ka oi positiveness, which doesn't always get to the other islands. This will go well, but we do need to make sure we have all the raw materials, like what's actually going to happen. So, we've gotten it this far, I think we're in good shape, but there will be some curves in the road. I've got to go in about five minutes if anyone has any questions or concerns.
- Forest: Thanks for your leadership all these years, David, we really appreciate it, mahalo.
- Radford: I'd say the same thing. Just thanks for joining us and always appreciate your input. All right. Well, I think moving on. The only other thing I wanted to mention about the water. I don't know if you want to talk, Teya, about Lucienne De Naie's interactions with that, it was really nice support from a strong community activist.
- Teya: You may have seen in the news recently that Mahi Pono was up for the bad, never ending battle about access to water and while it wasn't put in as a condition, Lucienne spoke up on behalf of MISC, suggesting that as part of their approval, their water use permits, that they should allow us to access water from the reservoir. Right now, we get water pumped from the county system that we pay for. That would definitely cut down on some of the costs and some of the distance traveling, but Mahi Pono folks have been helpful and collaborative to date as well. We have good relationships there.
- Radford: It shows, as a general example, support for MISC being there.
- Forests: I just wanted to add that we're kind of like coming home again, because this is where we started, our first baseyard and we're coming back. I appreciate it that much more after having gone through the exercise, after looking at all of the potential options

of where we could have gone, and logistical concerns, like the size, the cost, and all, I'm really happy and I'm looking forward to polishing this gem up.

- Radford: Yep, and we got to do the leg work. From everyone I've talked to, the word is out that MISC has moved there, and now we need to do the more formal talking with everyone and make sure it's the right path forward. So far everybody I've talked to says it's a perfect fit. I've gotten no negative feedback. I don't know if anyone else has, but so far, like what you're saying, Forest, people are pretty happy to see us there and see some activity. It has been good so far.

Outreach and Education (0:42:00)

- Fern: Well, that's a perfect segue into outreach and education. We might have lots to learn from Lissa's change, in addition to Serena coming in, and where community outreach for Coqui is as well as everything else.
- Radford: That makes sense. The other thing I would ask Lissa, or Serena, to highlight is just how we're doing outreach in the face of Covid-19. Because that's been a challenge. But we've worked through it, or they have, very successfully. I just wanted to bring that point up.
- Lissa: Since July, I've done Maui News articles on native species for firebreaks. In August, it was rats and the impact on the ecosystem - how they paved the way for invasive species and ecosystem change in advance of even humans arriving. The article in September was about hydrology and the impacts that miconia has, it's kind of like the summary of the Tom Giambelluca articles on revisiting some of the impacts of miconia. October was spot the ant month and our Maui News article was on the citizen science efforts to detect ant species, and how that ties into little fire ants, as well as the detection of the trap jaw ant, it was a new species on Kauai, and how often community reports lead to these new finds of species. November was a research update on Rapid Ohia Death. So otherwise, let's see, October, again, was the Little Fire Ant Awareness Month. I think the goal of this month, or this year, I should say, was encouraging people to submit more ant samples. As opposed to, "Okay, if you get stung, let us know." The behavior we were targeting was having them actually go out and collect ants, regardless, even if they weren't stung. It happened to coincide with the detection of the little fire ants on Kaupakalua Road, in Haiku. We sent out a mailer to encourage public testing. And, Monte, correct me if I'm wrong, but I think it was around 30 samples we ended up getting as an outcome of the mailer. Actually, I was going to share the screen here. (Screen-share) This is the mailer that we sent out. I tried to emphasize how important community detection is, that's how 11 of the 17 known infestations have been found. In the past, we've always said, go to the website to get collection instructions. This time we actually included them in the mailer. This reduced the challenges or the steps people would have to take to go and collect ants. We are really happy with the outcome.
- Knox: That's a lot more samples than we normally get.
- Lissa: Monte was saying that's what you get over the course of a year, basically. Otherwise, the bulk of the little fire ant awareness campaign efforts were radio ads on Oahu, and we did another mailer on Maui. But I found out yesterday that the mailer didn't actually go out, there was a problem with the vendor. So it may not happen in October. Otherwise, it was a lot of social media presence, trying to share posts and basic information. We also did Maui Mauka presentations in October. We did one with Maui

Nui Seabirds as the guest speaker and the other with Keahi talking about native snails. Both of those were well attended. Since we started doing those virtually our attendance has gone up significantly, though the donations have gone down. We may put the trainings online and see if we can charge, like what we did with the ROD bio sanitation trainings. We recorded those, so those can go online. Most recently, we gave out the Malama i ka Aina Award, the recipient this year was Mark Blitz. Normally we do the presentation as a part of Arbor Day. But Arbor Day was virtual/remote this year. It wasn't really virtual, but they were doing educational presentations and things like that. So, we hired a videographer to record the presentation ceremony at Mark's nursery and everybody presented the award while maintaining social distancing. We just got the recording back and I'm in the process of putting together a press release. That was a success, I think it's going to reach a lot more people and draw a lot more attention than it has in the past. Rather than just being a handful of people that we can pull together at the event, we'll have the video up available to a much broader audience. The video will be on our YouTube channel and on our website.

- Radford: Thanks for coordinating that for us from afar. That's not an easy task. I think it went really well and the video looks great. One thing we wanted to do is potentially, even if we're ever able to all go back to being not socially distanced, record these in the future so that we can share it with the broader community. Lissa: Exactly. We're finding that maybe it's a better way to do things anyway.
- Knox: For those of you who don't know, Mark Blitz is a Haiku resident who allowed us to store almost all of our citric acid and a bunch of our equipment on his private property. In the face of having to move out of Piholo and being strapped for places to put it, he sort of came to our rescue. He's been an awesome person to work with and extremely supportive and that's why we wanted him to have this award or we nominated him for this award. Radford: He's also controlled ivy gourd on his property and coqui frogs. Knox: Yes, a stand-up person, and community member. Lissa: I got to say his impromptu speech, I couldn't have written it better myself. He had all the talking points. Radford: He did. The funny thing is, that was the only take, just one take. All the other ones were multiple takes. He just nailed it for sure. He was very proud and appreciative. Lissa: We got a sculpture from Jupiter Nielsen again this year, even though he's remote as well. He mailed it. Susan ran around and got plaques. It was a group effort. Radford: It was iliahi, and it was interesting that he even put, like the rust, little flecks on the leaves. He did a great job.
- Fern: Lissa is continuing to overlap with Serena for a while?
- Lissa: I'm approved by RCUH to work through the end of December. We're checking in daily, it's good too because Serena has worked with MISC so much over the years. I'm sure I'll be on at least an intermittent basis and be able to answer questions and help out.
- Serena: As an introduction, I think I know most of you here. But I'm Serena Fukushima. I'm originally from Kaneohe, Oahu. But I've been here on Maui for eight years, came to Maui to work with Na Hua at Haleakala National Park with their intern programs for about four years. And then we were running our own conservation leadership program now Na Hua Hoohuli i Ka Pono over the last five years. I've been working alongside MISC for that entire time in those internship capacities. This was actually our first host agency for Na Hua Hoohuli i Ka Pono. It's been great working alongside all of you for all of these years, and really exciting to be a part of the team and to be able to represent the great work everybody does to the public. I'm just really excited to get on board. I'm day

two today, so I'm officially on board. I went to Old Maui High with Adam yesterday for an orientation, which was amazing. I've been meeting with Lissa every morning to download all of her knowledge from her brain and get a head start on things. I'll be going into the field over the next couple of weeks with the crews to get to know them better, and be able to share all of this great work with the public. I'm really excited to get to know everybody better, please, reach out to me, share with me. I'm here to soak everything up right now and be a part of this team. Thanks for welcoming me.

