O‘AHU INVASIVE SPECIES COMMITTEE
2005 STRATEGY WORKSHOP

Wednesday, October 5, 2005
9 AM – 3 PM

Hawai‘i Department of Agriculture
Plant Quarantine Branch
1849 Auiki Street
Honolulu HI 96819

MEETING AGENDA

I. Call to order, welcome, and introductions

II. Updates and announcements

III. Target species detection project, Christine Meyers

IV. Fiscal year 2006 outlook

V. Prioritization of targets

VI. OISC target species

VII. Final comments, wrap-up

COMPLETE MEETING NOTES

I. Call to order, welcome, and introductions

Rob Hauff, OISC Chair, called the meeting to order and went briefly over the agenda. Attendees gave their names and affiliations.

II. Updates and announcements

A. Cal Hirai is filming the meeting today. He explained that he is doing a series of short film pieces for CGAPS, starting with OISC. The pieces will be 5 minutes or so each and will include both aquatic species and terrestrial species such as Miconia, and will air on OC 16.

B. Ryan and Rob explained the annual chair rotation. Rob's term as chair ends today; he will become chair emeritus. The new chair will be Amy Tsuneyoshi. Joby will be the deputy chair, working together with Jane Beachy.

C. New staff positions: Mary Ikagawa introduced herself as a new OISC staff member, working part-time on finances. Ryan announced that Rachel Neville has been hired in a full-time outreach position to bring the public on board and interact with private landowners to address target species.

D. Ryan announced that Meghan will be leaving in December, and OISC will be looking for a data person with solid skills who can take over GIS. The position will be posted soon, and OISC is looking for suggestions/names.

E. Joshua Fisher announced that there will be a work trip this Saturday. Volunteers should be at the Church of the Crossroads at 8:00 A.M., or alternatively they can meet up with the crew at Kahaluʻu Regional Park at 8:45.

III. Target Species Detection Project, Christine Meyers

Christine: This is an OISC pilot project to improve detection and response, partnerships, and our ability to identify alien invaders. I started by looking at compiled surveys and talking with others about species of concern. Then I identified the recurring species and came up with a list of 150–200 species. I whittled this down by communicating with Army Environmental, Joby and Jane, Ryan and Meghan, taking note of species people had suggested. This cut the list to 80 species.

First I looked at how invasive each species may be. There's limited information. I looked at the Hawaiʻi Weed Risk Assessment from Kim and Forest Starr, HEAR's rating scores, whatever else is available. For the ones that were seen as highly invasive, I looked at

Bishop Museum's taxonomy database and referenced localities. Some information is outdated, but it's a good starting point to look for high-threat species.

Looking at distribution, I checked the *Manual of Flowering Plants* to see which species are considered naturalized. All those on the list seemed to be shown as naturalized in the book. I'm not sure how big populations are on other islands. They're not all found on O'ahu but they could come here. This was all whittling down the list.

For the higher-threat species, we looked at the ecological threat, and whether there are known approaches to reducing the threat for any of these plants? In evaluating whether these species are considered incipient, OISC will look at population size and how widespread the plants are, and see if we have the ability to tackle them.

Rapid-response species: The warrant immediate action if they arrive, like *Rubus ellipticus* or the brown tree snake. Others may not require the rapid response but would be potential OISC targets. We need to evaluate these to determine if OISC has the resources and if we want to target them.

Species for which there's currently very little information available were marked "insufficient info" and set aside to look at later if more data is accumulated. The list will be dynamic, species will come and go. It's a pilot project to look at future OISC projects.

We're asking other managers for input, species recommendations, ideas on how to better filter species, and evaluate potential targets. Please e-mail Ryan.

Ryan: Are there any questions about this project or its scope?

Rob: Have you looked at controllable insect species?

Christine: Not a lot. We've looked at a few possible rapid-response species, *Wasmannia* [little fire ant], the veiled chameleon. We haven't gotten much feedback or information on how to best evaluate insects.

Rob: There may be some insects in the state like the gall wasp that we may be able to eradicate, some species that can't spread rapidly. Hala scale from Maui took almost 10 years to become widespread on Maui.

Christine: We're not closed off to insects, we just haven't put in as much time on that yet. I plan to.

Joby: You should get Joel Lau to look at your list.

Christine: We're asking if people know if a species is on O'ahu, how widespread it is, etc.

Ryan: The project is how do you do detection without any field work. Survey existing lists and knowledge to see if we can see what's eradicable, that we can get rid of.

Meghan: We looked at what other ISCs are controlling, and wondered why we aren't going after those. Is it because we don't have those species, or . . . ?

Mindy: What happens after the list creation process to verify the information?

Ryan: We are collaborating on a statewide database . . .

Christine: This project is based on collecting known information.

Ryan: HDOA brought a species to our attention, *Tetrastigma pubinerve*, in two locations. With existing staff we can only do so much. Look at known locales, survey buffer zone, do trials, test plots, a quick and dirty evaluation of whether it's controllable. If it's in a limited number of locations. We increase awareness of it. We're not going island-wide looking for the species. We're can't dedicate a huge amount of time to these cases since it may be a waste of time.

Mindy: I'm not being critical, I am supportive, but if you think you may not get to all these species with your resources — you can't get to all of them. Wouldn't it be great if you could get to all of them. What do we need to all be working towards, a detection network, get Kim and Forest Starr etc. over here?

Ryan: I see the ISCs building better early detection and rapid response, using funds for survey, getting more comprehensive in our approach. This is administrative detection. It raises the need for funds for larger islandwide detection. I'm going to propose this, have a small group of folks to strategize with.

