MAUI INVASIVE SPECIES COMMITTEE

Quarterly Report to the MISC Committee

FY 2013, Fourth Quarter

April 1 to June 30, 2013

Manager's Report

Malia paha he iki paʻa ka pōhaku nui ʻaʻole e kaʻa.

Perhaps it is the small stone that can keep the big rock from falling down.

The Invasive Species Committees were formed to fill the gaps that sometimes arise when a problematic species exists beyond an agency's jurisdiction. One example is miconia, which threatens protected areas both within and outside those boundaries. Gaps also occur when agencies lack adequate resources to work on a landscape level or when access to private property for surveys might be difficult because of questionable activities taking place on the land. Without a coordinated effort to wrestle the small stones into place, the big rocks may come tumbling down.

When MISC and MoMISC hired their first staff in 1999 and 2000, no one envisioned just how many stones we'd be moving or how big some of the rocks were that could use a little support. Or that we would continue to do it, year after year, all on "soft" money, expanding the scope and reach of our work over time.

There are (at least) four main reasons we're still here after 14 years and our stones have held. First, thanks to a strong outreach program, the public understands and supports our work. They let us on to their properties. They help move the stones, sometimes literally, by helping with habitat modification in coqui-infested areas or letting us store supplies on their property. Second, thanks to our awesome committee, we're able to bring the best research and knowledge to bear in figuring out what types of stones we need and where to find and place them for the greatest effect, including whether our strategies should involve a ground or aerial approach. And third, thanks to our field and admin staff, we are able to acquire, haul, jam, measure and GPS those stones into place. The field crews backs, fingers, eyes, toes, and many nights on the mountain away from their families make our successes possible.

I continue to be super proud of the work that MISC and MoMISC do, which makes it easier to cope with the never-ending proposal cycles for state, federal and county funding. But we also need to remember and celebrate the fourth reason we're still here: our partners. Those big rocks – native ecosystems that support ʻapapane, happy face spiders and ʻōpae ʻula, our fire ant-free homes and farms, the quiet nights and bananas in the backyard -- continue to exist because of more than just the few stones we bring to the hillside to keep them in place. Given how difficult and critical the struggle is, it might be easy to grumble over who gets to carry which stone or which one is more important, but we will succeed only if we focus on how we get the work done together. We remain grateful for our partners, not only for their support, but also for their talent and commitment to the hard work. Mahalo plenty.

Staff Spotlight

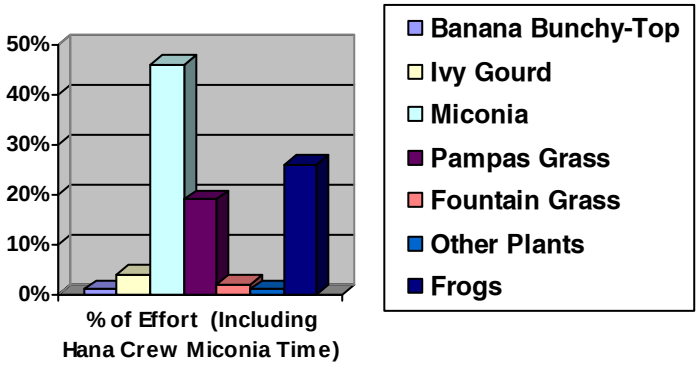
When a new crewmember starts at MISC we always try to emphasize that we have a dynamic schedule. This quarter's "Spotlight" employee, Christian Visoria, has been living that reality. One week might find him camped on the boggy slopes of Honomanū scouting for pampas grass, the next he's spraying pampas from a helicopter, and on a following weekend he's explaining our work to the public at a community event – all with a positive can-do attitude. Christian definitely holds the record for the most nights in the backcountry during pampas season – he was considering having his mail forwarded to Honomanū for the summer! When Christian first started we knew he brought solid experience from his work with The Nature Conservancy on Molokaʻi (his home island) and with a private company doing invasive species work on Maui, but we really didn't know what a huge asset he would become for the MISC plant crew. He knows his stuff, whether it's plant identification or the right control techniques, and he's shown a natural ability and willingness to take on lead roles in the field. We're super lucky to have Christian as part of the MISC team. Way to go, Christian!

