



Quarterly Report to the MISC Committee
FY 2007, Fourth Quarter
April 1 to June 30, 2007

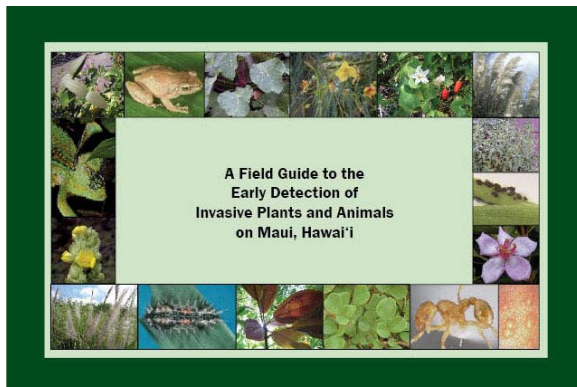
Manager's Report

Does it seem to anyone else like the rate of invasions in Hawai'i is accelerating or is just me? The recent introductions of invasive insects and plant pathogens, including the stinging nettle caterpillar, the *Erythrina* gall wasp (EGW), 'ōhi'a rust, and the *Varroa* mite certainly feel like an onslaught and underscore our islands' extreme vulnerability. While staying the course on our current, extensive list of targets, how can MISC most effectively respond to new introductions?



MISC has participated in comprehensive surveys (EGW), provided anecdotal reports (wild bee hive locations or locations of 'ōhi'a rust), served as a local reporting center for the general public, and picked up and shipped birds for avian influenza and West Nile Virus testing. We stand ready to provide rapid response assistance in detecting and controlling new high-threat species, including little fire ants or stinging nettle caterpillars.

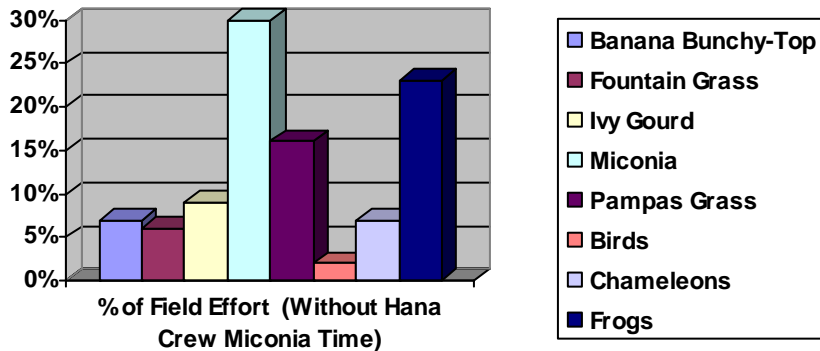
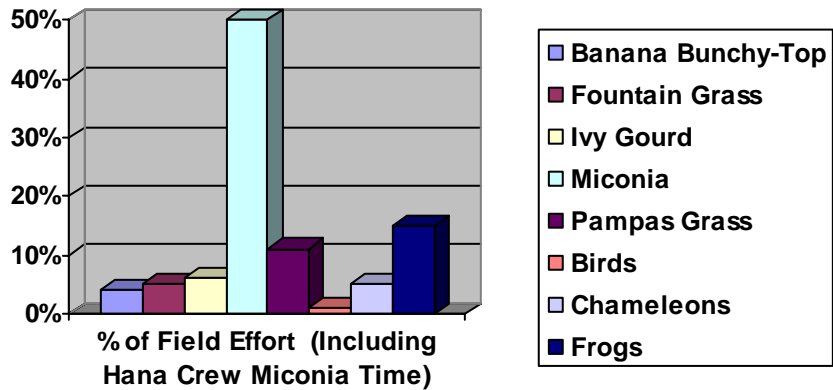
An Early Detection Hui this quarter highlighted the different approaches each island is taking to help ensure that we are aware of new threats with a high feasibility of eradication. We hope to initiate nursery and botanical garden surveys this next year on Maui to see what potentially invasive species are currently in the trade. We also are



working to build more capacity within our existing staff by conducting training sessions on plant and vertebrate identification. Armed with this information we can continue to adjust our strategy so that we are always focusing on the most important threats. Your assistance in helping us set priorities continues to be vital to our success, especially in light of the unabated arrival of new invaders to our shores. See you at the next Priority Setting Workshop!