- Radford: We're very happy to have Serena on board, and one of the things that we've discussed, I guess I should bring up with the committee, is trying to help continue the Na Hua program. I personally really like it because of that extra element of mentorship. I like the structure of what you guys, you and Kuhea created, Serena, it's a more structured leadership-type program. That's an initiative I would like to see carried forward. I hope the committee is supportive of that.
- Serena: That is something that was discussed in this transition from pausing our program and me stepping into this new role, but you know, Kuhea is 100% supportive. Hauoli Mau Loa Foundation, our funder with Na Hua, they're extremely supportive as well and willing to see where the future may lead with that program. I also need to get my bearings and get settled in first with you folks before going straight into that discussion. I think a few of my former interns are actually on MISC crews right now, too. It's really exciting to see them stepping into professional roles as well.
- Knox: It might be good as far as what we've been doing out in the field, from a community control perspective, to get some updates from Susan, Carl and Beth. They can explain how things have gone. This is probably our primary interaction with the public right now.
- Susan: We're super excited to have Carl starting, he started at the beginning of November, giving us much needed extra capacity for the community programs. Beth and Carl have been going out in the community and helping with the community spray weeks. Tuesday night, they started a new, what I'm calling, micro-neighborhood effort. We have the main neighborhoods that do the community spray weeks. But these smaller neighborhoods, like the one they went to the other night, was just a cul de sac, where one of the neighbors had called and said, "we really need help with the coqui frogs, we'll do whatever we can, can you please just help us out?" Beth and Carl took out our 100 gallon tank in the truck and showed all the people that were participating, which they had a great turnout, how to use the equipment, how to properly spray the frogs, talking about habitat in the backyard, that kind of stuff. We're hoping to do more of that, as more people are calling. The main coqui crew is focused on that eastern boundary of Maliko, holding that back to get some of the people still on the core area the help that they need with the coqui frogs. So that went super well, Tuesday night. We've also expanded to a new full neighborhood effort with the addition of Ala Olu Place, Akoa Place, and Makaio Place, which is just by the cannery off of Kokomo, and up from there. They had their first spray week, starting November 9. We have good folks that are talking to their neighbors and trying to increase involvement, helping people to understand what community spray weeks are and the importance of controlling the coqui frogs. That's going pretty well. That's a lot of what we've been doing with the public through Covid, going out and maintaining all of our Covid protocols with social distancing, wearing masks and asking people in the community to wear masks. They've all been great about it. We can be safe, and still do the work that we need to do, and interact with the community as much as we

can. Also, during the community spray week, we've started offering free green waste bins within the neighborhood, which has been a great addition. We did one, two weeks ago, in Lower Kokomo and they stuffed a 30 cubic yard green waste bin full, and it was almost 3.5 tons of material that got hauled away and properly disposed of. The community was happy to have that opportunity and are asking to continue to have it in the future. They're like, "it'd be great if we could have one of these every six weeks for our spray weeks." We have a great partnership with Maui Disposal, they give us a great rate on the container. They're charging the \$400 fee for drop off but they're not charging any rent. They're also not charging for any hauling back. We keep it as long as we need it. Then we pay a fee to dispose of the green waste, which is \$46 a ton. It's been great to work with them and also helped me to learn about doing dumpsters and trash disposal, which has been good for getting trash disposal at Old Maui High sorted out. I spoke last time that we've started doing citric deliveries with Covid. It used to be that people would stop by up at Piiholo to get citric whenever they wanted to control the frogs on their own properties. But we didn't want to do that anymore with Covid, and then with moving the baseyard, it just doesn't work very well for people to stop by yet. So we've been dropping off, and since our last meeting, I was just looking at the numbers, we have dropped off almost 700 pounds of citric to community members around Haiku and Makawao and other places where they're controlling coqui frogs on their own properties. That's been great and Beth has been doing a lot of that. Carl is stepping into that role today with his first round of citric deliveries. People are happy about that, they call up and they ask how they can still get citric. We can now reply that we'll actually bring it to you. As you can imagine, people really like that, it makes it super easy for them. And it's pretty simple for us to do.

- Radford: We were at the earliest stages of Covid using the drop box idea, and just trying to figure out creative ways to still get citric in the hands of community members. Susan: The drop box idea sort of worked. Once people realized that we were doing a route, it was even easier for them.
- Knox: Susan, Beth, and Carl, the job they've done, I think is just excellent. It's been a cool program because it highlights the adaptive and feedback process that they've had directly with the community, refining and trying to really make this as functional and productive and efficient as possible. Community members are directly giving them feedback and they're adjusting how they prep things for them. We're getting feedback from them on how things have improved in their neighborhoods because of these tweaks and what could be even better. It's been a really amazing process, in my personal opinion, and I'm really happy with the job that these guys are doing. Radford: I agree. It's also the whole point of the program, to listen to the feedback, adapt as you go, support the community, and help get them out there. The only other thing I was going to bring up, Susan, is you just had the community advisory meeting.
- Susan: Last night, we had our first community advisory group meeting. I asked a few people from each of the neighborhoods that we work in, who've been active, to meet last night via Zoom. We had a really good discussion about what's been working well, some of the challenges that they have. I also wanted it to be a way to connect the different neighborhoods to each other, so that they could learn from each other and know who's doing this in other areas. One of the guys was even like, "Oh, Terry Tolman, great to see you, and that you're still around." It's awesome that community members sort of know each other, and now they have this shared commitment to the program. It was great to

hear their feedback, get new ideas and also let them know that MISC really cares about supporting them, it's really their program. We're just giving them the supplies and supporting their activity. It seemed to go really well.

- Radford: I thought it was a good meeting. It was a productive conversation with great feedback. I was actually a little surprised to be honest, it was generally very positive. Susan: I also was surprised by that. Beth and I were messaging about that this morning - a surprising lack of complaints. Radford: But you know, that also just goes to show you the value of engaging people and giving them the chance to weigh in and feel heard and all those important things that you're very good at doing, Susan and your team. Thanks.
- Fern: Well, I had a question, I was just putting my scientist hat back on thinking that, you know, the community engagement is really good. But I'm thinking of the whole research component for invasive species, such that it might be good once a year to take a random sample of coqui. So like, 50 of them, and send them on to Bishop Museum. Because we don't know what the MISC activities are doing to the frogs. We don't know how the frogs are shifting and changing. It would be a research question, "how are frogs adapting to what we're doing?" I think, sending off 50 per year, from places that are in the Maui range of coqui would be a really good thing to do. I'm not sure that's a community project, as much as if there are people that are interested, it could be a citizen science project to have them be the ones to do the random search and where they're at, and give information about how high above ground coqui are, where are they hiding? Which plants are they in? Invasive species biology could really benefit by a research focus that was a minimal part of the duties that you guys do with community outreach and coqui work.
- Speith: Anecdotally, completely anecdotally, we hear about changes as far as above ground height of coqui and some other things that could possibly be correlated to control. It'd be really interesting to find out from an actual scientific investigation about the results of our activities out there. Susan: Yeah, that would be interesting and a further way to get people involved. That would be, I think, a really cool idea.
- Brooke: Also Fern, you mentioned we don't know what the MISC efforts are doing to the frogs. But I don't know if anybody's given an update recently on the project to put in the song meters and work with Jeff Schlueter. Maybe Knox, or Adam Radford would like to comment on that.
- Knox: We do have one little research project sort of in the hopper right now. Jeff Schlueter used to be the HISC Data Manager, and he's now with Conservation Metrics in Santa Cruz. They do all the machine learning for audio meters to track birds and other conservation projects that require audio inputs. He is going to help us with trying to do some quantification of coqui density based on where the song meters go, and try to train the software to understand what the coqui density may be in a certain area. That'll help standardize that sort of population estimation that we do from a crew basis every night. That obviously has its own biases involved, which is why we're interested in going this route. But there's a lot of different questions that can be asked and looked at with that data. We're hoping Karen Beard, who's also interested in this, can jump on and ride the coattails of whatever we come up with, after Jeff has had time to really train his software and start helping us along.
- Brooke: In short, there's going to be song meters placed all over Maliko Gulch that should give us an indication of what is happening with the coqui population over the years and the impact of our control efforts.

