

MEETING NOTES
MAUI INVASIVE SPECIES COMMITTEE
2006 PRIORITIZATION WORKSHOP
October 13, 2006

ATTENDANCE: Pat Bily, Glenn Shishido, Alan Holt, Bob Hobdy, Mach Fukada, Neil Reimer, Kenneth Yamamura, Lloyd Loope, Randy Bartlett, Fern Duvall, Stuart Funke-d'Egnuff, Steve Anderson, Forest Starr, Kim Starr, Mindy Wilkinson, Jeremy Gooding, Adam Radford, Joylynn Paman, Teya Penniman, Aaron Kogan, Elizabeth Anderson, Shannon Wianecki

- The meeting was called to order by Randy Bartlett; MPC/Chair at 9:10am. Introductions were made around the room.

ANNOUNCEMENTS

- The first edition of Kaunana, the new research publication from the University of Hawaii, featured a very nice article on our manager, Teya Penniman.
- Mindy: the recent Federal "Listening Sessions" were so successful that the state will be mirroring them. The State Listening Session will be held in Honolulu on October 25, 2006. There will be two hours available for comments on conservation and cooperative conservation initiatives. There was originally a CGAPS meeting scheduled for the same day – we may just change the date.

BACKGROUND INFORMATION / PERSPECTIVES

- Teya: I'd like to start today's workshop by running through some background information that will put perspective on the prioritization discussions. We will take a brief look at funding, staffing, how we are using our current resources, etc. Then we will look at how we are doing with individual targets and evaluate whether we should change our approach or change the prioritization in any way. We also want to look at our emphasis on early detection vs. existing targets. Early detection is not the main thrust of what we currently do, but it is something we should discuss. We are going to focus on Maui Island targets only today.

Funding

- Teya: our funding for this year is basically stable compared to what we had last year. We did well at the state level given that there were cuts to the overall HISC budget. The NPS funding for the Hana miconia operation is decreasing. We have enough of a buffer that we should be OK until summer, but we will get tight at that point if we don't have additional funds coming in. If we aren't successful in generating additional funds, we will need to make some hard choices in the future.

Staffing

- Teya: we are in an excellent place in regard to staffing right now. Mike's crew is at eight, Adam's crew has six to seven, there are six field staff in Hana, and two staff on Molokai.

OVERALL EMPHASIS: PLANTS VS. VERTEBRATES

- Teya: in FY 06 we spent 79% of our field time on plants and 21% on vertebrates. These percentages include the Hana miconia crew time. If we exclude the time for the Hana-based crew, the Piiholo-based crews spent 60% of their field time on plants and 40% on vertebrates. Fern: does this include snake sightings? Teya: yes, we will respond to snake reports on demand. Some of the species we work on have funds that are dedicated for that species only (e.g. frogs) and we add general funds to their support. For other targets we don't specify an exact percentage. Some funds are dedicated and some are more flexible.

TARGET SPECIES EVALUATION

Criteria:

- Threat / risk to environment, agriculture, economy, quality of life
- Feasibility of eradication / control
- Cost / effort to control

Decision:

- Site-led vs. species-led strategy
- Maintain effort
- Increase effort
- Decrease effort
- Drop target
- Priority within list

PLANTS: PRIORITY TARGETS

Miconia

Progress / Status (Weed Risk Assessment score = 14, 75% of MISC field time)

- Teya: our stated objective is zero fruiting plants. Overall our trends are looking good. Obviously we need to correlate plants found with effort expended and area covered. We looked at the data both by acres surveyed and by person hours. Jeremy: when looking at the data, it is important to remember that FY 01 and FY 02 were prior to our increased efforts in Hana. Neil: how do you define mature? Teya: mature has either fruit or seeds. From a management perspective we need to differentiate a large tree that isn't fruiting yet. We are trying to reach a consensus as to at what height we consider a plant to be mature. Jeremy: we are trying to develop a size class break off. It is easier to determine maturity from the air because you can see old flowers or fruit. This is more of an issue for the ground crews. Teya: it is difficult to collect good data if we break down into too many size classes. We are aiming for as few size classes as possible while still collecting meaningful data.
- Jeremy: our operation has two components – aerial and ground. For aerial, in areas where we don't expect to find plants, the aircraft fly slow and conduct a consistent systematic search pattern. The pilot has a PDA to help guide him and there are three spotters. In areas where we expect to find plants, we have the spray ball attached and our search pattern ends up not being as systematic. Teya: the quality of our coverage is excellent. Jeremy: in FY 05 we surveyed 54,000 acres by air and ground and controlled 340-350 mature individuals. We won't finish the entire outlying area during the current helicopter contract. We had some contracting issues and we presently are required to complete the current contract by April 30, 2007. We are requesting a three month extension. After the existing contract expires, there are NARF funds available to carry us through the summer and then EPMT funds will cover another 2-3 months. After that we will need a new source of funds. It is not ideal to do so much flying in such a short period of time. If we fly too often, we reenter before targets have a chance to grow up and get big. We have to kill fewer trees if we let them get bigger. It is optimal if we fly once a month for 3-4 days with two helicopters. Between now and April we will be flying 6-10 days per month. Optimally we need ~\$350,000/year for Hana helicopter operations.
- Jeremy: for ground operations, we send crews into areas where we are reasonably sure they will find targets. If they don't find anything, we pull them. We don't want to use ground crews in the core – we are relying on aerial coverage in the core. We are beginning to look at some specific areas where we know we had good coverage once and are now able to repeat the coverage. We are seeing good patterns in the examples we've analyzed where we have done complete revisits. We often see an expected pattern of seedling flush after we open up the canopy and then after the flush a steady drop-off. In most of the units we are revisiting in 2006 we are seeing a good decrease. Not all core units are showing a good trend, but the ones where we have spent the most time are showing good results. The amount of time it takes to cover the ground units is significantly reduced on the third entry. We are definitely seeing diminishing returns on the third entry.

