

MAUI INVASIVE SPECIES COMMITTEE

Friday, May 12, 2017

Meeting Minutes

ATTENDANCE: Brooke Mahnken, Adam Radford, Fern Duvall, Chuck Chimera, Jeremy Gooding, Marc Nishimoto, Forest Starr, Christian Visoria, Kim Starr, Woody Mallinson, Bryan Berkowitz, Adam Knox, Steph Miller, Kerri Fay, Ross Kamimoto, Abe Vandenberg, Carl Martin, Bill O'Neill.

Remote Attendance: Randy Bartlett, James Leary, Danielle Frohlich

- The meeting was called to order at 9:10am by Fern Duvall, Acting Chair.
- Introductions were made.
- Minutes from the last meeting were approved. They will be posted on the MISC website.

ANNOUNCEMENTS

- Adam R.: this is only the 3rd MISC meeting Elizabeth has missed in 17 years. This is part of her transition toward doing more community service work with Quigley. Steph will be taking minutes from now on.
- Fern: on June 28 the Army Corps of Engineers is having a hearing at the Cameron Center about ordnance removal at Ahihi-Kinau. It will take up to 18 months. The areas not cleared will remain closed. It's important to voice an opinion so areas used by NARS or the public can remain open.
- Forest: Update on Lloyd. Notes or postcards are appreciated. Adam R.: we are pulling images and letters to send from his retirement party.
- Adam R.: in Lloyd's absence Fern has graciously agreed to serve as the MISC chair.
- Adam R.: Mamalu Poepoe is a DOT-funded project for early detection at airports, focused on mosquitos, ants, CRB and Africanized bees. Knox and I met the program coordinator Leila Koffman. She has brought together the DOT, DOH, DOA, UH, DLNR and HISC. MISC will provide staff to help with monitoring; there is funding for the assistance. It's a good complement to our early detection program. Randy: The project is in the first of five years, funded at \$300K/year. It's a trial program. It uses FAA funds which limits the scope to airports, and doesn't include sea ports. James: if we're talking about points of entry that's the first place to look. I'm not sure what metric would be used to show it's not a worthy investment. Adam R.: Leila is hoping to expand the program to ports at some point. Fern: will MISC be able to help look at coconut trees that were brought in by DOT to the airport? Forest: we did a survey for LFA and a brief survey for CRB. Adam R.: Adam Knox has spent a good amount of time in Guam where CRB is common and can identify signs and symptoms. Randy: DOT's SNIPP program has looked at harbors and plans to continue looking for the next few years.
- Fern: MoMISC has a board with everyone's face who works there; it would be really helpful to have everyone's mug shot and name since we have so many new people here now.
- Randy: HISC's call for FY18 proposals is out. Proposals are due to Randy by June 9. The process is similar to last year. There are fewer criteria, mostly based on the new inter-agency biosecurity plan.

RAT LUNGWORM DISEASE (RLW)

- Marc: We want to collect questions from the public and answer all in one place in a forum. So far on Maui there have been 6 confirmed cases, one probable and a whole bunch of suspect cases this year. The vectors are rats and the semi-slug, all slugs and snails can carry the disease, but it looks like the number of RLW cases coincides with the presence of semi-slug on Maui. From 2004-09 Bishop Museum did a survey and found RLW on 8 out of 40 sites on Maui. It was found in Hana, Haiku, two sites in Kula, Waihee and Kapalua. We've asked that funding from the legislature be used to do a comprehensive survey of all mollusks and testing to find hotspots. We're also

working with Kalani English to get private funding out of the East Maui side, which will let us test sooner than later.

