DETECTION & CONTROL OF INVASIVE SPECIES IN MAUI COUNTY
HAWAI’I INVASIVE SPECIES COUNCIL
FINAL REPORT – FY17

Above the clouds - survey work on Haleakalā
INTRODUCTION & OVERVIEW

Invasive species threaten Maui County’s life-giving watersheds, agricultural sustainability, extraordinary biological diversity, and quality of life. HISC funding was critical to the accomplishments outlined in this report. Survey and control operations focused on 46 invasive species, with work occurring on the ground and in the air, on state and federal land, private rural and residential properties, and agricultural lands and ranches. Work targeted 37 plant species, 3 vertebrates, 5 invertebrate pests, 1 plant disease, and 1 aquatic species, and controlled 62,451 plants, 1,000s of coqui frogs and little fire ants, and 1,689 banana trees for BBTV. Crews surveyed 51,653 acres and work encompassed 15,785 hours, including 763 partner-contributed hours and 1,350 volunteer hours. Funding also supported infrastructure for the miconia control program on Maui and robust outreach and education programs. Work was conducted by staff from the Maui Invasive Species Committee (MISC) and Moloka‘i Invasive Species Committee (MoMISC), which are projects of the University of Hawai‘i – Pacific Cooperative Studies Unit (PCSU).

TARGET SPECIES: DELIVERABLES & ACCOMPLISHMENTS

LITTLE FIRE ANTS

Deliverables: Survey at 7 nurseries and 3 new developments; control at new and known sites in partnership with Hawai‘i Department of Agriculture (HDOA) and Hawai‘i Ant Lab (HAL); implement detector dog program.

Accomplishments: MISC and MoMISC staff conducted LFA surveys over 192 acres. The LFA detector dog program has been delayed due to contracting challenges and a focus on controlling new populations. At the close of the reporting period, Maui had 11 LFA infestations, including the largest site in the State, under active control (7 sites) or in a monitoring phase (4 sites). See map on page 13 for locations. The ability to control all infested areas in Nāhiku is restricted by the presence of ants in waterways. Fortunately, all residents in affected areas are supportive of control and alternative control options are being pursued.

Additionally, 11,797 samples were taken throughout Maui County. Sites include 7 nurseries and 3 new developments.

Little fire ant in a macadamia nut
**EDRR CAPACITY**

**Deliverables:** Staff receive training on plant and vertebrate identification.

**Accomplishments:** Identification skills were reviewed during staff meetings and incorporated into requirements for advancement within the projects’ staff progression series. MISC hired the previous brown tree snake rapid response coordinator from Guam as the program Operations Manager. Staff received training on invasive slugs and snails from malacologists from Bishop Museum.

The Hawai’i Plant and Insect ID sites on Flickr continue to provide free identifications to conservation professionals and the general public. In the last quarter there were 286 plants and 55 insects identified.

MISC’s Early Detection Specialists published 14 new island records for non-native plants in a Hawai’i Biological Survey manuscript "New Plant Records from Kahoolawe Island and Midway Atoll." A few of the species have been targeted for eradication or are now restricted to a seed bank. [http://hbs.bishopmuseum.org/publications/pdf/op119p3-8.pdf](http://hbs.bishopmuseum.org/publications/pdf/op119p3-8.pdf)

The Specialists also found a new state record, *Arabidopsis thaliana* (mouse-ear cress), while doing plant surveys at high risk sites within Haleakalā National Park. At the summit parking lot (10,000’), they came across a small patch. The plant is Eurasian in origin and a weed in N. America and elsewhere. Much of the patch was pulled and the Park Vegetation Management crew. MISC will continue to monitor the site every six months.

MISC and MoMISC began working on the Mamalu Poepoe project, with the goal to increase capacity for early detection of invasive species at airports. The target species include mosquitoes, Africanized honey bees, coconut rhinoceros beetles, little fire ants, and red imported fire ants.

Semi-annual naio thrips surveys on Maui focused on cultivated naio (*Myoporum sandwicense*) and naio near ports of entry, as part of the statewide Early Detection and Rapid Response Plan for *Myoporum* thrips (*Klambinthrips myopori*). No thrips or thrip damage was encountered.

An unknown Fabaceae (legume) was collected at Kahului Airport. It may be a new state record. The specimen will be sent to Bishop Museum for determination and archiving.

MISC and MoMISC staff continue to participate in monthly statewide rapid ‘ōhi’a death (ROD) conference calls and local meetings to stay informed of current ROD science and management insights. MISC and MoMISC also responded to four reports of ROD. Samples collected were negative.
**COCONUT RHINOCEROS BEETLE (CRB)**

**Deliverables:** Assist with CRB surveys as feasible.

**Accomplishments:** MISC’s assistance was not needed at this time. CRB was included as a target species during roadside surveys on Maui and staff responded to three reports of CRB damage but found no CRB. Staff also included information about CRB during outreach and education events.

