



MISC

MAUI INVASIVE SPECIES COMMITTEE

Quarterly Report to the MISC Committee

FY 2010, Third Quarter

January 1 to March 31, 2010

Manager's Report

At MISC meetings in the early aughts (2000s), a common admonition was to avoid using the “E-word,” meaning eradication. Committee members didn’t want to promise too much, knowing full well how difficult a task it is to eradicate an invasive species. After all, the very traits that make a species successful as an invader are also likely to make it difficult to eradicate: easily dispersed, long-lived seed bank, highly reproductive, cryptic coloration, etc. Pampas grass, miconia, coqui frogs, and veiled chameleons all come to mind. Plus, some of the “pelt” species the Committee had identified as easy targets during initial rounds of priority-species selection, like ivy gourd, later acquired the moniker of “legacy” species. We’re making major headway on ivy gourd, but it proved to be more formidable (read “widespread”) than first assumed.

Despite that early history, the aughts also saw more resources focused on identifying potentially eradicable species, thanks in part to funding from the U.S. Fish & Wildlife Service, and also to a heightened emphasis on early detection / rapid response from the Hawai’i Department of Land & Natural Resources, as well as ongoing support of our other partners. In an effort to highlight our successes, MISC and MoMISC’s work on eradicating 12 plant species were the focus of a presentation given at the “Island Invasives: Eradication and Management” conference in New Zealand this February.



The conference was both informative and encouraging. I must admit, it was refreshing to hear so many scientists and resource professionals using the “E-word.” But there is a cautionary tale. Of the 86 presentations, only six of them were about plants, including the one on economics of biocontrol for miconia. Of all species-oriented papers, 85% were about vertebrates, with rodents leading that pack. The E-word, it seems, is more readily used when talking about invasive animals than plants, but a goal still worth pursuing. The proceedings from the conference should prove to be an interesting read for all of us working to protect our islands from invasive species.

Employee of the Quarter



The “Employee of the Quarter” was recognized at the first staff meeting in April. Brooke Mahnken, MISC’s Data Technician, was lauded for his insightful solutions to everyday challenges along with his quirky comic additions to our newsletter. Brooke’s organizational tendencies inspired him to create new log books for the MISC vehicles to replace the more expensive Rite-in-the-Rain versions. His sense of order manifests in the complex (working to develop a paperless data entry system) and the mundane (keeping the dish drainer emptied and kitchen shelves organized). Brooke regularly unshackles himself from his desk to participate in field activities, which included the role of “Winterim Czar” during the miconia field trip with Seabury students. His data skills continue to be a resource to MISC’s partner agencies as well. Way to go, Brooke!

