



Quarterly Report to the MISC Committee
FY 2014, First Quarter
July 1 to September 30, 2013

Manager's Report

Pā i ke kumu

Struck the base. There is something that prevents progress.
A *kumu* is a large stone set in the way to stop the rolling of a *maika* stone.

There is a very large stone in our midst that is not only preventing progress; it is rolling us backward.

The number of coqui frog reports MISC has received over the last nine months is already three times what it was for each of the past two calendar years. If we were to take an optimistic viewpoint, we could say more reports are simply a function of increased public awareness. While the nature of our work requires a high degree of optimism, we don't think that's what's happening. Anecdotal evidence of increased coqui numbers on O'ahu suggests that more frogs are getting through our inter-island quarantine system.

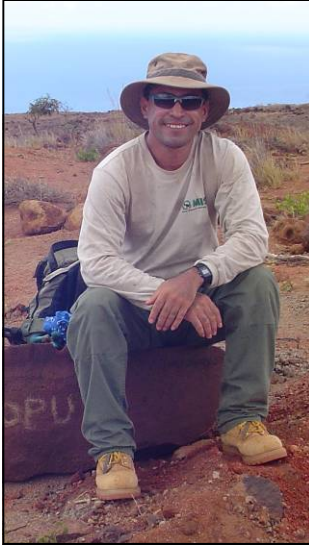
And that's not all. MISC has learned that little fire ants are regularly being detected in shipments of cut flowers and fruit from the Big Island to Maui. We know they are incredibly difficult to detect and we know that our Hawai'i Department of Agriculture is understaffed and underfunded. Our concern is growing that the little fire ant is moving between islands and becoming established on Maui and other Hawaiian Islands.

Unfortunately, MISC's funding levels are the lowest they have been in years, which translates to a reduced capacity to respond to new reports while making forward progress on existing infestations.

What are some of the options for moving a large stone? Use heavy equipment, pry it, roll it, and push it. Stay tuned. We plan to explore each and every one of those options. As always, success will require a lot of help. You can start with a bumper sticker.



Staff Spotlight



MISC is always a place of change. This quarter we said “mahalo” and “a hui hou” to Abelardo Rojas and Matt Pratt. Abelardo joined the plant crew in August 2011 bringing with him a strong background in science and data processing. Matt joined us in October 2011 after his AmeriCorps stint with the Hawai‘i Department of Land and Natural Resources. Both Abelardo and Matt worked on the plant crew and were total troopers as far as willingness to do week-long trips into West and East Maui to knock back pampas grass. Abelardo was a regular on West Maui trips, often camping at precarious locations. Matt participated in most of the East Maui Honomanū trips and was always willing to venture in to new uncharted territories in search of the white plume. Matt also made a great “giant” little fire ant,

gamely prancing about in the costume at public events, including the Makawao 4th of July parade. Abelardo capped his time with MISC with some intensive chain saw work on Kaho‘olawe and a day of helicopter operations. We will miss their can-do attitudes and positive approach to our work. Remember, you two, you can never really leave MISC...