- Farming is hurting, a lot of their accounts are getting cancelled. It's a fine balance between keeping the people informed and not scaring them, and not impacting the farmers. Forest: would it be too difficult to have a RLW certified free, if you did testing, would it be too risky? Marc: I think it would be too risky.
- Marc: Bob Cowry from UH says they test individual slugs and snails, but don't do pool samples. The test for PCR and morphology is about \$25 each, done by Bishop and UH Hilo. There's a difference in opinion on how to send samples. We would like to follow the Bishop Museum protocol - pour boiling water on the slug to kill it, then put it in 95% alcohol. But there are issue with transporting it in alcohol. We have to figure out the protocol.
- James: is there a point of contact that serves as your nematologist working on this? Marc: no. The two main contacts are Nori at Bishop Museum and Sue Jarvey at UH Hilo. Funds that were given to DOH Oahu are meant for statewide use. A lot of it will go to education. There is also some for surveillance for Bishop Museum.
- Fern: during the surveys in 2004-2009 on Maui they did not find the Semi-slug, but the worm was here in other slugs. Just to point out that there were 16 others that carried the worm.
- Chuck: you mentioned that eradication is possible, you are referring to eradication of the semi-slug? Marc: we need to survey to find out where the semi-slugs are. I'm not sure if we can eliminate it, we need to control arounds farms and gardens. There is a proposal from a company that did some rat eradications from NY City subways. They are creating a product that they made appealing to the rats that causes male rats to become sterile. It gets metabolized within 10 minutes upon ingestion. If a cat were to eat the rat it wouldn't transfer to the cat. We need to be sure that we are not messing with endangered species or land / water contamination.
- Fern: the FWS and the state of HI have drafted a PEIS to drop rodenticide from the air. It's a good time for DOH on a departmental level to work into that. It could be hand broadcast or by helicopter for a massive reduction of rodents. It's about 6 months away from completion, where they can start doing this, and it has been in the works for about 16 years. FWS is the lead. Patrick Chee from DLNR office is handling it from our side. Bill: Brand Reece is overseeing it for FWS. Randy: There are continuous delays for Lehua. Fern: This would be a statewide application permission for aerial rodenticide drops. Randy: They're not going to get that until they finish with Lehua. They want to do it while it's fairly dry before we get too much rain. Forest: the idea is that if other agencies wanted to do this they wouldn't have to go through the process over again, they are trying to make a programmatic EIS that is overarching that could be referenced. Fern: it's not just aerial, depending on the situation it can be hand broadcast.
- Marc: The Hawaii Community Foundation might help fund MISC for education. Adam R.: A lot of that is for surveillance and testing for Maui County.
- Marc: Loren went to Hana yesterday, they did 3 different videos, that's all part of the education for the general public to see what needs to be done and to report back to MISC for input into the online form. It seems that the semi-slug is on the East Maui side. We've heard of slugs being moved on awa plants but we're not sure if those are semi-slugs. That main goal is to reduce slugs, as simple as hand control at night, we found that to be pretty efficient.
- Forest: any efficacy results about best control of slug with different baits? Marc: no. Adam R.: CTAHR has good references on which control is best for slugs.
- Chuck: in the meantime is the rodent sterilizer approved? Marc: yes, but not sure about use in Hawaii, we have to figure that out. Fern: on Oahu there is an incident in command set up, is DOA in on that? If you are going to look at chemical control in the future for snails or rats it is going to be important that they are there since they give the statewide special local needs permit. Marc: we just had meeting last week with DOA Adam R.: I don't think that product is carried in Hawaii but I know it's a restricted use pesticide. Marc: they contacted Mayor Arakawa 2-3 years ago about it coming to Maui. It didn't happen at that time.

- James: this is an open comment – I think one misfortune is that it's been a problem on the Big Island for a long time. We didn't show the same level of urgency when it was a problem on the Big Island and I hope that in the future we should pay more attention.
- Fern: is there anything new that MISC should do? Now we are going to go over what we are doing and what is appropriate for MISC to do. Marc: MISC has done great with outreach over the years. The online reporting system – I'm not sure how labor intensive that will be for collecting data? Will we be able to get a report on a weekly basis? Adam R.: it will be real time.
- Adam R.: I just wanted to say that for all of the stakeholders it's been a really impressive outreach effort. There has been 2-3 presentations a week between the groups - MISC, CTAHR, DOH, the County. It's a very concerted effort where the response seemed more fragmented on the Big Island.
- Forest: what do you suggest for homeowners? Marc: inspect and wash your vegetables. If you have a home garden get rid of rats and slugs. Keep water and garbage away so you don't attract rats. Bring pet food in. We're not sure on micron size for catchment, we are looking at 1 micron but 5 micron might be okay, we're not sure. Marc: on the Big Island some people are putting a salt barrier around their catchment. Copper bands help. Take things off the ground, wash off the dirt. The Hydroponic guys are not immune. Semi-slugs climb, as well as African snails.
- Adam R.: MISC has been supporting outreach education efforts. We already had a Hoiike lesson on RLW, we have made that available to those that would like to use it. We've also offered to manage data for the stakeholder group. We are going to look at the form now and get input.
- Bryan: the form is at Mauiinvasive.org/slug. It's mobile friendly. This is version one, it was built off requirements discussed at an initial meeting. Adam R.: part of the intent of the form is to solicit input from public but also for all the different stakeholder groups: DOH, MISC, Bishop etc. who may be doing surveys can also enter data into the form as well so that all of the data will be in one repository.
- Fern: make the wording more encouraging for people to enter the information into the form.
- Chuck: who is this going to and who is responding to reports? Adam R.: it comes to MISC first, but all the stakeholders will have access to it. It's really trying to encourage people to submit pictures. If there was suspicious or very likely reports of semi-slugs then DOH staff will follow up or it'll create a priority list if Bishop is going to survey. Marc: I think initially once we start finding semi-slugs the vector guys will go out. Finding slugs is easy if you look, if we have the testing set up then we can start doing the testing. Probably going to concentrate more on farms first.
- Bryan showed how form works and received input
- Chuck: are all species of rats equally capable of carrying RLW? Marc: I think so. There are 3 species of rats? Yes.
- James: is this a phone app or a webpage? Bryan: it is a webpage that is specific for mobile. James: thank you Marc for joining us, thanks for the information. Marc: we will get through this. I think there might be an increase in suspect cases, but hopefully as we do more mitigation the public will get better educated, I think we'll be ok. Wash your bananas!