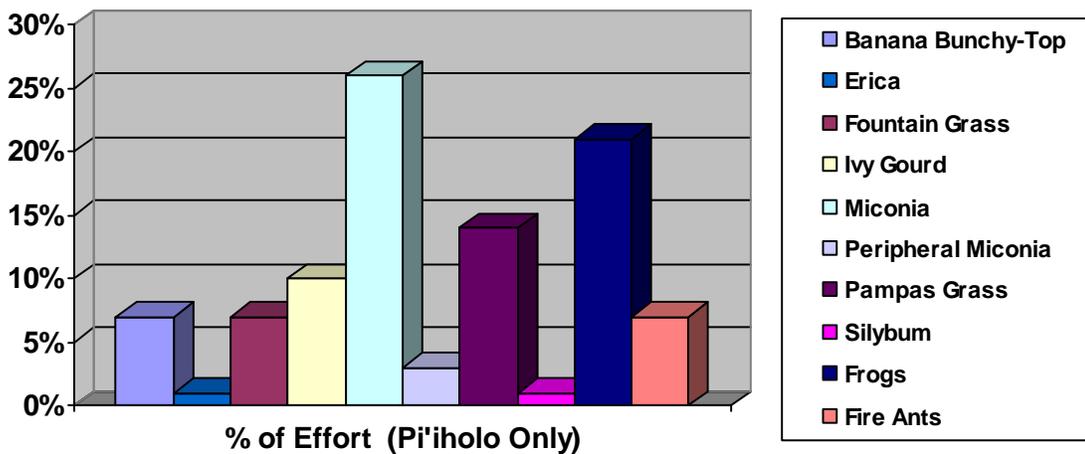
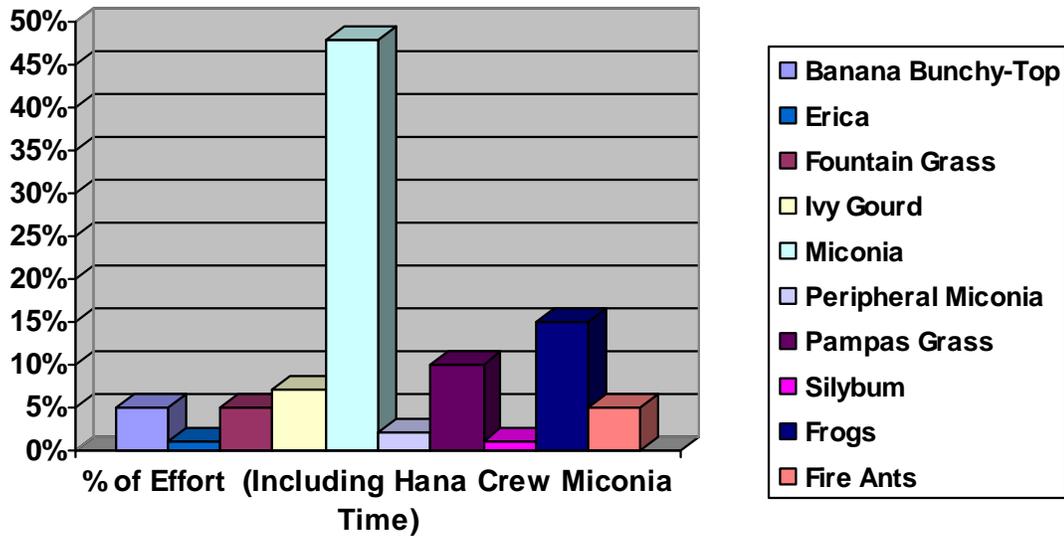
Quarterly Highlights

ACTIVITY HIGHLIGHTS

- Jan 5: Teya meets with Councilmember Mike Molina
- Jan 7: Teya meets with Councilmember Joe Pontanilla
- Jan 11: Lissa represents MISC at the County of Maui Ag Roadshow
- Jan 19: Adam Barker attends Basic Helicopter Safety training
- Jan 19-22: Rappelling refresher – all field staff
- Jan 26: Lissa attends MALP meeting
- Jan 27: Little fire ant strategy meeting
- Jan 28: Cas Vanderwoude provides little fire ant (LFA) training for MISC staff

- Feb 1-5: Crew to Lāna‘i for fountain grass control
- Feb 8-12: Teya attends Islands & Eradications Conference in New Zealand
- Feb 10: Lissa attends CGAPS meeting on O‘ahu
- Feb 11: Adam & Brooke attend Maui Conservation Alliance Meeting
- Feb 12: Lissa attends Hawai‘i Environmental Education Alliance meeting on O‘ahu
- Feb 16-19: Seabury Winterim trips to Hāna and Haleakalā
- Feb 17-19: Adam Barker attends pesticide applicator safety training
- Feb 19: Whale Day educational fair
- Feb 20: Whale Day parade
- Feb 22-25: Crew to Lāna‘i for ivy gourd control
- Feb 24: Vertebrate crew to Hilo for LFA/banana training
- Feb 25-26: Adam attends Agrosecurity training in Hilo
- Feb 26: MISC Meeting - miconia