- Radford: The idea is to have, basically, a control that's in the gulch itself, and meters elsewhere. Then also, the availability of meters for random frog reports. Instead of sitting at a location for a half an hour, we just put the meter out and figure out if it's actually a frog, or a coqui frog, or a greenhouse frog, or whatever. I think it's going to be a pretty great tool for us, it's also an independent assessment, essentially, of progress. We're pretty excited about that program.
- Fern: Sounds good. I was just thinking that quantifying by taking some sample, like maybe once a year, or something, would be good. The other thing is, I still get frog identification questions that make it to me. There was somebody who had an almost completely black greenhouse frog. I'm sure that's what it was. But it just highlighted to me as people get more used to frogs, they may not question really, if there's something else that has slipped in. Hopefully Marshall guys are going to prevent any of that from happening. But, you know, there are other ways that things could get here. Just to assume that every frog that has called is a coqui, or a greenhouse frog, may not be always correct. So that's another thing just for monitoring it.
- Radford: Good point. Because we've had the wrinkled frogs, and the dart poison frogs. We've had a lot of other frogs and toads that we identify, but yes, it's the same with little fire ants, which we'll get to that in a bit, but keeping an eye out for RIFA for example. We want to be vigilant about early detection, it's a really good point. It is easy, especially for the crews that do this day in and day out, to get a little bit lethargic, if you will, in terms of looking for new things. It's like, making assumptions because they're just, jamming the whole time, good point.

Hiring (1:12:40)

- Radford: We continue to hire. On a related note, we also have the American Conservation Experience (ACE) crews back. If you remember, we had them start in February 2020. They went home in March and just came back to Maui, late August. They did quarantine and Covid testing. Just a shout out to Hanna Mounce for letting us use the Forest Bird Cottage up on Pihiolo Road. They stayed there. We have five on the coqui crew and six in Hana - that's part of supplemental Department of Water Supply funding. We have them with us until December 15. That's a huge influx of energy and of course, getting work done. Everybody that's worked with them is really happy with their performance. It seems to be a great model for us, these pushes of people. One of the things we've talked about with ACE is hiring local in the future. If we do this again, they're going to try to make a big push to hire more local people. But I would say even though they're all from different places on the mainland, what's exciting is that several of them are already expressing interest in staying with us. If you already have people that know what they're getting into, they're really excited about it, and enthusiastic, that's huge. Because bringing in a new person, you never know if they're going to like the work or not. It's been a good opportunity for us to try this out, and it's something we've talked about for a long time. General hiring: As mentioned, we have Carl Schwarz onboard, we're really happy to have him, not just for doing the coqui liaison work, but also potentially for being part of a rapid response team for reptiles, amphibians, and other vertebrates because he has that experience from his time at the park. Also, very happy to have Serena with us, which we already talked about. I just continue to be really happy with the staff that are working at

MISC. At Old Maui High, like Knox mentioned earlier, you just see that enthusiasm and spark in their eyes, they're stoked to be there and happy doing the work. Even the Friends of Old Maui High, the caretakers of Old Maui High, have commented that it's awesome having this energy around the property again. It's pretty exciting. We've also had a lot of hiring for temps, maybe Elizabeth, do you want to pick up on that thread?

- Elizabeth: We ended up having a really lovely group of temp hires. We started hiring shortly after the last MISC meeting, I think in the summer. I think all total, we probably brought 15 temps onto the coqui crew. Most of them have worked out super well. I just initiated a recruitment to convert five of those people to regular hires. So we'll send that advertisement out. That'll come out, I'm hoping, within the next couple weeks. We'd like to have people converted before the holidays, because quite a few of the temp hires that came on earlier are getting close to expiring right now. That'll be a nice long-term addition to our coqui crew. Like Adam said, it's great to have people who've already been working on the crews. They know what they're getting into, it saves us a lot of time and energy as opposed to hiring people who've never done it, putting them on regular and then they decide they don't like it. Also, when we hired the temps for the coqui crew we realized we had a capacity issue. We hired a person who's been working, kind of in a parallel track to Erin J. as a program assistant, her name is Teri Field. She has been awesome in terms of helping to facilitate the move and doing everything from laundry to shopping to throwing away boxes of garbage from Old Maui High. We are also going to hopefully be drafting a position description for her and having her stay on part-time with us longer term. In addition to that, a detector dog position description is under review at RCUH right now. That one we'll be posting also before the holidays, hopefully. That will be basically the equivalent of an Invasive Species Field Associate III with dog handling added on there. Teya, I don't know if you want to say anything more about that.
- Teya: Yeah, no, just in process. I guess I can add that it kind of depends on Australia, because that position would need to get trained and would have to go to Australia. Australia is under strict Covid restrictions. So we have to try and get a letter of exemption for travel. We're also looking at the ideal, which would be to send that person and Brooke to get trained in this process. So it's all it's moving forward, but it's also got some inherent challenges that we are trying to overcome.
- Radford: We're excited to see the dog program moving forward. Thanks Teya for all your and Elizabeth's efforts on that front. But I would just add that the temp hire model for us, because we're able to bring on temp and intermittence a lot easier than regular full time, seems to work pretty well. There are some inherent limitations to their benefits, but it's a nice way to see if people actually want to do the work and if they're good at it, and then roll them into the regular full-time. So really, we've been pursuing that sort of model of having pushes of people, and keeping the ones that want to stay or that are really good, for a while.
- Fern: Thanks to Elizabeth and Teya, and everybody, for doing all of that administrative work, that's really important. Radford: I just wanted to make one closing comment, a lot of the administrative staff at MISC are really strapped for time, and over tasked with duties. And I just want to recognize everybody for their hard work, but also say, we need to be looking at that to build capacity. We were at 45 on payroll last pay period. So just

the day to day is pretty challenging sometimes. I wanted to raise that point to the committee. I'm not trying to get into the nuts and bolts of how to solve that problem. But I think at some point, we will have to have more supervisory/administrative capacity.