- Teya: we are currently spending ~\$950,000/year on miconia. Ideally we need ~\$1.6 million for a few years in order to ramp up. If we ramp up now, there will be savings in the long term. We need to look for innovative funding sources. Mindy: with reduced funding for next year, you will not be able to get complete coverage. Do you expect you will see more fruiting? Jeremy: this year we are OK, but in calendar year 2008 we will have a problem. Neil: what is your goal? Teya: eradication in specific areas and containment in other areas. Lloyd: eventually a potential solution may be with biocontrol development. From a local perspective it is a good thing we didn't wait for biocontrol. We don't think full eradication is possible. We would like to see a statewide effort for biocontrol. Jeremy: we would like to see a reduction in the amount of funding needed to maintain a level population. At our old funding levels (pre-2001), the population was increasing every year and more and more funding would be needed in the long term. If we have more funding now, we will need to spend less in the future. Teya: there have been two economists at UH working on a miconia economics project and there also is a study underway regarding the public's willingness to pay for miconia control. Teya: miconia biocontrol research is ongoing and there is a bunch of stuff in the pipes. There is a need for more funding.
- Teya: we are continuing to do peripheral miconia sweeps as well. Adam's crew has been doing these in the Huelo area. We have found quite a few plants and we've had really good coverage. Jeremy: there was a significant find this week - a mature individual mauka of the highway. The plants we have found in the mauka areas in Huelo in recent years have not followed a normal pattern, which makes us believe they might be conure related. There is significant overlap between conures and the miconia found in Huelo.
- Teya: if we look at suitable habitat based on rainfall and elevation, a lot of West Maui is potential miconia habitat. We are surveying West Maui for pampas and we have pretty thorough coverage although we haven't hit the higher elevations yet. Jeremy: we cut off our surveys when we run out of plants. There are other folks flying at the higher elevations and we hope if there was something up there, we would see it or find out about it. We need to extend our aerial management units one more unit higher. Kenneth: do you know what type of birds feed on the plant? Jeremy: primarily non-native birds - cardinals, white eyes, mynas, doves, etc. In a controlled setting we have established that conures will eat miconia. Fern: and that the seed will sprout and remain viable after passing through the birds.
- Pat: I am hoping to do more intense mapping on East Maui for kahili ginger and strawberry guava if I can secure additional heli funds. If I do, we should add miconia to the list. I would be doing aerial survey with tight sweep lines. Steve: pampas should be on the radar for that search as well.
- Alan: was there an assumed goal in the ultimate cost futures you showed earlier? Teya: we were looking at current costs and projecting from that. We did not assume eradication. Alan: being able to graphically depict your desired state would be helpful. Teya: that is a good idea. Alan: have you decided what your tradeoffs would be if miconia funding slips and you have to make a choice? Teya: no, we have been fortunate that we have had adequate resources. Alan: you know it is potentially a decision you will have to face. Efficiency in decision making would be helpful for when "choice mode" needs to happen. Lloyd: the issue is so complex. Five years from now there may be an effective biocontrol agent and then we would be arguing about how to spend our excess resources. Alan: you need to model the situations that you are most likely to encounter. Teya: in a rough sense the Committee has said that at least 50% of our resources go to miconia. We have articulated criteria regarding how a species is chosen and how we allocate resources within that list. There are more complicated strategies that could be used like they do in New Zealand. We haven't ever gone through something quite that rigorous. Lloyd: once a year we fine tune our priorities. Most of the decisions have been made by consensus. Alan: you clearly have criteria and you are really close to being able to articulate your criteria clearly. Lloyd: the one time we almost came unglued was when we were losing it with miconia. The NPS came to the rescue - we have been very fortunate. Teya: we did go through a more rigorous analysis with the gall wasp. Pat: the problem with fine-tuning something like this is that there is always a wild card out there that will throw a wrench in your plans. Alan: there will always be wild cards. You need to define that you are in that decision mode and keep focused. Fern: I think for miconia we have had the economic analysis. The one thing not added is the wild cards. We are assuming the conditions for management will be the same, but we could have the bulbul show up on Maui, we could

have a hurricane, etc. We assume that the status will stay the same, but there could be something that changes the status quo. If a hurricane came through, it could distribute miconia and pampas grass. We need to pay attention to what things could change the dynamic on the different species. A major wind event could up the risk for both miconia and pampas. That may be a good reason to increase our effort on both species.

