MAUI INVASIVE SPECIES COMMITTEE
Friday, February 17, 2017
Meeting Minutes

ATTENDANCE: Forest Starr, Kim Starr, Bob Hobdy, Hanna Mounce, Kathy Davenport, Bill O'Neill, Fern Duvall, Brooke Mahnken, Adam Knox, Adam Radford, Mike Ade, Teya Penniman, Chuck Chimera, Lissa Strohecker, Bryan Berkowitz, Elizabeth Anderson

Remote Attendance: James Leary, John Carl Watson, Kerri Fay, Tamara Sherrill, Scot Nelson, Mike Metzler, Danielle Frohlich, Penny Levin, John Frost (HDOA)

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

ANNOUNCEMENTS

- Adam: Lloyd is stepping down as the MISC Chair in order to focus on his health and well-being. We sincerely thank him for time and service to MISC, Hawaii, the Pacific and conservation in general. Fern Duvall will assume responsibility as our Interim Chair until we decide as a committee how to move forward. Fern: I hope Lloyd is back with us soon even if not as the chair.

- Chuck: Allison Cohan of Maui Nui TNC will be giving a talk on forest conservation efforts tonight at 7pm at the Taveres Community Center. The talk is sponsored by the Native Hawaiian Plant Society.

- Adam: I wanted to give a shout out to Aja Akuna, MISC's Coqui Crew Leader. Aja was featured in an article in Maui No Ka Oi magazine. It is a great article and a compliment to Aja and all of her hard work.

- James: CTAHR will be holding a Hawaiian Invasive Pest Symposium on Kauai April 20-21. We hope it will become an annual event that will rotate between islands. I will be presenting updates on Maui and I am hoping that Adam will be able to attend as well. KISC will be giving demonstrations as part of the agenda.

STAFFING CHANGES AT MISC

- Adam: we have two new, old faces at the table today. Adam Knox recently returned to MISC as our Operations Manager. Knox was on MISC's plant crew from 2008 to 2011 and then went on to get a Master's degree and worked as coordinator for the Brown Tree Snake program in Guam. Brooke Mahnken is back from the mainland in the role of our Little Fire Ant Coordinator (LFA). We are excited to finally have a dedicated person in that role as LFA is one of our most important projects.

- Adam: we have brought on several temp hires for the coqui crew and functionally tripled the crew from what it was to ~16 people today. This includes two part-time interns. We are in the process of hiring a new crewmember for the plant crew and we just added an AmeriCorps intern to the plant crew.

SNAPSHOT OF 2016 ACCOMPLISHMENTS

- Adam: a copy of MISC's 2016 accomplishments is available. I would like to do something like this for our first meeting of the year going forward.

BANANA BUNCHY TOP VIRUS (BBTV)

- Adam: we will start off with some background for context in the conversation. MISC is at a crossroads with BBTV. BBTV is widespread in central and south Maui. It has not been found in east Maui and is very limited on the west side. We need to decide how we want to proceed. I was originally hired at MISC in 2004 to work exclusively on BBTV. This is a hard conversation to have – we may need to potentially let go of some parts of Maui.

- Adam; Maui has the most varieties of Polynesian bananas and is at risk of losing all of its bananas. BBTV was first found in Hawaii in 1989 and was discovered on Maui in 2002 by Mach Fukada. Surveys were begun by Bob Yonahara of HDOA in Pukalani in 2003. The goal was always suppression. Eradication was never considered an option. BBTV is on Molokai, but only in central Molokai. It has been confined to that area for years. MISC staff do occasionally go over to Molokai to assist with comprehensive surveys. BBTV has never been found on Lanai. We have surveyed there in the past. On Maui, BBTV has been found in Pukalani, Makawao, Kihei, Kula, Central Maui, and Lahaina. It is very widespread in Central Maui. In Lahaina, it has remained confined to one community. There was an infected plant found in Huelo next door to the Kepler's. It was in a plant brought in via a pot and was destroyed immediately.

- During MISC's early involvement with BBTV we conducted comprehensive door to door surveys. These surveys really helped with MISC's brand recognition. During the early surveys, the goal was to survey entire communities. Over time, as BBTV expanded its range, we found we didn't have enough people to cover all the area. James: based on surveys, do we know it is not in Hana? Adam: it is not known from east of Huelo and the Huelo point is really kind of artificial. James: does environment have any impact on incidence? Scot: yes, it is inhibited in wetter areas. The aphids like a dry environment and are better dispersed in windy areas. This explains the lack of disease in East Maui. On the Big Island, it took a while for it to spread to Hilo. The spread on the Hilo side was much slower than in the dry areas like Kona. Unfortunately, the spread is inevitable even in rainy locations. It has become a big problem even in the high rainfall areas. East Maui will eventually succumb to the disease. Penny: how far can the aphids spread? Scot: 2-3 miles on a windy day. Adam: the winds on Maui made spread hard to predict. We did use a buffering strategy of 30 meters spread per three months and buffered known properties based on that formula. Then we would randomly select properties to check. Even with that approach we couldn't keep up with it.

