



Quarterly Report to the MISC Committee
FY 2009, Fourth Quarter
April 1 to June 30, 2009

Manager's Report

Miconia – the plant we love to talk about – was the focus of the long-anticipated and much-planned four-day conference this May. It turns out we are not the only people in the world eager to talk about and work on miconia. To paraphrase the keynote speaker, Alan Holt, it was a delight to talk story with a group of people who share the psychological affliction of having an irresistible attraction to intractable problems.

The *2009 International Conference on Miconia* drew more than 110 people together, with representatives from across the Pacific, Central and South America, Canada, and the mainland U.S. A total of eight countries had representatives, with most of the foreign guests also being presenters at the conference. The talks were informative and thought-provoking, with topics as diverse as the genetics of miconia, seed dispersal by native and introduced bird species, the size of raindrops falling from miconia leaves, and management strategies, including recent research on potential biological control agents. We also honored some (but not all!) of our key partners during an awards ceremony.



The conference was an excellent opportunity for field staff to gain a broader perspective about how the daily grind of slogging through thickets of clidemia or head-high *uluhe* fits into the bigger picture of invasive species control efforts. And the conference also gave



those who spend much of their days in labs or classrooms the chance to gain a better sense of the field perspective on issues like biocontrol. The miconia field trip and overflight were eye-openers for many of our international guests in terms of the challenges we face and strategies we are using. Participants on the miconia field trip removed 4,668 miconia plants, putting into action the conference title, “Pulling it all Together.”

Looking back, I am struck most by three aspects of the conference. First, the venue we chose – the YMCA Camp in Ke‘anae – worked exceptionally well. Yes, it was hot in the gymnasium, and the mosquitoes bothered a few folks. But overall, we were graced with outstanding weather. The venue created a space for people to gather – and talk – well into the evening, an opportunity that could not have been replicated in the typical hotel conference setting. Second, our partners came through when we needed them to help finance the conference. The initial funding was far less than what was needed to pull off an event like this. Huge mahalos for all the support we received and for the incredible efforts of the organizing committee and MISC staff. Check out our sponsor page at: <http://www.hear.org/conferences/miconia2009/sponsors/index.html>. And finally, I am left with a sense of shared commitment to protecting native forests across the Pacific, and the knowledge that there is a whole lot more than just talk happening to stop the spread of miconia. We hope to keep the momentum going from this conference so that we have more success stories to share when we gather again. Next time: New Caledonia?