- Mar 2: Miconia Operations meeting
- Mar 8-10: Teya & Lissa to the Big Island for LFA video production
- Mar 16-19: Crew to Honomanū to open camp for the season
- Mar 18: Teya, Lissa, & Lori to O'ahu for biocontrol meeting
- Mar 19: Lissa & Lori attend POWG meeting on O'ahu
- Mar 19 & 22: Teya serves on the interview panel for the DLNR ISC Coordinator
- Mar 25: Teya & Hāna staff attend Hāna Budget Hearing
- Mar 29-Apr 1: Crew to Honomanū for pampas control



PR & Education News

MISC IN THE NEWS

“Kia’i Moku,” MISC’s monthly Maui News column, featured articles on invasive species that will require long-term control efforts. The January article discussed the impacts of fireweed and the work being done by HDOA and CTAHR to discover new control methods. February’s article, written by guest author James Leary of CTAHR, explored new technologies under development for herbicide delivery including paintball guns loaded with herbicide injected paintballs and mowers that dispense herbicide as they cut. The March article was written by Adam Radford, MISC Vertebrate Operations Supervisor, on the current status of coqui frogs on Maui. MISC PR Specialist Lissa Fox was interviewed for a February Maui News story on control and detection efforts for the little fire ant on Maui.

REACHING OUT TO THE COMMUNITY

Our increasingly popular parade float that features a brown tree snake attacking an ‘iwi made another appearance at the Pacific Whale Foundation’s Whale Day Parade. Teya Penniman and Lissa Fox traveled to the Big Island in March with Masako Cordray and Chris Reickert to begin filming for a little fire ant video. The video will feature testimonials from people who have had to deal with the impact of the little fire ant on the Big Island and highlight prevention and detection measures. Additionally we produced posters for the Maui buses encouraging the public to report suspected populations of LFA and worked with Elizabeth Speith to create a LFA website: fireantfreemaui.com. Funding for the poster and other LFA outreach material is being provided by Maui County.

MISC IN (AND OUT OF) THE CLASSROOM

It was a particularly “field-oriented” quarter for MISC’s education program. In February, we hosted Seabury High School’s Winterim program with week-long trips to both Hāna, for miconia control, and into Haleakalā Crater. We hosted a station on the role of a healthy rainforest in coral reef protection for the Keiki Eco-Conference held as part of Pacific Whale Foundation’s Whale Day activities. In early March, we helped high school students at Kamehameha schools remove invasive pine trees outside Haleakalā National Park. Additionally, we focused classroom visits on the role students can play in our early detection efforts for the little fire ant, speaking with 220 students this quarter and collecting 150 student submitted ant samples.

STING OPERATION: CATCH THE LITTLE FIRE ANT!

IMPACTS
If the little fire ant becomes established on Maui it will change our lives:
• Fire stings leave itchy burning welts
• Pets and livestock could be blinded from stings
• Serious agricultural pest
• No mo' slippaks?

IDENTIFYING THE LITTLE FIRE ANT
Little fire ants are tiny, about 1/16th inch long (as long as a penny is thick), much smaller than the established tropical fire ant, and solid red or orangish-red.

REPORTING THE LITTLE FIRE ANT
If you are stung by a tiny orange-red ant please report it! Hawaii Department of Agriculture at 873-3162 Maui Invasive Species Committee 573-6472 (MISC)

PLEASE HELP—BECOME AN UNDERCOVER ANT DETECTOR! VISIT WWW.FIREANTFREEMAUI.ORG

Logos: MISC, USGS, Hawaii Department of Agriculture, Maui Invasive Species Committee.



EYES & EARS EARLY DETECTION PROGRAM

Maui's Eyes and Ears Early Detection Program is a pilot project for early detection efforts intended to be expanded statewide. In support of expanding those efforts, Lissa Fox and Elizabeth Speith (USGS-PBIN) gave presentations to the invasive species committee managers and staff as well as a presentation at the Coordinating Group on Alien Pest Species meeting in February. Additionally, we continued to conduct early detection trainings including sessions for the APHIS inspectors stationed at the Kahului airport, the Maui Forest Bird Recovery Project, Lāna'i conservation workers, and management staff from Castle & Cooke. In response to the little fire ant early detection efforts, we have created a "Sting Operation" training, focusing primarily on little fire ant detection surveys. We gave this presentation to Maui Association of Landscape Professionals members, landscaping staff at the Kāhili golf course, and the Friends of Haleakalā.