Earl: I agree with Mindy, this is important, looking at potential targets. At some point though we must shift to action. Controlling on a scale where it's still feasible is much more cost effective. How do you knock out these small populations? We have to be able to identify and go after the small, early arrivals.

Ryan: We will probably move away from "legacy species" like Miconia and go to nipping new ones in the bud.

Sarah: Do you have insect survey?

Domingo: Our department does this, we have done gall wasp . . .

Rob: DOA would turn to OISC if they find something they can control.

Joby: This should be statewide: what will the detection protocol look like, which species, and do all islands the same. Not just OISC. It's good to have this list, we'll get lots of information. Shouldn't invest too much time as we don't know . . .

Earl: Funding is coming in for this; there is also a need to knock out these "legacy species". Rodents have to be dealt with, other broadly distributed invasives. We're focusing now on some very widespread species. It's more cost effective to have land managers on certain sites dealing with these.

Joby: Land managers should deal with both incipients and widespread species. You have to have good information before investing a lot of time in a species.

Ryan: Yes. Making it statewide is a priority, having a plan. We're not walking away from Miconia tomorrow. There will be an evolution of capacity in OISC to do better detection and rapid response, used in conjunction with statewide plan. It looks like we're all on the same page. We're conservative with choosing rapid-response species That's where we're potentially most powerful.

Meghan: At first we were gung ho, putting things on the lists, like Melastoma, which turned out to be too widespread. Then it was suggested we map species for a year before deciding. We don't want to repeat the mistakes of wasting time on the wrong things.

Ryan: We'll strategize more later on detection.

Action: OISC Executive Committee members will provide input on species recommendations, ideas on how to better filter species, and how to evaluate potential targets. Please e-mail Ryan Smith, smithrya@hawaii.edu.

IV. Fiscal year 2006 outlook.

Refer to **Summary of Projections** handout.

Ryan: There is $586,000 for OISC to spend. We work on a calendar year for finances, though money comes in at different times. HBWS money won't be spent right now. The staff is 11–15 people, including field staff, admin, coordinator, Meghan, 3–4 coqui people.

Rob: Which grants will you apply for next year?

Ryan: Some of the grantors may know more about the stability of funds. USFWS will probably be the same, FS cooperative is hopefully stable, HBWS we will follow up, that may be up in the air. DOFAW, I don't know how stable those funds are. We think HISC is stable through 2007. Also look at County, to see if we can get stable funding for coqui. Alternatives? Maybe through HISC, the NFWF invasive species project, work with Kim on funding stability.

Mindy: FS will be flat statewide. We can maybe increase by $30,000. HISC should increase slightly next year. DOFAW will be flat.

Earl: Invasive species funding from USFWS, Inouye's congressional office not in, there won't be any service grants. It may be back next year.

Mindy: We'll try to pick up the slack.

Sarah: Do you have a sense of whether Katrina-related budget cutting will affect this?

Earl: Federal funds probably will be affected. People have no idea what will happen with any federal agency. USDA has no budget yet. There's a continuing 2% resolution for FS funds. They may say "take 2% off the top of everything," or target 2%. The president said yesterday he wants to cut existing programs, not raise taxes. I anticipate a 5% cut, not just 2%. If you already have the money, it's okay, they can't take it back.

V. Prioritization of targets

Ryan: A caveat: We spent a lot of time on a new system to analyze and project the resources it's now taking and will take to deal with these species. There will be changes, it's a first-time assessment of target species. Looking at: What are our goals? Eradication? What do we have to do to reach the goal? Do we have the money and people power to do it? We want a good gauge of where we are on our target species list.

Next I want to review the definitions we'll be referring to.

Ryan went over the definitions in the **Species Profiles** handout

For high-potential buffers (HPBs), some vectors are unknown, like pigs spreading seeds.

Diane Drigot (MCBH): We manage natural resources for Mokapu Peninsula, Bellows, Camp Smith/Halawa, a piece of Waikane Valley, on Moloka'i near the airstrip, also Kualoa/Barbers Point. When you prioritize, do you take into consideration landowners who may welcome your mission and cost share, to get more bang for your buck on a species?

Ryan: That's something we logically consider. Today, we're not proposing anything new. We are heavily involved in partnership support. Your point is valid, taking advantage of available resources.

Diane: It's a cost-sharing opportunity, to get results, more funding, build momentum.

Ryan went over the **Summary of Projections** handout in more detail.

Diane: Field costs are going to go up, you'll probably need to redo the numbers.

Earl: Is coqui funding a line item?

Ryan: There's no line item for coqui. There is some funding from the County we can apply.

Ryan: This is our overview. [See **Summary of projections** handout for projections by species]

This is what we'd need to complete our management goals for 2006. How should we allocate our resources? This is just one way of doing it. To balance it out, I reduced the amount of money dedicated to Miconia. This allows about half the aerials, 75% of the ground surveys. This allows us to do everything else, except coqui, which I'll talk about separately.

This does not project for rapid response scenarios, if we get pulled away for something else. We haven't projected or budgeted for those.

Diane: Isn't there set-aside money for that in another program? [Something about staffing for emergencies like fire.]

Ryan: I need to discuss this with the chairs and the OISC committee. It may require in-kind contributions from us.

Diane: Examples?

Ryan: For fire response? We'd have to get trained, then do it.

Mindy: We won't need to rely on other staff if we can resolve other issues involving staff cuts. It's an open question that I can't go into for now.