Quarterly Highlights

ACTIVITY HIGHLIGHTS

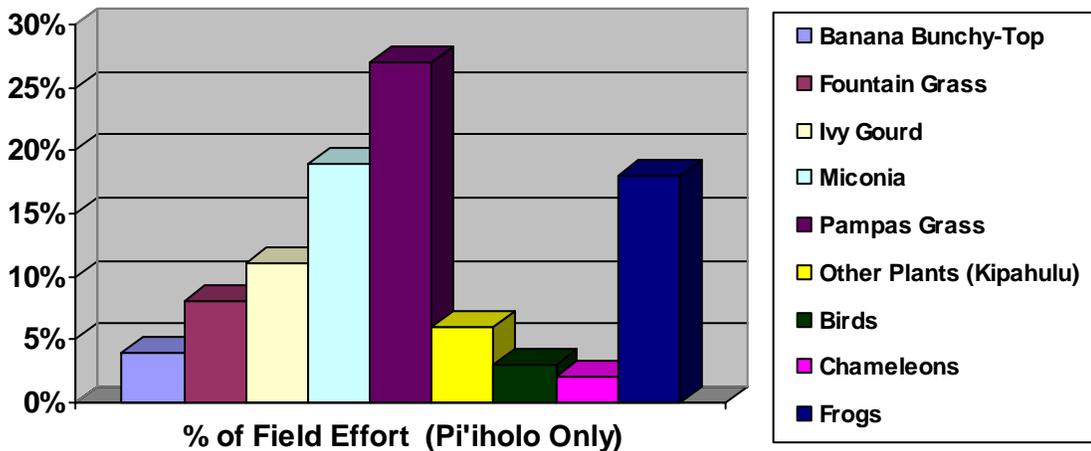
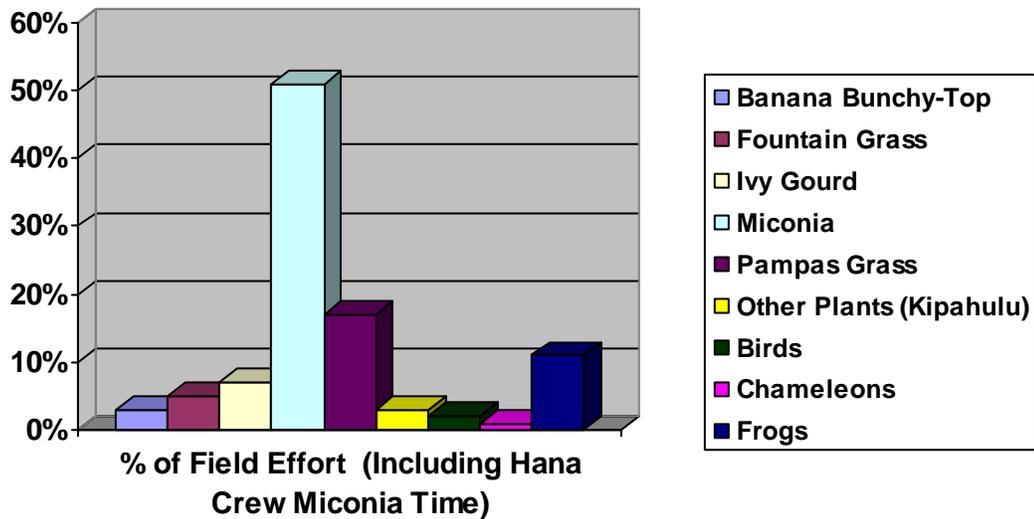
- Apr 1: Miconia Conference planning meeting
- Apr 3: MISC Meeting – public relations
- Apr 4: Scoping workshop for Hō‘ike curriculum Invasive Species Module
- Apr 7: Ke‘anae site visit – Miconia Conference preparation
- Apr 7-9: Pesticide Applicator Training for new crewmembers
- Apr 14: Miconia Conference planning meeting
Teya attends budget hearings
- Apr 17: Teya, Elizabeth, & Mike attend RCUH Supervisory Training
- Apr 18: Earth Day Event at Maui Nui Botanical Garden
- Apr 20-24: Crew to Kīpahulu Valley to assist NPS with weed control
- Apr 21: Ke‘anae site visit – Miconia Conference preparation
- Apr 23: Lissa gives presentation to Kahului Rotary Club
- Apr 25: East Maui Taro Festival
- Apr 27: MISC helps host public meeting on strawberry guava biocontrol
- Apr 28: Ke‘anae site visit - Miconia Conference preparation
- Apr 30: All staff workday at Ke‘anae YMCA - Miconia Conference preparation

- May 4-8: 2009 International Miconia Conference, Ke‘anae, Maui
- May 11-12: Honomanū backcountry platform construction
- May 11: Teya attends MoMISC meeting
- May 12: Lissa hosts the Maui Daily Show
- May 13: Adam R. & Darrell attend Hydraulics & Portable Pump System Design Course
- May 15: Teya, Mike, & Adam attend RCUH Supervisory training
- May 18: Teya attends Maui Conservation Mgrs meeting
- May 18-22: Crew to Lāna‘i for fountain grass control
Crew to Kīpahulu Valley to assist NPS
Teya & Adam meet w/ DOFAW staff on conures



May 26: Early Detection Workshop in Kahului
 May 27: Honomanū backcountry platform construction
 May 28: Miconia Operations meeting
 Lissa attends Public Outreach Working Group meeting on O‘ahu

Jun 1: Pampas Grass Partners meeting
 Jun 1-4: Dave & Jared to Lāna‘i for ivy gourd control
 Jun 2-5: Crew to Honomanū for pampas control
 Jun 5: MISC Meeting – miconia conference
 Jun 8-10: Brooke assists with seabird monitoring on Molokini
 Jun 8-11: Vertebrate crew attends Snake Response Training on O‘ahu
 Jun 9: Lissa attends Watershed Protection Outreach Training on O‘ahu
 Jun 10-11: Mike & Brad to Kaua‘ula for pampas grass control
 Jun 13: Wendy attends education workshop at The Hawai‘i Nature Center
 Jun 16-19: Crew to Hana‘ula for pampas control
 Jun 17-18: Teya to Moloka‘i for ISC Managers meeting
 Jun 29-July 2: Crew to Honomanū for pampas control