Quarterly Highlights

MISC FIELD TIME SUMMARY FOR FY 2007 (July 1, 2006 to June 30, 2007)



ACTIVITY HIGHLIGHTS

- Apr 2-3: Adam provides rappelling training for WMMWP
- Apr 9-11: Adam & Darrell follow-up on frog and other vertebrate reports on Lānaʻi
- Apr 9-13: Crew to Lānaʻi for ivy gourd control
- Apr 11: Teya tours West Maui to evaluate ʻōhiʻa rust
- Apr 12: Teya, Adam & Lori attend CGAPS meeting on Oʻahu
- Apr 16: Staff meeting to review veiled chameleon operations
- Apr 17: Joy staffs booth at MCC Sustainability Fair
- Apr 18: Staff meeting to review pampas grass operations
- Apr 19: Teya attends Maui Conservation Managers meeting
- Apr 20: Miconia Planning/Management meeting at MISC
- Apr 27: MISC Meeting – Strategic Planning
- Apr 30: Pampas grass partners meeting
- Apr 30: Cooperative fieldwork with TNC, Waikamoi (2 crew)



- May 1-2: Cooperative fieldwork with DOFAW in Kanaio (2 crew)
- May 4: Pi'iholo spring cleaning day and performance evaluations for all staff
- May 7-11: All staff trip to Kaho'olawe
- May 14: Joy filmed for Superferry video
- May 14: Adam & Darrell to the Big Island to participate in coqui control operation
- May 15: Teya attends Early Detection Hui on O'ahu
- May 18: Joy attends HISC PR/Outreach Working Group meeting on O'ahu
- May 21: Mike, Adam, Brooke, & Lissa attend priority setting training
- May 21: MoMISC Meeting
- May 22: Teya & Adam attend Planning Commission meeting re: coqui frogs
- May 31: Teya & Lori attend Established Pests Working Group meeting on O'ahu

- June 3: Joy staffs booth at Maui County Farm Bureau Agriculture Festival
- June 5: Teya, Joy, & Adam attend BBTV meeting at MISC
- June 8: MISC Meeting – Vertebrates
- June 11: Youth Conservation Corps intern Lance Fujitani starts work
- June 15: Miconia Planning/Management meeting at MISC
- June 18: Temporary coqui workers Dennis Green & Joey Hodara start work
- June 18-20: Crew dropped in Honomanū for pampas grass control
- June 20: Waikamoi tour and talk story with Melanie Newfield from New Zealand
- June 20: Teya attends Olinda Community Association meeting
- June 25: Elizabeth attends RCUH training on new hiring system
- June 26: Teya attends Maui Conservation Managers meeting
- June 26: Temporary coqui worker Nick Schlag starts work
- June 27-29: Crew dropped in West Maui, Hana'ula, for pampas grass control
- June 29: Teya attends meeting on HDOA inspector hiring issues



PR & Education News

MISC IN THE NEWS

Banana bunchy top virus - it seems to be everywhere we look including in the news! This quarter BBTV was covered in several publications including The Maui News and Maui Nui Botanical Garden's quarterly newsletter. Media coverage is part of the effort to raise awareness about the spread of BBTV across our island and to encourage the public to look in their backyards for the virus.

On June 25, The Maui News featured an article on Melanie Newfield's visit to MISC. Melanie gave a presentation about biosecurity in New Zealand and discussed some of the invasive species challenges we may face when the Superferry begins operation.

The Kia'i Moku column in The Maui News featured information about veiled chameleons and West Nile virus this quarter. It has been several years since the first press release regarding veiled chameleons was distributed. We felt it was time to reintroduce this invasive animal to the public. The article generated several new reports and inquiries during the following week. The West Nile Virus article was produced in partnership with the State Department of Health to educate the public about ways that the virus can spread and what we need to do now to prevent its arrival. Readers were encouraged to report dead birds to the Aloha United Way hotline by calling 211.