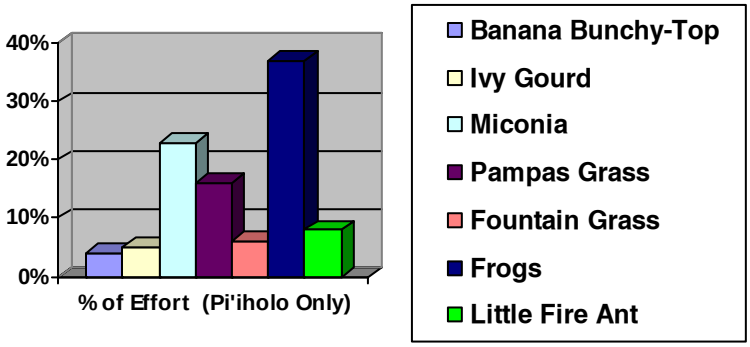
Quarterly Highlights

April 1-5:	Crew to Lānaʻi for ivy gourd & fountain grass survey/control
April 4:	Adam attends Maui Conservation Alliance meeting
April 5:	Adam assists Maui Nui Seabird Recovery Project with rappelling fence inspection on Lānaʻi
April 9:	Teya to Oʻahu for CGAPS Legal Fellows interviews
April 18:	RCUH Safety Training for supervisors
April 20:	Hāna Taro Festival
April 23-24:	Crew to Hanaʻula for pampas grass control
April 23-26:	Crew to Haipuaʻena for pampas grass control
April 24:	Adam provides testimony at County Budget & Finance Committee hearing
April 30:	Adam attends meeting with Department of Water Supply on climate change modeling
May 8:	Teya & Lori to Oʻahu for CGAPS meeting
May 9:	Conservation Campus meeting with Dr. Duffy at MISC
May 14-17:	Crews to Haipuaʻena & Honomanū for pampas grass control
May 16:	Maui Axis Deer Coordinator, Kanalu Sproat, starts work Teya to Oʻahu for Hawaiʻi Conservation Alliance meeting
May 20:	Senator Mike Gabbard visits MISC/HBT tour & demo
May 21:	Teya & Adam attend DWS grants workshop

May 22-24: OISC & BIISC Coordinators at MISC for admin. training & coqui field work
May 24: MISC Meeting – Public Relations & Outreach
May 28: Teya, Kanalu, & Adam attend Maui Deer Working Group meeting
May 30: AmeriCorps volunteer Kalai Kubota starts work
Teya & Adam attend sneak preview of Huliau films at Mayor's office

June 3-5: Crew to Kauaʻula for pampas grass control
June 3-7: Crew to Honomanū for pampas grass control
June 4: Teya to Oʻahu to meet with Hauʻoli Mau Loa Foundation & attend HISC meeting
June 5: Teya, Kanalu, & Lori to the Big Island for Hawaiʻi Association of Watershed Partnerships meeting & ungulate management training
Lissa gives presentation to Maui Master Gardeners
June 9: Teya attends Huliau Film Festival featuring two MISC films
June 13: Teya interviewed on HPR's "The Conversation"
June 15: Retirement party for Tri-Isle's Executive Director, Stuart Funke d'Egnuff
June 18: AmeriCorps volunteer Paul Berce starts work
Teya, Lori, & Chuck to Oʻahu for HISC funding meeting
Haleakalā NP Pōhai Maile interns at MISC for the day
June 19: Conservation Campus & Maui Conservation Alliance meetings at MISC with Dr. Duffy
June 24-28: Crew to Honomanū for pampas grass control
June 24-27: Crew to Hanaʻula for pampas grass control
June 25: Teya, Kanalu, & Lori to Oʻahu, HISC Resources Working Group Meeting
Teya meets with Bio-Logical Capital
June 27: Teya attends Olinda Community Association meeting





PR & Education News

MISC IN THE NEWS

MISC-related activities generated three articles in the Maui News this quarter. Topics included MISC's participation in the Maui Nui Botanical Garden's Earth Day event, the hiring of an axis deer coordinator, housed at MISC, and an Op/Ed piece by MISC Chair Pat Bily on remembering to appreciate the diversity of native species amidst the array of non-native plants on Maui.