General MISC Updates (1:37:03)

Funding

- Radford: So, here's the fun topic, funding. That's the next thing on our agenda. I can actually keep this pretty brief. If you looked at the minutes, it's in there, essentially. We're more or less asking for the same thing going into the next year that we have been asking for from the county, and our state funding was down a little bit. But actually, we fared pretty well. The biggest challenge we're facing right now with funding is just the timing of the grants, as we often do. Most of our grants are currently scheduled to expire at the end of December. We have asked for extensions on two grants with the HISC grant from last year and coqui grant from last year, mostly based on Covid-19, and shipping limitations. Hopefully, those are approved shortly. And hopefully, our other contracts are done quite soon. Because as most of you know, the University kind of turns into a ghost town in December. We're trying to make it happen. But a lot of these things are also out of our hands, we provide all the information we can, and keep calling people, and trying but those are some of the potential challenges coming up. We need those grants online before the end of the year. Elizabeth, if you want to weigh in on it.
- Elizabeth: It's the usual, we have plenty of money overall budgeted, but the timeline just never quite works. Worst case scenario is having this many grants closing at the end of the calendar year, because the whole world stops functioning in December, but we're definitely on track to have three closeouts real clean and easy. Hopefully the extension will go through on the other two, and that'll kind of tide us over into the beginning of the new year.
- Radford: We have some other smaller grants including bio economic modeling of miconia and the state CIP funding for the coqui barrier. We're still working on procurement of things with the CIP funding, it's not necessarily going to help us with personnel costs, per se. Maybe, to some extent, but anyway, that's \$750,000 for two years(\$1.5M total). We're still waiting on that to come through so that we can help start on the project, which we are mainly going to contract out. But it is another pretty big push, and we'll make a lot of barrier. I'm happy to entertain questions or go into more detail. But unless people have questions that they'd like to ask, I think we could just move on. The short version, again, is basically looking pretty much the same next year as we are this year. It's just a matter of timing.

Little Fire Ant

- Brooke: (Screen-share) This map of Maui shows infestations from July-September 2020. There's also the new infestation at Kaupakalua, just down from Hanzawa's, which I'll talk about. This map shows color-coded what the active sites are as of this date range. What is a monitoring site, meaning that we don't have LFA there, and we are going to continue to monitor for 5 years. And then if that 5 years has passed, and no LFA are found, then we call it eradicated. That's why there are so few green dots on this map. But there should be a few more of these dots turning green pretty soon. Those are mainly these tiny little incursion sites that were not really necessarily naturalized ants at those

locations. As far as the blue dots go, the Kapalua site for example, that site is finally in a monitoring phase, it was sort of a hotspot, little locations here and there, hopping around for a bit but as of the last survey, it is now in a monitoring phase, which is great news. Of course, our original site, the Waihee site, also is in a monitoring phase. Take a look at Excel. This is a current status of a lot of those sites. You can see at the bottom there are minor incursions. These are the things like the site at Lowe's, the pallet of shingles in Hana, South Maui Gardens, the truck that was moved from the Nahiku, we've not seen anything there recently and several of these are eradicated or on the way to being eradicated.

- Radford: It'd be good to share this Fern and the others, or just Fern. He was saying he gets questions about this and it'd be helpful to be able to refer to something. Brooke: Sure. I can send these materials out if you anyone is interested.
- Brooke: Another way of looking at it is over time, these are the infestations through the years, and 2020 has the recent one at Kaupakalua. But also the Lahainaluna site, our first positive vile was just after the year began, so it was almost 2019. The new site at Kaupakalua, which looks like this. The treatment zone is about five and a half acres, and it's on a farm. Aut has done a lot of trace forward and back. We don't know how it got there. We don't really have any sources to follow up or trace forwards, but they are not moving this material off the site. They're being fully cooperative, we've got all the players involved, it's a fairly easy site to treat, other than the very large trees, very large banyans and eucalyptus trees where we can't really get our bait up very high beyond what we can do at the 20 foot mark and below. So that should probably be discussed and strategized. But otherwise, it's pretty much an open area, fairly easy to walk around. The other concern is that here on the right hand side, you can see that is Kaupakalua Road, and the treatment zone goes across the road. We found one vial with a very small number of ants on the other side of the road. And Monte, if I say anything incorrect, please jump in and correct me. But otherwise, it seems like the road is a barrier, which is something that we have noticed and seen in other sites like Happy Valley, there were no ants on the other side of the road in Happy Valley. So they do seem to be acting like a barrier. Although we're treating on the other side, we're focusing everything on the west side of Kaupakalua. So that just got a second treatment the other day. Of course we're starting with the growth regulator, as we always do. Halfway through we will switch to toxic. There is a new bait available that uses Spinosad, which is a natural toxin and is safe to use on many, many crops and so that could be a possibility, we haven't used it yet, but increases our capacity to be able to switch over to toxic treatments where there are crops; whereas in the past, we weren't able to use any toxic baits where there are crops, which is very limiting. This may allow us to switch over entirely, especially at this site because the crops there I believe can accept this, this new bait. That is the Kaupakalua site. It is a working farm, so we have done additional surveys there. This is a map from 10/2/20 and even more has been done. We were concerned that possibly things on the farm had been moved around. And so you can see our team has put in a huge amount of effort. This map would even be more blue if it was updated. I did not update for this meeting. So that's the new site.
- Fern: I have a question. Did you look, with tracing forward and backward, if this was the part of Kaupakalua Road that was worked on by the county or the state? They are just doing all sorts of work there where they had detours and things like that. Could that have been where the ants came from?

- Brooke: I think it's unlikely because if it was the roadwork, if we go back to the other map, here, and my theory is that when you look at a population like this, it seems fairly round. The sight of introduction was probably near the center of this, because without a stream or some other artificial thing, moving the ants more rapidly in one direction, I think that they are expanding in one direction. It could be a situation where the site of introduction was closer to the road, but on the west side of the road, and that it expanded more towards the west and less so to the right, because the road is a barrier. But I don't think it was introduced at the road. I think that's unlikely, I think that it expanded out to the road from wherever it was introduced. I would love for there to be more science and information on that.
- Brooke: The Lahainaluna site is also new this year. It is a very small infestation and I've gone over its brief history in the past, but this is the treatment zone, it's less than an acre. Monte has taken this on as his personal pet site. Because of the very small and confined nature of this population, we decided that we would do an experiment - to learn more about how the insect growth regulator works in reducing ant numbers. We're using only the insect growth regulator at this site, because we know it does work. But we want to be able to see how that happens over time. So Monte, every time he has gone to this site, he has conducted a survey of the site. It has very interesting results. You can see in this graph, this is the most recent survey, it was almost Halloween, but you can see how the delayed effect, the delayed reduction in ant numbers happened. It took four treatments to see a real reduction in numbers of LFA at that site. That's really interesting. This is something we've kind of thrown around and talked to a lot of people about - how exactly does the insect growth regulator work? What does it take? This is putting it into numbers, at least in this situation. Of course, there's a lot of other factors that could be involved including climate, weather, dryness, etc. But I found it to be pretty interesting. Here's some other graphs with more data in it. The gray or the empty vial, so these are 100% bars. The green are other ant species, and the yellow are the African big headed ants. You can see the big headed ants were pretty prevalent, especially I think, on the perimeter. They dropped off real quick once our treatment started. We know this treatment works really well for African big headed ants. You can sort of see the other ant species somewhat persist and increase, that is also interesting. Maybe these ants are not as interested in the peanut butter protein bait, and so they're not taking the bait and therefore not affected. Anyway, this is ongoing, we're going to do the entire treatment this way. Hats off to Monte for getting out there and doing this very detailed survey, and Forest and Kim for going through every single vial and telling us what is in it. Speaking of Forest and Kim, we made them survey a whole ton of vials because Jay Penniman called. He was really worried about Hawea Point, where that yellow crazy ant population seemed to be totally declined. He thought because of the proximity to the Kaupakalua infestation that maybe there were little fire ants moving in, and that's why the crazy ants were gone. We think it's cyclical and not sure why they're gone. But we decided to go out there and do an inventory. Forest and Kim had to ID every single vile. We had the Maui Nui Seabird Recovery Project, our MISC team, and some DLNR people go out and we produced this very interesting map of all these different species of ants that are at Hawea Point. This is a great data set that maybe could be published or shown somewhere or replicated in the future to see how the ant populations there change. I just thought I would throw that in there, because it's interesting and neat.