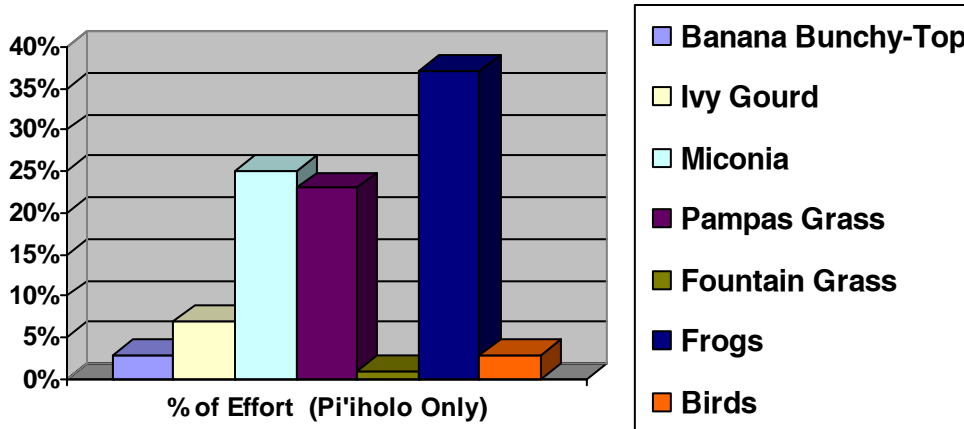
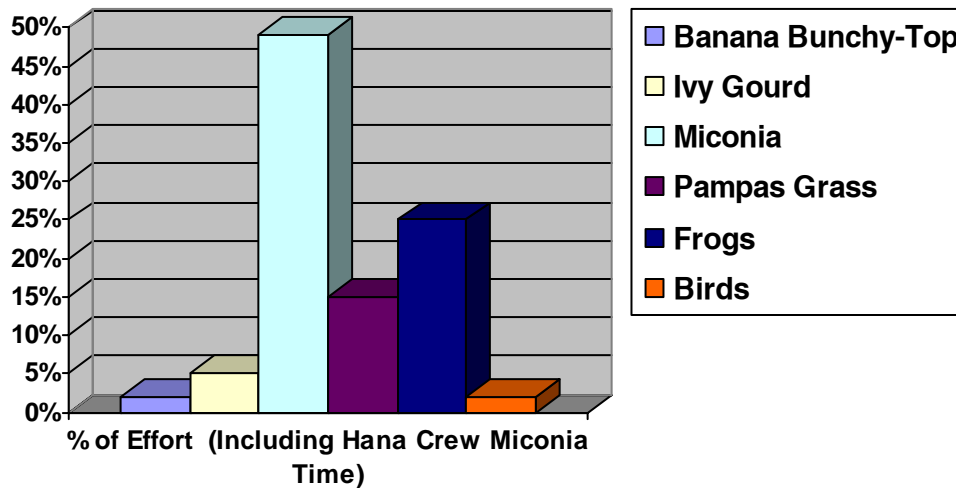
Quarterly Highlights

- July 1: Teya, Lori, & Kanalu attend HISC meeting on O‘ahu and meet with DLNR Chair Aila
- July 6: Makawao 4th of July Paniolo Parade
- July 10: Teya, Adam & Kanalu attend Maui Deer Working Group meeting
- July 11: Teya to O‘ahu for ISC Managers meeting
- July 16-18: Hawai‘i Conservation Conference
- July 23-26: Crew to Honomanū for pampas grass control

- Aug 1: Teya, Elizabeth, & Linda Hara (PCSU) meet with DWS
- Aug 5: Teya & Adam meet with DOFAW staff
- Aug 6: Teya & Lori to O‘ahu for ISC & DLNR meetings
- Aug 7: Elizabeth & Lissa attend HTA grant meeting/workshop
- Aug 8: Lori attends East Moloka‘i Watershed Partnership meeting
Teya, Mike, Forest, & Kim attend naio thrips meeting at DLNR/DOFAW

Aug 15: Agricultural Leadership Workshop at MISC
 Aug 16: Discovery Channel filming of miconia helicopter operations
 Aug 16-17: Hō'ike o Haleakalā teacher workshop
 Aug 19: Teya to Moloka'i for MoMISC meeting
 Aug 20-22: Teya to O'ahu for Plant Health Plan, DLNR, & HISC Resource Working Group meetings

Sept 3: Teya to O'ahu for CGAPS Meeting
 Sept 16: Teya & Lori to O'ahu for HISC Resources Working Group meeting
 Sept 20: Teya to O'ahu for HCA meeting
 Sept 24-27: Crew to Kaho'olawe



MISC IN THE NEWS

This quarter three unsolicited articles related to MISC ran in the *Maui News*. Coqui reporting and the coqui-free certification program were highlighted in the “Ask the Mayor” column, Akakū issued a press release about the “Walk of Heroes” award presentation at which Teya Penniman was an honoree, and finally, Fern Duvall and Teya were interviewed for an article about wild lovebirds in Kihei.