Joylynn Paman has been working for over a year with other HISC outreach members to develop educational messages about invasive species for Superferry passengers. As a result, the Superferry agreed to include information educating visitors on invasive species in their on-board video. Joylynn was interviewed for the video. The invasive species segment will comprise two to three minutes of the Superferry's eight- to ten-minute orientation video.

REACHING OUT TO THE COMMUNITY

During this quarter, MISC participated in five outreach events resulting in 1,239 people visiting our booths. In April, MISC had displays at the Maui Nui Botanical Garden's Earth Day event, the East Maui Taro Festival, and Maui Community College's Sustainability Fair. Earth Day and the Taro Festival are very successful events that MISC has participated in for a number of years.



In June, we made our debut at the 1st Annual Maui County Farm Bureau's Agriculture Festival. Banana bunchy top virus was the main attraction at this booth and many people were interested in learning how to detect BBTV in their banana plants. We ventured into the aquatic realm by participating in the Maui Ocean Center's World Ocean Day. At this event, MISC featured a new display highlighting things people can do to prevent the spread of aquatic species, with an emphasis on invasive algae. The kids loved the touch-and-feel algae display.

MISC had another opportunity to put up a display at the Kahului Airport. The display is located in the Hawaiian Airlines departure area and will be up between May 31 and November 30, 2007. The display features ways that invasive species enter the islands and exhibits a number of MISC's target and early detection species. Thanks to the Maui Visitors Bureau for providing MISC with this opportunity once again.

ENVIRONMENTAL EDUCATION

Spring proved to be a busy time for class visits with a total of 394 students, ages 5-18, learning about invasive species and environmental issues. Joylynn did a presentation for the Hāna Kindergarten class in May. This was a special presentation that allowed the kids of Hāna to learn more about miconia and what their "uncles" are doing to protect East Maui. Lissa visited with Montessori students as they learned how invasive species compete with native species in alpine, rainforest, and coastal ecosystems at the Montessori Earth Day event. Two classes at Lahainaluna High School analyzed the causes of beach erosion in their own backyards and one-hundred and fifty energetic seventh graders at Kalama Intermediate kept Lissa on her toes as they learned the characteristics that make a plant invasive.

Joylynn was interviewed about snakes for a Maui High School video project and at Kamehameha School about careers. Laurie Furumoto has been hired on a part-time, temporary basis as a Curriculum Assessment Developer and will be working to tie the Hō'ike Curriculum to the updated Hawai'i DOE standards. Plans for a Hō'ike teacher development workshop in early October are underway.

VOLUNTEERS

Hāna High School students learned about the miconia threat first hand by spending a day working with in the field with the Hāna miconia crew. Both the vertebrate and plant crews have benefited from the addition of Lance Fujitani, our summer intern from the Youth Conservation Corps program. Lance will be a senior at King Kekaulike High School next year and is interested in biology. He is part of the YCC's second year program. Participants spend their first summer working as a group on various projects and returning interns are individually placed with a single organization for their second year. We greatly appreciate Lance's help along with his keen curiosity about the work we do.

Plant Updates

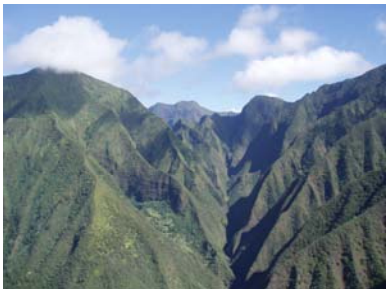
PAMPAS GRASS

Haleakalā Ranch surveys were ongoing this quarter with plants controlled along several drainages. Haleakalā Ranch continues to be very supportive of MISC's pampas control efforts and the majority of residential landowners are cooperative. Permission for access to ground management areas below Polipoli (not part of state lands) is still pending.

Intensive aerial surveys have begun including cross training for East Maui Watershed Partnership and West Maui Mountains Watershed Partnership crew members. Aerial control of mature plants along the Kaua'ula drainage on West Maui was initiated. Twenty-five plants were controlled during one mission. Due to adverse weather conditions, additional aerial operations will be necessary to control the remaining population of 50+ individuals.



