

Maui Invasive Species Committee Quarterly Report July through September 2014



Preparing for miconia HBT heliops



Surveying for Little Fire Ants

MISC ACCOMPLISHMENTS: JULY 1, 2014 – SEPTEMBER 30, 2014

Staff from MISC and MoMISC conducted survey and control operations for established and incipient invasive plant, animal, and invertebrate pest species on Maui and Moloka‘i this quarter. A total of 22,726 acres were surveyed by ground and air and 9,294 plants were removed. Thirty-one plant species, five vertebrate species, three invertebrate species, one plant virus, and one plant scale were the focus of the project. An active public education and outreach program reached at least 20,000 members of the Maui and Moloka‘i communities. The following report summarizes work conducted during the period from July through September 2014.

Miconia (*Miconia calvescens*)

Ground operations: Miconia sweeps were conducted in several management units, primarily in the Nāhiku area. A significant number of mature plants were found. The crew responded to several reports from the community. A small miconia plant was reported and controlled along Nāhiku Road. Crew swept the vicinity and found a large seeding tree. Reports from state workers and from a dozer operator also resulted in the discovery and control of several mature seeding plants. The field crew did a survey along an East Maui Irrigation access road in response to a public report, which was a known site on a regular revisit schedule. Immature plants were removed from the area. A total of 192 mature and 3,569 immature plants were controlled by ground crews while covering 283 acres.

Aerial reconnaissance & control: Helicopter work using both herbicide ballistic technology (HBT) and a long-line spray ball occurred over 5,185 acres. Suppression of outlier infestations and coverage of potential habitat outside of heavily-infested core areas continued to be the top operational priority. HBT efforts concentrated on areas that have historically had plants, particularly stand-alone outliers. Initial work around the edge of the Hāna core also occurred. Staff used a spray ball to better contain the core. HBT appears to be a better tool in steep and/or less densely infested terrain, highlighting the benefit of a multi-pronged approach. Aerial reconnaissance along streams and drainages in the Huelo/Kailua area also occurred. A total of 332 mature plants were found, mostly near the core; an additional 1,904 immature plants were also removed by aerial operations.

Annual aerial surveys for miconia on Moloka‘i covered over 7,104 acres; no miconia was found.

Pampas Grass (*Cortaderia jubata* and *C. selloana*)

Ground operations: Backcountry camping trips to East and West Maui started to wind down this quarter. However, helicopter reconnaissance and control ramped up. Pampas is much easier to see from the air later in the year when it is in full flower. Field crews typically control what they can on the ground, a much more thorough approach, while helicopters mop up behind and survey areas that are otherwise inaccessible. A total of 276 plants were removed during ground-based efforts; only nine were mature.

Crews surveyed 461 acres of mostly rough, boggy terrain and ranchland. Field staff controlled 48 immature plants around the Walker Estate (Upcountry Kula) site. On Haleakalā Ranch, a total of 20 plants were controlled, including five immature and one mature (that had dispersed seeds) in the Pu‘u Pahu area, and 14 immature plants in the Pōhakuokala area. Twenty-four immature plants and one mature plant were controlled around the Waikamoi Flume.

Three remote camping trips to East Maui and two remote trips to West Maui took place. The field crew found fewer plants in remote areas than in past years. Pampas grass surveys in the Haipua‘ena area will continue once construction is completed along the Waikamoi Flume. Day drops into remote areas of East Maui also occurred.

Leeward Haleakalā Watershed Restoration Partnership, West Maui Mountains Watershed Partnership, and Department of Land and Natural Resources staff all found, reported and removed pampas grass plants this quarter - excellent examples of cooperative approaches to watershed protection. They reported their finds and data to MISC for inclusion into our master database.

Aerial reconnaissance & control: Helicopter survey and control operations using a long-line spray ball occurred over 6,322 acres of East and West Maui. A total of 367 plants were removed during aerial efforts; 132 were mature. A summary of pampas ground and aerial efforts for the entire 2014 season will be presented in the next report.

Fountain Grass (*Pennisetum setaceum*)

Access to the Pukalani fountain grass site remains open and this population has a rapidly depleting seed bank. No plants were found at the Waiehu Terrace or Maui Lani water tank sites. The field crew has limited access for survey work at the Waiehu Dunes fountain grass location but the area surveyed had no plants. At the Kanaio-Auwahi and all other known sites no plants were found. Crews surveyed 87 acres of previously infested areas with no fountain grass detections.

