

Title: Invasive Species Detection, Control, and Outreach on Kauai

Organization: Kaua'i Invasive Species Committee, Pacific
Cooperative Studies Unit, UH

Period: January 2022 – April 2023

Award: \$613,570



Introduction: The Kauai Invasive Species Committee (KISC), a project of the Pacific Cooperative Studies Unit (PCSU) with the University of Hawaii, functions as an island-wide rapid response and control team intended to supplement existing agency efforts while serving a gap filling role on Kauai and assisting in the coordination of partnership efforts on a variety of science-driven invasive species management strategies. Priority is focused on species that are recognized as having the greatest potential to harm human welfare, agriculture, and native biodiversity, and where the use of limited resources is most likely to be successful. Hawaii Invasive Species Council funding provided support for KISC's island-wide early detection and rapid response projects on high priority pest species, long-term control programs for target invasive species, and island-wide outreach and community awareness campaigns.

Objective: Early Detection of high-risk invasive species

Expected Outcomes and Accomplishments:

4 taxa delimited as potential new KISC targets.

- Delimiting surveys were conducted on 4 early detection taxa: *Buddleja paniculata*, *Crassula multicava*, *Morella cerifera*, *Vicia sativa*.
- The 2020-2023 distribution and control data will be evaluated for feasibility of eradication and prioritization of control to add the appropriate targets to KISC's priority list for continued management.
- As part of the KISC Plant Early Detection Program, 2995.23 acres were surveyed. 145.3 acres were ground surveyed including high-risk sites, trails, and species detection sites. 2749.43 acres were roadside surveys.

8 swarm traps and 6 CRB traps at Lihue airport will be maintained.

- A total of 8 swarm traps and 6 coconut rhinoceros beetle traps were monitored monthly in partnership with Mamalu Poepoe with no species of interest detected as of April 30, 2023.
- In December 2022, the port monitoring program was expanded to include sea ports, 2 swarm traps and 9 coconut rhinoceros beetle traps were deployed at Nawiliwili Harbor with no species of interest detected as of April 30, 2023.

9 areas with cultivated naio (Myoporum sandwicense) surveyed for potential Myoporum thrips (Klambothrips myopori)

- Cultivated naio (*Myoporum sandwicense*) plant locations for 8 population areas were surveyed for potential *Myoporum thrips* (*Klambothrips myopori*) with no thrips detected. One proposed population area was not surveyed due to property access issues.

1-4 high-risk sites (e.g. green waste stations, nurseries, ports) surveyed for little fire ants (Wasmannia auropunctata).

- A total of 20 high-risk sites and 36.5 acres were surveyed with no LFA detected outside the 6 known LFA. High-risk sites included green waste stations, ports-of-entry, nurseries, agricultural stands, and other areas.

Objective: Rapid response to reports on mongoose, coqui frogs, little fire ants, and other incipient invasive pests.

Expected Outcomes and Accomplishments:

Mongoose reports and response

- In 2022, no mongoose reports reached the response threshold defined in the Kauai Mongoose Standard Operating Procedures.

Coqui frog reports and response

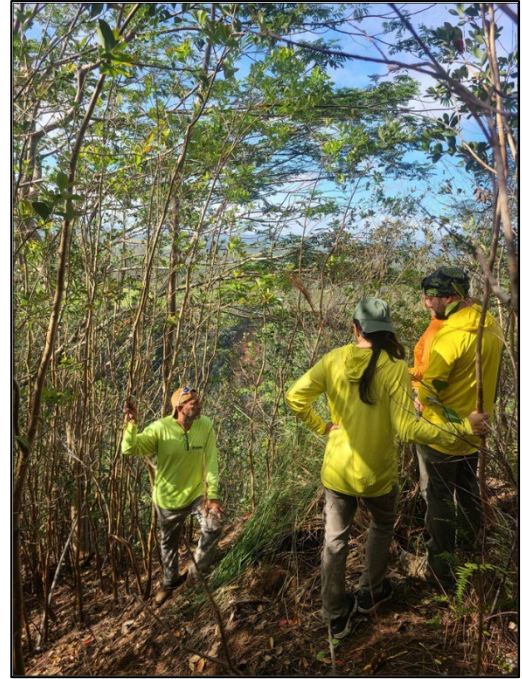
- KISC crew members controlled 18 coqui frogs at 8 separate locations.

*Little Fire Ant (LFA, *Wasmannia auropunctata*) reports and response*

- In June 2022, LFA was detected in Wailua along the Wailua River State Park. Initial response surveys included 26 acres of ground survey and revealed a 16+ acre site encompassing both residential lots and natural areas. Rappelling certification was required to survey the steep terrain and dense vegetation. In March 2023, the Hawaii Ant Lab and KISC crews completed the rappelling training and attempted to scale down the valley and climb through dense thickets of forest to complete the delimiting surveys. Due to safety concerns, surveys were suspended after scaling down 300 feet. LFA were detected 300 feet down the cliff side.
- In October 2022, a 65+ acre LFA infestation was detected in the Koloa/Omao area. This infestation includes agricultural areas, fruit farms, pasture lands, and residential areas. Crews completed 66.7 acres of ground surveys.
- In March 2023, LFA was detected on two residential lots in Princeville. 1.3 acres of ground survey were completed.
- The size and frequencies of new LFA detections over the last 2 years highlight the need to prioritize the development of a comprehensive statewide LFA management strategy with all partners' roles, responsibilities, and mandates clearly defined.