The July Kia’i Moku column in the *Maui News* covered efforts to protect rare native land snails from invasive predators. The August article highlighted the human health threat from invasive species, specifically the potential for introduction of a new species of mosquito known for transmitting dengue fever, and the September article was a species profile of *Chromolaena odorata*, devil weed, and the work being done on O’ahu to contain it. This article generated other media activity. After it was published on our blog and promoted on Facebook, O’ahu news outlets picked up the story and staff from the O’ahu Invasive Species Committee were interviewed about their work on Hawai’i News Now.

| Article Date | Article Name | Topics Discussed | Audience Reached |
|--------------|---|---|-------------------------------------|
| July 29 | Maui News-Ask the Mayor column | Coqui frogs, coqui-free certification program | 16,000 Maui News |
| August 8 | Akakū Walk of Heroes press release | Coqui, little fire ants | 17,000 Maui News and Maui Weekly |
| September 8 | Maui News: It's a love-hate relationship when it comes to lovebirds | Caged birds | 22,000 Maui News |
| Kia’i Moku | Article Name | Topics Discussed | Audience Reached |
| July 14 | Kia’i Moku: Hawaiian land snails varied in color and shape | Protecting snails from invasive species | 22,000 Maui News |
| August 11 | Kia’i Moku: Ongoing surveys best way to detect dengue-carrying mosquito | How invasive species threaten human health | 22,000 Maui News |
| September 8 | Kia’i Moku: Devil weed-one of the world’s 100 worst invaders | Early detection | 22,000 Maui News |
| | | Total articles/reach: | 6 articles in 2 publications |

REACHING OUT TO THE COMMUNITY

Events & Presentations

MISC participated in the Makawao Paniolo Parade over the 4th of July holiday weekend. The popular community parade draws quite a crowd. This year MISC built a float using native rainforest plants to highlight our work protecting the watershed from invasive species such as pampas grass.



Akakū, the local community access station, annually highlights community leaders in their “Walk of Heroes” award ceremony. This year MISC Manager Teya Penniman was selected as an honoree alongside Governor Neil Abercrombie and cultural practitioner Kimokeo Kapahulehua. The induction ceremony included a pre-recorded interview and honorees left footprints and handprints in cement outside the Akakū studio.

MISC staff gave two presentations at the Hawai‘i Conservation Conference this year. Lissa Strohecker gave a presentation on little fire ant outreach efforts on Maui and throughout the state. Brooke Mahnken discussed differences in infestation levels, strategy and results for fountain grass and ivy gourd on Lāna‘i and Maui. Teya Penniman talked with influential agricultural leaders from throughout the state during a MISC visit by the current cohort of the Agricultural Leadership Program.

| Date | Event | Topics | Audience Reached |
|-----------|------------------------|-------------------------------|-----------------------------|
| July 6 | Makawao Paniolo Parade | Watersheds, pampas grass | 1,000 |
| August 10 | Akakū Walk of Heroes | Coqui frogs, little fire ants | 150 |
| | | Total: | 1,150 Maui residents |

| Date | Presentation | Topics | Audience Reached |
|-----------|--|---------------------------|----------------------|
| July 16 | Hawai‘i Conservation Conference: little fire ant outreach presentation | Little Fire Ants | 150 Statewide |
| July 17 | Hawai‘i Conservation Conference: presentation on removal efforts for fountain grass and ivy gourd on Lāna‘i and Maui | Fountain grass, ivy gourd | 100 Statewide |
| August 15 | Ag Leadership Program presentation at MISC | | 15 Statewide |
| | | Total: | 265 Statewide |



Media

The little fire ant PSAs as well as a miconia PSA continued airing on the Maui County public access station, Akakū, throughout the quarter.

| Date | Media | Topics | Audience Reached |
|----------------|---------------------------------------|---------------------------|-------------------------------|
| July 1-Sept 30 | Public Service Announcements on Akakū | Little fire ants, miconia | Maui County cable subscribers |
| July 1-Sept 30 | Huliau Videos on Akakū | Coqui frogs, miconia | Maui County cable subscribers |
| | | Total: | 52,600 Maui residents |

The video team worked on fine-tuning the 30-minute little fire ant video, making adjustments to sound levels, credits, and transitions. A “dry run” showing was conducted at Seabury Hall’s new performance building to test how the video will look on a large screen in preparation for a premier, currently slated for early January. The draft video has been viewed by a number of “focus groups” for input and suggestions. Additionally, work is nearly complete on a shorter version focused on impacts of the little fire ant elsewhere in the Pacific.