Prioritization / Strategy Recommendations

- Continue containment strategy and increase effort if additional funding can be secured. If we keep miconia at 75% of our field time, we will hopefully continue to see downward trends.

ACTION ITEMS:

- *We need to extend our aerial miconia management units one unit higher in elevation.*

Pampas Grass

Progress / Status (Weed Risk Assessment score = 26/24, 10% of MISC field time)

- Teya: we have refined our strategy this year. From the air it is often difficult to identify pampas even when it is flowering (it is hard to distinguish from *Carex*). This year we are flying crews into areas, especially on East Maui, and dropping them on the ground for the day. They are equipped with overnight emergency gear in case they get stranded. This strategy has allowed us to do ground work in areas we have only covered aerially in the past. We also did a week long overnight trip on West Maui this summer. We hope to establish a base camp on East Maui for next year – it is a difficult area to camp in because it is so wet. We have a recent huge find on West Maui - a large pampas population on an old landslide area. There are rare plants in the area - complicating our control options. We did a recon in the area to see where we can possibly get in on the ground. We are working cooperatively with Hank Oppenheimer and Chris Brosius to find a solution.
- Forest: can we show which dots are alive today and which are historic so we can see progress over time visually/graphically? Fern: with the seed bank we can't really say they are controlled – we have to go back and monitor. Lloyd: how much are we actually spending on pampas grass? Teya: I don't have that figure. Steve: we are still defining the distribution. Lloyd: it looks like it is more discouraging than miconia. Teya: we spend 10% of our field time on pampas grass. The cost is relatively high because of the helicopter time and the gear needs. If we look at the annual trends, it doesn't look great from an aerial standpoint. The ground numbers reflect residential areas and front-country sweeps. We are still finding a lot. We are not in a downward trend yet. Lloyd: are you still removing *selloana*? Teya: yes, there are still a lot of recalcitrants. We don't make a distinction between *selloana* and *jubata*. We control regardless of species. Stuart: why are the aerial numbers so low in 2005? Elizabeth: we were weathered out a lot that year.
- Teya: we are increasing our effectiveness and therefore the feasibility of control. The cost is high. We are doing very well in residential areas and on our recent front-country sweeps on the slopes of Haleakala we didn't find much at all. We had great assistance from our partners again this year for the Haleakala sweeps – TNC, DLNR, and NPS all assisted. The coverage was excellent. Steve: that really is a success story. MISC's residential work has removed the source and we are reducing the plants on the ranch and surrounding areas.
- Randy: Neil, do you think it is likely *selloana* will be listed on the state Noxious Weed List? Neil: there are five criteria for plants that must be met for listing and we don't have all the information for *selloana*. One of the criteria is whether there are adequate controls already. OISC submitted a list of proposed additions. I gave the list back to Ryan and told him what was missing. We are reviewing the rules internally and we may rewrite them. Randy: with intention of making it easier to get things listed? Neil: we are just identifying the issues now. We realize there are problems with how the system works. The discussion is general at the moment – we haven't gotten into the specifics yet. Teya: we do have recalcitrants with *jubata*, which is listed. Who do we request assistance from? Neil: talk to me. That is the first I've heard that there is a problem. Randy: can you keep CGAPS updated on the revision progress? Neil: it will be a

slow process - we are talking a year or more. Pat: how many recalcitrants are holding us up in residential areas? Teya: there are just a couple of Kula landowners that are holding us up. Senator English has expressed willingness to call landowners if we want him to.

- Steve: for pampas, we are still defining the problem. I suspect if we keep pampas at 10% of our effort, it will run all over us. I would vote to kick more resources into pampas grass. Mach: I think there is a greater risk with grasses partly because we are unlikely to ever have a potential biocontrol. Lloyd: I don't know of any examples of successful grass biocontrol.

Prioritization / Strategy Recommendations

- Containment, increase effort if possible.

ACTION ITEMS:

- Call Neil Reimer for help with recalcitrant jubata landowners.

Fountain Grass

Progress / Status (Weed Risk Assessment score = 26, 2-3% of MISC field time)

- Teya: there are very few populations and annual trends show that we are exhausting the seed bank. There was a new population found along Mokulele Highway. Fountain grass is eradicable except for the continuing problem of re-invasion from the Big Island. One of our biggest fears with the Superferry is the vectoring of seeds. Fortunately, the ferry will initially only be going to Oahu from the Big Island. The seed bank is ~ four years. Forest: are the older populations like the Bailey property and Waipoli revisited on a regular basis? Teya: I believe they are but I can't say for sure without asking Mike. Mindy: do you stay in touch with Natural Area manager for Kanaio? Forest: they don't have a representative right now and there have been no recent training missions. Pat: if there is research funding available, it would be nice to study the relationship between the success of these two grasses (pampas and fountain) and disturbance. It would be a good graduate student project. The information could help us cut down on our search/scout time by fine-tuning search area. I wonder how successful it would be on undisturbed land. Mindy: fountain grass does really well on substrates that have poor water holding capacity. It does well with higher nutrients and water up to a point and then woody vegetation takes over. Pat: I bring this up in the event we need to crunch with funding cutbacks. Teya: we do find it along fences. Pat: for pampas on East Maui, as pigs are controlled it may improve the situation.

