



MAUI INVASIVE SPECIES COMMITTEE

Quarterly Report to the MISC Committee

FY 2011, Third Quarter

January 1 to March 31, 2011

Manager's Report

Nahā ka mākāhā, lele ka 'upena.

When the sluice gate breaks, the fishnets are lowered.
One's loss may be another's gain.

At a January staff meeting I noted that it seemed like there was a lot of change in the air. I asked how many people thought the year 2011 was going to bring more changes than what we had seen the year before. The vast majority of those present raised their hands. Little did I know then that four of them would be leaving MISC by the end of the quarter to pursue different career options.

The recent exodus came after a fairly long period of staff stability, a condition management staff had noted with appreciation after several years of jesting we should install a sign by the road saying "Now hiring." Much of our previous hiring resulted from MISC's growth over the years or from funding focused on a particular project. Given the current uncertainty about funding, we have opted to fill only two of the vacant positions. Instead, we have shifted some functions, like data and Hō'ike educational activities to existing staff, who are now gaining new experience.

It's always a bit bittersweet – losing staff. We will miss their contributions, but also share in their excitement about different opportunities or more education. Our loss translates into a gain elsewhere in the world of conservation. *Mahalo* and *a hui hou* to Dave McPherson, Brad Ogle, Tricia Rodriguez, and Wendy Swee. And *mahalo nui* to our existing staff, who continue to make MISC such a rewarding place to work.



Employee of the Quarter



Congratulations to MISC's "Employee of the Quarter" - long-time plant crew member and "Pampas Queen" Stephanie Miller. Steph joined the plant crew in 2006 and assumed responsibility for coordinating pampas grass field operations in 2007. Equally at home in the backcountry or crunching data on the computer, Steph's attention to detail, organizational skills, and cooperative attitude make her a highly valued team member. As MISC's pampas coordinator, Steph juggles scheduling heliops and backcountry trips, spends endless hours hanging out of the helicopter spotting/spraying pampas, and roughs it in the remote Honomanū camp for on-the-ground surveys. She has recently assumed new duties helping keep MISC's data caught up. During this quarter she helped ensure overall data quality by fixing some old and/or persistent data discrepancies and has cleared out some of the data in-boxes. Way to go, Steph, and thanks for all your hard work!

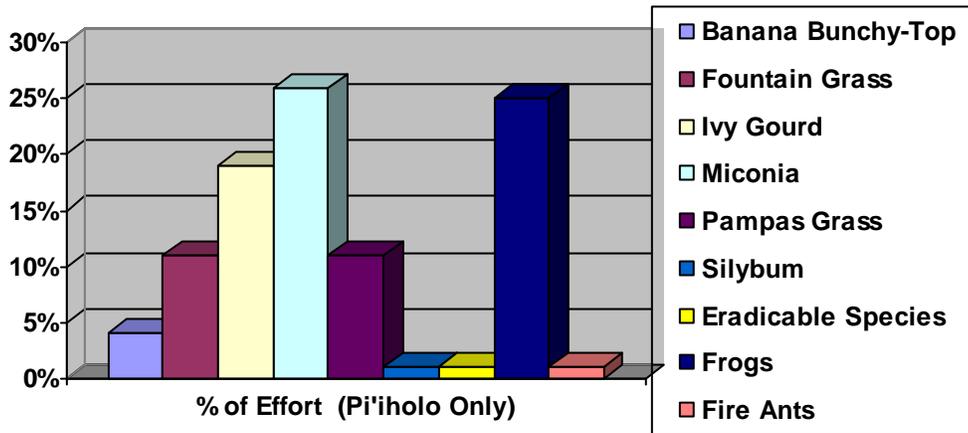
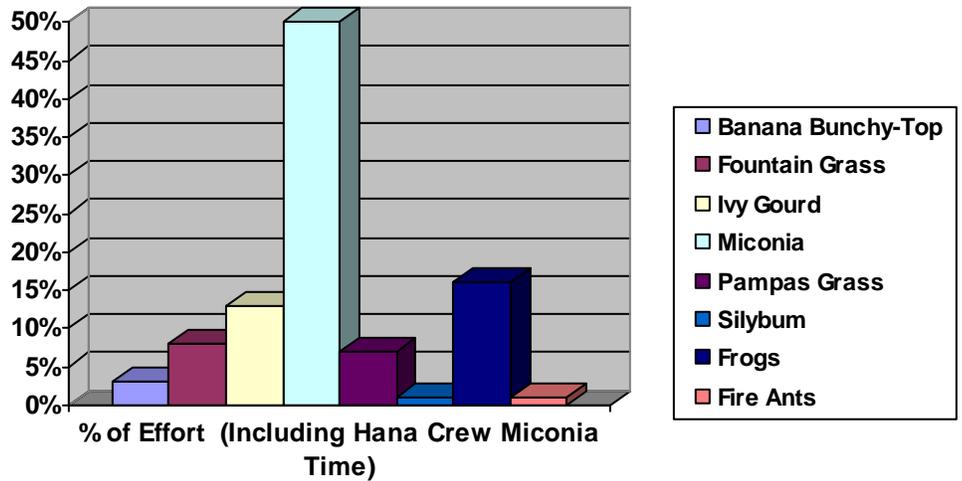
Quarterly Highlights

