

MAUI INVASIVE SPECIES COMMITTEE
MEETING MINUTES
September 10, 2010

ATTENDANCE: Pat Bily, James Leary, Christy Martin, Forest Starr, Kim Starr, Steve Anderson, Kuhea Paracuelles, Rob Hauff, Elizabeth Speith, Randy Bartlett, William Jacintho, Bob Hobby, Wendy Swee, Adam Radford, Brooke Mahnken, Lissa Fox, Teya Penniman, Elizabeth Anderson

ATTENDING VIA WEB-COM: Josh Fisher, Jason Hanley

- The meeting was called to order by Pat Bily (TNC) at 9:10 am.
- Minutes from the last meeting were approved. They will be posted on the website.

ANNOUNCEMENTS

- Teya: Wednesday was the meeting of the Hawaii Invasive Species Council to review the proposed allocation of funds for FY11. We started with \$1.4 million available for the HISC. Paul Conry was able to get the Legacy Land Commission to add \$400K. This will likely be a one time deal. Since there will be more funds to go around, the allocation process was less difficult. Based on projections Elizabeth A. recently completed, we should be able to maintain our existing capacity through at least December 2011.
- Kuhea: the Mayor's budget meetings for 2010-2011 have started. I emailed the schedule out yesterday. The outlook is not great - hopefully not worse than now, but not as good as a few years ago. It is a good idea to make an appearance at the meetings. I would not advise asking for more funding. You should ask for level funding and thank the county for the funding they do give you. Teya: when do the departments submit their budgets? Kuhea: early in the year. They submit to the Mayor first. Kuhea will find out who is handling the DWS budget with Ellen gone.
- James: I was able to get year-end funding through the college to get empirical data for incorporation into the Weed Risk Assessment for Rauvolfia. I have plenty of Herbicide Ballistic Technology available if anyone has uses - let me know.
- Kuhea: thanks to Lissa, Adam, and Fern for helping with the Brown Tree Snake workshop. We hosted three sessions and 120 people attended. I think people really appreciated the Maui-specific information. The wallet cards should be here soon and we will be making bus posters like we did for the little fire ant. We also will be doing more outreach at the airport. Adam: thanks to Kuhea for organizing and pulling together the training and for getting Maui Police Department to be a resource. We did have a snake report in Hana this week. Hawaii Department of Agriculture folks went out and determined it was a skink.
- Steve: at the end of the fiscal year there were a variety of positions in the park that had not been filled for the year resulting in unexpended funds. The superintendent decided that the best place to put those funds would be towards pampas grass and miconia. As a result, \$200,000 will be going into PCSU for MISC. The next couple of years are looking really bleak. This \$200K may be the last installment the National Park Service can put toward MISC efforts in the foreseeable future.
- Teya: our annual staff meeting will be held over two days (Dec. 6-7) at Camp Olowalu. The Committee is invited to join us for dinner the evening of Dec. 6. We will send out more details as time gets closer.

EARLY DETECTION / RAPID RESPONSE

- Pat: we never completed our early detection and rapid response discussion from two meetings ago. It is important that we refocus on this discussion. Teya: we need to answer key questions regarding whether we are accomplishing our goals and objectives.

Overview: We framed the meeting on Early Detection & Rapid Response in the context of our Strategic Plan. We also asked the questions:

- **Are we accomplishing our stated goals / objectives?**
- **Do the goals and objectives need to be modified?**
- **How can we improve on what we are doing?**

Objective 1.1 Early Detection: New terrestrial invasive species are detected at the incipient stage of invasion – when control or eradication is still feasible.

Strategies:

1. USGS & MISC collaborate in implementing Maui-based early detection reporting system.

- *USGS & MISC continue to collaborate on the ED reporting system. USGS has taken the lead on this endeavor to date.*
- Discussion: Teya: are we on target for this? Elizabeth S.: there is an online reporting system that allows information to be taken from a wide variety of sources. This is in addition to and complementary to the 643-PEST number. Teya: this is one piece of the overall MISC Strategic Plan. It is a core function for us and has been for many years. William: what is the status of the statewide look at harbors? Teya: there was funding for a specific project from the Legislature. They requested a report on bio-security at harbors. There will be a series of meetings on the different islands. The first meeting was a brainstorming session to identify the issues and problems. The second meeting focused on developing solutions and the third meeting has been delayed. I suggested things like a certification process for shippers, etc. I think we have a role in the process. Decision: maintain current efforts.