Prioritization / Strategy Recommendations

- Continue, with a goal of eradication.

Ivy Gourd

Progress / Status (Weed Risk Assessment score = 21, 8% of MISC field time)

- Teya: I'm surprised the trends look as good as they do because we keep finding more. We are successful in controlling the ones we find. Mach: it is very drought adapted. Lloyd: it is hard to imagine that we would eradicate it. Forest: inter-island re-invasion is a problem. Teya: we are finding ivy gourd in low elevation residential areas. I don't know that eradication is absolutely impossible. Mach: the weevils are established. The best we can hope for is to get to a low equilibrium position and I think we may already be there because of the mechanical control that is happening. Pat: if we end up in a budget crunch, would it expand if we decreased our mechanical control? Would the biocontrol be enough? Teya: we are refining our ivy gourd ground management strategy. Because it is primarily residential there are a lot of sites. Each site now has its own revisit frequency. The computer can calculate which sites need to be revisited. A list is printed out and there is a map to accompany the list. Each site has a colored outline indicating its status and whether it is due for a visit not. This resolves the problem of double hitting properties and irritating the landowners. The new system should be much more efficient and we hope it will decrease our field time on ivy gourd. We are also able to print out the daily punch list in geographical order to further increase our field efficiency. This level of management makes it much easier to assess feasibility.

- Lloyd: are people grateful that you are controlling ivy gourd? Teya: some are, some don't care, and a few want the fruit for their Vietnamese dishes. Lloyd: if we did let it go, what would it hurt? We were thinking about the lowland natural areas when we decided to make it a target. I wonder how high it occurs on the other islands. If we had to drop something, ivy gourd would merit discussion. Lloyd: I originally voted to put ivy gourd on our list. I wasn't aware that biocontrol might eventually be a solution. I am not very knowledgeable regarding how well the biocontrol works. This is one we should scrutinize in the future. Kim: what is the revisit interval? Aaron: one month for some areas. On a one month repeat they will find resprouts. Forest: it ended up being harder to control than we anticipated. Randy: this is one where the more we looked the more we found. Kim: if we nailed it harder would it decline? Teya: I think we are seeing a good trend in the decrease of mature plants. We need to expand our buffers and look beyond current boundaries for new sites. We are not doing as much recon work as we should. Aaron: Mike has commented that anywhere you can grow cucumbers, ivy gourd will grow. Our current suitable habitat map may be too limited. We are working on a better model to more accurately reflect potential habitat.
- Teya: maybe our ivy gourd work should focus on surveys, rather than on controlling every month, to further define the population. Adam: as efficiency of our control increases we can shift and use saved time for survey work. Fern: we really need to find out how high it grows in Hawaii. At how high an elevation is it naturalized? Does it go high enough to invade Kanaio? That would improve our knowledge of the level of threat. Kim: I would like to know how much effort it would take to really nail it. Teya: you can't hurry up the seed bank. Mach: if you kill off the top, they resprout. Do we know how much is from seed and how much is resprouting? Teya: we hit every root node with herbicide so I think we are talking seed bank. Our efficacy is good. Steve: a lot of the effort is going into a short retreatment interval. Can we lengthen the interval? Teya: the interval comes from Mike's experience. We are in the process of fine tuning the interval. We aren't doing all of the populations on a monthly interval. Adam: we have already moved some areas to a longer interval. The interval is dependent on what we find. Forest: if you didn't find any more and stayed at the current control level, would it be gone eventually? Teya: yes, as we gain efficiencies on control we can put that time into more survey work to get a better handle on the true extent of the population. We have a general feel for the extent and we look adjacent to known locations, but given the potential for bird dispersal we haven't gone far enough. I think ultimately we will end up surveying all of Kihei. Teya: if we are considering dropping it as an eradicable population, we might look at what it is we are protecting and evaluate based on that. Pat: I'm always biased toward protecting natural areas, but you need to look at the MISC mission. What are we protecting from it. Lloyd: I think we should be biased to natural areas.

Prioritization / Strategy Recommendations

- Continue, put more effort into surveys. Need to obtain additional information on potential threat for further evaluation.

ACTION ITEMS:

- *Increase ivy gourd surveys.*

Arundo

Progress / Status (Weed Risk Assessment score = 12, 1% of MISC field time)

- Teya: last year a decision was made to shift from island-wide control to focus on high value natural areas. Bob: I was just in the Azores (38 degrees north latitude) and there are areas that are covered with arundo - entire gulches, farmlands, etc. The Azores have a fairly lush, temperate climate which leads me to believe that arundo could be a big problem at higher elevations, like in Kula, where there is more moisture. Lloyd: there is a lot of interest in using arundo for bio-fuel. People want to bring it in and cultivate it. Teya: there has never been any question regarding its invasive potential. The issue was the time amount of time we were spending and the difficulty of control. We were finding it in the Kula gulches and that was where it was taking so much time. Lloyd: we put it on the MISC target list because we thought it could be invasive here and it was an issue on the mainland. At the time I thought we might not have had the ideal habitat for it, but based on what Bob has seen I question that assumption. We should really keep our eye on it. Bob:

you mentioned how difficult it is to eradicate - that in itself is a red flag for me. Mach: there is no successful biological control. Pat: are you monitoring the areas where you aren't actively controlling it? We should go back to the areas we aren't controlling like Waikapu and upcountry. Lloyd: it is conceivable that it could be approved to be brought in as a fuel source. Steve: what about noxious weed status for arundo? If the fuel issue keeps coming up, it would be a lot easier to say no if it is a noxious weed.