New pest species reports and response (in coordination with CTAHR and HDOA)

- No additional new pest species were responded to by KISC teams during this reporting period.

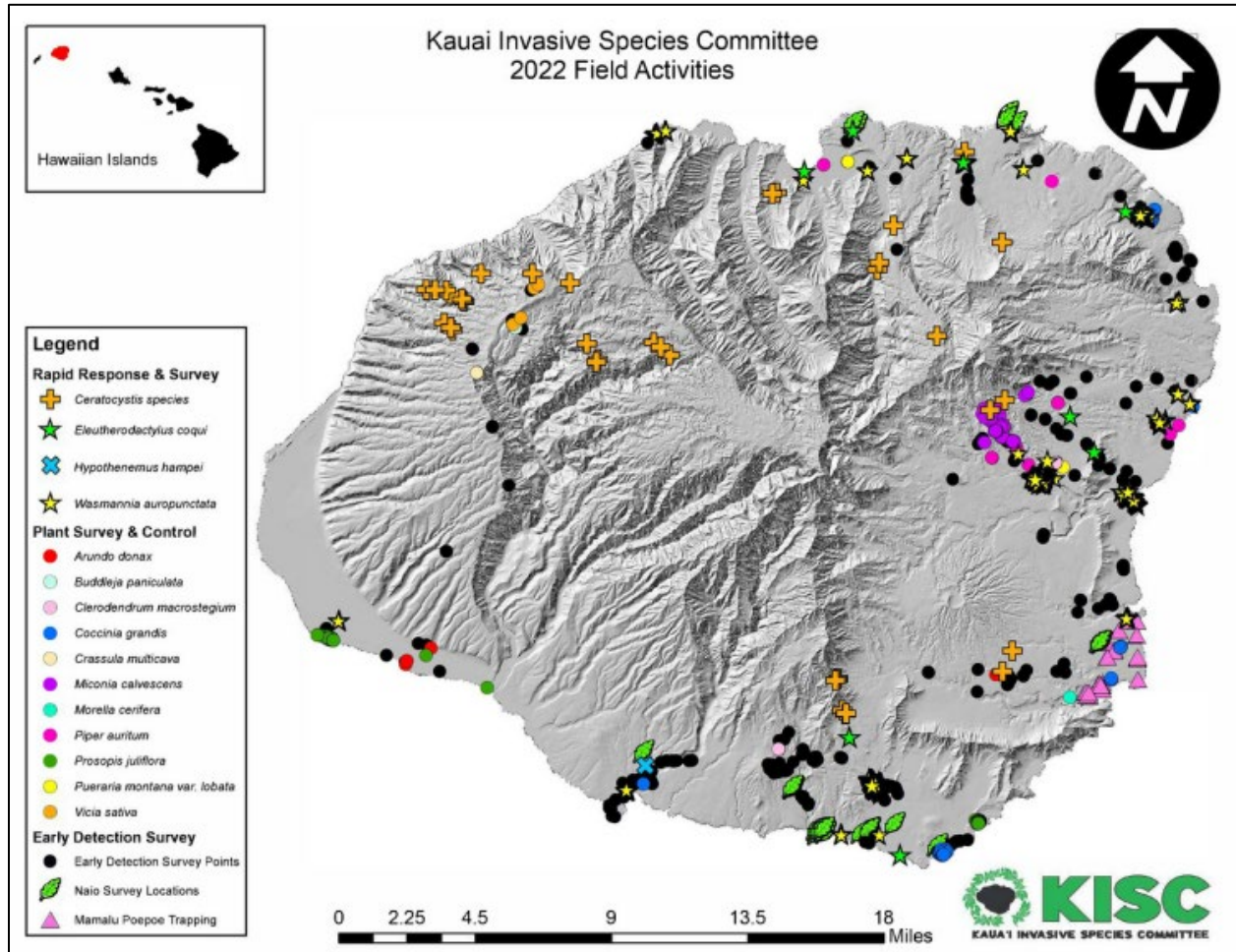


Above: KISC and HAL crews assessing the Wailua LFA site.

Below: LFA colony on a branch in Wailua



Objective: Survey and control of high-risk target invasive species



Map 1: KISC 2022 field activities. Does not included full project period.

Expected Outcomes and Accomplishments:

*Annual survey for LFA (*Wasmannia auropunctata*) at known Kalihiwai and Kilauea sites*

- LFA surveys were prioritized at high-risk sites and the 3 new LFA sites during this project period. Annual monitoring surveys of the Kalihiwai and Kilauea LFA sites were postponed to 2023.