The Kia'i Moku column in the Maui News covered citrus greening disease, encouraged residents to not plant invasive medicinal plants like mullein and blessed milk thistle, and discussed current efforts to protect native species through fencing.

Article Date	Article Name	Topics Discussed	Audience
April 6	Maui News: Earth Day celebration set at Maui Nui Botanical Gardens	MISC attending event	16,000 Maui News
June 2	Maui News: Full-time position added in deer battle. Reported encounters up; state has installed warning signs on roads	Axis deer	22,000 Maui News
June 18	Maui News Viewpoint: Maui has a tree landscape of six continents	Widespread invasive species	16,000 Maui News
Kia'i Moku			
April 14	Kia'i Moku: Serious citrus disease perched on Hawaii's doorstep	Agriculture	22,000 Maui News
May 12	Kia'i Moku: Medicinal plants can sicken the environment	Early Detection	22,000 Maui News
June 9	Kia'i Moku: Predator proof fencing offers promising solution for protecting endangered species	Seabirds, impacts of invasive species, fencing, rats	22,000 Maui News
		Total articles/ reach:	***6 articles in 1 publication w/- total circulation of 22,000***

REACHING OUT TO THE COMMUNITY

Events & Presentations

April is typically a very busy month with community events nearly every Saturday. This spring MISC continued to highlight the threat of little fire ants at these events and also unveiled a stand-alone exhibit promoting the coqui-free Maui certification program for local businesses.

With a grant from the Hawai'i Tourism Association, in partnership with East Maui Watershed Partnership and Maui Forest Bird Recovery Project, MISC will be working to develop a series of workshops for tour operators to provide current conservation information. The program kicked off with several focus groups to solicit input on program need, logistics, and content through a series of surveys. The workshops will be offered in the fall.

MISC also had the opportunity to connect with the Maui Master Gardeners and other members of the gardening public in a workshop on detecting and reporting some of the high-threat invasive pests gardeners may encounter.

Date	**Event/Presentation**	**Topics**	**Audience**
April 6	Maui County Agricultural Festival	Agriculture, little fire ants, coqui-free certification	324
April 11	Maui Nui Botanical Garden Earth Day	Little fire ants, coqui-free certification	52
April 20	East Maui Taro Festival	Little fire ants, coqui-free certification	372
May 15	Early Detection for Tour Operators-Focus Group 1	MISC general	2
May 20	Early Detection for Tour Operators-Focus Group 2	MISC general	3
June 5	Maui Master Gardeners	Little fire ants	16
		Total:	**796**

Media
The little fire ant PSAs as well as a miconia PSA continued airing on the Maui County public access station, Akakū, throughout the quarter. Additionally, Abe Vandenberg was interviewed on local radio station PYCC about MISC's work on coqui frogs and little fire ants. Teya Penniman was interviewed on the Hawai'i Public Radio Show "The Conversation." Specific numbers for audience reached on these shows are not available.

Date	Media	Topics	Audience Reached
April 1-June 30	LFA PSAs Akakū	Little fire ants	Maui County
April 23	PYCC Maui 88.9 FM Interview with Rel Sparks, "Sparks Your Interest"-Abe Vandenberg	Coqui frogs, little fire ants	Upcountry Maui
June 13	Interview on HPR show "The Converstation"-Teya Penniman		Statewide

Internet
There were a total of 6,385 page/post views through six MISC sponsored and maintained Internet sites. These numbers reflect the number of times web pages and blog posts were viewed. For Facebook, the number of engaged users is recorded, meaning those who click on a post to read the full content. Of note is the presence of the hoikecurriculum.org site in MISC statistics. Tracking software was recently added so we can now follow page views and popularity of certain curriculum activities. Through a web-based identification service at Flickr, early detection staff assisted members of the public with 148 plant and 48 insect identifications over the past quarter.