Ryan: This is based on hours we've put in in the past, but field work is hugely variable. Floods, lots of things could go wrong, delays that change the projections. We can't promise to do this, it just gives an idea of what should be attainable if things continue to go as smoothly as they have in the past.

Ryan went over the **Summary of Projections** handout and talked about the **Coqui operations summary projections** table.

Ryan: We'll discuss this more later, projected need in hours and costs for 2006. Any questions on initial summaries?

Diane: When you go out and do routine surveys and control say fountain grass, do you have an in-house turnover folder of the protocol? Or is it just in a person's mind? There is valuable corporate memory in the staff members involved. This is soft money, and we don't want to lose the knowledge if there's staff turnover. Instead of always reviewing someone's draft scope of work, it would be nice if we could go to your web site and see the best management practices you've established for these species. There's a ripple effect, if resource managers know this is available, like a guidebook. You could have all sorts of caveats, but it would be better than what's out there now. People won't do things because it's too hard, they don't know where to go for information.

Ryan: We are putting things together in house. We're very conscious of this. We don't want to lose anything. But we don't want to have everything on the web. For example I wouldn't want people hunting Miconia without us knowing.

Diane: This would also apply to pesticide applicators, people who can identify these weeds, know what to use. It could be part of the training.

Ryan: Some of these points are very valid, others are beyond our ability to do in-house. Our priority is documenting in-house.

So let's look at individual species now.

Action: Executive Committee members will provide input on OISC's system for analyzing resource use, projecting future needs, and allocating resources.

VI. OISC target species

A. *Miconia calvescens*

Ryan: All species should have a similar format. I hope folks can look at what we've projected, review what we're proposing, and tell us if it seems logical.

The decision I made on projecting was to do 75% of what we're saying needs to be done for 2006 in terms of ground surveys, and 50% for aerial. What do you think we should be doing — if we do cut that, should we not revisit until we finish all initial surveys? Now we're revisiting every 3 years, based on a maturity rate of 4–5 years. Looking at the longer term, how long should the revisiting schedule go on? Jean-Yves Meyer from Tahiti found one plant after 12 years. This is what we're grappling with on Miconia.

None of our projections include outreach needs. There are thousands of private residences within buffers. So far, we've targeted 1-acre private-property parcels for foot survey, on a GIS level.

Do we let the stuff beyond the 3-year cycle lapse, or base it on case-by-case assessment?

Mindy: So based on a 3-year cycle, if you do 1/3 of the sites per year, you can't do 100%?

Ryan: Right. Something has to go. Either some revisits, or initial survey.

Josh: Some areas we don't really need to revisit, based on whether the plant really grows in that habitat, is it all mowed, etc.

Ryan: This is why I didn't put dealings with private landowners in the projections. We may need to pull field staff to survey private lands.

Rob: If new things are found, how does that affect your buffer?

Ryan: They do go up, like the new Haiku finding.

Meghan: They often don't affect buffer much though.

Joby: Looks like you guys are getting pretty close to what the coverage needs to be, probably. There won't be a lot of new findings, windward is getting covered.

Ryan: At the in-house Miconia strategy meeting, we realized we need additional minds. Historical sites are mapped. What about unmapped sites? Budget them into aerial costs? Look at areas that are getting no conservation attention, make sure gaps are filled in? This is not budgeted in.

Joby: 10 years ago there weren't a lot of people on the ground. Now there are probably three times as many people out there looking.

Ryan: It would be a good exercise to sit down with others and a map, look at Miconia habitat.

Diane: Aren't there dedicated community-based folks who could adopt areas? The Sierra Club? Who will continue to survey and give OISC the data?

Ryan: We're careful about the quality assurance, the people who are going out. If we train them, talk to people, there is opportunity for that, so it's not all on our shoulders. There are some resources.

Diane: How about the Nursery Association? You'd think they'd want to self-police better.

Ryan: We've had some contact, that's also on the list for our outreach person. Carter Smith at Weed Risk Assessment is doing some of this.

Rob: You could get to 100% without a huge amount of funding. A NFWF proposal? I'd hate to see you back up now, it looks like your system is effective.

Meghan: It feels like we're getting closer, we have a good staff now, it's done more cleanly.

Rob: Seems like it's within reach.

Ryan: With some increase of funding, we could do 100% of all known buffer areas. I want other people with conservation experience to look at our techniques, the 800

meter buffer and so on. Some is our best guess. We would like people to look at it critically and get back to me about our management strategies.

Joby: How productive is LPB survey, helicopter?

Ryan: Very effective.

Diane: Have you looked at available infrared imagery?

Ryan: My understanding is that Miconia as its scope is now can't be looked at that way but I don't know too much.

Mindy: If you only get 1 or 2 trees a year, if that, from all the aerial survey work, they're worth it even if it's expensive, since they're outside other known survey areas and have the most potential to spread.

Ryan: We think all the plants we spotted by air were within the HPB. Aerial search is valuable. We have not found anything in the LPBs.

Mindy: Have you considered contracting them?

Ryan: Not yet. We have prioritized them, talked about doing half the ones in the LPBs. For example we don't do Leeward side ones right now. The Ko'olaus provide some barrier against transport. This may be flawed logic though.

Joby: How do you decide where to fly and where to walk?

Ryan: We don't fly in HPBs.

Josh: As we go out into suspect areas, we may decide to fly it if there's a cliff or something.

Ryan: Monotypic stands like guava are marked for aerial.

Joby: Could you save money if you flew more of the areas in HPBs?

Ryan/Josh: We don't feel that's good enough. We need to walk it.

Joby: Could some combination help get 100% coverage?

Ryan: Since we're so close to finishing the HPBs, we want to finish on foot.

