

Title: Detection and Control of Invasive Species in Kaua'i County

Organization: Kaua'i Invasive Species Committee

Award: \$150,224

In FY 2011, KISC continued working on goals outlined by the HISC Established Pest Working Group Strategic Plan. Priority was given to island-wide early detection, rapid response, and control of various plants, vertebrates, and insect targets.

KISC's work with control and eradication of Miconia (*Miconia calvescens*) in the Wailua District continues to be a top priority. Strategic planning with partners has resulted in implementing new tactics to survey and treat this watershed destroyer. KISC continues to be the primary responder to new coqui reports; monitoring one wild-land population and quickly dispatching new coqui as they are introduced across Kaua'i. During this year, KISC also conducted an island-wide survey for invasive invertebrates, including Little Red Fire Ant (LFA).

HISC Established Pests: Measures of Effectiveness

Number of species detected and evaluated for feasibility of eradication:

Early detection of incipient invasive species included roadside surveys, private property surveys, as well as surveys at nurseries, ports, green-waste areas and resorts.

- An island-wide survey was conducted for priority invasive invertebrates. Approximately 154 acres were surveyed. During this survey, stinging nettle caterpillar (*Darna pallivitta*) was reported to Hawai'i Department of Agriculture (HDOA) and seems to be established itself on the east side of Kaua'i. No new infestations of LFA were detected. A full report of this survey can be found at <http://www.hawaiiinvasivespecies.org/iscs/kisc/pdfs/kiscinvertsurvey2011.pdf>.
- Approximately 255 acres were surveyed for invasive plants not known or widespread on Kaua'i. One species, Dillenia (*Dillenia suffruticosa*), was discovered opportunistically while surveying for miconia in Wailua Homesteads and immediately removed. This plant is known to be spreading on O`ahu and not known to be elsewhere on Kaua'i.



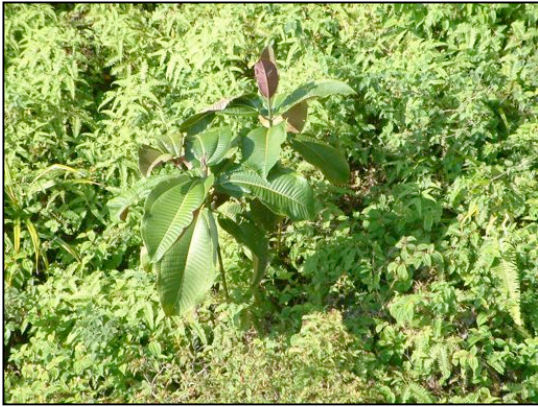
Dillenia leaves and fruit

Number and area of priority invasive species eradicated and/or controlled:

Control and eradication efforts centered on 9 priority plant species and one vertebrate species (coqui frog (*Eleutherodactylus coqui*)).

- Survey and control of Miconia was focused on three primary areas of the Wailua District; Wailua River State Park (WRSP), Wailua Homesteads, and the Game Management Area (GMA) in the Halele'a Forest Reserve. 390 acres were ground surveyed with 1 mature plant and 349 immature plants treated. Eradication strategies dictate the importance of removing plants before reaching maturity; current data suggests that these strategies are working.
- During this reporting period, 914 acres were aerial-surveyed in the GMA, discovering 3 mature plants, and 26 immature plants, all within the known infestation area.
- Partnering with Dr. James Leary, UH College of Tropical Agriculture and Human Resources (CTAHR), KISC was able to utilize Herbicide Ballistic Technology (HB) during two aerial surveys

for miconia. 2 mature plants and 26 immature plants were treated. These plants were later



Miconia spotted from helicopter in dense uluhe

ground-surveyed to ensure efficacy of herbicidal treatment and it was discovered that not only were the plants dead, there was no collateral damage in the surrounding vegetation.

- Other priority plant targets included Arundo, ivy gourd, fountain grass, false kava, long thorn kiawe, giant salvinia, cattail, and other miscellaneous species. Over 1,700 acres were surveyed and over 6,000 individual plants were treated.
- KISC's priority invasive vertebrate is the coqui frog. Almost 1,500 acres were surveyed during this period.

Prioritization processes identified and in place:

Each year, KISC conducts annual prioritization meetings with the committee as a whole. Target activities are reviewed and new species are evaluated for feasibility of control. There are many factors that dictate prioritization of KISC targets including: acres of infestation, the [Hawai'i-Pacific Weed Risk Assessment](#) (HP-WRA) ranking, difficulty of control, number of property owners, and estimated cost of control.

Implementation of the priority response and control actions of plans for the coqui frog, West Nile Virus & Avian Influenza:

- KISC has participated in regular reviews of the statewide management plan for the coqui frog.
- KISC is assisting HDOA by being the primary responder to new coqui reports to the island. During this period 16 reports were made and 12 coqui were captured on private properties as well as new introductions to nurseries. All frogs were suspected of arriving on plant material.
- Kaua'i has one known wild-land population of coqui, introduced in 2001. KISC has been working with HDOA on eradication of these coqui and regularly conduct habitat modification, and preventative citric acid ground-drenches. No frogs have been heard calling at this site since May, 2011.
- Although no funding was allocated during FY2011 from either the State of Hawai'i or US Fish and Wildlife toward response and control actions for WNF or AI, KISC continued to support outreach efforts regarding these pathogens. KISC was also on-call throughout the year to respond to native bird die-offs.



Crewmember spraying citric acid

Number and names of species, habitats, ecosystems, agricultural, and managed areas protected because of control efforts:

- Target species are chosen for the threat that they pose to Kaua'i County's high-value natural areas or to agricultural production. According to US Fish and Wildlife Service, Kaua'i's high rate of endemic plants (224; the highest in the Hawaiian archipelago and quite possibly in the world) make it a biodiversity hotspot of global magnitude. Kaua'i has over 116 endemic species listed as endangered or threatened.
- Priority is given to high-value native ecosystems; such as the Halele'a Forest Reserve where miconia operations take place.
- KISC also works closely with the agriculture community; keeping them informed as to threats to their commodities and what to watch for; such as the stinging nettle caterpillar, and little fire ant.

Other activities:

Additional activities also helped achieve HISC objectives.

Capacity development: One additional field worker was hired with support from the USFWS, joining a team focused on early detection of invasive invertebrates. Overall staff capacity was enhanced by participating in the following training events: CPR & 1st Aid classes and certification, Basic Aviation Safety Training, and an Early Detection Workshop at the Bishop Museum.

International information sharing: KISC met with visiting professionals working in conservation across Micronesia. Prioritization of targets, survey techniques, treatment methods, and community outreach were all topics that were shared. Many of the same invasive species currently being worked on across the state of Hawai'i are also pests in many areas of Micronesia.

Partner collaboration: Meeting with Department of Defense Pacific Missile Range Facility Environmental and Base Security personnel, protocols for KISC's ongoing work on Long Thorn Kiawe were developed for Hazmat, Safety, and Security. KISC continued to work closely during FY2011 with UH-CTAHR, DLNR-DOFAW, The Nature Conservancy, Hawai'i Department of Agriculture, and US Fish and Wildlife Service.