ACTIVITY HIGHLIGHTS

- Jan 11: Teya attends Deer Working Group meeting
- Jan 19: Lissa attends Public Outreach Working Group meeting & Legislative Opening Day on O'ahu
- Jan 21: Pampas Grass Strategy meeting
- Jan 21-22: Lissa attends Hawai'i Environmental Education Alliance meeting on Maui
- Jan 25: Teya attends Silent Invasion update on O'ahu
- Jan 28: Teya attends Legislative Briefings on O'ahu

- Feb 2: Teya, Mike, & Brooke attend LFA planning meeting with Cas
- Feb 2-3: Adam attends Hazard Analysis & Critical Control Point training on O'ahu
- Feb 5: MISC post-holiday boat trip and picnic
- Feb 7: Teya & Lori attend Legislative Briefings on O'ahu
- Feb 11: Miconia Operations meeting
- Feb 14-17: Seabury Hall Winterim volunteer trip – Hāna
- Feb 13-Mar 3: Adam & Darrell to Guam for Brown Tree Snake Response training
- Feb 15: Teya attends Deer Working Group meeting
- Feb 16: Teya attends Maui Conservation Alliance meeting
- Feb 17: Teya & Elizabeth to CGAPS and meet with Nelson Sakamoto on O'ahu
- Feb 23: CTAHR Site Review Committee visits Pi'iholo
- Feb 24: MISC hosts visit from the National Biological Information Infrastructure (NBII) Director
Hō'ike Curriculum Steering Committee meeting
- Feb 25: MISC Meeting – Moloka'i & Lāna'i
- Feb 28-Mar 4: Crews to Lāna'i for fountain grass control

- Mar 5: Hō'ike teachers' workshop at UH Maui College
- Mar 7: Teya meets with Councilmember Baisa
- Mar 8: Adam & Elizabeth attend non-profit training
Teya & Lori meet with Councilmembers Couch, Mateo, Cochran, White, & Carroll
- Mar 9: MISC fundraiser at Milagros
- Mar 14: Teya & Watershed Partnerships meet with Department of Water Supply
- Mar 21: Teya & Lissa attend Public Outreach Working Group meeting on O'ahu
- Mar 22: Teya, Adam, & Chuck attend Early Detection & Rapid Response meeting on O'ahu
- Mar 23-24: Interviews for Pi'iholo field worker position
- Mar 29: Teya participates in KAOI radio show with Don Couch
- Mar 30: Teya to Moloka'i for field worker interviews



MISC IN THE NEWS

During the first quarter of 2011, the Maui Invasive Species Committee was mentioned several times in the Maui News. The first was an unsolicited letter to the editor published in January in which Morris Haole Jr. praised our most recent newsletter featuring work on Moloka'i. The second mention was in a February article announcing the new Executive Director of the Maui Nui Botanical Garden, former MISC employee Joylynn Paman. Congratulations, Joy!

Through our Kia'i Moku column in the Maui News, MISC disseminated information on red-vented bulbuls, banana bunchy top virus, and the impacts from releasing caged birds. These articles, as well as all the articles written for the Kia'i Moku column, are available online at www.hear.org/misc/mauinews/

REACHING OUT TO THE COMMUNITY

The latest issue of the Maui Invasive Species Committee's newsletter, Kia'i i nā Moku o Maui Nui was distributed via mail and e-mail to approximately 800 people. Additional copies were given out on Moloka'i. This edition of the newsletter highlights the work of MoMISC and TNC on Moloka'i with particular emphasis on MoMISC's efforts to eradicate invasive albizia.