- Forest: We also thought it would be cool to take the seabird breeding and fledgling data that MNSRP has been collecting and see if there's any correlations. One would assume that the yellow crazy ant areas and the fire ant areas wouldn't do as well, but you could figure it out. If or when we get the capacity for genetic testing, we will have a whole new level of insights that we currently don't have. We're looking forward to the day that capacity comes onboard.
- Fern: I really think this is wonderful. I think it's one of the big things that MISC has, you're doing really good research. You have ant experts, Forest and Kim, you have people going out and visiting, trying different methods. I definitely think it's worth publishing. But I also think it's a big press release to let people know just what MISC does on the island, in research and in the understanding of invasive species. I just think it's really good. Kudos to all of you doing it. Brooke, Monte, Forest and Kim. Great work. Radford: It's really sophisticated. It's a great example of how we go about our projects. Brooke: You mentioned Forest and Kim as ant experts, Monte is rapidly becoming our in-house expert. He has done a lot of research and really taken to identifying ants and learning about them. I constantly go to him for information on ant species or refer people to him when they want to know about any type of ants in Hawaii. He's got it dialed in. Forest: I'd also like to thank Mikiala and Betsy, the two new ant techs, they are solid. We were struggling to keep up with things, but we're doing much better now.
- Brooke: Those two are real powerhouses, and keep everything moving along. We have a really good team. Moving on, speaking of Mikiala, there's the Waihee Valley infestation. We just completed our final treatment of the one year regimen. We are getting ready to go in and do a very comprehensive survey of that site. This is what it looked like. This is the area that we've been treating. And, of course, I've talked about this in the past, but there are some major challenges here. We go every 3 weeks to cut back vegetation and do habitat work because it's totally overgrown down in the center. And then on the bottom of this map, that's hard to tell, but there is a whole network of trails that goes up a very steep slope on the side. It is difficult to go up there with heavy backpack sprayers and equipment to do the treatments. We're all very excited to see what the results are of this upcoming survey. We've also been working on, meanwhile, surveying the river all the way down to the ocean. Mikiala has done a lot of this work, Mikiala and Betsy pretty much did all of this. There's a couple of gaps I've highlighted there, this was to send to them so that they can continue the work after I processed their data. There's actually even more than this filled in but this is a huge undertaking and there's a lot of properties up the valley that, thank goodness we've got Mikiala, because she can just go up and say, hey Auntie, I'm gonna come survey in your backyard. Anyways, we did not find anything downstream, that little x is our tropical fire ants, because I denote those when Forest and Kim come across them in the vials, they'll let me know. I am collecting instances of tropical fire ants. As I've mentioned in the past, someday, maybe we'll send a map to the county and say, hey, look at all the tropical fire ants in your parks, maybe you should go do a treatment. We'll see how that goes. Anyway, moving on to another active site is Twin Falls. Twin Falls is also on more or less the same schedule as Waihee Valley. We completed our last treatment there, and it's pending a big survey to see what has happened. You can see in this situation downstream there have been 2 instances, that actually 3 places, where we have detected LFA. Those are usually just one single vile, and they're very hard to go back and relocate. What I think that means is that yes, the ants

move downstream, but they don't necessarily readily establish. One of the locations here, which I'm not showing on this map, is below the highway, one that I found LFA and I've been back to the same location four times and I can't relocate the LFA. I think what happens is when ants move downstream, you might often get to find those ants, but they don't establish, they disappear over time, either it was just workers that moved, or it was a queen that wasn't cared for enough and her nest died out. But these two dots on this map have been treated several times, and they will be resurveyed again. I'm betting that there's not going to be any LFA at those locations. As far as the Twin Falls site goes, it has a lot of food plants. I'm starting to think that in the case where there's a lot of food crops, that means there's a lot of food for the ants. Those are more difficult locations to stamp out LFA like the Huelo site, which continues to have hotspots popping up in the center of that site, which is downstream from this. It's also a place where there's a whole bunch of food, I had a map in here that I was going to show you. Here's the current Huelo situation. You can see we had a bunch of ants at this edge. There're several bananas through here. We haven't been able to use our toxic bait as freely as we want. This is sort of what you get in that situation. At Twin Falls we're trying to survey Hoolawa Stream all the way to the ocean. This is more difficult than Waihee Stream which is largely flat and wide open. Whereas this river consists of several massive waterfalls, and people that are really difficult to get in touch with. Thank goodness the neighborhood and community has come to our aid in getting people's contact information so that we can go on here and do this survey. I also want to say that Aut and Raynette at the Department of Ag. have been immensely helpful. For the last couple of years they have participated in several of these surveys as well, going downstream. You can see here, there's the Twin Falls infestation, a couple of dots that below that you can see the Huelo infestation. It does not appear to be connected in any way to the Twin Falls infestation, nor did any trace forward, or trace back, indicate that there was any connection to these two sites. The proximity makes you think that they might be connected but who knows. The Kaeleku site, sorry about this map, but this was a functioning map while we were doing the work, not one we intended to display, but this is what we found in the last survey. Since then we've done 3 spot treatments. We are working to finish the resurvey of this site, Joe Brower is working on that by himself, it takes days to get through this entire survey. You can see hexes on this map. The hexes are guidelines for us to try and drop a sample in each one of those. You can see there are many hexes on this site, it takes a long time. But again, this site has some hotspots that seem to be persistent. This site, I believe, was not fully delimited to my preference when treatment began. And so there was an edge that was missed that did have ants in it, and they were found later on in this site's history. The Hana crew has been really helpful, they've been doing the habitat work. This is dense, thick jungle, it's hard to get in there to do treatments or surveys without trails being cut. The landowner is cooperative, he lets us do what we need. The only problem is he's got dogs, and they have to be put away because they're hunting dogs. He's really hard to get in touch with, so scheduling for this site has also been murky and difficult. And that brings us to the Nahiku site. We just did another treatment from the helicopter - that was a year of treatments. What needs to happen now is a big survey. We sat down with HAL, Joe Brower has been doing surveys in the most accessible areas around the infested and treated area. This does not include the most recent treatment that we did. This is what a processed helicopter treatment looks like. I think this looks really good. Joe has been doing these surveys, it's so massive and difficult that it takes a long time to do anything