Joby: Do you think 75% will keep plants from getting reproductive?

Ryan: Good question. If we don't get NFWF money, should we drop some surveys? We're a lot more methodical than before. If we're confident of our surveying, a 4-year

window is probably okay. There are some holes out there. There were gaps before. We're going through Manoa carefully now.

Meghan: Some things, like prioritizing Sierra Club surveys, plants close to maturity, would really cut the number down.

Josh: We would like to get it all, but if it's lower than a foot we may miss it on a sweep, but we know we'll get it when we come back and it's bigger.

Ryan: We've assigned a number of quality assurance for all surveys. A 3 means we're confident we got all the Miconia that's at least a meter tall. That's what we shoot for. Again, this is new as of 2005. It's not how Pat or we were originally doing it.

Joby: It sounds like you'd rather continue surveying your new areas and prioritizing the resurveys.

Ryan: Let's look at the NFWF proposal, saying here's a discrete amount of work. This can help leverage funding, here are our shortfalls.

Rob: Are you getting any resistance from private landowners?

Josh: The hardest thing is finding the address of who to contact. I went to the State to get addresses for leased lands, then was sent to HBWS. We finally just went out and did find some trees. Once we contact them, they seem to be okay with it. There are a couple letters that have been returned, I don't have time to follow up.

Ryan: Getting access is time consuming.

Diane: Has anyone been bitten by a dog, caught in a pig snare?

Ryan: Not yet. Maunawili, the stream had some plants. We'd like to just walk down that stream, but it's a touchy area.

Diane: This seems like a case where you'd go to the Maunawili Community Association.

Ryan: Yes, our outreach person will do this.

Joby: What about small lots?

Ryan: There are a couple of options. For some other species, we're doing habitat assessment. We can do that, and mass mailings, let people check their own lots. I've been trying to track this in a database with Meghan.

Josh: We flag by TMK. We need to visit some parts of certain TMKs that aren't monitored.

Meghan: Realistically, there are thousands of small parcels. On Kaua‘i, they did mass mailing. It’s not practical to go door-to-door for parcels in the buffer zones that just have lawns on them.

Mindy: On Kaua‘i someone was pruning and cultivating a Miconia next to a gulch. We need to do something between a mass mailing and . . .

Joby: Can you look into back yards from a helicopter?

Josh: In some cases. We do as much as we can.

Ryan: On background info for Miconia, only Maunawili is an unknown site, there were a couple of plants found along a hiking trail. Both were immature and in odd places, one on a steep slope about 10 feet above a trail. And over 1.5 miles from any known source. It could be a pig, a bird. We’re doing ground survey there, but it’s the only mystery left we think. We think we’ve got Waimanalo pinned down but there could be another old nursery.

Diane: What about the sovereignty area? Bumpy [Kanahele’s?] area?

Ryan: We are working with him on that, he’s been receptive.

Action: Executive Committee members will provide feedback on OISC Miconia control management.

Action: OISC will look into a NFWF proposal to cover the Miconia funding shortfall, for helicopter surveys.

BREAK

B. Coqui frog, *Eleutherodactylus coqui*

Ryan: On O‘ahu, there’s the site at Wahiawa where frogs are naturalized, also one to several hundred frogs at various nurseries. We finally got an approved substance, citric acid. We have dedicated crew now doing sprays in Wahiawa. Dustin supervises them, Monday through Thursday. On Thursday nights Army Environmental sent a sprayer to help. We have systematically covered Wahiawa. We wanted to cover it two times and do more spot sprays. We couldn’t do it all because of some problems with equipment, materials and timing, weather. For next year we want to move to hydrated lime, soil drench. We can do it during the day, don’t have to do it at night while frogs are in the canopy. Frogs burrow into leaf litter. We think it will be a lot cheaper and more effective. At night Wahiawa gets a lot of rain, and we can’t spray because of disturbing residents after 11 P.M., so we only get 3–4 hours with citric acid. Daytime will be much more efficient. It’s hard to project for hydrated lime. We assume it will be more efficient and effective.

With citric acid, one Wahiawa treatment is about $13,000. The strategy is to cover Wahiawa three to four times, year-round.

There's $50,000 given to the County by the legislature. The County rep said she plans to do whatever we agree to at the working group, with no restrictions on the spending. It could be equipment, staff, whatever. We will meet when Scott [Scott Williamson, an invasive species technician with DOFAW] returns in mid-October. We need to continue with a full-time vertebrate specialist at OISC, and it can't be Dustin. This hasn't been budgeted for yet (maybe we should get with the County on it?). We hope to have people on call for systematic treatment of Wahiawa and nurseries. I'd like to see other OISC staff off coqui spraying. We work with Army Environmental, but would like to see survey work and spraying given to the vertebrate specialist and temp crew.

Diane: What about the nursery that was found to being bringing the frogs in?

Domingo: There is a contractor monitoring them. They have heard one male calling. If we can hand catch it we will. They have switched buying away from Hilo, which is a plus. I've been telling them that relying on treatment at Hilo is Russian roulette. One grower they were purchasing from was in Waimanalo, which also had problems.

Diane: Is there anything in HDOA nursery contract policy so that only those doing coqui treatment get contracts?

Domingo: I'm not sure who would be doing that.

Diane: Educate your contract specialists, they're the ones who will be affecting this. Is there a way to reward that nursery?

Domingo: Until we find out he's frog-free . . .

Joby: If the nursery [Alluvian Nursery] is cooperating, maybe we don't need to do anything with the contract.