- Adam: BBTV efforts waned as coqui and little fire ants became higher priorities. Our survey effort has plummeted as we have shifted resources to other projects/species. Right now, we are merely providing resources to folks willing to do control on their own. What would it take to continue systematic survey and control efforts in impacted communities? Just to get back to the places where we know BBTV to be is a big job. There is funding for BBTV included in our general OED grant.

- Kathy: we do go by Walmart, Home Depot, and Lowe's and look at those bananas. We have found BBTV at some of those locations. The staff at Lowe's were very helpful, but had no idea on identification. The folks at Home Depot did know and they were also helpful. We just did a presentation at Kaunoa Senor Center and they want to know how they can help. Engaging the public is important. A lot of people want to help and they could go online and punch in the site where they saw it. This is something we don't have now, but we could start. HDOA doesn't survey, but we are always on the lookout. The infected plants found at the big box stores mostly came from one place on Maui. We are spreading it within our own island. Fern: there is a real risk that companies selling bananas could sell them out to places like Kipahulu and Hana. Kathy: John did encourage the folks selling bananas to destroy them. We really need the public involvement.

- Scot: the farmers need to manage the problem in and around their own farms. The priority should be focused on the collection of Polynesian bananas. We need to protect those plantings and the areas around those plantings should be monitored. Wild bananas in those areas should be removed. The farmers need to deal with it themselves. We are not going to be able to do anything about the residential areas. Eventually, there won't be bananas, or very few bananas, in residential areas. We need to target and destroy those gulches with wild bananas because they are likely to be infected and will continue to be a source of spread.

- Fern: is it possible through tissue culture to find out if there is resilience in certain bananas and then grow those out? Scot: I recommend tissue culture for preservation of the rare varieties. I know there is some variation among varieties in the attractiveness to aphids. Apple bananas are the easiest to grow in the presence of the disease. Apple banana tissue is tougher and as a result it is not as attractive to the aphids. Fern: what about future gene editing that could make the plants resistant? Scot: it is a possibility. I believe there will be genetically modified bananas that are resistant, but extending that to all varieties would take a huge amount of work. That isn't really a solution for Maui at this time. Forest: Angela put a lot of her bananas in tissue culture last year and on Molokai, on the far east side, they are creating a garden of banana varieties.

- Scot: on Oahu there is no BBTV work being done by any agency even on the UH campus. The disease is pretty much ignored except on the farms on Oahu. There is no proven genetic resistance in any bananas although the symptoms do vary and some varieties are more hospitable to the aphids than others. Forest: is there a minimum temperature where the bananas could survive, but aphids could not? Scot: yes, some varieties can grow in very cool weather and the aphids aren't there, but we don't really have that phenomenon in Hawaii. Farming is typically not successful at high elevations. James: what are the thoughts on genetic engineering for the vector? Scot: for some insects the idea of releasing sterile males works, but the aphids don't have sex. There is no need for male fertility at all. There may a possibility of releasing modified females. Adam: what happened to the efforts in New Caledonia and Australia? Scot: they enforced quarantine zones and they require that bananas be grown at the front of property so they are easy to see and monitor. They took a legislative approach to managing the disease and it worked a lot better than what was done in Hawaii. We don't have the budget in Hawaii to enforce that sort of legislative agenda. Kathy: there are regulations on interisland transport, but not within the islands. Currently we are not allowing bananas to go to Lanai or Molokai.

- Scot: on farms all staff must be familiar with the symptoms and then immediately inject Round-up and spray an aphicide to kill the aphids. The entire mat must be destroyed and then eventually they can replant. There are a couple of bacterial diseases that we don't have here yet. Both are wilts and we definitely don't want them but they will eventually get here. James: Mike Metzler will be conducting surveys for Panama wilt on Maui. Tamara: we would love to have him come to Maui Nui. James: I will share your contact information with him.