MISC worked with Milagros restaurant in Pā'ia to hold a fundraiser. On March 9th Milagros donated 10% of the proceeds from their food sales from noon to 10 pm to MISC. To drum up business, MISC had crew dressed in little fire ant and coqui frog costumes walking the streets of Pā'ia wearing signboards encouraging people to eat at Milagros.

In conjunction with the East Maui Watershed Partnership and the Maui Forest Bird Recovery Project, MISC presented information to 15 Hāna residents about the work being done in the forests above Hāna during an evening forum.

MISC IN (& OUT OF) THE CLASSROOM

This quarter there were some shifts in staffing, and not just in the field crew. After two years of working with our education program several days of the week, Wendy Swee took a position with the National Park Service in January. She will be missed and Haleakalā has gained an excellent interpretive ranger. Abe Vandenberg, from our vertebrate crew, has stepped up to help out part-time with the education and public relations program. He's hit the ground running, dividing his time between days in classrooms and evenings with coqui frogs.

This quarter we visited a range of classrooms from Lihikai 3rd graders to Seabury Hall's AP environmental science class. We also participated in several educational events



including the Keiki Eco-Conference in Kīhei, coordinated by Pacific Whale Foundation, and a multiple day activity in Hāna coordinated by Digital Bus. For the Hāna event, Tanya Vasquez of the Hāna crew helped immensely by visiting four elementary classes to do a little fire ant activity preceding the Career Fair, an event connecting environmental and science groups with Hāna High School students.

In anticipation of publishing the invasive species module, we held a teacher workshop at UH Maui College to highlight some of the activities that need to be tested in classrooms and we have set up classroom visits for the next quarter.

Perhaps the best way to illustrate the impacts of miconia is to take students into the field to see it. In February we hosted 11 Seabury students and two teacher chaperones for several days of miconia removal in the area above Pu'u kī. This work was done as part of Seabury Hall's annual "Winterim" program. In total, MISC worked with 476 students on Maui this quarter.

Plant Updates

PAMPAS GRASS

During the last few months the crew has been finishing up with residential visits before the busy backcountry pampas grass season begins again. Out of 131 residential sites visited, 11 had pampas grass. In total, there were 25 plants found and controlled including three mature plants.

In addition to residential visits, the crew worked in the Waikamoi Flume area controlling 70 immature plants and eight mature plants during seven separate visits.

MISC staff have also been preparing for the backcountry season. A portion of the crew will be camping in the Honomanū area for a week at a time. We are planning and preparing to do more thorough coverage in the area between Honomanū gulch and Haipua'ena gulch, which will require new infrastructure as well as a small camp. The first trip of the season is planned for the end of April 2011.

IVY GOURD

There was an increase in the number of ivy gourd plants found this past quarter. Three new locations with mature plants were added: two in Kīhei and one in Kahului. One site is near the Kīhei Aquatic Center and the other at the Jack in the Box Restaurant on South Kihei Road. The Kahului site, reported by Pat Conant (HDOA - Hlilo), is in the rear parking lot of Krispy Kreme. The plants at this site are female, but producing infertile fruit.

There were two visits to the Mānele golf course ivy gourd site on Lānaʻi this past quarter. We saw a significant increase in the number of plants due to the amount of rainfall received this winter. Field crew controlled 33 mature plants, three with fruit, and 1350+ immature plants (non-flowering) and seedlings.

FOUNTAIN GRASS

In January and February field crew continued surveying for additional plants in the Kanaio area as a follow-up to the fountain grass plant discovered in December of 2010 by Art Medeiros. No plants were found. Five fountain grass plants were controlled at two different sites this past quarter. Two fountain grass plants were controlled at the Kahakuloa rappel site and three at the Waiehu Terrace Water Tank.

Control efforts continued at all known fountain grass populations on Lānaʻi this quarter. A significant increase in the number of plants found was due to the amount of rainfall received this winter. Hank Oppenheimer controlled a single flowering fountain grass plant along Awalua Road. MISC crew surveyed a mile along Awalua Road from this site and no other plants were found.



RUBBER VINE

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

ARUNDO

Two (re-growth) plants were controlled near Sprecklesville this quarter.