Prioritization / Strategy Recommendations

- Contain, monitor in the areas where we aren't working, eradicate in high value areas

ACTION ITEMS:

- *Monitor arundo sites that are not currently under active control.*
- *Propose State Noxious Weed status for arundo.*

Eradicables and Other Species

Progress / Status

- Teya: for downy rose myrtle, rubber vine, etc. there were very few plants to begin with. We will continue to follow-up and monitor the sites. There was no downy rose myrtle found in FY 06. I am assuming that we will continue on a low level. Forest: are we taking new species at this point? Lloyd: we need to think about other eradicables lower down on the list that we won't adopt right away. We need to be thinking about them for the future. Without prevention we are wasting our time to a certain degree. We need to think ahead regarding prevention and eradications. Teya: the species from the eradicables project are treated as one line but there are >12 species included. Forest: the eradicables are only 1% of your total budget. I would vote to bump them up.
- Lloyd: I want to bring up *Pittosporum undulatum* again. It has been proposed as an added target. It was one of the original targets for Forest and Kim's roadside surveys and then Mach and Steve started finding it in Kula. Forest: there are a couple of plants in Makawao. Lloyd: it is a notorious invader of high elevation areas. Bob: in the Azores it takes over native forest in steep, damp areas. Forest: it is on the state noxious weed list. Pat: do we have enough information regarding known population and range. Forest: we have done some rudimentary searches. Steve: there are four sites that I know of. It would take a couple of weeks work to take it out. We need to make sure the crew is on the lookout when they are working in Kula. Mach: I think we will find a lot of small plants in the gulches that we don't see. Teya: it would be better to survey first before we say we will try to eradicate it. Steve: I like defining the problem first. Randy: how accessible is it? Kim: it is all in residential yards. We could send the crew door to door near the ones we know about and then work out from there. Forest: it is more widespread than other eradicables, but the threat is high and it on the noxious weed list.

Prioritization / Strategy Recommendations

- Continue low level work on the species from the eradicable species project. Survey for *Pittosporum undulatum* and evaluate control feasibility.

ACTION ITEMS:

- *Train crew in *Pittosporum undulatum* identification.*
- *Survey for *Pittosporum undulatum* and evaluate the feasibility of adding it as a regular MISC target.*

General Discussion

- Teya: our cost is based on the percentage of field time we are currently spending. Other considerations for prioritization include the probability of reinvasion, the ability to detect at low density, availability of control methods, and the certainty that eradication can be completed. Lloyd: the best measure of whether something will be a problem is the level to which it has been a problem in another area with a similar environment. The Weed Risk Assessment (WRA) score doesn't really give us that information. Randy: for next year's priority setting meeting, I would like to see more of a matrix that has these factors included so we could take a harder look. We could come up with categories that can be ranked (e.g. risk with environmental change, feasibility of control, etc.). It will help us take a more comprehensive look at our program. Teya: would there be a group of people who would be willing to develop the matrix criteria? I will send out an email to solicit help. Randy: the matrix might be a good exercise for a graduate student. Teya: we know that some of the things we are working on wouldn't rank out that high. The one element that I think is hard to get at is - what is the risk or threat? That must be a balancing point. Randy: the WRA should quantify some of threat, but it isn't adequate. Teya that wasn't what it was intended to do. Randy: we need to add the additional categories. Teya: I will develop draft criteria and we can work on them via email. We will need to have a meeting to do the actual ranking. The other thing we are working on is pulling together the biological information for each species from the literature as well as our collective knowledge in Hawaii. Lloyd: I am interested in helping with the literature review and trying to incorporate the knowledge of MISC.

ACTION ITEMS:

- *Develop a ranking matrix for use at the 2007 prioritization workshop.*

VERTEBRATES: PRIORITY TARGETS

Coqui Frogs

Progress / Status

- Teya: 62% of vertebrate field time is spent on frogs. We applied for an additional \$50,000 from the County's emergency environmental fund for frogs this year. We told them we really want to start working on the Maliko Rim area. We recently received word that the additional \$50,000 for that effort has been approved. In looking at the data, you will notice there are no downward trends here. This is not because there are more frogs, but because we are putting in more effort. The addition of new members to our crew has contributed to the rise in the number of visits. Adam: we are going to the same sites more often. With more people we are able to return to sites and to survey new sites. Most of our sites now only take a night or two, rather than a whole week as they did in the past. The take-home message is that we've turned four of our original 12 sites into monitor-only situations; one more than our goal. "Monitor" refers to sites where we haven't heard a vocalizing male since January. "Eradicated" is defined as one year since we've heard a male. We're at the "Substantial Progress" designation with the Ritz. We haven't heard anything at the Westin condos since mid-spring. The last two times we've been to the Kihei nursery we haven't heard anything either. Neighbors report hearing one frog. The Haiku post office is considered eradicated. The Haiku post office was really where we developed our model = limit habitat. It is very encouraging.
- Willie: the last three times we've done control work at Honopou, we haven't heard a single frog afterward. For a site that could have been considered the next Maliko Gulch, it is absolutely blowing our minds. The landowners have taken spraying into their own hands. Adam: Honopou was a seven acre site. Teya: there are multiple property owners. One landowner, Fritz, had worked for years to control the frogs on his own without any success. He had actually tried giving bounties to kids to catch frogs. His experience shows that it doesn't really work if only one person is trying to do control work. Adam: we don't use hydrated lime because we work close to waterways and in areas where there are a lot of children. Also, I think it would adversely affect our workers. Our crews spray several nights a week and I can't imagine them tolerating that level of exposure.

- Adam: at Calasa's they are considering compacting the cars into two foot cubes. Randy: does everybody on your crew have updated tetanus shots? Fern: have you surveyed down into the gulch? Adam: it is much too steep; it has the potential to be worse than Maliko. At Maliko, we've moved from "Minimal Control" to "Initial Suppression" on the Rim area. We are halfway through the habitat work in this area. Bob: the initial effect was dramatic. Teya: we've had access issues in the past. Having 100% access is really significant. Adam: our goal is to make the habitat as inhospitable as possible and then to spray the whole area twice. We've gotten rid of most of the cane grass which is typically our biggest challenge. We broke Maliko gulch up into separate management units. We tentatively thought that heliops might be appropriate for the densest part of the gulch (Units 1 & 2). Further up (Unit 3) there are residences, so we'd apply something like wildland fire-fighting techniques. We've sprayed everything in the Rim unit except the grass. We are using HDOA's 400-gallon sprayer that we will use for one spot with a giant bougainvillea that would otherwise be impossible to penetrate. Forest: you don't find them makai of Unit 1? Adam: no. Teya: it has been awhile since we've surveyed there. We don't have the resources to follow up. Forest: is the Big Island going to spend all their money this year? Mindy: The \$300,000 for the Big Island is set.
- Adam: we do follow up at sites with one-time captures for three months. I do have bad news - just last week, we discovered roughly 15 males at another nursery. We think they came from the Big Island. The owners have been totally cooperative. Lloyd: are we reasonably confident that we are getting all the reports from Nahiku or elsewhere in the forest? It seems too good to be true. Adam: we did just control our most easterly frog at Door of Faith Road. Fern: it is a cryptic species. On Maui the PR has always been so dramatic that people know to call if they hear one. Teya: overall, we've had really good success with access. Randy: you will be getting a call from Kahana. I know of someone who is hearing 1-2 frogs there. Adam: we are continuing to get new reports. Fern: right now frogs can always be reintroduced. At Lowes, I hear frogs all the time. Who knows where that plant goes after it leaves the store. Have you gone to the nursery where miconia got started at night to listen? Teya: Sam and the Hana crew have responded there.
- Forest: is there an inter-island quarantine system? Neil: my understanding is that there's a requirement that things need to be inspected before they leave the island. The known infested nurseries are required to treat plants leaving their property. Teya: what about hot water treatment? Neil: that could be one of the required treatments. Mindy: there is going to be a hot water treatment facility built on the Big Island but it is still a year out. The only functional one in the state is in Waimanalo. A 20-foot container would be around \$40,000. With an attendant, we estimated it would cost \$120,000 to run and operate. Fern: I've often wondered if Maui could get a facility built. Whenever we receive plants from elsewhere, we could treat them on arrival. Teya: that could raise a pre-emption concern. Neil: I don't know if there's a pre-emption issue at the County level. Teya: the next question becomes is there room for it at the port? Lloyd: it would be good for little fire ants too. Kenneth: now is the time to get it into the budget. Lloyd: it would be sellable to the County of Maui. Mindy: it doesn't have to be the government doing it. You could contract it out. Lloyd: I think Teya should establish a committee to explore this. It is a powerful idea. Randy: as far as coqui treatment, did they ever try just steam rather than hot water? Neil: we bought a steam weeder to kill weeds and we're looking at using it on coqui. We're experimenting with it now. The initial pressure is just too high.
- Adam: it is important to note that we're still not working on all the known populations. We need to think about that in terms of the upcoming legislative session. Randy: what would it take? Adam: \$750,000. Teya: for now we're spending \$240-250,000 per year on frogs. The total acreage we started out with is 157 and Maliko alone is 127 acres. The fact that Maliko is one site will be easier. I have started the process of looking for additional funds both on the county and state level.

Prioritization / Strategy Recommendations

- Continue current level. Seek funding to expand into Maliko Gulch.