Website	Topics	Page/Post Views
lfa-hawaii.org	Little fire ants	1,431
mauiinvasive.org (blog)	Fountain grass, coqui frogs, pampas grass, miconia, little fire ants	2,077
Facebook Fan Page	Miconia, fountain grass, pampas grass, coqui frog, little fire ants, BBTV	183
hoikecurriculum.org	Maui-based science & environmental education activities	1,302
mauiisc.org	Miconia, fountain grass, pampas grass, coqui frog, little fire ants, BBTV	1,217
coquifreemaui.org (blog)	Coqui Frogs, coqui-free certification program	175
	Total:	***6,385 page/post views***

MISC IN THE CLASSROOM
Outreach staff were very busy this quarter visiting students across the island. A total of 189 students in 14 classes were reached while testing new activities for the Hō'ike Invasive Species module. Of note, MISC hosted the Haleakalā National Park Pōhai Maile Interns for a full day of little fire ants, snake surveys, and early detection training.

Date	School/Group Visited	Topic	Participants Reached
April 15	Maui Prep School, 6/7th grades: Waikamoi Boardwalk Hike	MISC - general info, native animals, native plants, watersheds	12
April 17	Kīhei Charter School, 5th grade: MISC Overview & Watershed in a Box	Biocontrol, caterpillars, coqui frogs, miconia, MISC - general info, mongoose, native animals, native plants, stinging nettle caterpillar, watersheds	23
April 22	Makawao Montessori Earth Day: Coloring Pages	Miconia, native plants, watersheds	240
April 23	Kula Elementary, 1st grade: LFA Overview Slideshow Q&A	Little fire ants	64
April 25	Kalama Intermediate, 7th grade: LFA Slideshow, Q & A at Maui College Computer Classroom	Coqui frogs, little fire ants	43
April 26	Maui Prep School 7/8th grades, Hōʻike Plague Lesson	Hōʻike - Invasive Species Module	13
May 1	Barbara Steinberg after school watercolor class, 1st-5th grades	Coqui frogs	10
May 10	Maui Prep School, 7/8th grades, Hōʻike Rat Lungworm Lesson	Hōʻike -Invasive Species Module, slugs	13
May 15	Kīhei Charter School, 5th grade. Little Fire Ants	Little fire ants, MISC - general info	22
June 5	Pacific Whale Ocean Discovery Center Summer Program: Rainforest in a Box & Why is the Rain Forest Wet?	Miconia, watersheds	13
June 17	Lutheran School Summer Program, Kahului, K-5th grades, MISC Overview	General info - MISC	22
June 18	Haleakalā National Park Pōhai Maile Interns-- All Day	General info - MISC & Invasive Species	14
	Total:	***12 activities***	***189 participants in 14 classes***

LITTLE FIRE ANTS (LFA)

A total of 113 baited vials were set and collected from 15 sites on Maui this quarter. The majority of the collections were from Upcountry areas.

Plant Updates

PAMPAS GRASS

With summer upon us, the MISC plant crew once again ramped up its efforts to survey for and control pampas grass in remote areas. The crew started off the season with trips into three separate backcountry areas. The first trip was with a partner agency, West Maui Mountains Watershed Partnership (WMMWP), to Hanaʻula on West Maui. During the two day trip, seven immature and two mature *Cortaderia* plants were found and controlled. MISC also worked with WMMWP during a day trip to Panaʻewa to check on a large mature *Cortaderia* plant that was found in 2012. There were 25 immature plants controlled within a buffered area of the 2012 plant. A second visit to Hanaʻula was made in June and an additional two immature plants and one mature plant were controlled. Kauaʻula Valley on West Maui was also visited in June. During the three day trip to Kauaʻula the crew controlled 21 immature pampas grass plants and 10 mature plants. On the east side of Maui, the MISC crew made three week-long trips to Honomanū and two to Haipuaʻena for a total of 17 days in the field. During these trips, the crew controlled 189 immature and eight mature pampas grass plants, with fairly even distribution between the two sites.

When they weren't camping this quarter, the crew worked in frontcountry ranch-type areas, such as Haleakalā Ranch, where the access is much easier. The crew spent 17 days in frontcountry areas surveying for and controlling 61 immature *Cortaderia* plants.