OTHER PLANTS

There were 185 immature (rosette) *Silybum marianum* plants controlled this quarter. *Maclura pomifera* (Osage orange) root suckers continue to be controlled systematically at the only known location on Maui. Five immature *Macaranga tanarius* (parasol leaf) plants were controlled at a nursery growing as “weeds” in the nursery plant staging area. At another nursery in Waikapū, 67 plants were controlled. We monitor nurseries for the potential of plant movement in landscape containers.



MICONIA

MISC crews nearly completed sweeps of the peripheral miconia area (from Kakipi Gulch to Kailua) this quarter. The once every three year sweeps focused on areas with known plant points, 500 meter buffers of areas with historically mature plants (which encompassed all known immature plants as well), and likely habitat / dispersal corridors (e.g., stream beds). Two hundred and seventy acres were swept. Eighteen plants were removed, none were mature.

During the third quarter of 2011, ground sweeps for miconia were conducted from Keʻanae to Hāna, covering re-treatment management units and pursuing reports from community members. The vast majority of the effort centered around sweeping the Puʻu Ki units mauka of

Hāna Ranch and east of the Hāna Core. This is the third round of comprehensive coverage in the area in the past nine years. The first three of the five Pu'u Ki management units were completed in March. An increased number of mature plants were located on this cycle of sweeps compared to past cycles, suggesting reduced aerial efficacy and/or the need for a more frequent re-entry interval by the ground crew. The data will be examined to adapt aerial and ground strategies to better address controlling plants before flowering occurs. Changes in plant community composition are a likely contributing factor to the increase. Ground crews are reporting more difficult passage due to deadfall of rose-apple, maturing thickets of nearly impenetrable clidemia, and the possibility that aerial treatments are being hampered by growing canopies of African tulip trees.



The ground crew also swept areas adjacent to the Hāna core and makai of Hāna Ranch along the Kawaipapa drainage. This area includes the original miconia introduction site for East Maui. Numerous mature trees were treated in areas accessible only to ground crews due to proximity to Hāna town and tall forest canopies.

There was also some ground crew effort in the Ke'anae, Wailua and Nāhiku areas. Several individual plants were reported by East Maui residents, resulting in follow-up searches and treatment. Five large individual miconia were reported in an extensive hau patch near Pauwalu Point in Ke'anae, a few hundred meters from the ocean in an area that has not historically received much coverage by ground or air. Long-term monitoring in the area will now be necessary. The crew also swept areas of Nu'uailua Stream, near Ke'anae School and the Pi'ina'au Road flats. In the Nāhiku area, extensive ground crew sweeps were initiated in January. Six properties were re-cleared of miconia including numerous small plants and a handful of seeding individuals.

Continued experimentation with alternative treatment methods for miconia occurred in the beginning of 2011 with aerial and ground application in collaboration with Dr. James Leary of the University of Hawai'i CTAHR. Some of the initial results are encouraging and experimentation will continue. Once reliable and efficient methodology is developed, it is anticipated that Dr. Leary's methods will be useful on very steep slopes and in high density roadside applications such as the Hāna Core.

Miconia aerial operations covered 2,238 acres during five days of operation, a significant decrease in effort from past years. Operations were concentrated in the following areas: Hāna Ranch, Olopawa, Honomā'ele, Honolulu, and Wailua. Most mature plants were controlled in the Hāna Ranch (37 mature plants) and Olopawa (32 plants) areas. An additional 35 mature plants were controlled in the Hāna Core. Strategic planning is underway to evaluate options for miconia aerial operations, given the likelihood of significant reductions in funding after August. The miconia aerial strategy has been to cover each aerial management unit within an 18-month interval. With the expectation of decreased funding for aerial control, the strategy has shifted to only targeting areas that have had plants, which means that reconnaissance surveys are not being done in likely miconia habitat. Another scale-back option includes working only in buffer zones around high-value natural areas, such as Haleakalā National Park, or Natural Area Reserves. Strategic decisions will be based on a cost analysis, with careful consideration as to what the long-term cost will be for any failure to detect new populations.