LITTLE FIRE ANT (LFA)

- Fern: we are going to LFA now, starting with the status on Maui. Adam R.: I am super happy to have Brooke here as LFA Coordinator, he's doing a great job Brooke: Thank you. Fern: how many people do you have? Brooke: I have Monte. Adam R.: we are looking at having an AmeriCorps intern working at half for Coqui and half for LFA.
- Forest: if you've seen what has happened on the Big Island, if we can't put this back in the bag they have monthly workshops that are booked with homeowners, it switches more to an IPM (integrated pest management) information strategy. For now we're still in eradication mode. But for 10 years we've looked for this ant with USGS and now it's here.

- Brooke: I came on in February, since then I have been in the field and doing data. I'm familiar with the data since the beginning of the project but never have been so intimately involved with it and trying to manage it. And then coordinating with Hawaii Ant Lab. Thank goodness for Hawaii Ant Lab. They answer a lot of my questions, but it's also been a learning process for them. I'm trying to systematize what Hawaii Ant Lab has recommended as a standard protocol. Brooke shows graphic to help illustrate current treatment strategy for a little fire ant site. There are three phases. The IGR is the insect growth regulator, then the toxicant phase and then post-treatment/monitoring phase. This graphic represents the ideal situation. It starts with a delimiting survey. It could take three years from delimitation to treat an LFA site. The treatments are every six weeks for six months as the first phase, using the insect growth regulator, which is not toxic. It's a hormone that causes the queen to quit producing, then you are waiting for the ants to die of old age. During this phase the ants spread the bait to the entire colony. Since it doesn't kill them they are spreading it much more efficiently than a toxic bait. Once the colony is impacted there is a midyear survey, a test to see if it's working. While creating this graphic I created more questions for myself than I answered. I think you would see fewer ants during this survey. With the insect growth regulator, you have to wait out their lifespan which is three months for the workers. Adam R: a queen can live a couple years or longer. Brooke: so when the workers die the queen gets hungry and starts foraging. If at the midyear survey the treatment wasn't working I'm not sure how you would change the course, that's a question for Hawaii Ant Lab. Forest: But they say if they see a queen foraging they know it is working. Adam R: I think they feel like that is the time to switch to the toxicant. Ross: is there a way to age them? Abe: the workers only live three months, so if they are alive they are so for three months or less.
- Brooke: if everything is on track you go to the toxicant phase. Every six weeks for six months you treat with toxic bait. Then there's the post treatment survey, to see if there are any ants at all. Ideally there is not and you would go to the monitoring phase and do quarterly or trimester surveys to make sure nothing is still there. Forest: I think the end date needs to be two to four times that. Adam R.: talking to Cas I don't think there is an end date. You would continue to monitor but spread out the time in between surveys. So at some point you are going once a year or every other year. Discussion about need to do surveys at required interval and missed LFA at Waihee. Jeremy: what if you find ants during post treatment/monitor phase. Do you go back to insect growth regulator or toxicant? Brooke: I think there is a feedback loop that you go from post treatment survey back to toxic bait. I don't think you go back to insect growth regulator. You would survey and then reduce the treatment area to where you found them. Then go through another 6 months and keep going through toxicant phase over and over until you found none. Once you find you start into another six months of the toxicant phase. This needs clarification.
- Fern: how dependent is this strategy on the complexity of the location. A small one like Waihee versus a big one like Nahiku? Brooke: we haven't done this for Nahiku. Fern: so it's dependent on the site and its complexity. Brooke: I think you would like to do this for any site. You will see in Huelo there are portions of that site that are on different schedules because we were prevented from doing work. It's broken up into multiple sites. Forest: we've never tried this systematic monitoring after eradication. It's harder to kill than we anticipated. Forest: we've never done control before, it would be cheaper than having HAL come over. Adam R.: that is where we are headed with HAL giving expert input but MISC implementing on the ground. Brooke: we also bring to the table technology and GIS. We can be really specific, targeted and thorough in a way you can't be with the Foretrex. I think that's where we'll have an advantage. So that's the treatment strategy.
- Brooke: for our reference the foraging range is believed to be five meters. So that means this yurt is the area if there was a colony in the center. That is expert opinion. If you put a sample in the center of this yurt you are sampling an area the size of the yurt. Forest: it would be cool to do a fluorescent dye bait and come back at night and see how far they went. Brooke: Michelle has plans to study this soon, to get a better feel for the range. The spacing is really important to know