Domingo: They dumped their unsold plants at this nursery, it was prime coqui habitat. We talked to them, they went beyond the 8% citric acid/pyronyl combination and did a great job.

Earl: I've been getting more involved, and am concerned about the hydrated lime, the efficiency information, work to screen its efficacy isn't tight. It's an irritant more than anything else. Microscopically, it rips up the skin. It might just drive frogs out of an area, or they're going to dry out. Four percent is being applied now. Will Pitt's comparative trials showed efficacy only at 7%. When using something caustic, that changes the handling quite a bit. I'd question using a 4% solution. If you're using 7%, you need to know what it will do to hoses, etc.

Ryan: Great point. At the last working group meeting we were tasked with that, we talked with Derek from HDOA, asking how it's been working on the Big Island.

Earl: There's really limited data except people saying it works. I think the information submitted to the EPA for registration info was not statistically tight. Will's work is reliable — the 7%. Another thing, monitoring efficacy is done by people filling out forms, saying how it worked on their property. This is different than a systematic design. I question its use in the Wahiawa situation. I don't think the data on phytotoxicity is very good. With long-term use, people are seeing mosses dying, but this may not be a major thing.

Ryan: We're not particularly concerned about that forest.

Action: Ryan will follow up with Will Pitt about his comparative trials with hydrated lime.

Joby: The EPA data was accepted.

Earl: We don't think it's definitive for uses outside nurseries and crop sites.

Ryan: It might be worthwhile for us to talk more, maybe you could provide input. We have an inefficient system now. Citric at night, limited to the calling season. We don't want to be bound to these parameters, we want to eliminate it. We're paying our temp staff $11/hour, and for every hour they work, there's ½ to ¾ hour they're not spraying. We were hoping hydrated lime would be better.

Joby: Citric is expensive.

Ryan: Hydrated lime is cheaper.

Earl: The only data I'm comfortable with is the higher concentration. The 4% hasn't been used a lot, there's no track record of success. I'm happy to give commentary.

Ryan: If we find the proper PPE [personal protective equipment], do you think 7% is enough?

Earl: I don't think there's enough data. People would like to find a simple thing to use. You guys should all be commended for your work on this site. No one has done anything like this size of site so well. Maybe you should do a hydrated lime trial — don't put all your money in it — and monitor it. We may need to go in with the idea we're going to learn as we go.

Joby: You don't think it will get worked out on the Big Island?

Earl: They're using 4%?

Mindy: The goals, Wahiawa — the Big Island community associations are looking for initial population suppression. Drenches during the day, etc. Here, targeting eradication, there's no magic bullet. I recommend using the known effective procedure; you're going for the last few. The larger-scale environmental drenches cut populations, are good for the first pass, but you need a highly effective, expensive application to get the last few.

And about greenhouse frogs: I've seen people actually getting the brochures at nurseries. People are asking whether citric is a controlled substance, why they can't get it right there at the nursery. Will there be plan for this frog? Will acid be available? What do you say to people who ask about them?

Ryan: We've talked about it, about making a brochure on what people can do, etc. We didn't think the priority was high enough, there's no staff time.

Mindy: There's a lot of public interest, we need to address this.

Ryan: We don't have a policy, we're not tracking all the data on the greenhouse frog. We welcome your participation.

Action: Ryan and the Coqui Working Group will discuss the greenhouse frog at their next meeting.

Earl: I look at, for coqui, probably for the greenhouse frog, a lot of your funds now are HISC funds. Clearly people on the Big Island will be asking what the State is doing for coqui on the Big Island. The legislature will be asked, "What are you doing for me about these frogs where I live?" OISC should be very clear about your level of support. Politically it may be a lot bigger this year. People on the Big Island are having a lot of problems, and they're not getting relief. People may ask why OISC is spending money on Miconia and other species, why not only frogs. I think you need a clear and simple answer. You need to be prepared for these questions.

Diane: Who's the state spokesman for these matters? Ryan?

Earl: The ISCs are very good, they have good public info people. It's getting hotter and hotter.

Mindy: What is the $50,000 that went to the County? Will it accomplish the goals? That question should be answerable by next week at the DLNR legislative briefing on October 11.

Ryan: That money is critical. OISC budgeted $40,000. Probably $40,000–$50,000 for salaries, equipment, citric, etc. Add the $50,000, NARS money, money from Army and other agencies will be essential.

Ryan: Yes, but as a manager we don't want to wait around until next summer, want to move on this.

Mindy read a statement: "RE coqui working group: Resources need to be redirected from other things to meet coqui goals." The goal for State funding is very clear. It doesn't have to all come from us. We can work toward getting more funding sources. There must be more than 67% done.

Diane: How much focus is on nurseries being sanctioned if they're not inspecting for coquis?

Mindy: Reinfestation is always occurring from nurseries.

Domingo: Plants from the Big Island, infested plants — Once we find a frog, that grower is put on notice that all the plants must be treated. A certified grower stamp allows shipping to mainland, we can't do anything about that. We have to find a frog before we can put a nursery on notice. Noncertified nurseries, landscaping companies are also put on notice that they should treat before coming to O'ahu. But treatment only as good as how it's applied. On O'ahu we drench everything totally, I don't know if they're doing it that well, if we're catching all the frogs. The Department (HDOA) is looking at developing a large-scale hot water treatment system. In future there may be additional quarantines or requirements for hot water treatment. I think that would be better than the citric.

Earl: The Department is trying to change the rules to deal with fire ant, nettle caterpillar, we need better rules. Given the political minefield of the next legislative session, something impractical and unimplementable may come through.