that you would want to call complete. Based on surveys that happened before treatment began and the surveys that Joe has done after treatment, you can see the dots here, before treatment is yellow and post treatment is green. I took the dots that were close to each other and compared them, I created these little plots. If a before dot and an after dot appeared in those plots, or multiple, I would compare the density because Forest and Kim have been nice enough over all this time to provide us with density in those vials. These would be the points that I did this analysis on and what it looks like. This is a graph that shows pretreatment points, there's 136, and post treatment points, 174. I compared the average densities per each point. I know this doesn't make a lot of sense. But when you aggregate the data, the average number seems to have significantly dropped, it doesn't mean that they're totally gone. This is all the data that's included when you remove the points that had zero LFA before and zero after which should be removed because they are essentially no data. This is what it looks like, and aggregated it's the same thing. Pretreatment we average 85 LFA before, and post treatment, 5 LFA after. There's a lot of things that can mess this up, including just if it was a hot day that the post treatment survey was done. This is for the 14 meter plots, I also did it for possibly, smaller, meaning that those points were closer together. We still are seeing roughly the same thing, which is a significant reduction in LFA after the treatment. The treatment is working, but did the treatment work and get rid of the ants? No, it's not, it's something that's going to take longer, we're using the insect growth regulator, this is a very dense infestation, it's very large. I believe it's going to take a long time for the aerial treatments to really do the work that they need to do. We discussed this, what I've just shown you, with Hawaii Ant Lab, and they suggest we continue on into May or spring/summer when ants are most active and that's when we should do a big comprehensive survey. I'm working on putting together a project designed to do a sort of all hands on deck survey of the Nahiku area. It'll take a week and as many of us as possible to do as big and as detailed a survey as we can of the infested area in Nahiku. At that point, we will pull the data together and make another decision as to whether we continue the aerial treatments, or if we change aerial treatments to be specific to a smaller area. Depending on the outcome of that big survey, we will decide what to do with the aerial treatments. Between now and then we plan to continue treatments four more times, until that survey occurs. That being said, I think that is everything that I put together for you on LFA. Any questions? Happy Valley is greatly reduced. Monte, do you want to say anything about Happy Valley?

- Monte: Sure. It's greatly reduced. At our last survey, there was a one single vial with LFA in it. We're targeting that spot for treatments, we're going to do one more treatment and then do another full site survey. And I expect to not find any LFA.
- Brooke: Happy Valley has come along really well. I think that it's kind of a drier site. I feel that the dry sites are a lot easier to control than the wet sites.
- Forest: Thanks for the update Brooke. That's really encouraging, we just see the ants on the scopes. When you can look at the data over time, we're actually doing pretty well. I'm sure future residents of Maui will be very thankful for our efforts.
- Brooke: Most of our active sites are on their way out. The ones that are persistent, are greatly reduced, and small in size. I think it's a very promising outlook for all of our infestations. Nahiku is the big question mark, but otherwise, I am confident that every single other infestation on Maui will be eradicated with our efforts.

- Elizabeth Speith: Has there been any movement on the herbicide labels that were needing to be updated for expanded usage of some of these outside of Nahiku?
- Brooke: You mean to be able to use the aerial treatment? I don't think there's been any movement or attempt on that. I know Knox was looking into ways around it. Where maybe using Tango, or using a drone to deliver bait in situations where there is no stream or water that we worry about getting it into. It's possible that the language on some of these labels are such that you could use it that way. If you had the right drone permit. Knox, feel free to jump in and speak over me.
- Knox: First I want to say, the helicopter operation we have is probably the only of its kind. It's definitely drawing the attention of people in the larger conservation community. We've recently talked to the guys on Guam, which included the military, as well as their local government and the USDA. It's quite an impressive operation, and it is complex. It's taken us a year to really refine it. I can't express enough how proud I am that we're doing this and it's working well. To the question about the special local needs labels, it's a pretty deep hole to start going down with SLN. I know Cas was looking into what he could potentially do to get that expanded, for more of a statewide approach or local regional approach. It's just really difficult because every site is different. I think there's a lot of challenges to trying to do that. That's why it sort of prompted me to start thinking about whether there was a way that we can use the things that are already labeled for aerial use, you know, without a SLN. I think even without using a helicopter, there's probably a way we can do that. But we haven't gone full speed down that road yet. It's just more of a thought experiment at this point. We'll try to keep things moving forward and figure out how to expand our capacity at sites like Waihee Valley, where we run into the same issues, where it's extremely difficult to have ground access, and a helicopter would be really advantageous. The drone stuff would be awesome, it's possible, but it's pretty far out. It's the regulatory aspect of trying to operate as an aerial pesticide applicator. They're not insurmountable, but they're difficult to get through. But we are looking into it, and hopefully, we'll get there because it could help us be more surgical with our approach.
- Forest: I know Maui Pine used to treat giant areas with a helicopter for ants. We used their hopper back in the 90s in the National Park against the Argentine ants. And, you know, there are issues with moisture. But look at all these sites with big trees, we kind of need this technique in our toolkit.
- Knox: We've had questions come up about the results of our treatments in Nahiku, and how to potentially refine it. We talked about injecting, pushing the spray ball down a little bit lower into the canopy in certain areas. There is concern due to the density of vegetation there and the trees, maybe not all the bait is making it to the floor in some spots. Different questions have come out of this, we've learned a lot. There's ample opportunity, I think, to keep exploring this stuff. The SLN is the tough nut to crack right now. On average, it takes two years or more just to get one through the pipeline.
- Radford: It's a bit of a challenge, an unknown process. We've tried to help with it on a few different fronts and it's really challenging.
- Knox: It's a good question, though. I mean, HBT, we're having similar challenges with trying to figure out how to get it to the finish line. With LFA, I am a firm believer, it's more advantageous to try to figure out ways to use pesticides that don't require an SLN in some of these areas and avoid the situations that they're not labeled for.
- Monte: Can I add one more? I just wanted to say that we've created a new email address that the public can use to email MISC about ant questions or ant reports. Or they just

want general information about the ants in their yard. It's just miscants@hawaii.edu. People can email, just any question they have.

- Forest: I'll just add that Monte has done a great job putting together the historical information for ants. There is no updated ant checklist of all the ants in Hawaii. He's done a really good job of getting the references together and doing that. We're hoping to work with HAL, maybe others, and publish the list and keep it updated. I just want to give Monte a shout out for that.
- Radford: That would be another awesome thing to contribute and collaborate with Bishop Museum on.

Plants

- Mike Ade: A lot of our effort has gone towards miconia. We had specific funding for the roadside buffer areas from the Department of Water Supply. That has been kind of limited by vegetation. Of course, that whole area is the jungle and the terrain is quite rough. The weather's been somewhat cooperative this year, up until last month, now the rainy season has started. We were attempting to do quite a bit of the peripheral area miconia, visiting areas that in the past had plants, and we've found nothing mature this time. That's going along pretty well. In addition, we have the ACE miconia crew that just went back out to Hana a couple weeks ago. That's been a big push to get things done. They're working in between Makapipi and Wailuaiki areas right now. In some areas they've found quite a bit of mature plants, that's unfortunate. The last couple of weeks they've been controlling all immatures. Our pampas grass operations were discontinued with a lapse in funding. We had a lot of good hits, controlling especially mature plants. West Maui was quite significant, again, with the number of targets available to treat. So that's just something to consider in the future, how much additional funding we're going to need. East Maui, we're doing quite well. Our camping season never began, due to the Covid-19 rules. There are some areas along Honamau, the backside of Honamau, that we're not able to do on the ground but aerial work was done. I'm not sure what our next season is going to bring us with Covid. We'll have to figure out what to do instead of camping in those areas. West Maui, we did absolutely no groundwork this year because most of that requires camping. Our other species are all pretty much in check. For fountain grass, the only place we're finding plants is at Puu o Kali between Keokea and Kihei. We're down from 3000 mature plants to 1 that was found on our last visit. We've had very limited moisture available out there and it's been quite dry this summer. However, each visit we still find mature plants, that plant is quite hardy. For ivy gourd, we've isolated populations at Waiehu, so between the Waiehu golf course and Wailuku town, near where the old farmers market area is - that area still has a significant population of ivy gourd. Where the Wailuku River enters the ocean is pretty bad because there is a lot of wetland in there. It's either wetland or it goes uphill to kiawe. Both sides of the river are quite difficult. It's all residential, which just about all our residential work has stopped. The larger properties we still access but not those where people are present. Our other species, like verbascum and cat's claw, they're limited to such small areas. We just go on a periodic revisit schedule to take them out. We're still working with immature plants at those sites.
- Forest: So Mike, all of the other fountain grass sites are gone except for the Puu o Kali one?
- Mike Ade: That's the only site we have with active plants.