COMMUNITY PRESENTATIONS

Other community outreach efforts this quarter included presentations in Waikapū as part of the County of Maui's "Ag Roadshow" program visiting Community Associations to present information about agriculture and environmental issues in light of funding cutbacks to HDOA and information on detection of the little fire ant on Maui.

Plant Updates

PAMPAS GRASS

While the peak season for pampas grass is just ahead of us, MISC crews have continued control efforts throughout the "off season." Aerial work consisted of reconnaissance in very open terrain including Haleakalā Crater, Polipoli State Park, and 'Ulupalakua, Zwaanstra's, and Haleakalā Ranches. Helicopter crews attempted to survey the Honomanū area as well; however, it was quite challenging to spot pampas grass among the lush forest community without the distinctive flower stalks present. Aerial operations for this area will remain on hold until flowering season begins.



On the ground, crews conducted two sweeps in the Waikamoi Flume area and surveyed five gulches on Haleakalā Ranch property. Crews treated nine mature pampas grass plants and 71 immature plants during these sweeps. In addition, residential surveys have been productive with four mature and 36 immature plants found and treated. Unfortunately, three sites with known plants (*Cortaderia selloana*) have now been added to our recalcitrant list.

Finally, MISC crews have completed two initial ground trips to the Honomanū platform. A small group opened the camp in mid-March and made many improvements including a new water catchment system, water heating system, and sink basin. No control work was done during this first visit. The second visit took place during the last week of March. The crew surveyed approximately fourteen acres over a three-day period. Of the twenty-five plants treated, only one was mature. Hopefully, this trend will continue as the pampas season builds into the summer!

FOUNTAIN GRASS

Field crew revisited all fountain grass sites on Maui this quarter. Two sites had flowering plants. One site is located within the Waiehu sand dunes area and the other at a Maui County water tank near Waiehu Terrace subdivision. This second site has been an ongoing challenge due to limited access to the fence-enclosed area. We are working on securing access to all Maui County water tank enclosures. The fountain grass site at Kahakuloa continues to have no plants. There have been no plants observed at the site since January of 2009. This site continues to be a challenge to monitor due to steep terrain and the need to rappel.



Control efforts continue at all known fountain grass populations on Lānaʻi. Fountain grass plant numbers continue to decline since MISC's first suppression efforts began in 2005. Our last visit showed a decrease in the number of immature and mature plants discovered. We increased the acreage surveyed peripheral to our two newest fountain grass sites and found no additional plants.

IVY GOURD

Field crew continued control of established *Coccinia grandis* sites. There was an increase in the number of ivy gourd plants controlled this past quarter. Fruit was collected at two sites. A new site in Kihei that was discovered by Forest & Kim Starr during road surveys is now being controlled and the surrounding area has been surveyed.

One visit was made to the ivy gourd site at the Mānele golf course on Lānaʻi this quarter. There was a decrease in the number of plants controlled relative to the previous quarter. No fruiting plants were found during field surveys at any known locations on Lānaʻi.

RUBBER VINE

No new plants were found this past quarter. Permission issues remain for known sites in the Central Maui area.

OTHER PLANTS



Removal of *Pittosporum undulatum* (Victorian box) continued this quarter as landowner permission was obtained. Two additional owners gave permission and subsequent control occurred. Property owner reluctance to permit removal has been a common theme with this species. *Silybum marianum* (milk thistle) control has been ongoing since November 2009 for the two known Makawao locations. Our focus continues to be on control during the rosette stage in order to catch the plants in the rosette stage and therefore avoid handling the larger prickly plants. The first "bolting" was observed in late March.