Internet

There were a total of 8,463 page/post views at five MISC sponsored and maintained Internet sites. These numbers reflect the number of times web pages and blog/Facebook posts were clicked on and viewed. Of note this quarter, there was a peak in blog views for the article on devil weed on O’ahu. Additionally, MISC has reorganized its YouTube channel to create a YouTube One channel complete with playlists. MoMISC outreach staff participated in the vetting of a new website.

| Website | Topics | Page/Post Views |
|-----------------------|--------------------------|------------------------------|
| Facebook Fan Page | Coqui, miconia, pampas | 283 |
| MISC You Tube Channel | Coqui, miconia, pampas | 561 |
| mauiisc.org | General MISC information | 930 |
| lfa-hawaii.org | Little fire ant | 1,342 |
| hoikecurriculum.org | Environmental education | 2,283 |
| coquifreemaui.org | Coqui frogs | 98 |
| | Total: | 8,463 page/post views |

MISC IN THE CLASSROOM

MISC prepared and gave an intensive 3-day workshop on the Hō’ike o Halaekalā Curriculum to seven teachers. The workshop occurred on August 16, 17, and 24th. Lessons covered included: Introducing Invasives; Halaekalā Detective Work; Timeline; Raindrops and Watersheds; Axis Deer Debate; Plague on Our Shores; and Finding the Little Fire Ant. This workshop was done in partnership with the Hawai’i Department of Education allowing teachers to receive credit towards a pay raise for participation. On August 17th teachers took a field trip into The Nature Conservancy’s Waikamoi preserve to see an example of an intact native forest.

MISC had two student activities this quarter; both focused on the impact of invasive species on watersheds.

| Date | School/Group Visited | Topic | Participants Reached |
|--------------|---|---|--|
| August 16-24 | Teacher Development Workshop | Little fire ant, axis deer, invasive species | 7 |
| August 29 | PYCC: Watershed in a box, native plants artwork | Watersheds, threat of invasive species | 10 |
| September 25 | Ha'ikū School: 2nd grade, MISC & watersheds | Introducing Invasives: general invasive species information, watershed impact | 73 |
| | Total: | 3 activities | 90 participants in 3 activities |

Plant Updates

PAMPAS GRASS (*Cortaderia jubata* and *C. selloana*)

The crew made one final trip into Honomanū (East Maui) for the season. Using the new “buffer” method (searching around areas known to have had plants), five immature plants and one mature plant were controlled. In the Upcountry area of Maui, field crews visited 27 *Cortaderia jubata* residential sites and controlled 73 immature and five mature plants at six of those sites. There were also seven *Cortaderia selloana* sites visited with no plants found. The crew worked for nine days on backcountry sweeps, which included parts of Polipoli State Park, Haleakalā Ranch property, and a new site near the Kaheawa Windmills. During these surveys, 57 immature pampas plants were controlled along with one mature plant.



DLNR controlled one pampas grass plant at a new location in the West Maui Mountains while they were working in the area. MISC field crew did a ground sweep of the area where the DLNR crew discovered the plant and no additional plants were found. At a different location to the north, a second plant was controlled by the DLNR crew and MISC is waiting for the ground coordinates to conduct follow-up surveys.

In addition to the work completed on the ground, there were a significant number of days that plants were surveyed for and controlled by helicopter. In West Maui, there were six reconnaissance flights and ten spray missions with a total of 577 immature pampas plants and 520 mature plants controlled. On East Maui, there were three reconnaissance flights and three spray missions with a total of seven immature pampas plants and 52 mature plants controlled.

FOUNTAIN GRASS (*Pennisetum setaceum*)

Control continued at the Pukalani site with 36 immature plants controlled and no mature plants found. The Kahakuloa site had two immature plants that were both controlled. At two different Kihei sites, a total of two mature and 13 immature plants were controlled. No plants were found at any other sites this quarter.