- Forest: That's a pretty amazing accomplishment. Could you potentially look at your data and be able to discern the seed bank lifespan of fountain grass?
- Mike Ade: We left it at what has been published other places, and it's been six years here. We're monitoring some sites way past six years, just in case because you just never know about reintroduction. We don't know how it got there to begin with. However, we know there is a niche for it. So it's just a revisit, and it's really easy to go take a survey and find none. The negative data part is quite fine.
- Forest: Thanks for your hard work with that, thanks Mike.
- Fern: Is their opportunity to have as much GIS and mapping to support what you're doing, or is that sort of a deficiency?
- Brooke: I'm the bottleneck on that, I'm a little spread thin and have not been able to focus as much on plant stuff. After the baseyard move, with everything being spread out, the server in one place, and the internet not fast enough to access remotely, it's really been me not being able to provide Mike with as much support as he needs.
- Fern: I had it sort of as a categorical question, I think it'd be really important to do it, important stories there, too. I'm just wondering if it points to a place where more assistance is needed?
- Radford: We just got approved to contract work with Sam Aruch, on his NRDS platform (Natural Resource Data Systems). We're hoping to migrate our whole data management program into essentially a cloud based format. That contract just started in the last few weeks. We are trying to provide more support services for Brooke. The goal is to have all programs at the same level of sophistication as what Brooke provided for ants in this meeting. We also want to make it easier because a lot of our data management is pretty fragmented right now. It's really hard to jump from one platform to another, and then manage it and produce the kind of maps Brooke just showed. Anyway, that's already happening with the goal of moving completely to the cloud, but I will say what Brooke already said, I'll just echo it, that moving and the way we are, we pretty much have zero internet at the baseyard. You have to hardwire into the server. It's really tough. That's a huge goal, to get to that place by our next MISC meeting, and at least have progress towards a better system of data management. Please weigh in anyone else that's been involved in that.
- Fern: It sounds like a small contract for a ham radio tower climber.
- Knox: Funny you mention that, it's exactly the direction that we're going. We've got Harmer working on that for us right now.
- Woody: Before we move away from plants, I just wanted to thank you guys for the work, you know, in and around the park on pampas. We got a couple more points to share with you from inside of the crater and then from the front country area, but nothing too crazy, just some flowering pampas. I'll be contributing to your data backlog there shortly.

Coqui / Community Engagement

- See above - Outreach and Education

General Partner Updates (2:34:36)

- Woody: At the park, we're in the field a lot. Everybody's playing catch up, and we're no different. The end of September, early October, is our new fiscal year. Steve Robertson retired. We are currently chief-less, he was my supervisor, the supervisor for resources management. The hiring announcement went out and the superintendent is reviewing all

the candidates. Currently, myself, Kathleen Bailey, the wildlife biologist and Rachel Hodera, the archaeologist, we're doing a rotation on acting. So you can go to me if you have any questions about the park, and I can relay the message along to Natalie, if necessary. For vegetation work in the park, we've been scouring the front country and in the crater for pampas and other targets, other incipient targets. And then, focusing on restoration work. We've been able to do a couple temporary Covid hires. We're trying to work with that process for year-long positions.

- Radford: Woody, I would like to continue to talk with you guys about an updated MOU. We can do that separately from this meeting, I just wanted to throw it out there. I would like to continue that conversation.
- Woody: Yeah, that sounds good. Happy to go down that route, for sure. And any type of agreements that we can set up and pass money on. For funding for the park, a lot of the funding that goes into our staffing and our projects is money that comes out of fees that come through the gate at the entrance station. The park hasn't been collecting a lot of fees in the past six months, but we're starting to get more and more visitation, it's probably around a third of what it was last year, which is a significant drop. Right now, our projects are still fully funded for the vegetation program. We had a good amount stored away in the bank. But as far as being able to spend money on outs, or towards cooperators or partners, it's been a little bit tighter.
- Radford: Woody, just to clarify, my interest in that is actually, I mean, money is great, but it shows our strong relationship. To have that formalized. That's more the direction I'm coming from.
- Woody: I'm fully on board with that.
- Forest: How are the pines doing?
- Woody: We had helicopter ops in June or July, Pete was basically just looking for pines. We're in kind of a mop up phase, moving forward with seek and destroy missions. The pines are looking really good (meaning gone). He's up there right now, I think, spraying for TNC today. Inside the park, things are looking really good. And that's excellent because most of the funding that went to that project is now used. We'll see next year what the numbers look like. But yeah, probably just like a mission a year at this point for mop-up.
- Forest: That was a great project. You know, we had that window of opportunity after the Poli fire before those trees matured. Thankfully, for the most part, you guys were able to pull it off. I know in the central crater, we swept through there when we were doing silver swords this fall, and there were none. I mean, I don't even have to bring a handsaw anymore. It's amazing. Yeah, that's a big win.
- Woody: Yeah, I think *Pinus radiata* is basically under control, there are still a couple of Mexican weeping pines that pop up, which go mature much quicker and also germinate without a fire event, a heating event. So that's going to be one that we got to continue to stay on top of. We're happy about that and ready to move on from it and spend our time on a lot of other projects that we were kind of neglecting. Thanks for the support from everybody here with the spray rigs and the on the ground expertise, and monitoring.
- Fern: Woody, I would still be really interested in cooperating with the park, MISC, and DOFAW to figure out which landowners actually have pine trees on their land, and then deal with the total eradication of conifers from Maui. I still think that's a goal that MISC should have and then certainly the park, especially the flammable ones.