2. Survey Maui's roadsides, nurseries and botanical gardens during FY08.

- *Roadside, nursery, botanical garden, and landing zone surveys have been completed.*
- *Actions Needed: Revise priorities in light of FKS results & recommendations.*
- Discussion: Lloyd: there is a disconnect with the surveys - we find something that is potentially invasive, but what are we going to do about it? *Erica* is an example. They are selling one of the *Erica* species at the Kula Experiment Station. James: I asked the manager about the species and we got a response. We know what is there and they are aware there is an issue. The channels are open. We need to determine if the cultivars they are growing are invasive. Forest: their job is to bring in new species to test. Invasiveness is an attribute they look at during their trials. Lloyd: it shouldn't be too much of a hardship for them. It would be good for Teya to work with James on the evaluation. It was interesting that a large number of the detections were at the Kula Station. It is encouraging that there wasn't as much elsewhere.

- Teya: what is the action step? Forest: a list of resources that people can access would be helpful. Elizabeth S: this would be an appropriate application of the landscaper's Code of Conduct and certification. Teya: so, the use of tools would be recommended. Lloyd: I would like to see MISC work with CTAHR. James: it would be good to see if they have an agenda for bringing stuff in and if they would allow review of the list before they bring things in. Pat: I am curious why a state entity is providing this stuff to people? James: I don't have a good answer. It is a new world and agencies need to keep themselves relevant. They are trying to develop cultivars with commercial value. We need to ask if the benefits outweigh the potential hazards. If we at least have a heads-up as to what is coming in, it is better than a haphazard approach. Christy: we need to look at this on the statewide level. James: they need to reevaluate why they are doing it. Kuhea: where does HDOA come into this? If there is an agreement, they need to be part of it. Teya: we will be doing a workshop on early detection and rapid response in the future and HDOA will be included. Kudos to Forest and Kim - a lot of our early detection work depends on them. We are really lucky to have them and their skill set here. Decision: James will initiate discussions with CTAHR on this issue.

3. Improve staff capacity to identify plant, vertebrate, and invertebrate species. Conduct biennial vertebrate identification training for Maui Nui natural resource workers.

- *Mike Ade has had Guam snake training (2006) and Guam refresher (2009)*
- *Last overall vertebrate training was 3/08*
- *Vertebrate crew went to snake training on Oahu in 2009*
- *Snake response training on Maui – 8/10*
- *Botany workshop held in late 2008; refresher in 2009*
- *Botanical training (native plant garden) – 7/10*
- *Little fire ant training (some staff) – 1/10 and 2/10 (in Hilo)*
- **Actions Needed:**
 - o *Increase capacity for invertebrates: explore training options (Cas, Mach)*
 - o *Continue to schedule botany refreshers at least once per year*
- **Discussion:** Teya: Chuck is occasionally able to go in the field with our staff and that provides a great training opportunity. Would training on invertebrates be helpful? Pat: it would be simple enough if Forest and Kim wanted to do it. You could just breeze over the orders. You won't be able to get into the identification, but you could cover the basics. Brooke: there are good powerpoints available online that cover the basics. Teya: we don't have an HDOA entomologist on island anymore. Pat: Mach's class at MCC would be great for people. Teya: maybe we could bring Mach in for a training session. William: I would like to be trained in identifying the biocontrol agents that were released for fireweed. Teya: that would be a good focus. William: maybe we could do a one credit thing through MCC. Decision: Follow up with MCC and Mach to see about doing a short course for MISC and possibly others.

4. Implement "Eyes & Ears" program to expand public's familiarity with target species.

- *23 Workshops; 310 participants*
- *Revision / reprint of ED guide completed.*
- **Actions Needed:** *Work more closely with partner agencies to disseminate ED products and information.*
- **Discussion:** Teya: the recent BTS workshop is a great example of collaboration. Decision: Maintain current "Eyes and Ears" program.