**CONTROL AND ERADICATION**

The proposal identified specific deliverables for *Miconia calvescens* and *Cortaderia spp.*

**Deliverables - Miconia:** Conduct aerial operations over 7,500 acres; 700 acres by ground.

**Accomplishments - Miconia:** Aerial operations covered 16,093 acres; ground operations covered 887 acres; access was limited by dense *Clidemia* in areas of rose apple dieback. Outlier populations of miconia on Maui continued to decline using the herbicide application technology developed by Dr. James Leary, UH College of Tropical Agriculture and Human Resources.

Funding also supported deconstruction of a decaying field camp in Hāna and facilities improvements at an existing Hāna baseyard. Typically, the MISC plant crew at Piʻiholo assists the Hāna field staff one to two weeks per month. While in Hāna the crew needs somewhere to stay. A bunk house and kitchen were constructed during the performance period.
Deliverables - Pampas grass: Conduct aerial survey/control operations over 7,500 acres; cover 1,000 acres by ground.

Accomplishments - Pampas grass: Aerial operations covered 19,746 acres; ground operations covered 1,629 acres. Mature pampas grass plants continued to decline in East Maui, while control of the West Maui population remained problematic due to terrain and access limitations. Increased acres surveyed was due to good weather which allows for access to hard to reach, high elevation, places.
**OTHER INVASIVE SPECIES**

**Deliverables - Plants:** Conduct survey and eradication operations for 25 invasive plant species (12 on Maui, 13 on Molokai).

**Accomplishments - Plants:** Targeted 37 invasive plant species (20 species on Maui, 20 on Molokai, 3 of the same species were targeted on both islands). See tables on pages 7-8, and maps on pages 10 and 11. The number of mature plants for most target species declined on both Maui and Molokai. Most target plant species on Molokai are at the seedbank depletion stage.

**Deliverables - Vertebrates:** Conduct survey and eradication operations for 2 invasive vertebrates (mitred conure and coqui frog); respond to all new coqui frog reports; contain Māliko Gulch (spray operations cover 100 acres).

**Accomplishments - Vertebrates:** No mitred conures were removed by MISC staff due to a firearms stand-down at the University; but, area residents reported removing at least three birds. Numbers are relatively stable at about 10-13; future efforts will focus on removing the remaining individuals as feasible. MoMISC and MISC responded to reports of rabbits.

MISC’s efforts on coqui frogs focused on responding to new reports across the island (see map on page 12) and expanded control at the Māliko infestation. MISC also worked to address all outlying populations and worked closely with local landowners in the Māliko Gulch area to help limit spread. MISC’s sprayer loan program puts tools in the hands of local residents and frees up staff time. MISC provides sprayers, citric and training to empower affected communities. All outlier infestations (i.e., not Māliko) have very low numbers of frogs or are in a monitoring phase. MISC monitors population centers for at least one year from the date the last calling male is heard before considering it eradicated. Expanded capacity was directly responsible for increased spray operations and reduced coqui numbers. Also, significant contributions of staff time and equipment from DLNR-DOFAW and HDOA helped make a notable impact. Staff and partners treated 251 acres for coqui frogs, mostly in the Māliko area. See map on page 12 for efforts in the Māliko area.

**Deliverables - Invertebrate Species/Plant Pests:** Conduct survey and eradication operations for 3 invertebrate pests (LFA, CRB, and naio thrips); 1 plant disease (BBTV), and 1 aquatic species (upside-down jellyfish). Conduct island-wide surveys for BBTV on Molokai and work to contain the virus on both islands.

**Accomplishments - Invertebrate Species/Plant Pests:** EDRR roadside surveys included looking
for signs for all three invertebrate pests. No naio thrips or CRB have been detected on Maui or Molokai.

BBTV remains restricted to one main area on Molokai; all known infested areas were surveyed and infected plants treated. See map on page 11 for location and treatment activity on Molokai. The virus continues to spread on Maui, survey and control efforts shifted to protect high-value areas with rare Polynesian varieties or areas where the disease has not yet become established.

MoMISC conducted surveys over 6 acres for upside-down jellyfish; 6 were detected and removed.

**COUNTY FUNDING**

*Deliverable:* County funding levels maintained or increased.

*Accomplishments:* County funding levels maintained for core projects at $1.895M for County fiscal year 2018.

**COQUI FROGS ON STATE LANDS**

Summarized above.
## TARGET SPECIES WORK ON MAUI

<table>
<thead>
<tr>
<th>Taxon Name</th>
<th>Common Name</th>
<th>Acres</th>
<th>Number Controlled</th>
<th>Hours</th>
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## TARGET SPECIES WORK ON MOLOKAI

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**TOTALS** 11,135 782 13,854 14,636 1,596
OUTREACH & EDUCATION
Activities under the Outreach and Education portion of this grant are covered in a separate report.

ADDITIONAL INFORMATION
MISC and MoMISC are projects of the University of Hawai‘i – Pacific Cooperative Studies Unit. Work conducted by staff from the Maui Invasive Species Committee and Molokai Invasive Species Committee benefited from strong partner support, including: County of Maui, U.S. Forest Service, Hawai‘i Departments of Land and Natural Resources, Agriculture, Transportation, and others.

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