PR & Education News

MISC IN THE NEWS

MISC's monthly Maui News column, Kia'i Moku, covered a broad range of topics this quarter. The April column highlighted Forest and Kim Starr's work conducting roadside surveys on Maui. May's column explained the threat posed by *Silybum marianum* and solicited reports in anticipation of MISC adding this species to our target list. The June column discussed the natural resources on Lāna'i and the work MISC is doing to control fountain grass and ivy gourd. All the Kia'i Moku articles are archived online at www.hear.org/misc/mauinews/.

Other MISC-related items that appeared in the Maui News included an announcement about the May Early Detection Training for the public held in Kahului on May 26th and an ad thanking the sponsors of the 2009 International Miconia Conference.

REACHING OUT TO THE COMMUNITY

MISC participated in Maui Nui Botanical Garden's Earth Day event on April 18th. The Wheel of MISCfortune was popular yet again, and MISC staff talked to approximately 150 people. The East Maui Taro Fest on April 25th featured great weather and a good turnout. Approximately 300 people stopped by to talk story with MISC staff at the annual event.

Lissa gave a presentation on April 23rd to the Kahului Rotary Club about the work MISC does and biocontrol. As a follow up to the 2009 International Miconia Conference, Lissa hosted the May 12th edition of Akaku's Maui Daily Show. The show featured a 3-minute short about the conference. The show was broadcast to cable subscribers throughout Maui and online. The online show was viewed 258 times.

Other online highlights included the beginning of MISC's existence on Facebook as "Misc Maui." Adia White, one of our AmeriCorps Hawai'i summer interns, did the initial work setting up a profile on the popular social networking site. From June 10, when MISC showed up on Facebook, through June 30, we gained 103 "friends" with whom we can be in regular contact regarding MISC happenings.

MISC IN (AND OUT OF) THE CLASSROOM

Wendy Swee was very busy with education programs this quarter. She visited 33 classes, speaking to 897 students on Maui and Moloka'i! Presentations were based on the Hō'ike o Haleakalā Curriculum and adapted for a wide range of ages, from kindergarten to high school. Most of the topics built on the lessons "What Makes a Plant Invasive?" and "Rainforest in a Box." Wendy has begun testing some of the lessons under development for the Hō'ike Invasive Species Module including "All in a Day's Work" where students have an opportunity to learn about environmental career options in Hawai'i. Lissa hosted a group of eight O'ahu high school girls and four adults pulling rabbit's foot clover near Hōlua cabin in Haleakalā National Park.

HŌ'IKE INVASIVE SPECIES MODULE

Five teachers participated in one final scoping session for the Invasive Species Module on April 4. Shannon Wianeki has been busy writing and researching.

VOLUNTEERS

MISC hosted four interns this summer – three from AmeriCorps Hawai'i and one from Hawai'i Youth Conservation Corps. Adia White worked with Lissa and Wendy on PR and Education program projects. Adia will be returning to the University of Puget Sound for her Sophomore year in the fall and hopes to come back to work with MISC next summer. Ashley Aquino joined the Vertebrate crew for the summer. Ashley grew up on Maui and is attending San Diego State University. Poha Kanakaole and Edmund Oliveira, both Hāna area residents, are spending the summer working with the Hāna miconia crew. Poha worked with the crew last summer as well and is attending Maui Community College. Edmund is enrolled at Southern Oregon University.

Plant Updates

PAMPAS GRASS

MISC is ramping up pampas grass operations for the season with increased backcountry trips and weekly helicopter operations. The Honomanū platform has been constructed and soon will be our primary camping spot for pampas grass operations. The camp area will be refined as the season progresses. There have been two backcountry trips into Honomanū so far this season and, despite adverse weather conditions, 248 pampas grass plants were controlled; most were immature. The work on the ground in Honomanū is allowing us to get ahead of the game by controlling plants before they go to seed.