Ivy Gourd (*Coccinia grandis*)

Kapalua Golf Course had several locations with immature and mature plants (unknown gender) growing in a tree. Maui Meadows and South Kīhei continue to be the most active management units with control focusing on elimination of the existing seed bank (i.e., controlling newly sprouted plants). The MISC crew surveyed a hotel property in the Wailea area and controlled two mature plants and several rooted nodes. MISC’s coqui frog crew found and assisted with control of a mature ivy gourd plant at a lower Māliko gulch location in conjunction with frog control operations. Out of 124 sites visited this quarter, nine locations had plants found and controlled. There are currently 127 actively visited sites. No viable fruit was discovered at any known location this past quarter. A total of 308 plants were removed from 695 acres.

Other Invasive Plants

In addition to monitoring and control of priority target species, staff on Maui and Moloka'i continued to assess candidates for control and functioned as rapid response teams to incipient threats. Mapping and assessment of additional plant species is ongoing with new species added to control lists based on recommendations of subject-matter experts and the MISC and MoMISC Committees. Species added are controlled or eradicated using mechanical or chemical means as appropriate. Numbers of plants, reproductive status, and geospatial information provides the basis for adaptive management strategies.

Highlights for additional plant work from this quarter include:

On Maui

- Queensland silver wattle (*Acacia podalyriifolia*): no plants were found during surveys covering 61 acres.
- Water wattle (*Acacia retinodes*): 61 acres were surveyed and no plants were found.
- Parasol leaf tree (*Macaranga tanarius*): 13 immature plants were controlled during ivy gourd surveys within landscape containers at a nursery located in Waiehu.
- Osage orange (*Maclura pomifera*): no plants were found during surveys.
- Wax myrtle (*Morella cerifera*): stump regrowth was controlled on two plants.
- Red melastome (*Melastoma sanguineum*): no plants were found during surveys.
- Asian melastome (*Melastoma candidum*): no plants were found during surveys.
- Milk thistle (*Silybum marianum*): no plants were found during surveys of the Makawao (Kalama Hill) site.

On Moloka'i

- Quail bush (*Atriplex lentiformis*): over 92 acres were surveyed and 1,043 plants controlled.
- Cat's claw (*Caesalpinia decapetala*): 193 plants were controlled during surveys covering 14 acres.
- Albizia (*Falcataria moluccana*): during surveys covering 41 acres, 35 plants were controlled.
- Long-thorn kiawe (*Prosopis juliflora*): all known long thorn-kiawe trees from Kaupoa to Lā'au Point on West Moloka'i were controlled (169 plants).
- Tumbleweed (*Salsola kali*): MoMISC controlled 248 plants during surveys covering 60 acres.
- Fireweed (*Senecio madagascariensis*): early detection surveys for fireweed covered 211 acres and 489 plants were controlled.

Early Detection

Field work affiliated with Hawai'i Department of Transportation (HDOT) road surveys was completed this quarter and a draft report has been prepared. A Weed Management Cooperative for tumbleweed control appears to be coming together with MISC involvement in concert with SCWA Environmental Consulting, which is managing the HDOT project. An aerial survey was done to delimit the largest tumbleweed populations and get a big picture view of the current status in known locations. Results from this survey were summarized and sent out to key stakeholders. Additionally, a tumbleweed tour was conducted to familiarize SCWA staff with tumbleweed locations, history, and potential management options. Moloka'i staff conducted surveys for coconut rhinoceros beetle, red palm weevil, little fire ants, and hala scale. Fortunately, none were found. The Hawai'i plant and insect identification sites on Flickr continued to be active with 89 plants and 56 insects identified.

Summary of Plant Work

The following table summarizes the number of acres that were surveyed and number of plants controlled. Figures 1 and 2 at the end of this document show locations where plant work occurred on Maui and Moloka'i.