FOUNTAIN GRASS

Permission for access to the Pukalani site was obtained this quarter and work resumed with 14 mature and 220 immature plants controlled. At all other known sites on Maui, no plants were found during surveys covering 47 acres. On Lānaʻi, field crew surveyed 270 acres and controlled four mature and 13 immature fountain grass plants.

IVY GOURD

Maui Meadows continues to be MISC's most active management unit as the crew works to eliminate the existing seed bank. Efforts continued with the survey and control of *Coccinia grandis* at all known active sites. Out of 173 active locations, only 16 sites had ivy gourd plants this quarter. For the past four quarters, no viable fruit has been discovered at any known site.

On Lānaʻi, a new site was discovered near the old piggery. One female plant was controlled. Mānele golf course personnel continue with the removal of kiawe trees bordering the "roughs." The kiawe fringe was the area of the original ivy gourd infestation at the golf course. Field crew surveyed the entire Mānele area and found and controlled plants in only seven locations. Thirty sites totaling 154 acres were surveyed.

MICONIA

Miconia sweeps were completed this quarter in several units including Piʻinaʻau Stream, Keʻanae YMCA Ridge, Nuʻuailua Stream, Honomanū Mauka, Honomanū Makai, Keʻanae ʻŌhiʻa Stream, Wailua Wender, and West Wailuaiki Makai. Several steep, vertical cliffs in the Piʻinaʻau Stream area will require follow-up via helicopter. The Keʻanae YMCA Ridge unit is mostly open uluhe and eucalyptus canopy. While they were in the area, the crew did a small buffer around a plant point that was right behind the State Highway Division baseyard. No reoccurring plants were found. Crew noted a significant decrease in the number of plants found in the Nuʻuailua Stream area compared with past years. A group of eight Keʻanae residents (cousins of several members of the Hāna crew) volunteered for two days in June to help with sweeps in the West Wailuaiki Makai unit. The Piʻiholo crew swept the Halehaku peripheral area this quarter and controlled 169 plants there. A total of three mature and 1,320 immature plants were controlled by ground crews this quarter while covering 321 acres.

Ten days of herbicide ballistic technology (HBT)-focused helicopter work occurred this quarter. Suppression of "outlier" infestations and coverage of likely habitat outside of heavily infested "core" areas were the top priority for operations. Efforts continue to yield encouraging results with only seven mature plants found this quarter. An additional 1,030 immature plants were also removed.

HBT work continued to capture the attention of local and national interests. State Senator Mike Gabbard (left) joined the crew for a day and seemed impressed by the efficiency, professionalism, and effectiveness of the operation. Also, Chris Dionigi, Deputy Director of the National Invasive Species Council, joined MISC for a day of HBT heliops. In a follow up email, Dr. Dionigi noted that the day he spent with the crew was the highlight of his trip to Maui and that James Leary's data concerning the efficiency of control strategies was the best he had ever seen. Thanks James for working with MISC and Park staff to help make both visits happen and your commitment to improving our efforts to control miconia!

OTHER PLANTS

- Arundo (*Arundo donax*): four plants were controlled near the old train trestle along Kahului Beach Road and one plant was controlled at the Specklesville site.
- Spanish heath (*Erica lusitanica*): field crew controlled 359 plants (25 mature) along the north and south forks of the Waiʻale Gulch (Haleakalā Ranch) site. Thirty-five acres were surveyed.
- Parasol leaf (*Macaranga tanarius*): four plants were controlled during surveys of Kīhei and Wailuku area plant nurseries for potential plant movement within landscape containers.
- Wax myrtle (*Morella cerifera*): sixteen resprouts / root suckers were controlled at the ʻAwalau Road site.
- Wooly mullein (*Verbascum thapsus*): field crew removed 32 plants (seven mature) at a new site in Kula.
- Downy rose myrtle (*Rhodomyrtus tomentosa*): on Lānaʻi, no plants were found during field surveys this past quarter.