5. **Increase MISC's awareness of on-island activities for other taxa (e.g., invertebrates). Identify gaps in early detection.**

- *FKS are filling this role of late; MISC is still plant and vert-centric.*
- *Suggest using CGAPS Strategic Plan to identify additional gaps in Early Detection.*
 - a. Importation of Invasive Plants (#3 in CGAPS S.P.)
 - *Ensure continued funding for weed-risk-assessment technicians. (DLNR, USFWS, USFS)*
 - *MISC supports this effort by housing the Maui-based WRA technician and advocating for continued funding.*
 - Discussion: Christy: it looks like HISC is willing to support one WRA technician. We are trying to find funding for the second person. Christy F. may have funds to help fund the second position. Teya: I would like for MISC to cover part of Chuck's time to have him work on literature reviews of our targets and work on our action plan. We need to pull together the known information. We will need to negotiate the details. Christy: that will need to happen with Christy F. Teya: I am envisioning a document that could be a model statewide.
 - *Work with plant industries and relevant agencies to produce a list of additions to the Restricted Plants List. (CGAPS, ISCs, USFWS, HDOA)*
 - ***Actions Needed:** Decide if this meeting is still desired*
 - Discussion: Pat: what will be the point? Lloyd: I think this is very important. We need a strategy we can go to HDOA with. This is not totally in our hands. It would be helpful if Chuck would come up with a proposal of what to go to HDOA with. James: we need the industry to share information with us regarding what they are planning to bring in before they bring it in. We need to get them comfortable with coming to us. Christy: the restricted plant list is a state list, but it doesn't help on the federal level. A plant on the list could still come in from another country. You can't have a state list that is more prohibitive than the federal list. Teya: the preemption issue must be addressed on a different level. It is still worth it to address the issue at the state level. I am willing to facilitate. Who should be involved? Kuhea: what about the other ISCs? Teya: there should be a small group that puts together a list of potential additions. Lloyd: it should be Chuck, James, and Christy M. Chuck: I can't take on unfunded mandates. Teya: why don't you give me an estimate of what it would take. James: there is a possibility of TSTAR funding for something like that. Christy: it would be great if we could put in a letter of intent. Decision: we will focus on the restricted list rather than the noxious weed list at this point. Hold off on trying to schedule future meeting. James will explore possibility of TSTAR funding and communicate with Chuck and Christy.
- b. Early Warning for Pests not Present in Hawaii (#8 in CGAPS S.P.)
 - *Explore grant options to help strengthen the relationship with other Pacific islands and possibly enhance communication about pests of concern.*
 - ***Actions Needed:** Develop grant proposal for USFS Competitive Grant - input desired.*

- Discussion: Teya: earlier this year I considered putting in a grant to strengthen communication between the ISCs and other Pacific islands. Having stronger connections with other Pacific Islands could help facilitate sharing of knowledge about newly arrived species. Elizabeth S.: there is a more formal aggregation of a number of conduits for talking about invasive species. It takes different sources and pulls them together. It will be moderated and the information distributed in a bunch of different formats so it can be seen by the people who need to see it – serves as an early warning system. No formal decision made on this issue.

Performance Measures:

1. Numbers of trained observers familiar with MISC targets and other identified incipient species.
 - *Over 310 people trained in workshops. Presumably more via newspaper articles.*
2. Number of miles surveyed; number of new detections.
 - *Surveyed 850 miles on Maui (surveys in 2000 and 2009), 142 miles on Molokai (2005) and 105 miles on Lanai (2007). New island records included 19 on Molokai, and 9 on Lanai. Nursery and botanical garden surveys generated 314 new state records. One incipient species was detected during landing zone surveys. Relatively high level of weedy plants encountered during nursery surveys.*

Suggestions for next areas of focus included:

- *Work to require labeling of all plants by species name*
- *Collect voucher specimens for new state records (still need to collect 295/314)*
- *More surveys at botanical gardens and retail outlets*
- *Conduct road surveys 2x in one year to get handle on seasonality*
- *Summarize observations from LZ surveys for best management practices*
- ***Actions Needed: Determine priorities***
- Discussion: Forest: there are two major forestry planting areas. It would be good to look at what has been planted, what is invasive, and what the distribution is. It also would be nice to do buffer surveys around Haleakala Ranch, TNC, and the park. Teya: we have funds coming in from a Forest Service competitive grant that will fund some work by Forest and Kim. The grant is focused on survey work and some follow-up work as well. Out of the various areas of focus (outlined above), does the Committee have thoughts on priorities? Forest: the roadside surveys take ~ six months. James: in the past it looks like the surveys have been done on a 10-year interval. It seems like every five years would be better. Kim: it depends on the funding. Teya: it might be good to hit a random selection of smaller mom and pop places (nurseries). Forest: we have hit 75% of the bigger places on the island. Pat: I think that the best options would be to continue roadside surveys and increase the interface with the natural area managers to know when stuff is showing up. Forest: fence lines and trails in natural areas would be another good thing to hit. Pat: buffer zone surveys would be helpful. Steve: we should have potential targets to present to the crews doing the pampas sweeps that start on Monday. Kim: we want to look at things that are naturalizing in botanical gardens and do buffer surveys around the gardens. Decision: we will look at buffer surveys, shortening the interval on roadside surveys, and more surveys of botanical gardens.

Objective 1.2 Rapid Response: Clear protocols guide agency responses to detections of new invasive plants, vertebrates, invertebrates and aquatic species.

Strategies:

1. **Update and disseminate comprehensive Rapid Response Chart outlining agency responsibilities.**
 - *Clarifying agency roles and responsibilities was identified as a strategy in the CGAPS Plan. MISC has taken on the responsibility for organizing a workshop to review agency responsibilities.*
 - **Actions Needed:** *Plan and schedule workshop.*
 - **Discussion:** Teya: there will be a workshop on October 12 in Honolulu to clarify agency roles and responsibilities. I am open to input and help. This is something that will take more than one meeting. Decision: keep Committee members informed about workshop and seek input.
2. **Participate in development of a statewide decision-support system for identifying response options and priorities.**
 - *See above comment. Additionally, the ISCs, in concert with USGS PBIN, will be putting together / participating in several workshops to develop a statewide protocol for assessing which incipient species should be selected for survey & control.*
3. **Create feedback loops to ensure adequate response is maintained.**
 - *See above comments.*

Performance Measures:

1. Number of responses to new invaders.
 - *In the last year, MISC has responded to *Erica lusitanica*, *Silybum marianum*, and *Wasmannia auropunctata* (surveys and PR campaign).*
 - **Discussion:** Teya: the existing system works well – regular meetings where people can bring up new species for discussion. James: does HDOA report to this group on any findings they have? Teya: in terms of our awareness of what is getting intercepted at the border, it would be good for us to have more interaction on with HDOA on Maui. Lloyd: it would be good if we could get someone from HDOA to come to our meetings. Decision: Invite HDOA to attend MISC meetings.
2. Key agency personnel have enhanced understanding of responsibilities for responding to invasive species reports.
 - *Could do pre- and post-surveys before beginning workshop noted above.*
3. Misguided referrals are reduced.
 - *Too hard to measure. Suggest dropping.* Decision: Drop this as a measure.
4. Time of response from discovery or report to assessment.
 - *Not measured. Suggest dropping as a measure.* Decision: Drop this as a measure.

5. Time of response from report to action.
 - *Could be pulled out of data but not currently tracked intentionally. Could be added to “Species Profile” information.* Decision: maintain information in database so it’s available, but otherwise no specific effort to summarize it.
 - ***Input needed:*** *Do we need additional measures of success for Rapid Response?*
 - ***Discussion:*** Lloyd: one idea would be to look at where we are on eradications. That would be an excellent measure of success. James: it would be nice to have more measures, but I am not sure what they are. Decision: complete “Eradications” paper for publication.

PUBLIC RELATIONS / OUTREACH – STRATEGIC PLAN

MAXIMIZING OUR VOICE

GOAL 3: ENGAGING THE PUBLIC TO PROTECT MAUI NUI.

Objective 3.1 Public Understanding & Support: The public understands and supports efforts to detect and control invasive species in Maui County.