Sarah: This is the political will of the constituents.

Ryan: Intraisland, we're at the mercy of a given nursery. HDOA can't go there now and stop them from selling. It's a mixed bag for us to deal with. If the State wants 100% eradication on O'ahu, I need help to force nursery compliance. Who pays for the citric? There's been a lot of back and forth and it's extremely tiresome. It's the only way to get eradication. Of existing infestations, never mind reintroductions. We also deal with single calls, doing PSA messages, going out in response.

Domingo: Nursery responsibility is a major thorn in our sides. So far the ones we're working with are complying. The one slow one has seen the light, OISC has done a great job with him.

Ryan: That nursery [C&L] in Waimanalo, we got hundreds or thousands of frogs. It's down to about a dozen.

Diane: You wrote about your Waimanalo strategy that the policy is to empower them to spray.

Ryan: OISC has gone in to get the big numbers down, trying to get them to the point where they're self sufficient. Basically we cannot rely on the nurseries to be self sufficient.

Joby: Two nurseries here?

Domingo: There's also one who was screening and trapping. They put a calling male in a cage and were hand capturing females that were coming to him. We stopped monitoring him. We need to continue monitoring Waimanalo. There's also one on the North Shore, they found one frog in the last three months. I'm doing a survey there next week.

Ryan: We haven't given systematic attention to nurseries. We're finding that the more you look the more you find. They're moving and we haven't had the resources or haven't allocated them to that purpose in the past. Mindy's saying it needs to be 100% eradication priority. Do we want to pull that from Miconia? I need to know what to do with the resources I have.

Mindy: We're not advocating one strategy. We can't let those nurseries continue to get away. Somehow the Coqui Frog Working Group or this group needs to make sure that a population that was suppressed doesn't explode again. We'll work out the politics as we go.

Ryan: I think we know what we need to do, it's just a matter of putting the resources into it.

Domingo: Keep me in the loop, let me know what I can do.

Earl: On O'ahu what you've done should be shown to others, the multiple agencies, demonstrable steps toward success. I'm not calling it success yet, but you've done a really good job. Others can't say "You're not helping me out." You need to log this as a success, and probably will be asked to.

Ryan: We should look at, on high-profile species, Miconia and coqui, for the others we know what it will take to do 100% of what we want, which is eradication, except for fountain grass. But if we don't get any more funding, we think we need $30,000 more for coqui. Our numbers now will be vague until we strategize the nurseries better and understand what's provided by involvement of other agencies. That would take us from 67% to 100% of the goal.

Should we look right now at this? [See page 5 of **Species Profiles** handout.]

Diane: How did the goal get reached to do only containment on fountain grass in the Ko'olaus but eradication in other places?

Ryan: Realism, based on our resources. The highest priority was eradication from the Waianaes. There's more potential there for damage and the populations are smaller. It's in the Koʻolaus at Lanikai, Palolo, Diamond Head, some large populations.

Diane: Brush fires require revisitation of scorched land. It's opened up to pioneer species. You're not doing anything on guinea grass . . . ?

Ryan: We have been looking at those burn sites. If they don't fall within our buffer, should we search them anyway now?

I've tried to put down our logic for all this. MCB was there for the strategizing. We're looking at the most potential harm and things that are least established. Guinea grass doesn't fall into that category.

Rob: The shortfall for coqui is how much?

Ryan: I think the total need is $103,000. $54,000 for crew including the full-time guy, $11,000 for nurseries [See page 2 of **Summary of Projections** handout]. $36,000 shown in the other table [page 1 of handout], based on what we've done. On the shortfall, I don't remember if it includes the $50,000. There may not be a shortfall. It doesn't include the $50,000 from City & County nor does it include the $26,000 reduction by OISC to bring the percentage from 100% down to 67%.

Joby: Is Scott going to do the nursery thing?

Ryan: It's not set. That was the idea. At the Working Group meeting it was decided that the supervisory person under OISC would be an islandwide overseer, working in collaboration with Scott's position. He's been going beyond the scope of his position up to now. We need an island-wide coordinator. If Scott is replaced, the new person probably won't be a herpetologist so won't be able to do that. (Rob clarified that Scott Williamson wasn't leaving DOFAW but that his position wasn't a herpetologist position per se.)

Action: Mindy and Ryan will revisit the question of nursery regulation with HISC.

Joby: He contributes to filling the shortfall?

Ryan: Yes. We have included a lot of this in the calculations. The $26,000 deficit may be made up from the County money. The variables make the coqui hard to project.

Rob: Maybe after we go through all the species we'll see where the money can come from.

Diane: Are you moving resources toward coqui because of legislative pressure?

Earl: There are also biological reasons to do this.

Diane: Because of the nuisance factor?

Earl: Also the very high densities.

Diane: But the pressure is because of the noise, rather than pressure on fire-prone grasses?

Mindy: The Big Island delegation for a year and half has been pressuring for funding redirection to control coqui.

Ryan: If the State wants to see that, they're a funder, we're at the mercy of our funders.

Diane: This is just a heads up, if you haven't heard this: There will be a media blitz at the end of this month, NWF is interviewing resource managers around the country about invasive species and what's being done. They want to get more attention on invasives, more action from Congress. NWF is usually pretty good about getting attention.

Action: Diane will send information on NWF's project to Ryan.

C. Himalayan blackberry, *Rubus discolor*

Ryan: Blackberry, there are two small populations on the island, both in Palolo Valley. We want to eradicate this. We will completely survey and assess the habitat around them. We'll look at the buffer, and if it's suitable habitat we'll survey. Then we should know the complete population size, and then it's a matter of maintenance and annual retreatment.