Common Name	Island	Mature Plants Controlled	Total Plants Controlled	Acres Surveyed
Giant reed*	Maui	1	1	5
Ivy gourd*	Maui	13	308	695
Pampas grass*	Maui	141	643	6,783
Miconia*	Maui	524	5,995	5,468
Fountain grass*	Maui	0	0	87
Milk thistle*	Maui	0	0	6
Himalayan raspberry	Maui	0	0	4
Rubber vine	Maui	0	0	1
Parasol leaf tree	Maui	0	13	79
Asian melastome	Maui	0	0	2
Queensland silver wattle	Maui	0	0	61
Water wattle	Maui	0	0	61
Osage orange	Maui	0	0	2
Red melastome	Maui	0	0	1
Bingabing	Maui	0	0	2
Wax Myrtle	Maui	0	2	2
Mule's foot fern*	Moloka'i	0	0	8
Rubber vine*	Moloka'i	0	17	28
Australian tree fern*	Moloka'i	2	2	90
Bo tree*	Moloka'i	0	4	161
Barbados gooseberry	Moloka'i	0	44	19
Tumbleweed*	Moloka'i	195	248	60
Fireweed*	Moloka'i	254	489	211
Miconia	Moloka'i	0	0	7,104
Pampas grass	Moloka'i	0	0	1
Giant reed	Moloka'i	0	0	1
Quail bush	Moloka'i	53	1,043	92
Albizia	Moloka'i	0	35	41
Woodrose	Moloka'i	0	37	4
Tree daisy	Moloka'i	21	33	6
Multiflora rose	Moloka'i	0	4	4
Red mangrove	Moloka'i	0	0	1
Palm grass	Moloka'i	1	14	1
Long-thorn kiawe	Moloka'i	69	169	89
Cat's claw	Moloka'i	0	193	14
Total		1,274	9,294	21,194

*Species listed in the grant proposal.

COQUI FROGS

A major effort to remove frog friendly habitat along the edge of Māliko gulch took place this quarter. Crews cut, chipped and mowed their way through tall grass and trees that were hindering control. Also, many residents along the lower portion of the gulch reported an influx of frogs. In response, MISC crews have been spending a lot of time on properties bordering the gulch and arming residents with spray equipment and citric acid so they can assist in control work.

This quarter:

- Crews made 139 separate visits to 67 frog infested areas, suspect locations, or coqui-free participant businesses.
- Fifty new reports and almost daily updates from residents in or near population centers were received and all had follow-up.
- MISC staff spent 633 hours and volunteers spent 122 hours working on the coqui project.
- 32,141 pounds of citric acid were used this quarter. Sixty-five pounds of citric acid were given to four Māliko area residents who wanted to help control coqui on their own properties.
- Crews treated 38 acres of infested area on Maui (Figure 3).

On Molokaʻi, MoMISC continued to monitor plant nursery imports for the coqui frog with no detections. MISC staff worked at three nurseries to remove coqui frogs and visited several other coqui-free program participant businesses. The coqui-free program recognizes the proactive efforts of plant related businesses to prevent the spread of coqui frogs. There are 30 coqui-free certified businesses on Maui and one on Molokaʻi.

Other Vertebrates

- Three attempts to control mitred conures in the Huelo area occurred. One bird was removed by an area resident, none by MISC or partner staff. Approximately 12 birds were seen during 23 hours of MISC staff observation time and nine hours of partner time. These are thought to be the only wild parrots left in the area.
- Although a veiled chameleon has not been found on Maui since March 19, 2008 a survey of the once infested area and outreach effort was made. Nineteen properties were searched and outreach efforts were focused on 285 properties in and around the area where veileds were found in the past. No chameleons were found or reported.
- MISC staff followed up on a report of lovebirds in Makawao and confirmed their presence. There are no plans to attempt removal as they are already well established in South Maui. Staff also followed up on reports of non-coqui frogs, lizards and other oddities with no notable observations.
- MoMISC staff followed up on a report of a rabbit.

Banana Bunchy Top Virus

This quarter 38 properties were visited on Maui and 25 of these were surveyed (Figure 4). Of the 15 that were found to have bunchy top, seven were treated. The remaining sites will be treated next quarter pending resident/owner permission. Fifteen hours were spent on banana bunchy top virus suppression.

On Moloka‘i, 370 acres were surveyed and 43 infected mats were removed (Figure 2). Sixteen hours were spent on banana bunchy top virus suppression.