We are still in the planning stages for construction of a temporary camping platform that will be in close proximity to the core of the East Maui pampas population. This will



provide crew members with a dry staging and camping area. A crew of three was dropped into the Honomanū area for 3 days of control work. Wet weather hampered their efforts and made the trip quite uncomfortable. Crew on a separate trip into Hana'ula on West Maui, didn't fare much better due to high winds, but did find new plants above the Nēnē Flats area. Additional camping trips for both East and West Maui are planned for later in the summer.

IVY GOURD

Maui ivy gourd data clean-up continues for residential areas. We have been able to modify the revisit interval for North Kihei ivy gourd sites as control progresses. Test plots were established to assess ivy gourd seed viability at an already contaminated site in Kihei. To date no germination has been observed.

On Lānaʻi, crew completed foliar spray and thin-line basal control of all known ivy gourd sites within the golf course at Mānele Bay. We are dealing with an established and well irrigated seed bank on Lānaʻi. We are hopeful that golf course staff will become more involved with ivy gourd control in the future, though we do have the use of golf carts, significantly aiding our work.

FOUNTAIN GRASS

Rappelling continues to enhance our effectiveness in controlling fountain grass at the Kahakuloa site. Effective scheduling of revisits remains a challenge due to the fact that seed germination has followed no set pattern and when the seedlings do emerge they are hidden by other grasses. On a four week revisit in May, no plants were found. Yet when we tried a six week revisit interval we found several plants, including two in flower. There were no plants found this quarter at the Maui Lani, Waiʻehu, or Mākena Golf Course sites.

Control efforts on Lānaʻi found significantly fewer flowering plants at all known sites. All Kōʻele Golf Course locations were visited, with plants still found at most of the previously known locations. One location, reported by Hank Oppenheimer and controlled by MISC earlier this year, had some re-growth and several seedlings were controlled.



RUBBER VINE

There was no change with recalcitrant landowners on our four uncontrolled Maui sites. The Lānaʻi rubber vine site was controlled by the property owner and showed no sign of re-growth this quarter.

ERADICABLE SPECIES

A *Macaranga mapp*a (bingabing) residential site discovered on Lānaʻi was controlled by the field crew as well as a *Macaranga tanarius* (parasol leaf tree) site in Pāʻia, found during a BBTV survey. The *Maclura pomifera* (osage orange) at the Haʻikū site continues to send up root suckers. Two *Verbascum thapsus* (common mullein) sites, one on Holopuni Road and another along Kula Highway, were controlled this quarter. The Holopuni site had been previously controlled by the property owner. The owner had requested that we not revisit the site and stated that he would continue to do control as necessary. During survey work in Kula, at least eleven fruiting plants were seen from the road on this same property. Willie Midgley successfully secured permission for us to control the plants. The Kula Highway *Verbascum thapsus* was discovered by Russell Suzuki on the mauka side of the highway just west of Kula Hardware. This plant was also controlled.



PERIPHERAL MICONIA SWEEPS

Surveys of all miconia suitable terrain on the north side of the Hāna Highway and Ulumalu Road areas concluded this quarter. The proposed search area covered 2,188 acres and 380 TMKs. As of July 2007, 2,266 acres have been searched and 1,005 miconia plants, of all sizes, found and removed. Only 20-25 properties remain to be searched. We have been denied permission to access four of these properties. Five area landowners/residents feel confident they do not have miconia on their property and have not given permission for MISC crews to survey their lands. The remaining properties still require permission to enter. Peripheral miconia recon efforts also continued this quarter via the EMI Road.

HĀNA MICONIA

Ground efforts in Hāna were concentrated in the Ka'elekū area and in Lower Nāhiku with occasional visits to the 'Ula'ino area this quarter. Ka'elekū area sweeps were conducted to control miconia plants in close proximity to homes and private properties adjacent to the Hāna Core where plant density is high. The crew concentrates on plants greater than one meter in height during these sweeps. This method will necessitate a frequent re-entry interval, but allows the crew to completely sweep high-density areas rapidly.