We are trying to implement a similar tactic with another population of pampas grass in Kaua'ula gulch on West Maui. In the past we have only been able to spray plants in this area from the helicopter and only when the weather was optimal (a rare condition). In June, a two-man crew was dropped into an LZ near the Kaua'ula infestation for an



overnight trip. The goal of the operation was to assess the conditions and determine how feasible camping in the gulch would be, as well as to control as many plants as possible. The crew got lucky and the weather was beautiful. During this trip 155 plants were controlled, 40 of which were mature. There were far fewer keiki found than anticipated. There are still many hard-to-reach plants that are growing along the cliff wall on several terraced levels in the area. These mature plants, which currently cannot be sprayed by helicopter, are going to continue feeding the area with keiki until we can figure out a feasible method for accessing and controlling them.



FOUNTAIN GRASS

Field crew controlled fountain grass in two areas on Central Maui. Both sites had mature plants. One plant was found at Waiehu Dunes and two at Maui Lani Golf Course west of Maui Lani Parkway. An immature plant was found at the Mākena waste water site. All known locations monitored by field crew resulted in a total of five plants controlled this quarter. Field identification is often hampered because these fountain grass plants are found growing with other grasses. There have been no new fountain grass locations discovered for the past four quarters. The last fountain grass plant found at the Kahakuloa site was in January of 2009. This site continues to be a challenge to monitor due to the need to rappel.



Fountain grass work in the Kānepu‘u area on Lāna‘i was augmented by staff from the Lāna‘ihale Forest & Watershed Project this past quarter. Control efforts continued at the Honopū fountain grass population. Field crew extended the search area and controlled plants in all phenology classes, including five flowering plants. Control efforts at this fountain grass site have been ongoing in hopes of decreasing the potential spread by eliminating seedlings. We hope to reach equilibrium, no new plant finds, on the Honopū site soon. Mature fountain grass plant numbers have been on a steady decrease at the Kō‘ele Golf Course.

IVY GOURD

There were twelve mature ivy gourd plants controlled this past quarter. A new site with one fruiting plant was found by the Vertebrate Crew just mauka of Hāna Highway at a nursery in Māliko Gulch. Another plant was discovered by Forest & Kim Starr during the roadside survey project growing on a green waste pile at a West Kuiaha Road nursery.

Two visits for ivy gourd were made to Lāna‘i this past quarter. No fruiting plants were found during field surveys at all known locations at the golf course and surrounding area. There was also a decrease in the number of seedlings controlled. Immature plant numbers are significantly lower (by two thirds) when compared to the control numbers for last quarter’s efforts. There were 58 mature ivy gourd plants found on Lāna‘i this past quarter with no fruiting found. The seed bank may be showing signs of depletion. Ivy gourd control efforts on Lāna‘i were augmented again this quarter by crew from the Lāna‘ihale Forest & Watershed Project.



RUBBER VINE

Field crew surveys of all known rubber vine sites resulted in no new plants found. Permission issues remain for several known sites in the Central Maui area.

ERADICABLE SPECIES

Control of persistent root suckers at the only known site of *Maclura pomifera* (Osage orange), along Ha‘ikū Road, continued. A change in landscape strategy at the site, away from edible plants, will allow MISC to begin using herbicide again.

Castle & Cooke field staff removed the only known *Citharexylum* (fiddlewood) on Lāna‘i. This tree had not yet reached maturity. The site was near Kō‘ele Lodge and was found by Forest & Kim Starr during earlier roadside surveys.

Surveys for *Silybum marianum* (milk thistle) have been ongoing since late March. The only infestation found is along Makawao Avenue and is spread out in small patches throughout 50+ acres of degraded pasture. All phenologies of the plant are present. Control efforts will focus on seedling and rosette treatment. The entire plant is armed with needle-like spikes (flowers too) rendering seed collection practically impossible.

MICONIA

The Hāna miconia ground crew split their efforts between the Ke‘anae, Nāhiku and Hāna areas this quarter. In the vicinity of Ke‘anae, work focused on management units in the Wailua Nui and Wailua Iki drainages. Sweeps in Ke‘anae were hampered later in the quarter due to periodic road construction closures. Ground sweeps were continued in Nāhiku, focusing from Ula‘ino in the east toward Honomā‘ele in the west. Most of the sweeps in the Nāhiku units are on private properties that have not received comprehensive systematic treatment in the past. Numerous large seeding miconia plants were located and treated. The ground effort also continued in the Hāna area adjacent to the core in the vicinity of Olopawa.