PLANT DATA JANUARY 1 TO MARCH 31, 2011

Maui

| Target Species | Plants Controlled | | Total | Acres Inventoried |
|---------------------------------|-------------------|---------------|---------------|-------------------|
| | Mature | Immature | | |
| <i>Arundo donax</i> | 2 | 0 | 2 | 35.97 |
| <i>Coccinia grandis</i> | 25 | 841 | 866 | 1,755.23 |
| <i>Cortaderia</i> | 12 | 113 | 125 | 725.04 |
| <i>Cryptostegia grandiflora</i> | 0 | 0 | 0 | 10.96 |
| <i>Melastoma candidum</i> | 0 | 0 | 0 | 2.27 |
| <i>Miconia calvescens</i> | 250 | 42,891 | 43,141 | 2,953.51 |
| <i>Pennisetum setaceum</i> | 3 | 2 | 5 | 345.84 |
| <i>Pittosporum undulatum</i> | 7 | 0 | 7 | 15.56 |
| <i>Rhodomyrtus tomentosa</i> | 0 | 0 | 0 | 5.36 |
| <i>Rubus ellipticus</i> | 0 | 0 | 0 | 3.89 |
| <i>Silybum marianum</i> | 0 | 185 | 185 | 65.36 |
| <i>Acacia podalyriifolia</i> | 0 | 0 | 0 | 4.36 |
| <i>Macaranga mappa</i> | 0 | 0 | 0 | 2.27 |
| <i>Macaranga tanarius</i> | 0 | 0 | 0 | 72.73 |
| <i>Maclura pomifera</i> | 0 | 11 | 11 | 3.82 |
| <i>Melastoma sanguineum</i> | 0 | 0 | 0 | 0.25 |
| <i>Pittosporum viridiflorum</i> | 3 | 1 | 4 | 69.07 |
| Grand Totals: | 302 | 44,044 | 44,346 | 6,071.49 |

PLANT DATA JANUARY 1 TO MARCH 31, 2011

Lanai

| Target Species | Plants Controlled | | Total | Acres Inventoried |
|----------------------------|-------------------|--------------|--------------|-------------------|
| | Mature | Immature | | |
| <i>Coccinia grandis</i> | 33 | 1,506 | 1,472 | 271.62 |
| <i>Pennisetum setaceum</i> | 21 | 61 | 82 | 468.13 |
| Grand Totals: | 54 | 1,567 | 1,554 | 739.75 |

BANANA BUNCHY TOP VIRUS

Comprehensive surveys of Makawao and Kahului were completed this quarter and results were very encouraging. Since MISC first began to survey Makawao in 2004, there has never been more than a three percent prevalence of bunchy top found. In Kahului, data for the last two years reveals that four percent prevalence was the highest. These findings are quite encouraging given that over 1,000 properties in Makawao and 500 properties in Kahului are surveyed each year.

Work also occurred in Ha'ikū, Lahaina, Wailea, and Kihei this quarter. Six hundred and thirty-one properties were accessed on Maui. No work occurred on Lāna'i during this quarter. Of the 48 Maui sites that were found to have bunchy top, 24 were treated. The remaining sites will be treated next quarter pending resident / owner permission



The following table summarizes the number of sites accessed and sites with BBTV by region this quarter.

| | <i>Sites Accessed</i> | <i>Sites With BBTV</i> |
|--------------|-----------------------|------------------------|
| Ha'ikū | 1 | 0 |
| Kihei | 207 | 29 |
| Makawao | 91 | 5 |
| Lahaina | 1 | 1 |
| Wailea | 2 | 2 |
| Kahului | 329 | 11 |
| Total | 631 | 48 |

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.

LITTLE FIRE ANTS

Little fire ant survey activities were curtailed this quarter based on Cas Vanderwoude's recommendation. The ants are typically less active during the winter months and therefore less likely to be detected. Two hotel sites and one residential site were surveyed and 126 samples taken. No LFA were found. More intensive sampling will resume as the weather warms up and MISC moves forward to complete sampling on the originally identified high-priority site list.

Vertebrate Status

COQUI FROGS



MISC staff continued to focus on known infested areas this quarter, but several single-frog interceptions also occurred. As a result of resident reports, one frog was caught at a well-known Wailea hotel and another at a popular upcountry nursery, highlighting the need for continued vigilance and public awareness. On average, MISC receives sixteen reports of coqui at previously unknown locations each quarter; at least as many reports of activity at known locations are also received.