when doing surveys. I also want to find what the treatment zone is. Recommendation from HAL is a 20m buffer of every positive ID as the area where we are trying to apply baits to. That is four times the five meter buffer so its way beyond the area we believe is infested. Forest: it's also what you are able to "detect". Brooke: yes. The treatment zone would account for if you have missed something. We shouldn't be treating where there aren't ants. When we're doing surveys there is "tight" spacing and "loose" spacing according to Michelle. Tight is placing a sample every 5 meters. Each sample overlaps from one circle to the next. Loose spacing is every ten meters with no overlap, and there are gaps.

- Fern: they do climb trees, is it five meters in a three dimensional space? Brooke: ideally. Brooke: the highest they get placed in the trees are about six feet. Adam R: on Kauai they were sampling the tops of palms. Fern: that would be another biological question. If there is adequate food supply do they stay on the ground or become arboreal? Abe: Cas has said if they have food in the tops of trees they won't even come down. They do rain down. There is video of ants "jumping" off palm, not falling, but jumping at a 90 degree angle. I think it's a behavior. Similar to trap jaw ants. A behavior seen in other species. Forest: Kauai got burned because they were in the trees. Brooke: same here. That's why Waihee came back. Jeremy: with that behavior how do they relocate their nest? Brooke: a worker can jump all he wants and not spread the ants. Abe: they can stay in the tops of trees and don't need to come down but they will fall or disperse themselves. Brooke: that would have to be a queen or dispersal event. Abe: You have to treat the tops of trees too. Brooke: which we haven't done on Maui, for any of our sites. I did sample up in a tree recently and found no ants.
- Brooke: back to survey types and strategy. Delimitation according to Michelle is 50 meters beyond a positive ID with a loose survey spacing. I don't think that has been done at any of our sites on Maui. The midyear survey would be another loose survey, because we're just trying to see if things are working. It would be 30 meters, which is 10 meters beyond what the treatment would be. So you would test the area you've been treating but also the perimeter to see if there is something that was missed originally.
- Forest: surveys using vials or sticks? At Waihee it was originally up to staff to determine if LFA or not. More recently it has been vials for microscope ID. The latter is more accurate but takes more time. Brooke: I agree and think that's what we should do. The last survey with Michelle was sticks. If it's suspect you put it in a bag. Forest: Michelle can ID, but most other people cannot. Monte can. Brooke: If it's small and red you put it in a bag. Forest: with Wailea, people got both false positives and negatives. The average tech is not able to discern at that level. But maybe with more experience they will. Monte has shown an exceptional ability. Brooke: but you can determine if it's small and red. If it's small and red you put it in a bag. Forest: that's a good way.
- Brooke: the post treatment survey is the survey of the area you have been treating. It's the 20 meter survey which is tight, every five meters to make sure nothing has been missed. If you do a loose survey and detect ants then you will do the 20 meter treatment zone which will treat the whole area. It doesn't matter if there are ants or not because you created an area much larger than you sampled. It's only after a treatment that you do a tight survey. The post treatment monitoring surveys are quarterly or trimester surveys that continue for a few years. I assume those are loose.
- Brooke: one survey Michelle said should be a donut survey. A 50 meter buffer of the treatment area, this goes out 70 meters from a detected point, but not the treatment area. To make sure a dispersal event didn't happen beyond the treatment area. It could be very large area.
- Abe: have you taken into consideration dispersal from wind if ants are in trees when you decide on the size of a buffer? Brooke: the 20 meter treatment zone is an intentionally liberal area. That's the area that will be surveyed. Twenty meters from the base of a tree if you've had a detection you will survey for three years. And later on is the donut. Abe: I'm asking because the buffer is based on foraging. The treatment zone is 20 meters which is four times larger than where they were detected. Forest: if they are in a tree, how far could they fall away from the tree? Brooke:

that will require something that I'm not going to incorporate I'm just going with the buffer. Fern: can queens fly? Abe/Kim/Brooke: yes but they don't fly. Forest: water is another unique situation...they can raft downstream.