Aerial missions this quarter totaled 15 helicopter flight days for reconnaissance and spray work. No reconnaissance flights were flown during May due to the significant commitment by MISC and the NPS to the International Miconia Conference that was hosted in Ke‘anae. Some productivity was lost during the June mission due to scheduling conflicts. The June helicopter operation was ground-breaking as it marked the first time some miconia infestations makai of Hāna highway in Nāhiku have ever received treatment. Numerous large miconia embedded in extensive hau patches were treated as a result of improved relationships with Nāhiku landowners. Work in lower Nāhiku will continue during aerial missions through August 2009.

PLANT DATA APRIL 1 TO JUNE 30, 2009

Maui

	<i>Plants Controlled</i>			<i>Acres</i>
	<i>Mature</i>	<i>Immature</i>	<i>Total</i>	<i>Inventoried</i>
Priority Target Species				
<i>Miconia calvescens</i>	398	19,494	19,892	3,836.82
<i>Cortaderia spp.</i>	73	440	513	1,211.69
<i>Pennisetum setaceum</i>	3	2	5	132.54
<i>Coccinia grandis</i>	12	209	221	586.97
<i>Arundo donax</i>	4	0	4	40.93
<i>Cryptostegia grandiflora</i>	0	0	0	61.82
<i>Pittosporum undulatum</i>	0	0	0	12.55
<i>Pittosporum viridiflorum</i>	0	0	0	19.45
<i>Macaranga tanarius</i>	0	0	0	30.33
<i>Maclura pomifera</i>	1	50	51	1.91
<i>Silybum marianum</i>	0	0	0	246.42
Grand Totals:	491	20,195	20,686	6,181.43

Lānaʻi

Priority Target Species	Plants Controlled			Acres
	Mature	Immature	Total	Inventoried
<i>Pennisetum setaceum</i>	37	249	286	142.94
<i>Coccinia grandis</i>	58	429	487	264.68
<i>Macaranga mappia</i>	0	0	0	1.63
Grand Totals:	95	678	773	409.25

BANANA BUNCHY TOP VIRUS

BBTV efforts this quarter focused on Makawao, Kihei, and Kahului, three of six geographic areas on Maui known to have substantial banana bunchy top virus (BBTV) infestations. Pukalani, Kula, and Lahaina are the remaining three areas. Once an area is known to have BBTV, a comprehensive door-to-door survey of the area is made annually. Between annual surveys, properties where the virus has been found or where the virus is believed to be present, are revisited. Areas where the virus has not yet been found (e.g. Hāna) are also visited as time permits. There are two areas, Haʻikū and Huelo, where BBTV has been found on only one property. These sites are visited approximately every three months. Both sites were found by Angela Kepler and Frank Rust, members of the BBTV Working Group.



In accordance with the overall suppression strategy outlined above, a comprehensive survey of Makawao was continued this quarter, survey efforts in Kahului were expanded, and suppression in known or suspect locations in Kihei was continued. The crew also responded to a report of BBTV in Kahakuloa. Fortunately, it was a false report. This quarter, 165 crew hours were spent visiting 1,072 properties on Maui. Of 44 sites that were found to have bunchy top this quarter, 28 were treated. The remaining 16 sites will be treated next quarter pending resident/owner permission. The following table summarizes the number of sites surveyed and sites with BBTV by region this quarter.

	<i>Sites Surveyed</i>	<i>Sites With BBTV</i>
Kahului	412	18
Kihei	39	13
Makawao	333	13
Total	784	44

Note: Many of the sites surveyed this period have been known to have BBTV in the past. Thus, not all sites with BBTV are new locations.

Two additional components of the BBTV suppression program are research and rapid response. This quarter the crew assisted Dr. Cerruti Hooks with his research efforts by collecting ants from banana plants. Dr. Hooks is attempting to identify the species of ants found on banana plants and determine their purpose in foraging in bananas. There is speculation that ants may be tending the banana aphids, which are the vector for BBTV. Dr. Hooks will compile aphid/ant survey data and ant species diversity findings to evaluate the plausibility of this theory.