- Woody: Yes. I'm still requesting some kind of fuels management funds out of the Park Service. The next one I want to hit are the pines on Puu Nianiau right outside of the park where the park entrance is. But also, I'm not sure if you guys know, Haleakala Ranch is going to be building a Verizon cell phone tower on Puu Koolau, and actually, today they are scouting the area. They're going to be redoing the fence from basically the entrance of the park all the way to Puu Koolau with a deer fence. In doing that, I'm pushing to protect their investment and start marching the pines back from that fence line. I guess right now it's in the compliance stage. They're also working with Harmer, they're going to be installing the tower up there. I think that's a good step in the right direction or if we can start to partner with TNC and the ranch to push that line back we can further protect the park.
- Fern: Woody, are you guys in the park commenting on the department of transportation's plan to do clearing along the road up near Puu Nianiau of non-natives and replanting with native? Just to see what sort of considerations for genetics and sanitation, what they're using, if the plants are coming off-island, things like that.
- Woody: I haven't seen the plan, I guess Natalie is handling that right now, but I haven't seen it. I'll follow up on that with her.
- Marshall: Coffee leaf rust is our new pest, it's pretty much all over Maui and Big Island. I think it's probably been here for a while. The interim rules are going to go into effect on the 20th - tomorrow, that's going to ban all plants, plant parts, and equipment moving between islands from infested to not infested areas. Today, there was a big increase in direct flights to Maui, we got 20 direct flights into Maui today. The inspectors are at the doors of all those planes. Literally frontline. They're also going to see an increase in cargo. We're doing a lot of enforcement at Young Brothers for ROD on cars. And we've been doing the small coqui calls about two times a week, inspectors will follow up on just a single frog. I've been doing that, but it's been really busy mapping the coffee leaf for us. That page is turned, so it sounds like we'll get back on the coqui and little fire ant help. Another problem we're having with coqui is that a lot of this is coming on non-ag. stuff, Young Brothers. That's just one of the things, and I guess the possible furloughs. We haven't really heard much about it but maybe December we're going to be two days a month less. That's about all for the updates, any questions?
- Forest: Would you be able to remain 100% functional with the furloughs?
- Marshall: I think we'll make it work. We'll just shut down and whoever wants an inspection has to pay for us to come back in. That's what we did last time. With the airport, we should be able to staff the airport fully. It's probably going to be the harbors that will have a tougher time.
- Forest: How's that Myrtaceae rule enforcement going?
- Marshall: Pretty much weekly we're still taking away eucalyptus, waxflower, myrtle. The importers are learning it's pretty expensive for them. We charge \$50 a parcel for us to use our autoclave. Some of these cut flower people have gotten hundreds of dollars of charges, weekly, people throwing weddings and stuff like that. Oh, well, yeah, we've been able to enforce it pretty well. They're slowly starting to stop shipping and whenever I go to nurseries and farms, I always tell them how nice their eucalyptus is and how they should be contacting cut flower florists to get rid of it.
- Forest: What about LFA, are you seeing them on shipments at all?
- Marshall: We've seen a decrease actually. We haven't seen a lot of commodities, cut flowers and fruit were our biggest commodities. During this whole pandemic, we've seen

less of that stuff coming interisland. Just because there's fewer weddings, tourists, and all that stuff. We've seen less commodities coming from the Big Island, but I'm expecting it to ramp up real quick here. At least the airlines are ramping it up.

- Forest: Thanks for all of your hard work.
- Marshall: The skunk is still running around Poli Poli, still around there somewhere, we had to give up efforts on that one.
- Lissa: Marshall, have you had any more reports of a skunk? Or was it just that one?
- Marshall: It was just that one video. We spent about six weeks trying to trap it with some help from Fern. We went and got skunk scat from the zoo, and we did everything we possibly could to trap it, but we're catching hens and cats pretty much every day. So we stopped about six weeks into it. We haven't had a report since then. So hopefully some wild dogs got it or something.
- Knox: Where are the Christmas trees coming in?
- Marshall: Oahu is the port of entry. They have a big facility there where they shake out the trees. They found a snake, I think that was yesterday. I think they found a snake in one of the trees but it's a big production. They have the right facilities to do it there. They pull out a certain number of trees, shake them out. If they find anything, then they do a 100% shakeout, and they can reject them if they're slugs or wasps or stuff like that. I guess the biggest one is killer hornets, but as far as I've heard, we haven't detected anything yet. First store getting trees this year is Costco, the first container, then also Home Depot and Lowe's.
- Fern: Other updates?
- Speith: I'm going to share an updated HISC link - the [643pest.org](https://bit.ly/643pest.org), <https://bit.ly/643pest2020OctUpdate>. That's good for January through October, it talks about the volume of pest reports, the species that are being reported by island, etc. As far as with HISC, I do these updates every couple of months and I would like to expand the partners that I share these updates with. Let me know if you would like to be on a list to receive these when they're done. HISC is continuing with all of the work towards the 2025 HISC and CGAPS combined invasive species strategic plan. We've revamped the way we do our working group so that they're very specific to those objectives that were targeted in the process of coming up with this new plan. Some of you might have been involved in some of those discussions. We're still getting by with Josh Atwood, who is the invasive species coordinator with DOFAW, he's been in an acting role, essentially doing two full time jobs for a while now. He got a new job as the outreach person for DOFAW right around when Covid hit and there was a hiring freeze. One of the updates, it looks like there will be within the next year approval to hire a new invasive coordinator. If you know of anyone far and wide that you think would be good in that role, start reaching out to them or at least know that it's on the horizon. There is a partner related thing, the Coconut Rhinoceros Beetle (CRB) response team on Oahu has a new website. It's a really good website with public friendly information about the coconut rhinoceros beetle and look-alikes and updates on what they're doing on Oahu. Also, Josh Atwood plays a very important role that people may or may not know about, as far as being able to give testimony and do outreach at the state legislature. We have started to prepare internally as his staff to be able to compensate for his reduced role. We're preparing right now to be able to have materials and presence ready, in such that we can, not being necessarily DOFAW staff, but to be able to properly represent the need for invasive species funding on the state level at the legislature. As budget discussions ramp

up it's going to be an interesting process with the kind of new realities of our economy for that upcoming next budget.

- Fern: I can give an update for us. Budget constraints and changes to our budgets are coming into play. In addition to what might happen with furloughs, we would be facing that too, but my staff at least is out doing everything they need to, still doing so in a safe manner. I think that's true throughout the division. You may have seen in the papers that at least the Na Ala Hele trails and access program were given a windfall by a volunteer donating money for the Kamehame Nui addition, so there'll be public trails, there'll be forestry, there'll be a conservation area that's going to be fenced off. That's going to involve work from basically all the different divisions. My guys continue to work at Ahihi Kinau, we have the permission now to take \$5 for use from every non-resident that parks at Ahihi Kinau. That goes into a fund that nobody has access to, so we have to prove that there's money going into there and that we need it for a natural area reserve system function. So that's always a curious thing. You know, you can give the state money, but it's not necessarily so clear how and who gets to use it. And we're sort of up against that wall. My program continues to support forest bird and seabird work, the plant extinction prevention work, and snail extinction prevention work. And those are being moved more and more under the purview of the native ecosystems protection and management program. That's another thing that involves lots of managerial focus with me and other people in administration trying to get that to go forward. And especially doing it now during a time where funding has been cut back pretty drastically. So 25% in my operating budget, already, and there might be some more, it depends on the governor. It doesn't look like fiscal year 22 will be much different, if not worse. We're sort of looking at that. That's my update, lots of paperwork and dialogue and things going back and forth between administrations that are trying to make sure that forest birds, seabirds and native ecosystems work can continue in a way that's necessary in view of the Covid. Also helping our partners, we've seen that Kevin Cooney and his staff were able to work with MISC at the new MISC site. We are still trying to be available to partners where it counts.
- Forest: One little quick update: if you've driven into town, and you've seen the dying trees on the hills behind Wailuku. The first ones to start firing off were the eucalyptus. We went up there and checked it out. Our best guess is drought. So if people ask you what's happening with those trees on West Maui, behind Wailuku - currently, that's our best guess. We didn't see any staining in the wood, Lance guys are gonna take some samples, get them shipped off. The archives said there was a similar thing back in the 90s. I'll add one more thing, the Kamehame Nui parcel, Lance has contacted us to help do some of the initial flora and fauna surveys for a report to be used in the planning process.

Action Items

- Radford: We want to get back to strategic planning soon, we don't have the technical capacity to do that now. Hopefully relatively shortly we'll have the ability to manipulate data, and have adequate internet at Old Maui High.

Next Meeting Date: January 28th.

Pau