A new *Erica lusitanica* (Spanish heath) site was discovered during pampas surveys on Haleakalā Ranch. The site, in Waiʻale Gulch, contains a large number of flowering plants. More surveys will be done to further delimit this population. Small sprouts of *Maclura pomifera* (Osage orange) continue to be controlled systematically at the only known location on Maui. A large, mature *Macaranga tanarius* (parasol leaf) tree, discovered by Forest and Kim Starr, was removed from a site in Haʻikū. Two immature plants were controlled at Pua Nani Nursery growing as "weeds" in a nursery plant staging area.

MICONIA

The first quarter of 2010 was productive for the miconia control program, with favorable weather dominating in January and February. In the Hāna vicinity, ground crews focused significant effort on completing the area begun for the 2009 International Miconia Conference. The management unit had not received comprehensive treatment by ground crew for many years and will now serve as a valuable baseline for planning future sweeps in high density (core) infestations. Consensus from the Hāna-based crew is that the core sweeps benefited from using larger work groups, including Pi'iholo-based personnel and students from Seabury Hall during their Winterim trip.

Other work in the Hāna area included sweeping private property in the vicinity of Ka'elekū and Olopawa. Access to some of these areas was previously hampered due to lack of landowner permission. Most areas with manicured landscaping obviously had few plants, but some large mature miconia were treated in thickly vegetated edge areas. Ground sweeps mauka of Hāna Ranch were completed from Kawaipapa drainage toward Mo'omo'onui under the tall eucalyptus treeline. The area cannot be treated comprehensively by helicopter. The crew reported fewer plants as they proceeded east away from the core population and no mature plants were found.

In the Nāhiku area, ground crew efforts split between Honolulu Nui and Upper 'Ula'ino near Hāna Highway. All areas had been previously swept by the ground crew. The re-entry sweeps were precipitated by either resident reports of miconia on their property or timing to re-treat the area before miconia recruits could reach maturity. The ground crew reported numerous uncommon native wet forest plants, primarily lama, in the upper 'Ula'ino areas. Honolulu Nui and the adjacent areas are dominated by non-native vegetation and uluhe. Two mature trees were treated in the area called "Uncle Skippy's," but ground crew reported far fewer total plants than when they swept the area three years ago.

Some areas in the vicinity of Pua'aka'a were also cleared of miconia during the quarter. Portions of these units had not been covered comprehensively for several years and much of the archived data suggested that we could more clearly separate ground sweep areas from places that are best accessed by helicopter. The ground crews are most effective in the Pua'aka'a vicinity where historic tree plantings of eucalyptus and paper bark are dominant. Extensive areas of uluhe and hau and steep terrain are best covered by helicopter. Hau patches continue to pose a big challenge for ground crew sweeps.



Aerial operations for the quarter attempted to catch up for missions that were missed in November, December and the beginning of January due to an administrative delay with the helicopter contract. A total of 45 helicopter days were flown during the period. The operations focused primarily on re-treatment of outlier populations from Nua'ailua to Waiho'i, weather permitting, to prevent juvenile trees from maturing.

Significant time was also spent performing reconnaissance in low-density areas and in early detection reconnaissance management units to verify that miconia has not successfully jumped outside of our current areas of concern.

Aerial operations also continued to expand on trials for new herbicide mixtures and application techniques. Since several new application techniques and chemicals have become available in the past several years, trials using these methods on miconia are being conducted to test efficacy and feasibility. Optimally we would end up using a technique that has a more favorable environmental profile, while reducing our time on target and therefore, increasing efficiency. Additional benefits would include finding a product that has shorter rain-fast periods and greater systemic reaction in miconia, allowing quicker and lower impact applications. Initial results for the trials will be available sometime this summer.