IVY GOURD (*Coccinia grandis*)

Maui Meadows continues to be the most active management unit for ivy gourd. The re-visit schedule is presently set at two-month intervals. Out of 156 active sites, 29 locations had plants found and controlled. Over the past year no viable fruit was discovered at any known site.

MICONIA (*Miconia calvescens*)

Miconia sweeps were completed in several management units including: East Wailuaiki Makai, Kāliae Rainbow Ridge, Kekuapawela, Waiohue, Pua'a Ka'a, Hopenui, and Honoluluui Makai. Long hikes into and out of East Wailuaiki Makai combined with thick native vegetation made the going slow in this unit. A substantial number of plants in a range of sizes were found. Crew checked old plant points in Kekuapawela and did not find any plants. The remainder of the unit is fairly open and will be surveyed by helicopter. A lot of plants in Pua'a Ka'a were found in the hau under the eucalyptus canopy. The crew is currently working in Mike Behren's Lower Nāhiku, and Smiths Nāhiku units. To date, plant counts in Smiths Nāhiku unit have been unexpectedly high. A total of 140 mature and 8,773 immature plants were controlled by ground crews this quarter while covering 246 acres.



Seven days of herbicide ballistic technology (HBT) helicopter work occurred this quarter. Suppression of "outlier" infestations and coverage of likely habitat outside of heavily infested "core" areas continued to be the top priority for operations on Maui. Efforts were focused on "priority areas" that have historically had plants. Operations in areas that have been intensively covered are now taking less time, allowing for continued expansion of the search area during each fuel cycle. All locations that previously had spray ball work (an alternative treatment method to HBT) will be visited over the next few operations. Only nine mature plants were found this quarter; an additional 577 immature plants were also removed.

OTHER PLANTS

- Queensland silver wattle (*Acacia podalyriifolia*): the last known silver wattle plant on Maui was controlled when the property owner granted access permission.
- Spanish heath (*Erica lusitanica*): field crew controlled 230 plants (three were mature) along the north and south forks of the Wai'ale Gulch (Haleakalā Ranch) site. The re-visit frequency was changed to three months (from 12 months) due to the number of plants found this quarter. Twenty-one acres were surveyed.
- Parasol leaf tree (*Macaranga tanarius*): eighteen plants were controlled at two nurseries in Kihei and Wailuku to limit movement of this species to new locations on the island via landscape containers. Parasol leaf tree is well established on West Maui.
- Osage orange (*Maclura pomifera*): nineteen root suckers were controlled.
- Cape pittosporum (*Pittosporum viridiflorum*): crew controlled three immature plants.
- Monitoring of sites that have had milk thistle (*Silybum marianum*) and water wattle (*Acacia retinodes*) continued but no plants were found.

EARLY DETECTION

Early detection work this quarter focused on completion of a botanical survey of Keālia Pond National Wildlife Refuge, with an emphasis on potentially habitat-altering incipient invasive plant species. Surveys identified many potential control targets and nearly tripled the known plant species at Keālia Pond, with 157 plant species now known from this Maui refuge.

Fireweed plots were monitored in early August and late September. The fireweed biocontrol moth (*Secusio extensa*) has been released, but to date none have been found in the wild. The moths are being reared through a couple generations to get a better understanding of the moth's lifecycle and habits.

A number of new State, National Park, and High Elevation Records were documented this quarter during flora and fauna survey work along the Haleakalā National Park roadside and parking lots.

New State Records

- Dipsacaceae (unknown purple wildflower) - Dipsacaceae
- *Galium* sp. (bedstraw) - Rubiaceae
- *Matricaria discoidea* (pineappleweed, wild chamomile) - Asteraceae

New Park Records

- *Alternanthera pungens* (khaki weed) - Amaranthaceae
- *Cytisus palmensis* (broom, Tagasaste) - Fabaceae
- *Ehrharta erecta* (panic veldtgrass) - Poaceae
- *Lactuca sativa* (prickly lettuce)

High Elevation Records

- *Alternanthera pungens* (khaki weed) - Poaceae
- *Ehrharta erecta* (panic veldtgrass) - Poaceae
- *Polygonum aviculare* (prostrate knotweed) – Polygonaceae

The Hawai'i plant and insect identification sites on Flickr continue to receive regular reports. To date the sites have helped with about 2,000 identifications, many of which are uncommon, and a few of which have turned out to be new records.