Little Fire Ants

Unfortunately, little fire ants were found in Nāhiku this quarter. While sweeping the area for miconia, MISC’s Hāna-based crew noticed they were all getting stung by ants that seemed to be coming from above them. The crew leader immediately suspected little fire ants. He collected samples of the ants and submitted them to MISC’s Early Detection specialists for confirmation. By the next day it was confirmed that little fire ants were present in Nāhiku. Subsequent surveys have started to reveal the extent of the infestation. Efforts to delineate the infested area, develop a treatment strategy with HDOA and the Hawai‘i Ant Lab, and implement a coordinated response are in process.

Over 2,500 ant samples were collected from locations throughout Maui. Most were from Nāhiku and South Maui, where little fire ants have been found. Forty-two acres were surveyed. MISC continues to work collaboratively with HDOA to conduct surveys at other locations where LFA has been detected. At present, this includes one nursery which received infested hapu‘u ferns from the Big Island and one resort in Wailea, where the infestation is very small. Other than Nāhiku, all known sites are under active control.

Considerable time was spent this quarter on the production of an updated little fire ant video for statewide broadcast. In addition, little fire ant PSAs were created for the Hawai‘i Ant Lab to broadcast around the Big Island. Some of the PSAs were targeted with tailored messages to specific regions and reached 77% of the households nearly three separate times, resulting in 89,964 households/individuals exposed to the messages. Radio PSAs about LFA were created and broadcast around Maui on KPOA and KISS reaching an estimated 7,396 listeners.

Date	Media	Topics	Impressions
August 28 – Sept. 28	LFA TV PSAs on Big Island	Little fire ants	89,964
Sept. 15 – Sept. 28	LFA Radio PSAs	Little fire ants	8,320

A “No Aloha for LFA” table was staffed throughout the Hawai‘i Conservation Conference on O‘ahu. It was a cooperative effort by all the Invasive Species Committees to encourage people working in conservation to test their own properties for LFA. Additional little fire ant outreach efforts are noted in the following section.

Public Relations & Outreach

Print Media

Coqui frogs, biocontrol, and partner agencies were featured in MISC's monthly Maui News "Kia'i Moku" column. These articles discussed the increase in coqui frog reports from the public, an update on spread of the *Secusio* moth to control fireweed, and the hundreds of people at work throughout Hawai'i protecting the 'āina.

Article Date	Article Name	Topics Discussed	Audience Reached
July 13	Black caterpillar a promising sight in fight against fireweed	<i>Secusio</i> moth as fireweed biocontrol.	22,000 Maui News
August 10	Coqui: New arrivals seen and heard on the Valley Isle	Calls reporting coqui frogs on Maui are on the rise.	22,000 Maui News
September 14	Pacific Cooperative Studies Unit helps protect the 'āina	On any given day, there are hundreds of people at work throughout Hawai'i to protect the 'āina.	22,000 Maui News

Events & Presentations

This quarter began with a float in the Makawao 4th of July parade. Booths/displays at the Maui Nui Botanical Garden and the Hawai'i Conservation Conference were successful in getting material about the little fire ant out to the public and to the conservation community. Presentations targeted managers at a known coqui population area in Wailea. Training with HDOT road maintenance crews lasted much of a day and included in depth discussions about invasive species vectors, especially for little fire ants.

Date	Event	Topics	Audience Reached
July 6	Makawao 4th of July Parade	General invasive species awareness	1,600 (estimate)
July 12	Maui Nui Botanical Garden Ola Ka Honua	Banana bunchy-top, coqui frogs, coqui-free certification program, fountain grass, ivy gourd, little fire ants, miconia, pampas grass	42
July 16	Hawai'i Conservation Conference: No Aloha for LFA table	Little fire ants	1,000 (conference attendees)
		Total:	2,642

Date	Presentation	Topics	Audience Reached
July 22	Kaunoa Senior Center	Coqui frogs, early detection, little fire ants	16
July 23	Wailea Point Managers	Coqui frogs, little fire ants	4
August 4	Kahului Rotary Club	General invasive species, origin of Hawaiian species	26
September 17	Hawai'i Department of Transportation: SNIPP presentation for the Highway Manual for Sustainable Landscape Maintenance	Invasive species vector mitigation	18
		Total:	64

INTERNET

There were a total of 18,715 page/post views through seven MISC sponsored and maintained websites.