Strategies:

1. Communicate progress, value and relevance of work to decision makers and funders.
2. Increase public awareness of invasive species issues and engage public in efforts through coordinated media campaigns.
 - *News coverage*
 - *Maui News Column: Kia’i Moku:* we are always looking for fresh ideas for topics. Let us know if you have suggestions.
 - *Newsletter:* we have published six editions and we are working on the seventh. We continue to hand out older editions as appropriate. Topics to date: pampas grass, miconia, coqui, eradicable species, Lanai, miconia conference. Our upcoming edition will be on Molokai.
 - *Community Events/Displays:* we had an exhibit at the airport for quite awhile, but management changed and things are in flux right now. The County Fair is our biggest event each year.
 - ◆ 2005: 10 events—4,000 Audience
 - ◆ 2006: 15 events—4,914 Audience
 - ◆ 2007: 9 events—3,763 Audience
 - ◆ 2008: 10 events—3,418 Audience
 - ◆ 2009: 10 events—4,420 Audience
 - ◆ 2010: 7 events—2,580 Audience
3. Implement “Eyes & Ears” program to expand public’s familiarity with target species. Special emphasis on outdoor industries, port workers, etc.

- Lissa: our early detection workshops have proven to be a great program for engaging people. We have this tool and it is ready to go. We have done a number of workshops for the conservation community. We made the offer to do workshops at a MALP meeting and the big golf course in Waikapu responded. The public workshops we offered in different communities were not well attended, but the agency people have been great to work with. We had a great training with the APHIS folks – we trained 100 of their inspectors. Pat: are you enlightening them as far as what an invasive species is? Do they understand why MISC is selecting certain targets? Lissa: we hope so. Elizabeth S.: there are evaluation forms done for all of these trainings. We recently went to a workshop and learned more about how to make evaluation tools. Lissa: that is something we need to look more closely at. The early detection guide was just reprinted after revision. It is now in a flip style book. Kuhea: I have been working with MECO and they are interested. Lissa: we would love to do a workshop with them.

- ◆ 2008: 13 Workshops—111 Participants
- ◆ 2009: 8 Workshops—196 Participants
- ◆ 2010: 7 Workshops—122 Participants

4. Continue monthly news article in *Maui News* highlighting target species.

- Annual Maui News Mentions of MISC and Kia‘i Moku Columns:
 - ◆ 2005: 8 mentions
 - ◆ 2006: 23 mentions—6 Kia‘i Moku
 - ◆ 2007: 22 mentions—12 Kia‘i Moku
 - ◆ 2008: 9 mentions—12 Kia‘i Moku
 - ◆ 2009: 10 mentions—12 Kia‘i Moku
 - ◆ 2010: 7 mentions—8 Kia‘i Moku

- Support public awareness of the statewide PEST hotline and MISC as a reporting center.

Teya: when HDOA was ready to release the nettle caterpillar biocontrol, they didn’t have good places to release it. The person in charge of the release from HDOA called us to ask for good locations. We had been collecting the information about where the caterpillar was and we were able to give them the information because MISC functions as a reporting center.

5. Plan and implement cultural protocols to engage all aspects of the community.

- ***Input needed:*** *Contacts for Cultural Protocol events*

- Teya: we want to start incorporating cultural protocols in our work. We are looking for appropriate practitioners to advise us for specific areas. Kuhea offered to help with this.

Performance Measures:

1. Funding is maintained or increased.
2. Number of people reached at events and presentations and via print and broadcast media.
3. Access to private property – recalcitrant issues resolved. (see discussion below)
4. Surveys to gauge public awareness of targeted invasive species.
5. Reports to PEST hotline and number of reports to MISC.
6. Numbers of trained observers familiar with MISC targets and other identified incipient species.