Vertebrate Status

COQUI

Unfortunately, two new coqui populations have been confirmed this quarter. The first, a Kihei nursery that has had low numbers of coqui for some time now, has exceeded our standard cut-off of five or more vocalizing coqui in one location. The site is now officially considered a population. The second, a private residence in Wailea, had just over five vocalizing coqui when treatment began. Cooperative control agreements have been reached at both sites and control has begun. No more than one or two coqui have been heard or controlled at each site during recent visits. Currently, of sixteen known coqui population centers on Maui, eight are considered eradicated, meaning no coqui calls have been heard for one year or more. Mop-up continues at three coqui population centers. These three locations have few to no coqui and two should join the eradication list in July. Unfortunately, reintroduction continues to be a major hurdle at three of the remaining eight sites, which are in the plant industry, even though the businesses have expressed interest in the coqui-free certification program.



The coqui-free program continues to progress with 29 businesses now certified as coqui-free. Certification is dependent on the absence of coqui frogs as verified by MISC staff during regular evening surveys and compliance with the program standards. One of the new populations was confirmed during surveys for the coqui-free program. A study to determine public interest in and impacts of the program also concluded this quarter. Final results of the study will be available next quarter and a poster outlining the coqui-free program and related findings will be presented at the Hawai'i Conservation Conference on O'ahu in July.

Work throughout Māliko Gulch, the largest and most challenging coqui population, continued this quarter. Efforts were made to control a satellite population of coqui in a remote area of the gulch using a fixed-line system. The fixed line consists of a 1.5" PVC pipe and control valve placed on the valley wall. Citric acid is delivered via a 400 gallon spray tank through the pipe to crews at the bottom of the gulch. Crews attach fire hoses to the pipe and treat the infested area from the outskirts of the population to the core. Two fixed-line systems were installed this quarter and results seem promising. Large-volume storage containers, sprinkler stands, monitoring transects, and PVC pipe were also installed near the head of the gulch this quarter for a sprinkler delivery system. Plans to begin systematically spraying the upper portion of the gulch with the sprinkler system and lower gulch with the fixed line system will be implemented next quarter.



- Crews made 76 separate visits to 40 frog-infested areas and/or suspect locations this quarter.
- 4,667 lbs. of citric acid were used this quarter, nearly all in Māliko Gulch.

VEILED CHAMELEONS

No veiled chameleons were reported this quarter. MISC has moved to a biannual revisit schedule with the next search scheduled for September. To date, 206 veiled chameleons have been recovered on Maui. The first was recovered in March of 2002 and the most recent in March of 2008.

MITRED CONURES

Conure control efforts ramped up this quarter as we entered nesting season. A total of 12 conures were controlled this quarter during 14 outings; nine from Waipi'o Bay and three from Huelo Point. An estimated 17 conures remain at the Waipi'o Bay location and nine at the Huelo Point location.

OTHER VERTEBRATES

The crew responded to a report of a yellow-headed dove or pigeon-like bird in Kahului. Identification has not been confirmed.

MoMISC Activities

For the report period April-June 2009, MoMISC spent time monitoring and controlling a number of targets. Albizia trees were retreated as needed, photo monitoring of the albizia project was continued, and surveys were conducted for seedling recruitment from the native seeds that were spread in the area. During the initial photo monitoring (45 days after initial suppression), it appeared that at least 80 percent of trees were defoliated. The next site monitoring will occur in July 2009.

MoMISC delivered samples suspected to be long-thorn kiawe to Bishop Museum in hopes of determining which kiawe species are present on the island. After the species have been identified, MoMISC will assess whether to target any of them. Staff continued to monitor for stinging nettle caterpillar with the help of USDA. There were no detections. The Nature Conservancy helped with sweeps for New Zealand flax.



Regular monitoring occurred for BBTV, rubber vine, Australian tree fern, gooseberry, tumbleweed and palmgrass. MoMISC did find a second juvenile mule's foot fern. The first fern was found in a remote site by Hank Oppenheimer and treated by MoMISC. MoMISC received a report of stinging jellyfish and worked with DLNR Division of Aquatic Resources to remove over 200 upside-down jellyfish from the Kaunakakai wharf.