Website	Topics	Page/Post Views
MISC YouTube Channel	Coqui, miconia, pampas, little fire ant	7,142
Facebook Fan Page	Coqui, miconia, pampas, little fire ant	3,099
lfa-hawaii.org	Little fire ant	4,916
coquifreemaui.com	Coqui	347
hoikecurriculum.org	Environmental education	U/A
MauiInvasive.org (Blog)	General MISC information	3,211
	Total:	18,715 page/post views on 6 sites

EDUCATION

MoMISC arranged for 12 class visits in Maunaloa, Kaunakakai, and Kilohana Schools on Moloka'i. This was a great opportunity to increase awareness about LFA throughout the island.

Date	School/Group Visited	Topic	Participants Reached
September 22-24	Moloka'i Schools	Hawai'i is special, little fire ants	341
	Total:	12 class periods	341 students/teachers

LANDSCAPE INDUSTRY

At least five calls asking about invasive plants were fielded by the Weed Risk Assessment Specialist, who is housed at MISC's Pi'iholo baseyard. MISC staff handled approximately 23 additional calls or inquiries. They identified plant and animal species, recommended possible responses, and provided informational materials or references as appropriate. The Weed Risk Assessment Specialist and MISC staff also interacted with members of the Master Gardeners, Landscape Industry Council of Hawai'i, Maui County Farm Bureau and other professional entities.