- Brooke: looking at Waihee infestation maps. Much of the infestation is in the neighbor's property. I went and talked to the family, they were aware of the work. They own a home in Keanae, near Darrell Aquino, they are very supportive. This is all a macadamia nut farm that's abandoned. They are bulldozing, they are going to do the same as Lokelani ohana with kid groups, and they really don't want fire ants. They were concerned about where they were bulldozing. (looking at map) They are willing to support us as best they can, including removing vegetation so we can do control work easier.
- Brooke: some challenges of this site are the large trees. There are five very large mangoes and a Kukui tree and Cas believes the ants are still in these trees. I'm not sure why that was not initially addressed with the treatment strategy. Brooke: it would be really useful to do 3D mapping with a drone for LFA sites. You could look at places that were too high and that would be very useful.
- Brooke: I met with an arborist about the topping of 5 mangoes, removal of 3 java plums and 4 fan palms. Christina Chang wants to do that and Cas is supportive. Forest: how would you deal with the debris? Would you burn it? Brooke: I think chipping it would be the quickest way. You could treat the machine before it leaves. Decontaminate it. HAL has said that. It's also not ant habitat. Only things that are lodged inside would be habitat. We need to find funding. Also, there is concern about setting a precedent. Fern: I think you would want to do a survey first to document that. Brooke: I'm not sure how you could be confident that you surveyed the whole tree. They are huge mango trees. There could be ants on one branch and not on the rest and you would have to make sure you sampled up and down each one of those. Kim: is there any broadcast spraying that could be done? Brooke: my idea was to run a PVC pipe up to the top of the tree with a sprinkler attached and maybe midway up. Adam R.: with the trees we still need to see what our options are. Brooke: we need to develop a strategy for those trees, and for all trees on all sites. Chuck: but they want to get rid of the trees? Brooke: they want to top some and get rid of some. Chuck: What about herbicide? Adam: it would be a liability. Brooke: the house is right next to it. Fern: the strategy would be to sit down with the Adam's and do pros and cons of each method.
- James: What about baiting LFA and sending them up the tree? Abe: give ants on the ground the IGR and put those ants in the tops of the trees. Brooke: what fidelity do they have to the queen? Adam R: no loyalty. Abe: since the workers are clones they don't recognize difference between queens. James: cutting the trees down is a super expensive option. Approaching 6 figures. Brooke: the home owner is eager to get these trees taken down and having us or the state pay for it. Abe: Cas is working on helicopter options, but there is no need to do things here that can't be repeated. It needs to be repeatable for Nahiku. Forest: this might be easier for helicopter use because there isn't a water issue. Fern: Figure out if ants are in the trees, and look into parachuting baits into trees or toxicant into trees. Need to be really inventive. It's part of the pros and cons. It may work here, not there. Adam R.: I'm an advocate of climbing the tree. Brooke: I think using the helicopter is a promising approach. We should compare cost of 8 treatments via helicopter vs topping the trees. Chuck: what about using a cherry picker? Adam R.: I think they did on Kauai. Brooke: but not here on Maui. Abe: what about water balloon launcher? Steph: or what about HBT? Abe: encapsulation is a problem and the oil going rancid.
- Adam R.: before we started I should have given the caveat about raising questions about the current status and challenges. We're not at a place to propose our thoughts and get any recommendations. We only have problems that need to be addressed and questions to be flushed out. Then we need to discuss with HAL and the committee.
- Brooke: moving on to Huelo. This is made up of multiple properties and landowners, some have dilapidated buildings falling apart. The landowners are cooperative and are working to clean up the site. It is filled with very large trees, much larger than at the Waihee site. One site is in the post treatment phase. At some we are doing targeted treatments of where we found ants, per

Michelle. Next week we will do an exhaustive survey of the 20 meter treatment zone and a tight survey of that whole area because in a couple weeks after that they are going to come back and do more treatments and reassess. One property has essentially started over because we were prevented from doing work so it's on its own schedule. Another site didn't allow us full access for a while either. Monte and I did a survey recently and found that the ants are more extensive there than previously known. On that site some portions just got treated for the first time. So we started over there as well. So we have three locations on three different schedules.

- Chuck: but they're no longer skeptical? Brooke: we can't use the toxic bait, only the IGR. Fern: isn't there legislation that changes that? That you could go onto private property and do treatment even if they don't want you there. Brooke: right, we are avoiding having to use that. Fern: its new legislation that passed it's just awaiting signatures. Brooke: Does that apply to using whatever treatment method necessary? Fern: I would assume that it would. Adam R.: I think that is a ways off from being a tool that we can benefit from because it empowers the county but they have to decide on what their process is and how it works and who are they empowering. Abe: I think we should have a statement for MISC in general about the use of that tool.
- Brooke: here is an example of the five meter sampling (showing a map with a grid) you would want to place a vial in each grid square. That would be a pretty thorough survey. Kim: can you eradicate with just the IGR alone? Adam R.: yes, at smaller sites.
- Brooke: at one site, property was moved off site about a year ago to Kailua. I got contact info and I sampled there and didn't find anything. There are also still ants at the Haiku site. The site includes an orchard.
- Brooke: we have done one treatment in Haiku. We responded really quickly when the ants were found again with the toxicant. There are concerns there about equipment in the infested area and a lawn service. I talked to him and he says this is his last site of the day before going home. He lives in Kihei and pressure washes his equipment in the street. We were going to survey at his house in Kihei but he also has regular pest control treatments at his house. I think it's low risk, but we should follow up with him.