BANANA BUNCHY TOP VIRUS (BBTV)



The focus of BBTv survey efforts this quarter continued to be on properties that were known to have recently had BBTv and small farms. Unfortunately, several small farms, including one with a diverse collection of rare banana varieties, were found to have BBTv. All infected plants were removed from the farms.

This quarter 250 properties were visited on Maui and 190 of these were surveyed for BBTv. Of the 23 that were found to have bunchy top, 19 were treated. The remaining sites will be treated next quarter pending resident/owner permission. One hundred thirty-six hours were spent on banana bunchy top virus suppression.

| Common Name | Island | Mature Plants Controlled | Total Plants Controlled | Acres Surveyed |
|--------------------------|----------|--------------------------|-------------------------|----------------|
| Miconia | Maui | 149 | 9,499 | 5,353 |
| Pampas grass | Maui | 579 | 1,298 | 8180 |
| Ivy gourd | Maui | 15 | 266 | 271 |
| Fountain grass | Maui | 2 | 53 | 61 |
| Osage orange | Maui | 0 | 19 | 2 |
| Milk thistle | Maui | 0 | 0 | 27 |
| Water wattle | Maui | 0 | 0 | 5 |
| Parasol leaf tree | Maui | 3 | 18 | 36 |
| Spanish heath | Maui | 3 | 230 | 21 |
| Queensland silver wattle | Maui | 0 | 1 | 1 |
| Cape pittosporum | Maui | 0 | 3 | 24 |
| | | | | |
| Rubber vine | Moloka'i | 1 | 6 | 9 |
| Mule's foot fern | Moloka'i | 5 | 14 | 99 |
| Fireweed | Moloka'i | 0 | 0 | 373 |
| Tumbleweed | Moloka'i | 562 | 569 | 79 |
| Barbados gooseberry | Moloka'i | 0 | 28 | 14 |
| Miconia | Moloka'i | 0 | 0 | 2,158 |
| Pampas grass | Moloka'i | 0 | 0 | 21 |
| Black wattle | Moloka'i | 80 | 450 | 39 |
| Gorse | Moloka'i | 0 | 0 | 10 |
| Bo tree | Moloka'i | 0 | 5 | 82 |
| Kudzu | Moloka'i | 0 | 0 | 7 |
| Tree daisy | Moloka'i | 1 | 22 | 5 |
| Himalayan ginger | Moloka'i | 0 | 0 | 156 |
| | | | | |
| Total | | 1,400 | 12,481 | 17,033 |

Vertebrate Status

MISC's vertebrate crew is officially celebrating the removal of coqui frogs from another population center this quarter. After a one-year waiting period since the last frog was heard, a Wailea population is off the active list. This brings the number of population centers where coqui have been successfully removed to 12. MISC considers a population center to be a place where more than five coqui are heard. Six populations remain on Maui. Solitary coqui were also found and removed from ten locations outside of established population centers this quarter.



The number of new coqui reports is particularly alarming. MISC has already recorded a three-fold increase in the number of new reports for this year compared to two years ago, and the year is not yet over. It seems likely that the increased reports reflect an actual increase in frogs being introduced to Maui, as opposed to simply reflecting a higher public awareness of the problem.



- Crews made 172 separate visits to 92 frog-infested areas, suspect locations, or coqui-free participant businesses.
- Forty new reports and 53 updates from residents in or near population centers were received and all had follow-up.
- MISC staff and volunteers spent 914 hours working on the coqui project.
- 23,798 lbs. of citric acid were used this quarter. Thirty-five pounds of citric acid was given to two Māliko area residents who wanted to help control coqui.
- Crews treated 53 acres of infested area on Maui, mostly in or near Māliko Gulch

CONURES

On Maui fourteen conure control operations occurred this quarter with eleven birds removed from the population. Approximately 15 birds are believed to remain in the Huelo area. A report of parrots in Ha'ikū was also received this quarter; however, it was determined that an area resident removed the birds. One hundred fifty-six hours were spent on bird work.