PLANT DATA JANUARY 1 TO MARCH 31, 2010

Maui

Target Species	Plants Controlled		Total	Acres Inventoried
	Mature	Immature		
<i>Arundo donax</i>	40	0	40	4.34
<i>Coccinia grandis</i>	15	343	358	890.97
<i>Cortaderia</i>	289	260	549	4,913.83
<i>Cryptostegia grandiflora</i>	0	0	0	15.17
<i>Erica lusitanica</i>	1,303	0	1,303	1.71
<i>Miconia calvescens</i>	485	30,183	30,668	15,204.19
<i>Pennisetum setaceum</i>	18	26	44	184.10
<i>Pittosporum undulatum</i>	11	6	17	16.53
<i>Silybum Marianum</i>	18	661	679	252.37
<i>Acacia auriculiformis</i>	0	0	0	1.02
<i>Caesalpinia decapetala</i>	0	0	0	2.56
<i>Macaranga mappa</i>	0	0	0	2.10
<i>Macaranga tanarius</i>	1	2	3	102.49
<i>Maclura pomifera</i>	0	32	32	3.82
<i>Sideroxylon persimile</i>	0	0	0	10.12
<i>Verbascum thapsus</i>	0	0	0	22.19
Grand Totals:	2,180	31,513	33,693	21,627.51

PLANT DATA JANUARY 1 TO MARCH 31, 2010

Lanai

Target Species	Plants Controlled		Total	Acres Inventoried
	Mature	Immature		
<i>Coccinia grandis</i>	13	107	120	125.35
<i>Pennisetum setaceum</i>	17	144	161	167.73
Grand Totals:	30	251	281	293.08

LITTLE FIRE ANTS



MISC crew spent one day per week beginning in February assisting Forest and Kim with surveys for the little fire ant. This quarter the MISC crew primarily focused on nurseries while Forest and Kim concentrated on new developments. MISC deployed 647 peanut butter baited vial at eight sites in February and March. Another ~1300 vials were deployed by the Starrs. No LFA were found.

BANANA BUNCHY TOP VIRUS

MISC began working cooperatively with the Hawai'i Department of Agriculture to suppress banana bunchy top virus in Maui County in 2004. Since then, we have visited thousands of properties, spoke to hundreds of residents, and found BBTB in Pukalani, Makawao, Kula, Kihei, Lahaina, Ha'ikū, Huelo, and on Moloka'i.



BBTV was first discovered on Maui in Pukalani in 2002. This quarter MISC crews surveyed all of Pukalani for the fifth time. Interestingly, the number of sites with BBTB has not increased since the first comprehensive annual survey in 2005. If anything, the number was less than at the peak during 2006. Similar results have been observed in Kahului and parts of Kula. Other encouraging findings include the fact that Lāna'i remains BBTB free. While Lahaina and Huelo have had BBTB, it has not been found in these areas since 2008. These results suggest that suppression is an effective way to manage the disease.

Unfortunately, a substantial number of properties in Kihei have BBTB and as the known infested area in South Maui continues to grow MISC may be forced to prioritize suppression areas at some point, particularly if new sites are found on Lāna'i or elsewhere on Maui. In essence, MISC's efforts are effective, but may have to be adapted as new sites are found or if resources dwindle.

This quarter 475 crew hours were spent visiting 2,764 properties in Maui County, mostly in Pukalani. Of 95 sites that were found to have bunchy top this quarter, 72 were treated. The remaining sites will be treated next quarter pending resident / owner permission. The following table summarizes the number of sites surveyed and sites with BBTB by region this quarter.

	<i>Sites Surveyed</i>	<i>Sites With BBTB</i>
Kahakuloa	2	0
Kahului	134	1
Kihei	438	55
Kula	1	0
Lahaina	2	0
Makawao	1	0
Pukalani	1,221	32
Wailea	44	7
Total	1,843	95

Note. Many of the sites surveyed this period have been known to have BBTB in the past. Thus, not all sites with BBTB are new locations. Furthermore, the low number of sites visited to sites with BBTB highlights our efforts to follow up on known infested areas. Driving surveys are also not reflected in these numbers.

MISC staff also joined Cas Vanderwoude (HDOA) for Little Fire Ant (LFA) identification trainings at our Pi'iholo baseyard and in Hilo to improve our ability to detect LFA on bananas and other suspect locations. Cas believes that if additional LFA infestations are on Maui the ants would likely be found on banana plants. The crew has since begun looking for LFA while doing BBTB surveys.