Brooke: Kapalua site – Each property is independently owned. I think there's been three treatments to date here, and at least two were guided by me and Monte. Some areas can't be treated, like the houses, and there probably are not fire ants in the homes. They are not on the pavement. They may have crossed the pavement, but they are not on it. Forest: are there culverts there? Brooke: yes. Forest: we have seen the Argentine ants in the culverts. Brooke: I think there may be some gaps in the survey. We found ivy gourd here during treatment. There is a cliff, it is kind of steep, all naupaka. This site is on track. It's new. It has some tall palm trees. Some really tall kiawe trees. The green waste area is right here. I don't know if any of these are false positives, they are kind of out of place. Adam R.: I collected one and am fairly certain it was little fire ant. It was in the median in an area the size of this table. I was super surprised. Brooke: We will go back and sample once we get to the midyear treatment, which is all scheduled out. Forest: that was one of the things about the false positives, see the ones going all the way up, Mike Ade thought all that was LFA. It ended up being Tetramorium spp.

- Brooke. Next is the mid-treatment survey and then switch to toxicant. Forest: the original survey was done by people that don't do this all the time. There was a big pulse of people including seabird and Puu Kukui people. It seems pretty good, but not Monte good. Brooke: yes, Monte has been really meticulous about this, he's been very good, very helpful.
- Brooke: Nahiku. This one is huge. We've been saying that Kapalua site is 12 acres, it's more like 7 or 8 when you do the 20 meter buffer. In Nahiku the infested area which is a five meter buffer of all positives, and not totally delimited, is more like 10.9 acres. That is small but that's not representative really. The treatment zone is like 40 acres. That is the not fully delimited treatment area. This is all hau and jungle, with the stream. We are currently following a strategy set by Michelle (HAL). We have been treating the area with people, and not on the west side of the stream (jungle). We need to get down to the cliff by the ocean, and on the beach. There is a road

going down, and a stream that has been surveyed. This is a road that has been bulldozed. There is concern here that the ants have crossed the road and gone into the hau on the other side. One thing we need to do is survey a line down the pasture to make sure ants haven't gotten that far west. As far as we have searched we've found ants, it's not completely delimited. The terrain is really tough.

- Brooke: The property owners are all cooperative now. One was recalcitrant at first but now is happy. They were getting stung in the house and now they're not. They expected to see a large die off of insects around his house which didn't happen. Bryan: and that's all from IGR?
- Jeremy: I just had a brainstorm. Have you ever set Kona crab nets? It's a series of 40-60 nets all in a line with a weight on it. As you move the boat each net is on the same line. Theoretically you could do that with vials with the helicopter. Across hau or nasty areas by the house. Either grapple it or make sure it ends near the road so you are able to retrieve it. It's like 30 feet between nets. You bait each net. Forest: Like the Guam rat bomb for control. Brooke: that's an interesting idea worth exploring.
- Brooke: the other big thing here is where we would try aerial control, but there are so many streams and our current pesticides are not labeled for water ways. So the Ant Lab is working on the special needs label for Altocid which is essentially Tango – the growth regulator. They use it for mosquito control on the mainland, they actually put it in water and is labeled for aerial applications. Adam Knox: if it's used for mosquito control. That could help the case. Forest: to me Megalagrions would be a concern. Brooke: they already had fish and wildlife do surveys and there not there. Adam R: When I last spoke with Michelle they thought they would have it approved this year, hopefully by fall. The approval hinges on Megalagrion. That's what we're waiting on.
- Brooke: if we get approval for aerial application how do we do that? I think you can run that gel bait through our spot sprayers. I think Michelle wants it to be more of a boom spray application. It works in a handheld squirt bottle just fine. I think it would go through whatever sprayer we hooked up to the helicopter. Jeremy: the mini boom is nearly complete. Woody: is there an acreage limit? Brooke: yes, there is an application rate. Brooke: it's not super thick, the issue with viscosity is that we need gel bait to stick up in the trees but also go to ground. There's a discussion about using granules because they will go to the ground more readily. Or mix the gel bait so it is more oily so it will drip to the ground. We're probably going to need two types of applications. The Granular is not formulated to be used in or around water ways. It could maybe be used where there's not water, in which case we would need to map those areas. Adam R.: what about baking it into peanut butter cookies? The granular bait is not approved, so figure out how to get Altocid into granular form. Bryan: does modifying the form modify the application capabilities? Brooke: I don't know if that's in the SNL. Jeremy: HBT capsules take four weeks to get shipped here so it's not an option.
- Brooke: There are all these other places, like the laundromat in Hana which I really know nothing about. Adam R: the laundromat was the roofing tiles. Brooke: and the truck that got moved to Wakiu and then to Kahului. There's Lowes in Kahului where it was found on a Hapuu ferns. South Maui gardens where they found it on Hapuu. South Maui Gardens is really on top of their pest control. They quarantine Hapuu for a year before they sell it. They frequently treat the property for pests. Monte did a comprehensive survey recently for LFA and found nothing. There's also Andaz where Monte did a survey recently and didn't find anything. Didn't do Elua Makani, I think we probably had a false positive over there. Adam R.: one interesting thing with the Andaz. I think they had a systematic treatment scheduled and plan implemented by their grounds crew and they also would treated the top of the palms every time they trimmed the coconuts.
- Adam R: thanks for tackling these tough questions. I appreciate that you are thinking critically about it, being very thorough and raising the bar.