MISC Target Species Control Activity

July 1, 2014 - September 30, 2014

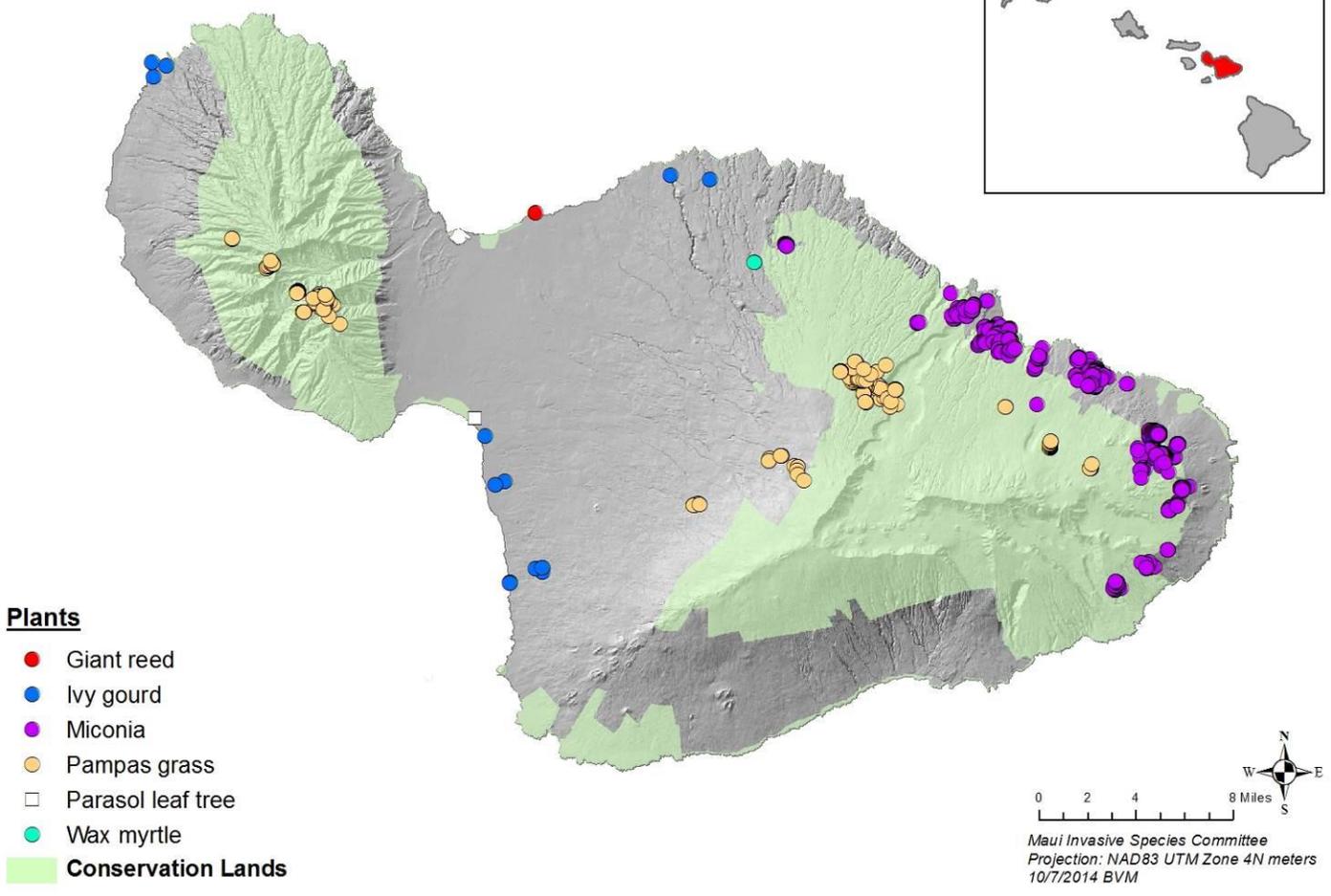
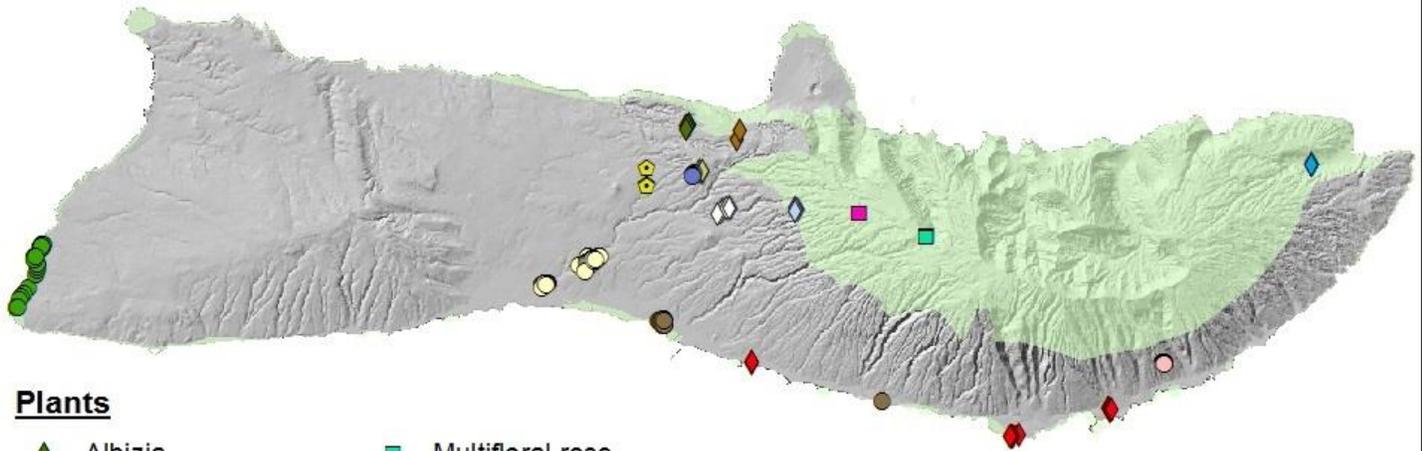
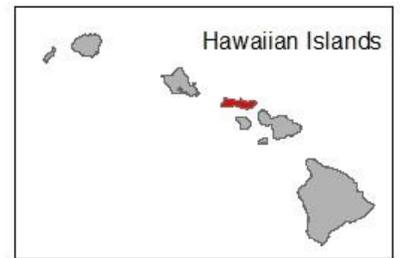


Figure 1

MoMISC Target Species Control Activity

July 1, 2014 - September 30, 2014



Plants

- | | |
|------------------------|--------------------|
| ◆ Albizia | ■ Multifloral rose |
| ◆ Australian tree fern | ■ Palm grass |
| ◆ Barbados gooseberry | ● Quail bush |
| ● Bo tree | ◆ Rubber vine |
| ◇ Cats claw | ◆ Tree daisy |
| ● Fireweed | ○ Tumbleweed |
| ● Long thorn kiawe | ◆ Wood rose |