- ***Input needed:*** *Recalcitrant protocol*

- Lissa: recalcitrant landowners continue to be an issue for us. I would like to present two case studies today and see if the Committee has any input on how we should proceed. 1) The un-contactable – we have had no luck contacting them. TMK searches haven’t helped. We’ve even left notes on fences. Brooke: subscribe to one of the online services that finds people. Kuhea: I would be willing to check the real property tax records for you. Lissa: 2) the unconvinced – this happens most often with *selloana* and occasionally with coqui. We are looking at possibilities:
 - Tier 1:** enlist help
 - for vertebrates: HDOA (Keevin has offered to write letters from HDOA)
 - for plants: Other conservation organizations
 - possibility of a letter from MCA
 - Tier 2:** have someone from the county call or send a letter
 - Tier 3:** state representatives have offered to help. This has worked on other islands.
 - Tier 4:** wait them out

- Josh: another suggestion would be to show them examples of removal efforts in other places. You can also offer substitute plants. Pat: for basket making they can substitute sugar cane plumes for the pampas plumes. The plume is a very small part of the basket. Also, sometimes taking them into a natural area can help. Most people have a disconnect. They don’t understand what is up there to protect. We could do a Waikamoi hike with recalcitrants. You might try contacting the California Invasive Species Council. I am sure they encounter the problem all the time. They might have some alternatives. Chuck: the fact that there is there is no perfect replacement is a problem. Teya: at the county level we are looking at an ordinance that would allow for direct access to remove specific targets.

Objective 3.2 Little Fire Ant: Raise public awareness about LFA. Engage public in detection activities.

Strategies:

1. Educate the public about the threat posed by the little fire ant (*Wasmannia auropunctata*) through coordinated media campaign, using development of a website, newspapers, broadcast media, social networking, presentations, etc.
 - Lissa: we take samples with us to fairs and classroom visits to help with identification. There are posters on the buses. Forest: we can tell that the PR is working when we are out doing surveys. When we used to survey, people had no idea what we were doing. Now they know what we are doing. Lissa: there is an LFA website. We did one event at the swap meet with the ant costume. Doing outreach at the swap meet was interesting. Most people are trying to sell something. The Hoike curriculum already had an LFA activity and Wendy has been using that for classroom visits. We are working on a video and PSAs.
 - Events / Activities focused on LFA (since October 2009):
 - ◆ Articles by us: 2
 - ◆ Articles on LFA: 4
 - ◆ Display: 1 (airport)
 - ◆ Early Detection: 11—202 participants
 - ◆ Events: 5—1530 audience
 - ◆ Kits Distributed: 1044
 - ◆ Class Visits: 11—754 students

2. Train the public in how to survey for LFA and report findings.
 - Lissa: we are handing out test kits that people can mail in. We handed out 500 kits at the Fourth of July Parade. Overall, we have only gotten about five back. Forest and Kim are doing the ant identification from classroom visits, public mail-ins, and surveys MISC does as well as the surveys they are doing.

3. Develop program to maintain efforts & celebrate success.

Performance Measures:

1. Outreach events / activities focused on LFA – number of people contacted.
2. Media coverage of the issue.
3. Number of kits disseminated to the public and number of responses.
4. Number of schools participating in LFA survey; number of sites surveyed.
5. Number of permissions granted for surveys, sites surveyed, sites pending.

- ***Input needed:*** *Other meaningful measures?*

- Christy: I like the idea of improving the information even on the negative surveys. It would be nice to have an online map showing where we have surveyed. Lissa: there is a website that Elizabeth S. set up with a map showing the negative points. Lloyd: I don't think you can assume that just because a school has been surveyed they aren't there. Teya: it would be nice to have a map for community events as well. We aren't saying that it isn't here, but just saying these are the places that have been checked. Forest: it would be nice to compile all of our efforts. Teya: we are focusing on high risk places where they get shipments from Big Island.

Objective 3.3 Industry Participation: The landscape and agricultural industries are supportive partners.

Strategies:

1. Promote use of HPWRA by landscape industry.
 2. Participate in development of statewide Best Management Practices for nurseries to reduce unintentional transport of pests via trade.
 3. Promote and implement annual award to recognize supportive members of the landscape and agricultural industries.
- This will be our eighth year presenting the award. Nominations will be due in early November. The MALP fair is on December 4 this year. Please consider helping by suggesting potential award recipients.
4. Implement / maintain Coqui-free Certification program for nurseries; expand program to engage more industry participants and the general public.
- This is our third year of the coqui-free program. We have 28 participating nurseries.
5. In cooperation with the nursery industry, implement / maintain plant replacement program or other incentive for cooperation.
 6. Participate in industry-related events and associations.