Sweeps in the eastern portion of Lower Nāhiku have been challenging due to large patches of hau that cover much of the area. This miconia infestation has not previously been swept completely via air or ground and therefore a large number of mature plants have been found and controlled. Sweep operations have benefited from the strong support of the major landowners in the East Nāhiku area. An upcoming challenge will be development of an efficient strategy to control miconia in thick hau patches. Surveys of 'Ula'ino properties were prompted by reports of miconia from residents and equipment operators who are clearing private lots in the area. Several large plants were controlled in the area before they reached sexual maturity. Thorough coverage in this area has been challenging due to terrain and complex landowner permissions.

Several days of aerial operations were completed in early April, completing the existing NPS contract. The next NPS contract will be online in January 2008. In the interim, DLNR/DOFAW has provided carryover funding that will support approximately six days of aerial operations this fall.

BANANA BUNCHY TOP VIRUS



Given the extent of infested areas in Pukalani, Kula, and Kihei, as well as the other known locations in Makawao, Kahului, Wailuku and Lahaina, the bunchy top subcommittee met on June 6, 2007 to decide how best to proceed. It was agreed that MISC and HDOA crews would be unable to continue door-to-door surveys in infested areas. MISC will be adjusting our strategy to suppress bunchy top in the most infested areas and ramp-up our outreach and education efforts. A second comprehensive survey of Lāna'i was completed in June with no bunchy top found on the island. While responding to a coqui report on Moloka'i, we assisted MoMISC with banana bunchy top surveys and found none.

- This quarter MISC crews visited 449 properties on Maui and 893 on Lāna'i, encompassing 153 acres.
- Twenty-eight sites on Maui were found to have bunchy top this quarter - 18 of which have been treated.

PLANT DATA APRIL 1 TO JUNE 30, 2007

Lānaʻi

	<i>Plants Controlled</i>			<i>Acres Inventoried</i>	Total Person Hours
	Mature	Immature	Total		
Priority Target Species					
<i>Pennisetum setaceum</i>	57	633	690	87.48	138.6
<i>Coccinia grandis</i>	169	1,850	2,016	268.92	102.0
Eradicable Species Project					
<i>Macaranga mappia</i>	0	2	2	0.07	0.7
Grand Totals:	226	2,485	2,708	356.47	241.3

Maui

	<i>Plants Controlled</i>			<i>Acres Inventoried</i>	Total Person Hours
	Mature	Immature	Total		
Priority Target Species					
<i>Miconia calvescens</i>	133	27,334	27,467	9,900.63	3,229.8
<i>Cortaderia spp.</i>	34	88	122	5,166.39	298.9
<i>Pennisetum setaceum</i>	3	8	11	162.79	38.3
<i>Coccinia grandis</i>	370	199	568	442.4	174.3
<i>Arundo donax</i>	0	0	0	7.41	0.6
<i>Cryptostegia grandiflora</i>	0	0	0	1.41	0.8
Eradicable Species Project					
<i>Caesalpinia decapetala</i>	0	0	0	2.56	0.5
<i>Macaranga tanarius</i>	1	0	1	0.15	1.5
<i>Maclura pomifera</i>	0	1,000	1,000	3.82	6.0
<i>Morella cerifera</i>	0	0	0	2.16	1.5
<i>Sideroxylon persimile</i>	0	0	0	10.12	0.3
<i>Verbascum thapsus</i>	10	27	37	32.93	6.1
Grand Totals:	551	28,656	29,206	15,732.76	3,758.5

Vertebrate Status

COQUI FROGS

The MISC coqui crew is ramping up once again! Three temporary positions were filled this quarter by Nick Schlag, Dennis Green and Joey Hodara. With the added workforce, we hope to move nine of the ten remaining coqui populations into a “monitor” phase by this fall and begin control in the most difficult areas of the Māliko Gulch infestation. Haleakalā National Park has loaned us their chipper again to facilitate our efforts to build trails and roads in the infested area. Hans Sin, coqui frog coordinator from DLNR/DOFAW on the Big Island, joined us for a couple of days in April and offered his input on Māliko operations and our program as a whole. Some of our greatest Māliko access issues were resolved this quarter with the finalization of a right of entry agreement with A&B and a letter of support from the Department of Water Supply.