In Māliko Gulch, control efforts continued in the residential area near Kaluanui Road, the upper third of the gulch, and the lower third of the gulch. The once heavily infested residential area (nearly eighty acres) now has only a few pockets of frogs covering less than two acres. The upper and lower thirds of the gulch are on a four to six week revisit schedule and progress is very encouraging. Most of the necessary infrastructure is in place in those areas and frog numbers appear to be on the decline.



At two of the other five remaining population centers, control efforts have become much more effective now that the managers of those properties are allowing crews to treat the area(s) with citric acid. This is a much more effective tool than hand capturing when there are more than a couple of frogs present. Fewer than five coqui have been heard at two of the remaining three sites in the past few months. Unfortunately, quite a few coqui were heard at the fifth population center recently. It appears that this is the result of reinfestation from off-island plant stock.

In preparation for the summer season, MISC received and unloaded two containers of citric acid (nearly 80,000 lbs.) and stored it at our Māliko facility. Adam Radford and Mike Ade worked with the owners of our Māliko storage facility to develop and implement a weed management plan for the property.



This quarter:

- Crews made 89 separate visits to 48 frog-infested areas or suspect locations.
- Seventeen new reports were received and all had follow-up.
- MISC crews spent 390 hours at a variety of locations working on frog control.
- 34,188 lbs. of citric acid were used, mostly in Māliko Gulch.
- One hundred pounds of citric acid were also distributed to Māliko area residents who wanted to help with control efforts.

SNAKES

This quarter, Darrell Aquino and Adam Radford were part of a nine person team that participated in the USGS brown treesnake rapid response training in Guam. The intent of the training is to create a network of individuals who are ready to assess snake reports and respond appropriately anywhere in the Pacific. The three-week long course familiarized participants with snake handling, search techniques, and trapping methods. With a reduction in trained searchers as a result of HDOA layoffs, the course essentially doubled the capacity of the existing rapid response team for the state.

VEILED CHAMELEONS

No veiled chameleon activity occurred this quarter.

MITRED CONURES

No conure control activity occurred this quarter.

OTHER VERTEBRATES

Two rabbits were removed from Haleakalā Ranch. Two additional rabbits were spotted in Kula and the owners of those animals were asked to recapture them. No subsequent sightings have been reported.

MoMISC Activities

During the report period MoMISC continued to do maintenance and monitoring on five priority species: rubber vine (*Cryptostegia madagascariensis*), Australian tree fern (*Cyathea cooperi*), albizia (*Falcataria moluccana*), New Zealand flax (*Phormium tenax*) and tumbleweed (*Salsola kali*). Other species worked on this quarter included: mule's foot fern (*Angiopteris evecta*), brown anole (*Anolis sagrei*), giant reed (*Arundo donax*), banana bunchy top virus, upside down jelly fish (*Cassiopea andromeda*), coqui frog (*Eleutherodactylus coqui*), bo tree (*Ficus religiosa*), tree daisy (*Montanoa hibiscifolia*), fireweed (*Senecio madagascariensis*) and gorse (*Ulex europaeus*). A total of 526 acres were surveyed, 335 pests controlled, and 56 hours contributed by partners.

Some highlights of control work included:

- Survey and removal of two mule's foot ferns reported to MoMISC by Steve Perlman and Hank Oppenheimer. The ferns were spotted in a remote gulch in the Moloka'i Forest Reserve and were difficult to get to. MoMISC, with the help of staff from Pono Pacific, located the two ferns and manually removed them. A buffer area was surveyed around the infested site.
- MoMISC worked on BBTV which is still confined to the Kualapu'u and Ho'olehua Districts. A total of 66 plants were treated.
- MoMISC also treated 159 tumbleweed plants and manually removed 41 fireweed plants from an organic ranch in east Moloka'i.
- There was no detection of arundo or gorse this quarter.
- MoMISC is working with a new owner of a plant nursery to prevent coqui frogs from establishing on Moloka'i. The nursery owner is importing plants from the Big Island and is allowing MoMISC to check the plants upon arrival on Moloka'i. MoMISC helps unload the plants onto tarps laid out on the ground and waters the plants to see if any coqui jump out. MoMISC listens for coqui calls for two nights after a shipment arrives. On the third day the plants are released to the public with a card attached to the plants alerting purchasers that the plants come from coqui-infested areas and if they hear coqui to call MoMISC.
- MoMISC also supported a team from HDOA working on bee diseases. The team used the TNC facility on Moloka'i to examine and store hives.