EARLY DETECTION

Early detection work this quarter was focused on research and field work for a botanical survey of Keālia Pond NWR, with an emphasis on invasive species, especially incipients. California fan palm (*Washingtonia robusta*) is one of the more aggressive incipient species that was found at Keālia. This large palm with spiny leaf stalks initially spread to the refuge from plantings at a nearby nursery, and though limited by high water in some areas, appears dominant in upland areas of the refuge closest to the nursery. The mullein (*Verbascum thapsus*) site near Science City was checked and no *Verbascum* was found.

BANANA BUNCHY TOP VIRUS (BBTV)

This quarter, 46 properties were visited on Maui and 29 of these were surveyed. Of the 13 that were found to have bunchy top, eight were treated, including a major treatment effort on a Happy Valley farm. The remaining sites will be treated next quarter pending resident / owner permission. Ninety-nine hours were spent on banana bunchy top virus suppression.

Vertebrate Status

COQUI FROGS

Coqui are everywhere! Or so it seemed this quarter. With 38 reports of coqui in new locations the vertebrate crew had a busy last few months. Fortunately the crew was able to quickly remove frogs from three previously uninfested places and a couple of known hotspots. This highlights the value of having experienced coqui catchers ready to respond quickly to new reports. Interestingly, the crew has noticed that coqui are being found higher up in vegetation. Historically coqui were not often found higher than head high. This adds to the list of challenges the crew faces and overcomes on a daily basis.

Also, the crew removed frogs from two long-standing recalcitrant properties near Māliko gulch. This means they now have unrestricted access to the upper Māliko residential area (near Kaluanui Road). A huge accomplishment and exciting because we are hopeful we will soon be able to completely remove frogs from an area where we have already made significant progress. When MISC starting controlling frogs in the area they were found throughout the neighborhood, particularly near the corner of Kokomo and Kaluanui Roads. Frogs are currently found in discrete pockets on just a few properties in the upper residential area.

This quarter:

- Crews made 217 separate visits to 86 frog-infested areas, suspect locations, or coqui-free participant businesses.
- Thirty-eight new reports were received and all had follow-up.
- MISC staff and volunteers spent 859 hours working on the coqui project.
- 37,286 lbs. of citric acid was used this quarter. Thirty-three pounds of citric acid were given to four Māliko area residents who wanted to help control coqui.
- Crews treated 57 acres of infested area on Maui, mostly in Māliko Gulch.

MoMISC Activities

After receiving a report of a strange fern from hunters, MoMISC partnered with DLNR/DOFAW, Pono Pacific, TNC, and Kupu to survey for and control giant mule's foot fern *(Angiopteris evecta)* in the Molokaʻi Forest Reserve. Over 56 acres were surveyed and approximately 15 mature and 54 immature plants were controlled.

In May, MoMISC received a report of fireweed from a ranch in central Molokaʻi. Approximately 100 fireweed plants were collected by the ranch staff and turned over to MoMISC. MoMISC staff mapped the infested site and in discussion with the ranch staff determined that a possible vector for the fireweed could be contaminated hay bales from upcountry Maui. During the drought, several ranchers needed to import hay from Maui. MoMISC began outreach to ranchers to map feeding sites. Fireweed will be surveyed, mapped, and controlled in an attempt to arrest the spread island wide. MoMISC is sharing all information obtained on fireweed with the Hawaiʻi Department of Agriculture.

- MoMISC continued to monitor plant nursery imports for little fire ants and coqui frogs with no detections.
- MoMISC continued monitoring on priority target species and other species of concern:
- Banana bunchy top virus: 78 acres were surveyed and two infected plants were controlled.
- Cat's claw (*Caesalpinia decapetala*): 151 immature plants were controlled.
- Bo tree (*Ficus religiosa*): 12 immature plants were controlled.
- Wood rose (*Merremia tuberosa*): 29 immature plants were controlled.
- Barbados gooseberry (*Pereskia aculeata*): over 16 acres were surveyed and no plants found.
- Multiflora rose (*Rosa multiflora*): seven immature plants were controlled.
- Palm grass (*Setaria palmifolia*): over 23 acres were surveyed and five plants controlled.