ACTION ITEMS:

- *Explore possibilities for development of a hot water treatment facility for Maui.*
- *Ensure frog crew has updated tetanus shots.*

Veiled Chameleons

Progress / Status

- Teya: 26% of our vertebrate field time is spent on veiled chameleons. Adam: we are finding very little in the core area. Most of the new animals are being found in outlying areas or being turned in by residents. We found one male and two females in the last search - all in the same area near the core. There is not that much vegetation on the property where they were found. During the research project we had a very hard time finding the animals even with transmitters on and in sparse vegetation. Most of the research project searches were during the day. One time we found a male curled up hanging upside down under a banana leaf. We never would have found it without a transmitter. We even tried gluing flagging tape to the transmitter antennae - we could see it disappearing quickly from us and we'd lose them. They can move 100 feet in 10 minutes. Neil: what kind of range do they have? Are they territorial? Adam: very territorial. We think we caused the movement. Fern: I've always been of the opinion that this is an animal that you can not see. This seems to prove it. I never thought that we had collected them to extinction. We need people who've done searches before and caught a lot of animals. Teya: we did have you and Domingo go out and not find anything as well. We've been keeping track of the Jackson's - so we know we are seeing chameleons.
- Adam: this has been a really long project. We use both Piiholo crews for three nights every six weeks and it gets tiring. Randy: is there a way to change your approach? Adam: I think it's a decision for this committee. Are we looking at eradication or management? We always find them at the end of a branch, not deep in. Fern: I'm of a different opinion. I think we need more concentrated searching. I am very worried about the initial report at Puu o Kali. Joy: something that we have to consider is that these residents have been approached every six weeks since 2002 for permission to search their properties. It does take a toll on the residents themselves. Teya: the question is - what's the goal? Fern: I think eradication. If they get into natural areas, there is no way we could ever control them. Forest: do we know they eat birds? Mach: they eat anoles.
- Lloyd: have people really impersonated the MISC crew? Fern: yes. We know that the impersonators found animals on at least one occasion. Lloyd: that's really discouraging to me. Teya: I don't think eradication is possible. They are too hard to find. Shannon: is there any pressure we can put on the illegal pet trade? Fern: if we were talking about brown tree snakes (BTS), there would be no question due to the economic threat. The biological threat in this case may be greater. Teya: is there some way we could quantify that? Adam: I'm for sending smaller crews more often. Mindy: maybe you can contract Sam Akoi IV from Wildlife Services. Fern: or use people trained on BTS. We definitely need more inter-agency assistance. They are illegal animals. Teya: there are also all those animals that have been collected whose stomach contents haven't been examined. Randy: so what are we going to change? Adam: I'd be absolutely supportive of Fern's idea and then we could determine from that how to change. Pat: has anybody been in contact with Kaanapali Coffee? As they develop that area there may be more reports. Teya: there were reports of them being off Pauhana Road in the gulch.

Prioritization / Strategy Recommendations

- Expand search area and better identify which properties to search (possibly using aerial photos). Solicit assistance from BTS trained searchers. Refine search interval.

ACTION ITEMS:

- *Solicit inter-agency assistance from trained searchers for veiled chameleon searches.*

Mitred Conures

Progress / Status

- Teya: 8% of our vertebrate field time is spent on birds. We've had three control efforts on conures - thanks to DOFAW and Wildlife Services. As of now, there are 36 fewer conures out there. We estimate there are still ~50 birds in the wild. Adam: we've made observations at possibly two other locations. One challenge is the possibility of another roosting site with 40 birds at Waipio Bay. Fern: are those different birds than the others? Adam: we're not sure. Fern: I've always thought that the numbers we've been dealing with were too small. Adam: we've had fairly reliable reports that the population had declined before I began working on them. Residents say there used to be hundreds. Fern: that's right. Adam: if there are two populations, that would bring our total number to around 120. This is consistent with resident reports. The bulk of the known population is at Huelo Point and there are definitely no more than 50 there.
- Adam: the last time we only got six birds. It was windy and it was also obvious that the birds were avoiding the shooters. Teya: I don't think we ever had any illusions that we would get all of them. Adam: the only stipulation is that we shoot out to sea. Randy: what you need is decoy shooters. Teya: the other question we have is how long it will take before the birds wouldn't come back. I'm concerned that if we go the next step and use blinds in the trees that will be our last attempt. They're hard to shoot and they're smart. Adam: the silencer approach is realistic because the on-site residents don't like the shooting. You could shoot from the rose apple trees where they loaf, but you'd need to coordinate with the residents' absence. Teya: the stomach contents of one bird we shot included corn and food from a bird feeder.
- Teya: we are at a threshold regarding our next steps and we're open to suggestions. Joy: has anyone ever tried to do it the Hawaiian way and put a gum on the branch? Mindy: that method is still used to catch parrots in many areas around the world. Fern: I think our best bet is shooting from the trees and blinds. Only federal employees can use silencers. You would need permits for everything else you'd catch on the sticky traps. Joy: I think sticky branches are an option to explore before shooting, since shooting will definitely cause disturbance. Fern: after the first operation when Lance was familiar with the birds, he said he saw ~30 on his way to work around Haliimaile at 6am. I convinced him he saw rose-ringed parakeets, but a week later I saw a group of conures crossing the highway above Haliimaile flying west. Whether those sightings are all connected or they are other birds, I don't know. Pat: prior to the shoot there were 80 birds? Years ago weren't we saying there were 200? We were always afraid the flock would split and perhaps that has happened.