Meghan: We heavily use the Sierra Club for treating.

Josh: We don't have to revisit that often. There's a big time lag before maturity.

Ryan: Look at how we're doing the assessment, from a strategy viewpoint. We've ignored LPBs. Mapping areas, looking with binoculars, walking streams. Assessing the area within the buffer, hitting suitable areas, coming up with boundaries within which we'll survey, treat, reassess every 3 years.

We treat fully with a cocktail, it's going pretty well. We're getting a hundred at a time now, rather than thousands.

Joby: Are you using other treatments?

Ryan: We're open to others.

Joby: The spraying on the Big Island is working really well. I'm not sure what they're using.

Ryan. Roundup was being used. Also Garlon, it's no good.

Action: OISC will follow up on the Big Island protocol for blackberry control.

Ryan: Trials are kind of difficult, it's thick and it's hard to tell what resprout is coming from.

Meghan: We only spend 2% of our time on blackberry.

LUNCH BREAK

D. Fountain grass, *Pennisetum setaceum*

Ryan gave some background on *Pennisetum setaceum* (refer to page 17 of **Species Profiles** handout): distribution, control efforts, current management strategies. OISC hopes to contain the current populations in the Koʻolaus and keep it from spreading into the Waianae mountains. Quarterly, we treat satellite populations. In the Waianaes we treat/survey annually. We're using a pre-emergent to minimize effort in return visits. We're looking at what's appropriate on a site-specific basis.

Diane: So you are planning to maintain your current strategies?

Diane: Could you comment on what you are doing with David Smith with the population in Lanikai?

Ryan: Currently nothing. If anything were to move forward, OISC would most likely be involved. Potentially it will be re-landscaped. This is Aaron Lowe's kuliana.

Diane: Has that been tried in Hawaiʻi?

Rob: It may have been attempted on a small scale in Hawaiʻi.

Diane: I commend OISC for their help. For one management project, Bellows has hired a team to develop a 10-year (budget) vegetation sustainable plan to maintain/support military use that will reduce fire threats. There's funding for vegetation stuff. I feel that the legislation is more apt to fund projects with the use of, or in conjunction with, the military. Maybe we should do a demonstration project. The company that was contracted was SWCA. We should share mutual goals.

Ryan: We have stepped away from Palolo, Chaminade University. We are not surveying beyond satellite populations.

Amy: How large are the Waianae populations?

Ryan: We've been in communication with folks there, more so with individual plants vs. populations. (Reference to last OISC binocular survey there using spotting scopes.)

Josh: Most efforts have been put forth around the airport.

Diane: Has anyone looked at burn sites?

Ryan: That's a mixed bag. Having staff surveying for *Pennisetum* is one thing, to survey for other weeds . . . There are no plants there to seed it.

Joby: As many times as Makua has burned, there's no *Pennisetum*, nothing there to seed it.

Joby: Dillingham, Schofield, nothing. Kahuku, there's one still present, no flowers.

Ryan referenced an island survey. Nothing in Honouliuli.

E. Bush beardgrass, *Schizachyrium condensatum*.

Ryan gave the background info on this species. It's in Halawa and Temple Valley. The crew found a new naturalized population in back of Temple Valley. There are dramatically different management strategies between sites. Currently we're doing once-a-month visits to both sites. Access has been an issue. We've been relying on manual treatment. How can we reduce the effort we are putting forth? There's a huge persistent seed bank.

Rob: What happened to the idea of working with DOT about landscaping?

Diane: Isn't DOT responsible for landscape along roadsides because of State mandates? Your legislation investigation . . .

[Reference to a possible legislative mandate requiring DOT to maintain landscaping and to plant a certain amount of native species along H3/ Halawa Valley.]

Ryan: The project is stalled, we haven't been involved since last winter. It was more interest based.

Action: OISC will research legislation and provide DOT with information on the resources OISC is expending on *Schizachyrium condensatum* control.

Joby: Granular pre-emergent?

Meghan: Alex is investigating this. We are seeing a decrease in plants, yet the seed bank is so persistent that . . .

Alex: Do you know of types of granular pre-emergents?

Joby: Oust and Subdue.

Ryan: We have placed signs to limit weed whacking to help find plants. In Temple Valley, it's a residential neighborhood, that is time consuming with residents. First we're looking for habitat in that residence. Access can be a bit of a challenge, but predominantly people have been cooperative. As for buffer, there's no exact boundary, based on geography. We have never looked elsewhere so we're not sure how widespread it is.

Meghan: We're still waiting for species confirmation.

Joby: It may be an *Andropogon*.

Diane: Where do people send plants to get identified?

Meghan: Bishop Museum.

Ryan: Outreach doesn't work with grasses as an influx of questions come in.

Diane: Do arboretums help with ID?

Ryan: I don't know, we usually go through Bishop, it's most reliable. A PR campaign which we don't want to tackle. Any ideas how to reduce the outreach costs for *S. condensatum*?

Josh: We're trying to determine who landscapes it as they too could be a vector.

Diane: What do they do with the green waste? We are developing green waste management, which may be worth you looking into . . .

Rob: Who is your contact with DOT? As there is so much money in this project, maybe they can help with a solution as it is counterproductive.

Kim: Your PR strategy — Do you hand out cards?

Ryan/Josh: Mailing brochures to all residents within the Ahuimanu area, canvassing. Trying to increase public awareness is part of our protocol whenever we're working in a residential area.

Ryan: We're increasing/broadcasting our presence with a banner, brochures, magnetic seals. As our PR position is filled, there's more to come.