April marked the eradication of a west side coqui population bringing the number of active sites down to ten. Darrell and Adam responded to a possible report of coqui frogs on Lānaʻi in early April and fortunately found no coqui. Several other reptile and amphibian species were collected during the trip and submitted to the Bishop Museum. Darrell also responded to a report of a coqui frog on Molokaʻi in June and assisted MoMISC with their suppression efforts. The vocalizing male was sprayed with citric acid and has not been heard since. Informational handouts and videos were distributed.

- This quarter MISC received 18 new frog related reports and all have had appropriate follow-up.
- MISC crews made 110 separate visits to 50 frog infested areas and/or suspect locations.
- MISC crews spent 430 hours at a variety of locations working on frog control. 8,335 lbs. of citric acid were used this quarter.

MITRED CONURES AND PARROT-LIKE BIRDS

Mitred conure control activity, in close cooperation with DOFAW, continued to be productive. Observations indicate that of an original estimate of 80-100 animals, roughly 20 birds remain at the Huelo Point location. Ninety-two birds have been removed to date, with 39 removed this quarter. This quarter we observed a separate flock of about 25 birds to the west of Huelo Point. Overlap has been observed between the two flocks, thus accounting for some variability in flock size estimates. Control activities continue to be planned for both locations. In May, Abe escorted a film director and crew to the Waipiʻo site to film the conures for a natural history segment.



VEILED CHAMELEONS

A more clearly defined plan for veiled chameleon field efforts and long-term control objectives has been developed and presented to the MISC staff and Committee. The systematic plan was implemented during our April searches and seems to be yielding positive results. The plan focuses on outreach and education, searching high probability areas, and a continued presence in the "core" area. Our data systems continue to improve and allow for more timely and meaningful analysis. More research observations were performed on five animals recovered in April on new properties. The movement of these animals was greater than had been seen before. Although it is disappointing to continue finding animals, it is encouraging to find them as a result of the revised control strategy.

- During our April search, 39 properties were searched in three nights.
- During our June search, 33 properties were searched in three nights.
- Three adult males and two adult females were recovered during surveys in April. All were found on new properties.
- One juvenile was recovered in May during research observations.
- 204 animals have been recovered to date.

MoMISC Activities

FIELD ACTIVITIES

During the fourth quarter of 2007, MoMISC controlled, monitored, and/or surveyed for the following species: arundo, cat's claw, New Zealand flax, gorse, Australian tree fern, rubber vine, long-thorn kiawe, miconia, woodrose, tumbleweed, *Macaranga*, *Rosa*, banana bunchy top virus, and coqui frogs. John Neizman from DOFAW assisted with field work on *Rosa* and woodrose and with miconia aerial surveys. MoMISC found additional populations of Australian tree fern in Kala'e. With assistance from the Youth Conservation Corps crew, MoMISC controlled the new populations using herbicide. Monitoring will continue to see how effective the herbicide is in controlling the tree ferns. MoMISC, with the help of Daryl Aea and his crew from State Highways Department, were able to dig out the arundo population located at Beach Place in Kaunakakai. The entire population was removed with the use of heavy machinery and taken to the landfill and buried.

On April 27, 2007, MoMISC received a report of a coqui frog in Kualapu'u. Kamalani followed up and he heard a call. The area was sprayed with citric acid twice; however, the owner continued to hear a frog call but could not locate the frog. MoMISC recently removed the potted plants from the property and buried them at the landfill. No further calls have been heard.

OUTREACH

MoMISC participated in the annual Earth Day event on Moloka'i on April 13, 2007. Our display theme was "Stop Buying, Stop Planting, Start Removing." Mapuana developed fliers related to the display theme that will be used in future outreach efforts. MoMISC will work on creating a display with the same theme for the Young Brothers area. We are continuing to create displays for the airport kiosk. Mapuana has created monthly newspaper articles which will be used to coincide with the kiosk display. We distributed and posted fliers about the Australian tree fern, coqui frogs, and long-thorn kiawe on the west end of Moloka'i. Lori and Kamalani went house to house in Kualapu'u with a coqui frog recording and fliers to alert residents to the potential for a frog in the area. Over 150 homes were canvassed. The next MoMISC meeting is scheduled for August 13, 2007.