Prioritization / Strategy Recommendations

- Continue to work with DOFAW and Wildlife Services

ACTION ITEMS:

- *Conduct early morning surveys down Haleakala Highway.*
- *Obtain access to West Waipio properties for survey and possible control work.*
- *Explore the use of sticky traps.*

Early Detection for Other Species

Progress / Status

- Teya: we should be doing more early detection work. If we do more and start looking, we will find things. Then what happens? Are we going to keep adding targets? Forest: there is no lack of new targets. Mindy: it has been six years since our last roadside survey. I think we should do it again. Kim: it would be the first time anyone has ever done it again. It would take us a year to write a report and get the maps up. Mindy: what other targets should we be discussing? Forest: we're doing a survey for the little fire ant (LFA). Neil: we're doing surveys on all the islands for fire ants. Fern: there are other reports of concern - expanding populations of golden pheasant in Makawao Forest (both males and females), saffron finches, and of course other lizards (monitor lizards in Makena and Keopuolani Park). Pat: in your budget do you have money for non-specific things? How much do you have for emergencies like fire ants? Teya: if there was a LFA discovered, we would consult the committee. Neil: the LFA plan is pretty outdated. Lloyd: my prediction is that there will be a response to LFA on Maui.

- Fern: snakes have come to Maui twice in the last year. I wanted to bring this up to the Committee because now due to Homeland Security the State Department doesn't do inspections on containers coming in internationally. We don't have any idea whether the container was fumigated or not. One snake came in dead, presumably over 5 days, which says it probably wasn't fumigated. The first one was a poisonous snake. The second one, just last week, turned out to be a reticulated python baby (a very big 30 foot long snake). We have things coming in regularly for which there's no solution right now. HDOA doesn't inspect them either. Mach: about a year back I ran into a solid wood platform coming in from China. It gets fumigated in the container at the port of entry. When it got here, there were live insects in the container. Supposedly it was inspected. Fern: with this last snake there were also flies and fresh maggots. We collected them to find out where the snake may have been from. We've had other snake sightings from areas like Wailea undergoing rapid development. Previously I thought they were pet animals, but now I'm thinking they could be more difficult poisonous species. Mach: with the beetles, they sent that container back to China. We just got lucky that the person opening the container called. Lloyd: beetles are very actionable. Neil: they may not be. Ed Case is pushing forward an invasive species bill. USDA is looking primarily at agricultural pests and invasive species that are already present in the state. They are focusing only on actionable agricultural pests. They said they don't have authority to address other invasive species like snakes. We're actually getting less security now because of the focus on terrorism. Homeland Security's focus is not agricultural. If they find it, they might report it and they might not. Lloyd: the Department of Homeland Security is supposed to be intercepting ants. They've only brought in one ant.
- Teya: it sounds like there is general agreement to redo the survey work previously done by Forest and Kim. Kim: just the idea of having a pair of eyes on each island searching on a regular basis is good. Forest: we could certainly check out the MISC targets and the eradicables. Kim: then we'd have good island-wide maps again. Mindy: all the other islands are getting started this year. Forest: they are finding that a high-powered camera really helps. As other islands do similar things, they can give us tips. Kim: having that feedback helps us refine our techniques. Fern: I'd like to see Lanai and Molokai done. Kim: we did Molokai last year. Fern: some targets should be added. They have a watershed partnership on Lanai, but they really don't have any people. Forest: we'd really like to train and empower people on other islands to do their own searches. Mindy: what is the status of the multi-agency Early Detection project? Teya: we did several workshops. Joy: Sky is administering the website right now. Forest: you have your handbook that other ISCs are starting to use. Fern: please consider doing a workshop on Lanai. Teya: I think our stumbling block is that we're doing so many other things. Joy: we are really trying to get the information right.
- Mindy: what about the nettle caterpillar? Forest: the larvae have been seen twice at Kihana. Teya: are you asking if MISC is doing anything about it? Mindy: a pheromone lure has been developed but there wasn't money to produce it. Neil: the last I heard there was a company somewhere in Russia that would develop it. I think early detection at point of arrival would be more effective. Mindy: this summer there were piles of dead adults on the sidewalk on Oahu. Teya: they are probably here already. Neil: they can strip greenery and the main thing is they sting. Kim: that's how the Kihei nursery knew they had them. Mach: the consensus I got from Oahu was if there were pupae in a shipment, the pesticide probably wouldn't kill them. Mindy: KISC decided to distribute the pest alert flyer to their nursery list. You could make sure that everybody gets that flyer. Teya: Mach, are you doing surveys for nettle caterpillar? Mach: not until I get any kind of reports. Teya: we could train our frog crew on what to look for in nurseries. Neil: that would be very useful if Mach could do the training.

Prioritization / Strategy Recommendations

- Repeat roadside surveys on Maui.

ACTION ITEMS:

- *Repeat Maui roadside surveys (funding?)*
- *Distribute nettle caterpillar flyers to local nurseries.*
- *Schedule Mach to train the vertebrate crew to search for nettle caterpillars.*