Action: Rachel Neville (OISC's new outreach person) will follow up on possible ways to reduce outreach costs for *S. condensatum*.

F. Smoke bush, *Buddleia madagascariensis*

Background: There are two sites, with recruitment from one. We consider buffers, resurvey every 3 years. The maturation rate is unknown, but *B. davidii* matures within 1 year.

Joby: Army will help maintain/survey those sites near Schofield.

Kim: I'd recommend getting in touch with Christy regarding the nursery trade, "Don't plant a pest." [This is referring to *Buddleia davidii* and *B. madagascariensis*.]

Ryan: My neighbor has it and so does Meghan's neighbor.

Rob. *Davidii* has purple flowers, *madagascariensis* has yellow?

Action: Joby will follow through on Army work near Schofield. Josh will coordinate with that. Survey once a year.

Action: OISC will follow up with Christy Martin about public outreach on species not to plant.

G. Fireweed, *Senecio madagascariensis*, Ryan Smith

Background . . . It's an agricultural pest. The sites still existing are at Castle Junction.

Becky: No new plants have been found with in the last 3 months, yet they have also found another Asteraceae.

Joby: I question how much of a threat it really is being that we don't have pasturelands.

Becky: It has escaped pastureland, dies back in dry season, then washes away. It prefers disturbed areas.

Kim: It has been spread through hydromulch.

Becky: There's nothing we can do as the grass seed comes in it and therefore we don't have any way that isn't time consuming. HDOA did a hand-sieving search on a 6,000-lb. batch, we went through 20 of the bags and found no seeds. It's very time-consuming and there really is no other way to determine what types of seeds are in the bags of hydromulch.

Domingo: What's the origin of the mulch?

Becky: Australia originally. But first it goes to California, then Arizona and then to Hawai‘i.

Joby: It's reproductive in 2 weeks, dies, it rains and then numerous plants pop up and that is the problem, yet it doesn't pose a threat to native ecosystems.

Ryan: Initially we took it on because it was incipient and on HDOA's recommendation. Our strategy is to assess these areas where it's known to occur to make sure we aren't overlooking any. We're working with potential sources to make sure it doesn't come in again.

H. Pampas grass, *Cortaderia* species

Ryan: The known sites are completely ornamental. We're waiting for a PR person to deal with landowners. We want to get rid of it as it has been discovered that both *C. selloana* and *C. jubata* can produce viable seed. We need to talk to Christy about species not to plant. Map 'em all, note habitat and get taxonomic ID.

I. Firetree, *Morella faya*

Ryan: This is one of our target species to monitor, populations in the Koʻolaus. It is dioecious, 1 on Mauʻumea Trail and unverified sites, Hawaiʻi Loa and a seedling found in Hauʻula. It was forestry planted.

Joby: Dan Sailer would know probably the most about those *Morella faya* populations in the Waianaes. Is it a regional target, how extensively have we prioritized regional targets?

Rhodomyrtus tomentosa and manuka are both examples of that.

J. Glory bush, *Tibouchina urvilleana*

Ryan: All known populations have been controlled. The monitoring status is currently focused: Kahaluʻu one, Mililani Mauka wiped out with the help of HDOA, Whitmore Army has been managing it. We're doing annual checkups pretty much.

K. West Nile virus

Ryan: Dead bird pick-up, Mondays are our day. It could be more. Currently it is sporadic.

Kim: It comes under rapid response and with DLNR funding.

Rob: How often has it been . . .

Kim: Is someone waiting in the office for calls?

Rob: Keep in mind that you are funded through cooperatives and HISC concern.

Ryan: And that's that.

VII. Final comments, wrap-up

Kim: How did you come up with your costs per acre?

Meghan: Originally we spoke with Kim Burnett who is working on a Master's in economics on invasive species. The biggest factors considered were capital costs (vehicles, gas, sprayers), labor, and volunteer labor. We looked at all types of surveys and tried to break it out that way as well. Looking at hours spent and acres covered.

Ryan: Drive costs and staff costs. Working with more knowledgeable economic folks to utilize this to evaluate OISC costs long term. We can now price Miconia for the next 10 years and other species when we go after new targets.

Meghan: Again I separated coqui costs from those other species. Volunteer hours were accounted for in acres covered but included in total costs.

Ryan: Should we go back and look at the budget to fill in the gaps? Okay then meeting is officially pau.

Attendees

Becky Azama, HDOA
Earl Campbell, USFWS
Domingo Cravalho, HDOA
Diane Drigot, MCBH Environmental Dept.
Joshua Fisher, OISC
Meghan Halabisky, OISC
Rob Hauff, DOFAW
Mary Ikagawa, OISC
Kim Langley, CGAPS
Alex Lau, OISC
Mahina Lee-Chung, OISC
Katy Metzler, OISC
Christine Meyers, OISC
Darcy Oishi HDOA
Sara Pelleter, DAR
Patrick Porter, OISC
Joby Rohner, Army Environmental
Kyle Slick, Air Force Environmental
Ryan Smith, Coordinator, OISC
Amy Tsuneyoshi, HBWS
Mindy Wilkinson, DOFAW

Abbreviations

CGAPS, Coordinating Group on Alien Pest Species
DAR, Division of Aquatic Resources
DOFAW, Division of Forestry & Wildlife
HBWS, Honolulu Board of Water Supply
HDOA, Hawai‘i Department of Agriculture
MCBH, Marine Corps Base Hawai‘i
OISC, O‘ahu Invasive Species Committee
USFWS, US Fish & Wildlife Service