OUTREACH AND EDUCATION - UPDATES

- Adam R: The Malama I Ka Aina award is June 17 at the MALP Lawn and Garden Fair. Lissa is soliciting nominations; they are due by the end of the month.
- Christian: We're camping again for pampas grass and working in the ranch a lot. Jordan has helped with access. We're finding some plants but nothing mature. Jeremy: you guys might be re-sweeping areas they just swept. Christian: we're still finding plants where Jordan's guys have treated trees. We're finding plants growing out of trees that were cut down. Also finding plants where we did the pine sweeps. Finding small plants in areas they've been. Jordan's guys are doing a lot of work. We have our interns and me and Kelii still. We're hoping to get some more people. Ross has been a big help. We haven't been to Hana in a long time. There is a lady in Kihei that mentioned Elizabeth Speith. She talked to her about Rat Lungworm and got a lot of information. Multiple people have mentioned her name as someone they have talked to and she's providing a lot of good information. Abe: she takes a lot of time, she always talks about learning moments. She goes in a lot of depth with coqui and everything. If they go to her she forwards them to me but she also responds to coqui reports and ant reports with really in depth responses. She does a really good job following up with everything.
- Fern: someone from the Department of Ag. lives on Holokai and said they have coqui. Did they call that in? Abe: Department of Ag has been following up on single frog reports and Mike Pruitt is good about calling me and following up on that. I have not heard from someone at the Department of Ag about a frog on Holokai. Fern: no, department of health. You know Kalani? Abe: I have not heard from him.
- Adam R: any other updates to share? Abe: We just got a 1025 trailer that will be legal soon. We got a Chevy that can hold the 400 gallon tank in the bed. Carl and Darrell rebuilt two 400 gallon tanks from the Big Island. We have seats to fill in the trucks. Equipment wise we have a lot of tools. We have tons and tons and tons of citric. Fern: DOFAW is helping you next week or next month? Abe: DLNR guys are going out with Darrell again, not this coming week but the next week. The crew's morale is really good. The crew is really good. They have good toys to play with and we're out there doing what we can. Adam R: Great. Thanks Abe.

FUNDING

- Adam R: Our Department of Water Supply grant which covers just plant work is \$250K, the same as previous years. We hope the general Office of Economic Development grant should also be close to what it's been the last several years at \$895K. Coqui was a line item in the mayor's budget. We had asked for \$1 million, which is a low estimate of what we need but would keep the program moving forward. The Mayor's budget only included \$300K. We advocated vigorously to raise that and ended up with \$750K. We have had several other opportunities. One is with the Department of Agriculture. We submitted a short proposal for around \$250K. And we submitted a proposal to the Hawaii Community Foundation for rat lungworm work. Most of that funding would be for survey, which would probably be done by Bishop Museum staff. So MISC is more of a pass-through. Fern: what about the HISC proposal you mentioned? Adam R.: The HISC process is multiple proposals, including outreach and education, coqui, plant work, miconia, little fire ants. Fern: It seems like Little Fire Ant might need more assistance if it's just Brooke and Monte. Adam R.: funding for LFA is included in the HDOA proposal.
- Adam R: another couple of things. The HB606 which allows counties to delegate for access to private property. The other main one of interest is HISC funding was essentially the same as last year but it is now part of the base budget so it recurs automatically each year. It's the first time we've had somewhat stable funding. James: is that a two year term? Adam R: it's biennial. I think that will carry forward in perpetuity.
- Jeremy: EPMT money is still in flux based on some interesting charges to the account in my absence. I just finally got access to the network late yesterday. Woody: we're working on the new agreement. Steve will be the point person for it. He's on leave right now and will be back at the

end of the month. That will give us the opportunity to put year end money into MISC work, potentially Miconia or Pampas. Jeremy: Putting Steve on as the ATR is strategically wise. It improves the chance of things going through cleanly with contracting. Woody: things are going to have to get going pretty quickly. We have a deadline put in for placeholders and making sure money can get to you guys in time before the end of the year. Once he gets back it'll probably move pretty rapidly.