Performance Measures:

1. Landscape industry uses the WRA and embraces / implements BMPs.
 2. Number of HPWRA requests by industries and agencies.
 3. Number of nurseries, plant providers, and members of the public participating in Coqui-free Certification program.
 4. Publicity efforts and success for annual Malama i ka Aina award.
 5. Number of industry-related events with MISC presence.
- Pat: do you have outreach at MCC? It would be a good venue. Elizabeth S.: my office is at the college. I would be willing to talk to people.

Objective 3.4 Education: The students of Maui Nui are engaged with invasive species issues.

Strategies:

1. Conduct educational programs for elementary, high school and college groups.
 - PR benefits of educational programs:
 - ◆ Average “face time” with students in classroom: 1 hour
 - ◆ Wide demographic range—a cross-section of Maui County
 - ◆ Youth often more open to new concepts
 - ◆ Provide basic understanding of unique Hawaiian species and their threats
 - ◆ Long lives ahead supporting conservation!
2. Actively promote implementation of the Hoike o Haleakala curriculum, with emphasis on invasive species activities.
 - Benefits of Hoike o Haleakala Curriculum:
 - ◆ Place-based: Students learn big-picture concepts with local examples.
 - ◆ Interactive: Local educators worked together to develop engaging activities.
 - ◆ Adaptable: Geared toward high school, activities have been successfully adapted to other levels.
 - ◆ Meets standards: Teachers assist in ensuring that lessons correspond to current benchmarks.
 - The core of promoting the Hoike o Haleakala Curriculum has been classroom visits based on the curriculum:
 - ◆ 2006: 20 visits — 1666 students
 - ◆ 2007: 17 visits — 939 students
 - ◆ 2008: 11 visits — 756 students
 - ◆ 2009: 31 visits – 2068 students
 - ◆ 2010 (so far): 20 visits – 1003 students
 - We have been conducting regular teacher development workshops. We do one workshop per year where the teachers are able to get DOE continuing education credits and we sometimes conduct more informal workshops as well. We bring in guest speakers and the teachers do the exercises as if they were students. The workshops benefit greatly from the support of our partners that come in and give presentations. TNC allows us to take the teachers into Waikamoi Preserve. The field trip really makes the material relevant to the teachers. They get to actually go see the native forest. It really brings the lessons home. We have also incorporated teachers in helping to develop the new invasive species module. We are talking about doing a workshop in Lahaina soon
 - Teacher Development Workshops:
 - ◆ 2005: 2 workshops – 13 teachers
 - ◆ 2006: 9 workshops – 48 teachers
 - ◆ 2007: 3 workshops – 208 teachers
 - ◆ 2008: 2 workshops – 22 teachers
 - ◆ 2009: 3 workshops – 16 teachers
 - ◆ 2010 (so far): 1 workshop – 9 teachers

- Completion of the development workshop requires teachers to document use of curriculum in classroom. Each teacher completes 6 lessons.
 - ◆ 2007: 18 lessons
 - ◆ 2008: 30 lessons
 - ◆ 2009: 30 lessons
 - ◆ 2010: potential 48 lessons
- 3. Complete and promote the Hoike module on invasive species.
- Shannon Wianeki is working on development of the invasive species module.

Performance Measures:

1. Numbers of presentations to school groups.
 2. Number of students reached.
 3. Number of local youth doing internships at MISC.
 4. Number of teacher development activities.
 5. Number of lessons implemented by teachers.
 6. Web site hits to Hoike site.
- We also continue to offer volunteer opportunities for students when possible. They help pull pines, help with miconia in Hana, etc. We work with partners (the park, TNC) when possible. Christy: I would suggest adding facilitating and providing field trips to your list of strategies and performance measures.
 - Volunteer Activities:
 - ◆ 2006: 7 Activities—96 participants
 - ◆ 2007: 3 Activities—62 participants
 - ◆ 2008: 2 Activities—17 participants
 - ◆ 2009: 6 Activities—144 participants
 - ◆ 2010: 5 Activities—122 participants
 - ***Input needed: Other meaningful measures?***
 - Christy: pre and post surveys for students and teachers would be a good performance measure. Teya: Outreach and education will continue to be key elements of the MISC program. I appreciate that we have such a strong PR staff.

Next Meeting: December 3, 2010 - Vertebrates