Vertebrate Status

COQUI FROGS

With the warm nights of summer quickly approaching, MISC has been busy preparing for an increased effort to control coqui in Māliko Gulch. A four-person temporary crew will be hired for the summer to help treat the entire gulch area at least once.

This quarter, nearly two miles of PVC pipe were laid along the bottom of the gulch. The pipe allows citric acid applicators to plug into the system every 150 feet. Several large-volume storage tanks located on the top edge of the gulch feed the system. This approach allows staff members to leave the supply tanks after the system is set up and continue other work in the gulch. The bottom third of the Māliko population will be treated primarily with this method.



Above the fixed-line treatment area, helicopter operations this quarter set a new MISC record for area covered and citric acid delivered in a given amount of time. In two days of helicopter operations (just over seven hours of flight time), 15 acres were covered and 19,350 gallons of citric acid delivered. Areas treated by helicopter continue to show a substantial decline in coqui numbers. The helicopter is primarily being used in the middle third of the gulch due to the area's inaccessibility by ground and dangerous terrain.

Work also continued on the upper third of the gulch population and in the Māliko residential area. Work in that area relies on a wildland firefighting approach with large-volume tanks, pumps, and hoses as well as our large-volume sprinkler system. In order to facilitate these efforts, 28,600 pounds of citric acid were purchased this quarter and delivered to the Ha'ikū coqui staging area. MISC has been allowed to use this facility for on-site storage thanks to the generous support of area landowners. Several thousand gallons of water were also provided by Māliko area residents for control work.

Suppression or monitoring efforts continue at five active coqui population centers and 29 coqui-free participant nurseries. At this time very few coqui are heard at the other population centers. The value of the coqui-free nursery program was reinforced this quarter when two coqui were found and captured at a coqui-free participant business. The residents of the area had not noticed the frogs yet.

- Crews made 95 separate visits to 53 frog-infested areas or suspect locations this quarter. Sixteen of these visits were to 11 coqui-free nursery participants.
- MISC crews spent 532 hours at a variety of locations working on frog control.
- 36,051 lbs. of citric acid was used this quarter, nearly all in Māliko Gulch.

VEILED CHAMELEONS & MITRED CONURES

No veiled chameleon activity occurred this quarter. No conure control activity occurred this quarter.

MoMISC Activities

MoMISC continued monitoring efforts on the following priority targets this quarter: arundo (none detected), rubber vine (70 immature controlled), Australian tree fern (one mature controlled at a residence and four immature at Pālā'au Park), albizia (photo monitoring), New Zealand flax (none detected), and gorse (none detected). Other targets MoMISC worked on this quarter included banana bunchy top virus, cat's claw (one mature and 330 immature controlled), mangrove jellyfish (33 immature controlled), stinging nettle caterpillar (survey traps, none detected), bo tree (survey only), tree daisy (survey only), fireweed (1 mature controlled by Bill Garnett in Kala'e).

Of particular note, a coqui frog was reported and controlled on Moloka'i this quarter. On Monday March 29 MoMISC responded to a call from a facility that had received a shipment of five pallets with a total of 181 assorted fruit trees from a nursery in Kurtistown on the Big Island. Staff from the Moloka'i facility removed the trees from the pallets and were watering the trees when coqui jumped out. The workers put all trees back on the pallets and contacted MoMISC. Kamalani Pali responded, did a visual check, and sprayed the shipment with citric acid. Workers moved the pallets into their warehouse at the close of business. Later that night Kama was allowed access to the facility to listen for calling frogs; none were heard. A night check was repeated on March 30 with no frogs heard. This is the 3rd valid coqui introduction to Moloka'i that MoMISC has responded to.

A MoMISC committee meeting was on held on January 25, 2010 and the next MoMISC meeting will be May 10, 2010. MoMISC helped DAR with gorilla ogo and worked with YCC interns. Lori attended the opening of the Legislature and County Council budget hearings.