- Chuck: One quick Rapid Ohia Death update. You might have heard of the “lab in a suitcase”. It’s a diagnostic testing to run a PCR analysis to determine if ROD is present in a suspect sample. Right now the majority of the samples are going to a lab in Hilo. A USDA lab. They are doing everything, research, testing, analysis. They are completely overwhelmed. There’s a lab on Oahu that’s helping as well. The idea with the lab in a suitcase is it’s a mobile kit to test a sample on site and get a result back in about 90 minutes. There are two right now. One is being used by the ROD early detection rapid response team working under the BISC umbrella. The second kit is being used by the Hawaii department of ag on the Big Island. I think they may be testing samples that are going off island. The people that developed this testing are with USGS. Carter Atkinson just came out with a technical report that was published and it goes into all of the gory details behind the science. The estimated cost of one of these kits is eight thousand dollars. I think they are working out the kinks to see how well it works in the field. Ultimately the goal is that these available on all of the islands. For us to get at least one on Maui will be a high priority. Maybe it is something that could be put into a funding proposal? Andrea Buchman from Leeward submitted a pre-proposal back in December for just one of these kits. I call into these monthly meetings and one of my questions I ask every time is “when can we get one of these?” and they keep saying it’s not quite ready. But now they actually have them. I imagine the training to use it is somewhat rigorous. We might want to identify some people on Maui. Forest: the BISC staff has been able to do it. I think Mike Ade could do it for us. Chuck: yeah, it’s not impossible but it’s not like “here’s the kit go out and do it.” It’s going to require some specialized training. Kim: what about the funding from Christy Martin, could that be used for this? Chuck: that might be able to. I think that is certainly within the realm of early detection to get at least one of those on Maui to start using.
- Jeremy: I think Carter is still interested this summer in deploying spore detection stations on East Maui. It doesn’t have to be on park property. The question is what are the most likely downwind (of Big Island) sites and then buffer that on either side. It’s going to take a multi-agency effort to go collect the sticky traps. Every 14 days you take the sticky trap out, put in a new sticky trap and look at the old sticky trap under the microscope. It’s a presence/absence of spores. If we wanted to spend money on it we could put them all over the island. He’s only got funding for 3-4 on Maui now. Forest: if you look at the Big Island vog modeling you can see where the wind goes. It’s basically the south side, Kipahulu. That’s where it hits and wraps around.
- Chuck: this isn’t new but one of the other things is that they are looking into a detector dog for ROD similar to LFA that can cue in on the scent. There is some sweet smelling odor that is given off by an infected tree. They’re working with somebody from Florida who’s using detector dogs in orchards seeing if they can use a similar methodology to train dogs to detect it in on samples on Ohia trees. Fern: I think they do it with oak tree fungal decline in California.
- Brooke: I have an update on the detector dog. Michelle sent samples to Australia of little fire ants here to test them with the dog in Australia and it didn’t work. One possibility is that our ants may smell different than their ants. Chuck: maybe something about the shipment changed the circumstances? James: could you administer a bait that they pick up that has a scent signature to track where they end up? Something you don’t have to check every 90 minutes, you leave the bait out and they feed on it for a week and you can find out based on scent signatures where they’ve traveled to with the dog? Brooke: I’m not sure what you mean. James: Instead of trying to identify a unique smell from the ant itself you create a standardized bait that has a scent signature that’s characterized and that the dog recognizes. So that when the ants are feeding on the bait they

track where the ants are taking that bait to. Brooke: I suppose you could. You'd have to make sure that you're feeding every ant. If the dog is at the port one benefit is they are detecting ants coming from the Big Island but they wouldn't be able to detect them unless you had baited them already. It's still in Michelle's court to prepare another doll. It is discouraging. Forest: that detector dog would help us a lot.

- James: what do the little fire ants feed on around here? Brooke: they farm aphids and scales. The belief is that the reason they're attracted to the protein bait is because they gorge on it because it's not found that often. But they are normally eating the sugary substance from the Homopterans that they farm. Abe: I always describe the sugar as the gas for the ant army, that's how they power the workers. But the protein is what they use to make more trucks. They make more workers with the protein.

ACTION ITEMS:

Bryan: employee photo board

Adam(s) / Brooke: to discuss LFA tree strategy

Adam(s): MISC statement about legislation – HB606

Brooke: investigate Kona crab net idea

Adam: ROD testing kit into funding proposal?

Committee: identify a person for ROD kit use once available