- Penny: there are a lot of bananas in wild populations. I would be cautious regarding the eradication suggestion. Those populations are where we are rediscovering some of the traditional varieties. We should be cautious. Adam: are there references available that show where the unique varieties are located? Penny: I can go back and look at some of those records. Fern: if surveys get planned for wild bananas, they should co-survey for BBTV at the same time. Penny: funding for things like that could come from other sources than what we are tapping into now. James: will HC&S be planting bananas? Penny: that would be a huge concern in terms of vectoring.

- Fern: what should MISC do going forward? Should there be control around rare Polynesian varieties? I am not sure if that is something MISC could do. Chuck: given lack of BBTV in Hana and Kipahulu, what is the level of awareness out there? Kathy: the public relations approach could be more successful here than on the Big Island. Maui has a different community and different public. Penny: the East Maui Taro Festival is coming up. We can make it a matter of pride for those communities with the idea that they can protect themselves. Bob: as far as the Polynesian varieties go there are a lot in windward East Maui, above Hana. On West Maui, there are scattered small population way up in the mountains. Most are very isolated and somewhat protected by the isolation. ’

- Teya: I propose that MISC moves toward developing knowledge of where the Polynesian varieties are located and then develop a buffer strategy for those areas. There should also be a banana safe zone in Kipahulu and Hana. We should increase our outreach. We need someone from the outside to help figure this out. Forest: we might be interested in taking on the initial information gathering. Adam: I think a committee or group like we used to have could be valuable. Teya: Abe developed some short videos that are good resources. Adam: our staff is wanting guidance on what we should be telling the public. James: can we encourage Hana residents to locally source bananas? Adam: yes, that has been our message from the beginning. Teya: if we were to form a BBTV working group, who would be on it? The Keplers, the Starrs, Bob, Penny, Tamara, DLNR, Kahanu Gardens. Kathy: our new head of HDOA is a farmer himself and he may allow more folks like John from our staff to be involved.

- Hanna: it seems like we have jumped off of the hard decision as to whether MISC should just do nothing. There needs to be a choice made as to whether it is appropriate for MISC to do this at all. Adam: I think we should protect East Maui and encourage people to deal on their own. We can’t handle Central and South Maui. Fern: we really need to decide what MISC needs to do for the grants that they have in place for BBTV and the Committee should decide if we want to add to that right now. I am unclear as to what is required of us and also what role HDOA should play. Teya: we need to let the funder know what we decide. Adam: the scope in the OED grant is quite vague. Hanna: you can beef up the PR component because you already have those products and you can continue to provide that with minimal additional effort. Fern: I think outreach is where MISC is strong. Maybe there could be a series of articles educating communities, MISC has bigger issues to deal with. Teya: I agree that outreach is important. We need to get clear about what an outreach program would look like. Adam: I am not suggesting we drop BBTV. I think we can decide now that we will not survey/control in central, south and upcountry – YES.

- Lissa: can we at least offer identification service even if we don’t do control? Tamara: Maui Nui Botanical Garden can be a place for demonstrations, classes, literature distribution, etc. to help people learn how to manage their own plants. Penny: the Hawaii Farmer’s Union meets monthly and they are good at getting information out to their growers. Tamara: at Maui Nui Botanical Garden we have 51 clumps of bananas and 20 that were eliminated by BBTV. We haven’t distributed bananas for three years now. We can really be a good resource for teaching people about managing BBTV. Lissa: we can do some work to get the existing videos out there a bit more. Adam: MISC will initiate the formation of a group to move forward. Kathy: a letter to our supervisor to ask if one of the inspectors can be on the committee would be helpful. Kathy will get key points to Adam for the letter. Lissa: we need to reprint the BBTV brochure. What was the barrier re: putting up signs on East Maui in the past? Adam: they need to be on private property. Quarantine signs can’t be placed on county or state property. We need to craft a clear message to give to our staff regrading what we will do/not do. We are looking at mostly phone consultations.

FUNDRAISING

- Adam: I am not sure where we are for FY18. We reached out to all the County Council members as we usually do at the beginning of the year. We met with eight of the nine council members and the meetings all went well. We will be asking for $2.35 million next year from the county.

PARTNER UPDATES

- Kathy: HDOA has three new inspectors bringing us up to ten total.

- Fern: there is an infestation of cattails at the refuge and that is the only known population. It would be good to see if there are any cattails on the golf course on West Maui, planted in water gardens. Teya: MISC should consider that as an addition for early detection. Fern: it would be a really bad thing if they were widespread.

- Hanna: not being able to fly is killing us. We are coordinating the East Maui forest bird surveys. The MISC plant crew has been helping clear some of the transects. Fern: we are working on getting around the heli issue. We will be putting funds directly into RCUH so you can fly.