OTHER VERTEBRATES

MISC responded to a report of a rabbit and conducted an informal assessment of the status of lovebirds in Kihei. The rabbit was removed by an area resident. Lovebirds appear to be widespread in Kihei.

MoMISC Activities

During the reporting period MoMISC continued to conduct education and outreach in the community and updated existing species fliers. With the report of the unintentional introduction of fireweed-contaminated livestock feed, MoMISC created targeted outreach material for ranchers and the general public. Time was spent visiting all landowners/ranchers to apprise them of the threat, share identification and survey techniques, and discuss control strategies. Outreach material was also created for kudzu and apple snail and shared with Wailau Valley residents.

On north Moloka'i, early detection aerial surveys for miconia were conducted in the Wailau Valley. Even though there are no known miconia trees on Moloka'i, this species remains a priority target species for MoMISC because of its highly invasive biological history in Hawai'i and elsewhere. Over 2,158 acres were surveyed by air with no detections.

Other plant and pest work conducted by Molokai this quarter included:

- Pampas grass (*Cortaderia jubata*): pampas grass has not been detected for several years on Moloka'i, but monitoring continued over 21 acres in Maunaloa.
- Rubber vine (*Cryptostegia madagascariensis*): nine acres were surveyed and six plants were controlled.
- Bo tree (*Ficus religiosa*): MoMISC crew swept more than 80 acres for bo tree in central and east Moloka'i. One immature tree was detected and controlled in Kualapu'u and one in Kalama'ula. Three immature trees were controlled in Kaunakakai. Forty-three miles of road were also surveyed in central and east Moloka'i with no detections.
- Tree daisy (*Montanoa hibiscifolia*): five acres were surveyed for tree daisy at the Kauluwai site and one mature and 21 immature plants were controlled.
- Barbados gooseberry (*Pereskia aculeata*): fourteen acres were surveyed for gooseberry in Halawa Valley and 28 immature plants were controlled.
- Tumbleweed (*Salsola kali*): MoMISC surveyed 79 acres for tumbleweed in central Moloka'i. Four hundred and five mature plants were controlled at the Nā'iwa site and 157 mature and seven immature plants were controlled at Pu'u Kanaio in Ho'olehua.
- Black wattle (*Acacia mearnsii*): thirty-nine acres were surveyed for black wattle in the Moloka'i Forest Reserve in partnership with DLNR/DOFAW.
- Mule's foot fern (*Angiopteris evecta*): MoMISC surveyed 99 acres for mule's foot fern in the Moloka'i Forest Reserve. Five mature and nine immature ferns were controlled.
- Himalayan ginger (*Hedychium gardnerianum*): the first known naturalized population of Himalayan ginger on Moloka'i, in the forested conservation lands in Wailau Valley, was detected on a MoMISC early detection aerial survey for miconia. DLNR/DOFAW Maui has been contacted and discussion is ongoing among conservation partners to determine the appropriate response.
- Kudzu (*Pueraria lobata*): seven acres were surveyed for kudzu in Wailau Valley. Several mature rhizomes and plants were detected. No control work was yet been conducted.
- Fireweed (*Senecio madagascariensis*): MoMISC surveyed 373 acres in central, east and west Moloka'i for fireweed. Fireweed is naturalizing on Moloka'i from unintentional introductions of contaminated feed and other pathways. No fireweed was detected during surveys.
- Gorse (*Ulex europaeus*): ten acres were monitored for gorse in the Moloka'i Forest Reserve. No plants were detected.
- Surveys for banana bunchy top virus covered 65 acres in Ho'olehua and Kualapu'u. Sixty infested plants were controlled.
- Just over two acres were surveyed for LFA. MoMISC baited for little fire ants at a nursery that is known to bring in plants from the Big Island, where LFA are now widespread.
- Apple snails (*Pomacea canaliculata*) are not known to be present on Moloka'i. Along with volunteers, MoMISC conducted early detection surveys over six acres with no apple snails detected
- Also, an East Moloka'i resident requested an inspection of naio plants they were importing from O'ahu. Forty plants were inspected with no detection of naio thrips.