Plant Pests

- ⬮ Banana bunchy top virus

Conservation Lands

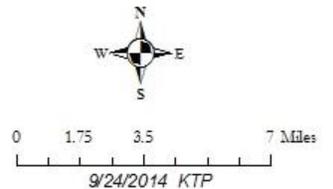


Figure 2

Coqui Control on Maui
July 1, 2014 - September 30, 2014

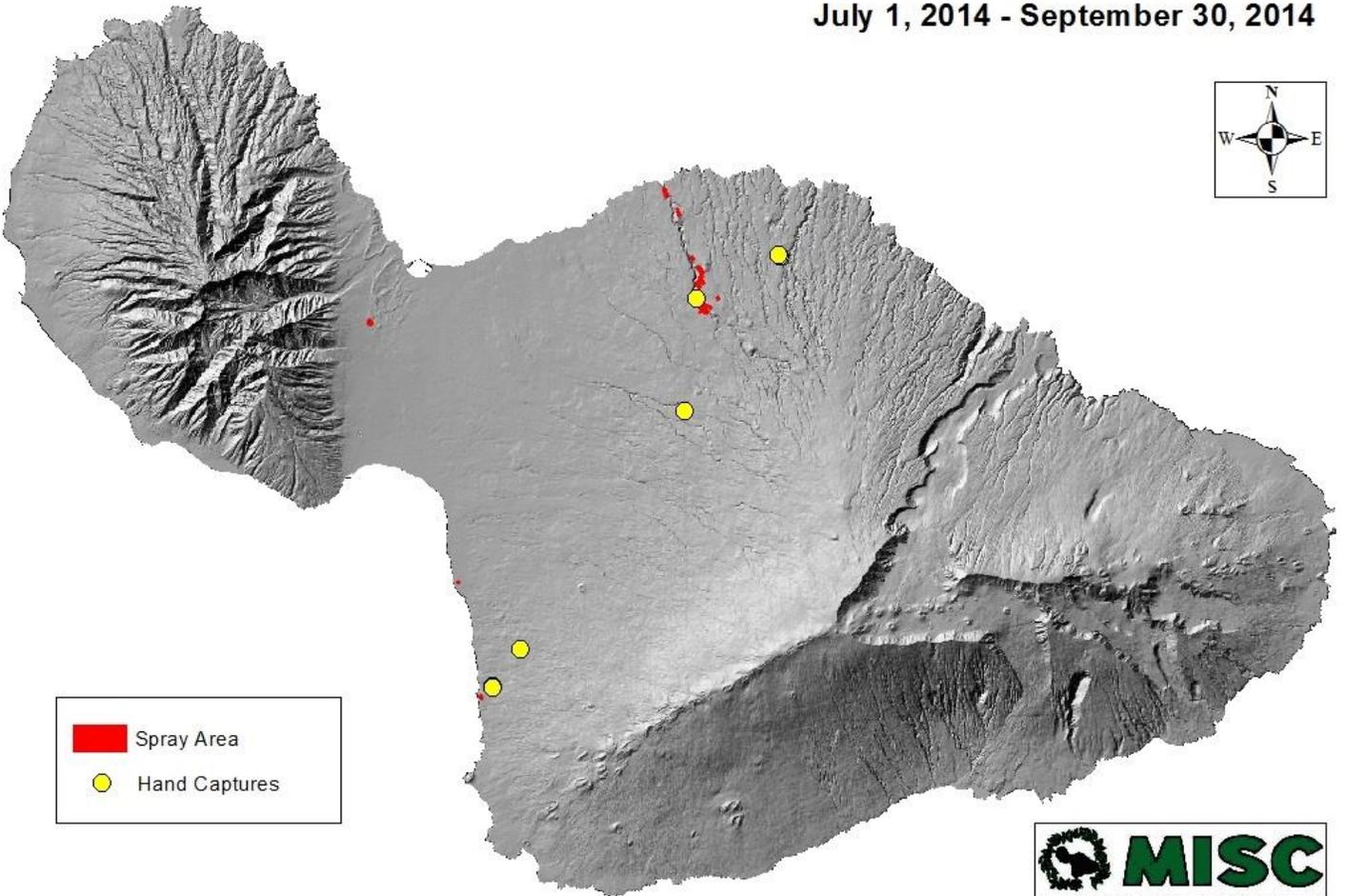
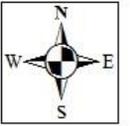


Figure 3

Location of Sites Surveyed and Sites with BBTV July through September 2014

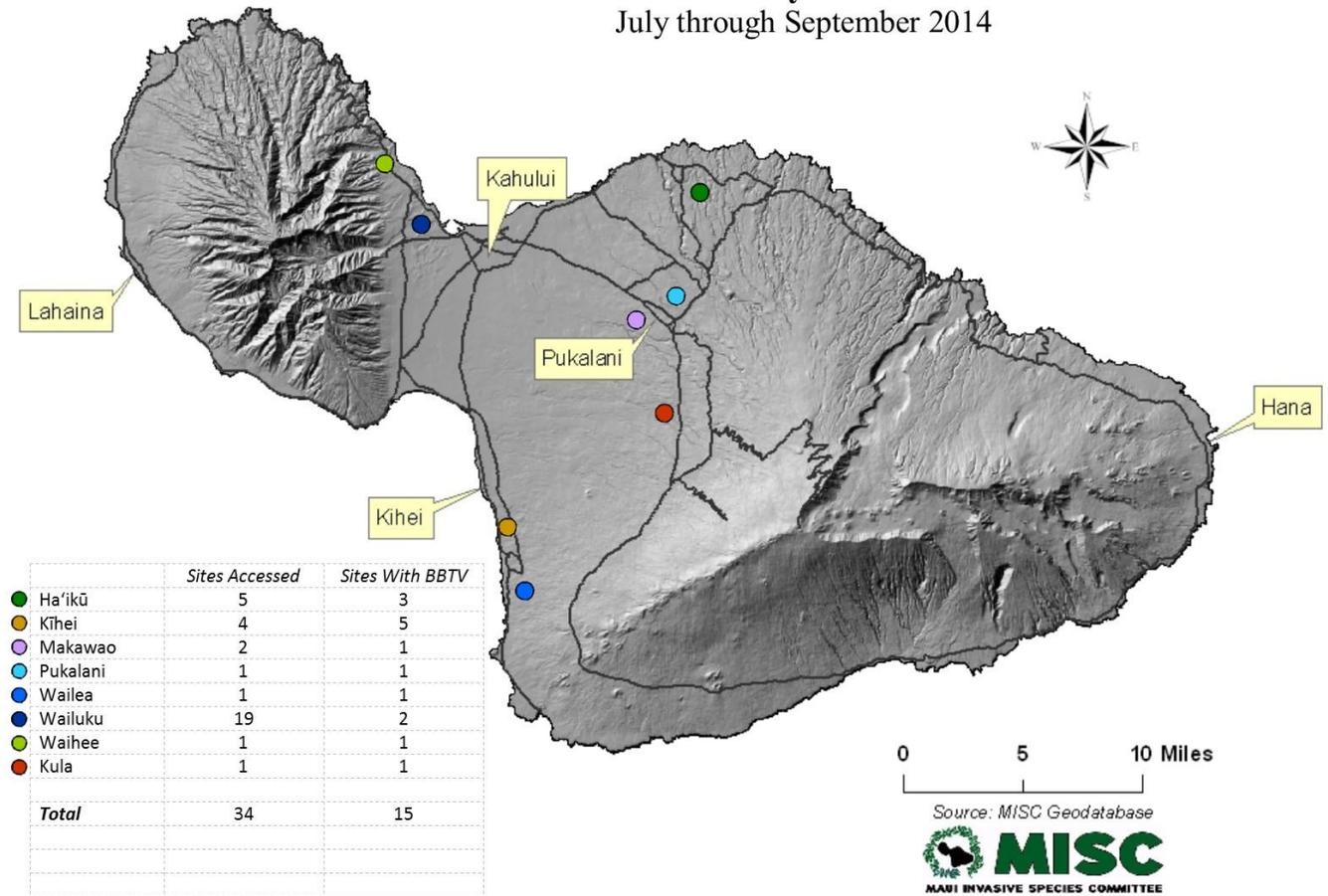


Figure 4