*Survey and control for LFA (*Wasmannia auropunctata*) at the Moloaa LFA*

- KISC continued survey and treatment of LFA at the Moloaa site. 124.9 acres of ground survey and 62.1 acres of treatment were completed over the project period.

*Estimated 900 acres of aerial survey and 200 acres of ground survey and control for *Miconia calvescens**

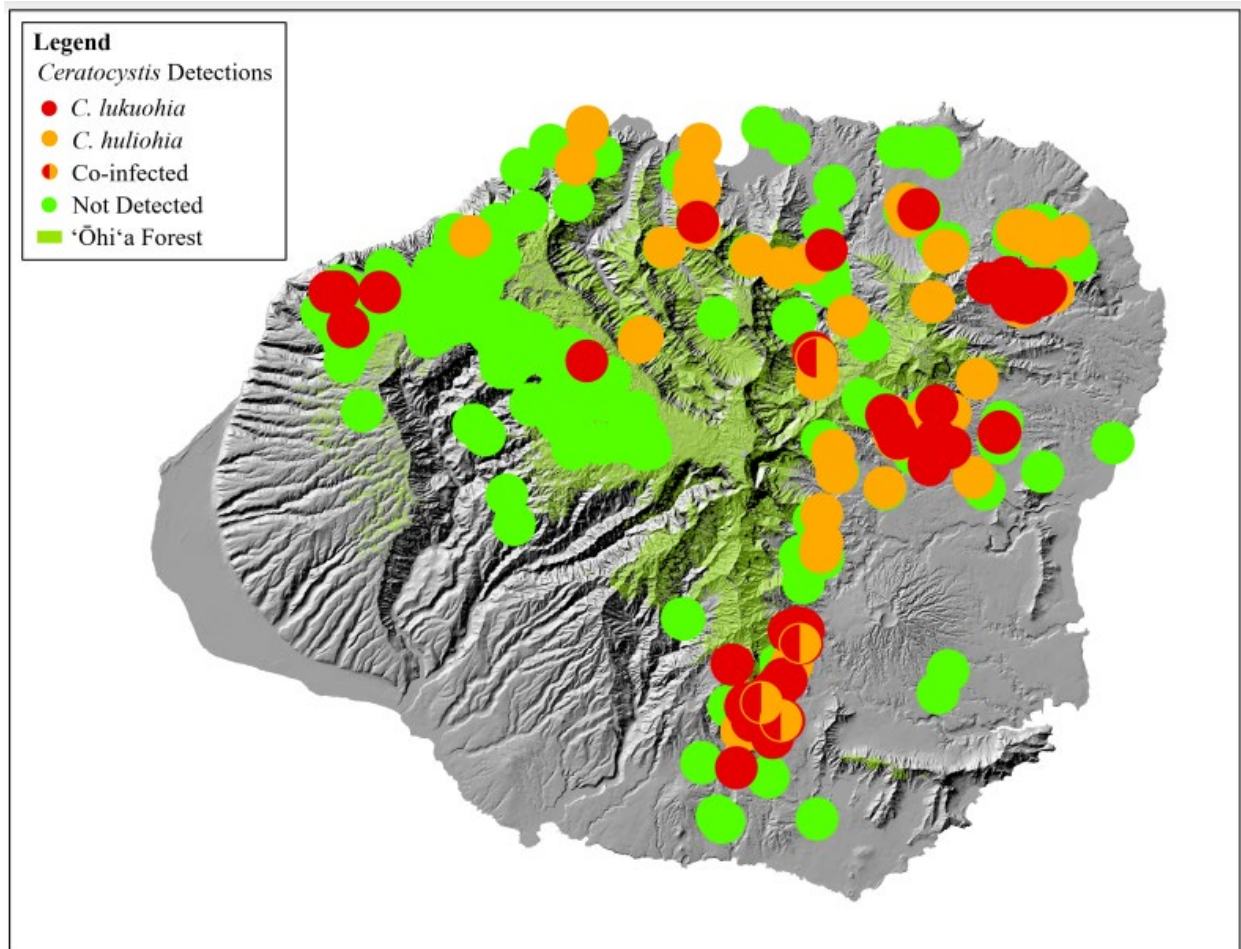
- Survey and control of *M. calvescens* is focused in the Wailua Watershed. 2,910.3 acres of aerial survey were completed. KISC crews controlled a total of 11 mature and 1,213 immature plants during 262.4 acres of ground survey.

Population control and seedling suppression of 7 priority plant targets

- Population and seedling suppression continued for 8 priority plant species (*Arundo donax*, *Clerodendrum macrostegium*, *Coccinia grandis*, *Macaranga mapp*, *Pereskia aculeta*, *Piper auritum*, *Prosopis juliflora*, and *Pueraria montana* var. *lobate*) with 250 acres ground surveyed and 1,318 individual plants controlled.

Objective: Detection and rapid response to Rapid Ohia Death (ROD)

KISC continued ROD detection and rapid response management in collaboration with DLNR-DOFAW. As of December 2022, a total of 685 trees were sampled. *Ceratocystis lukuohia* was detected in 188 trees and *C. huliohia* was detected in 127 trees with both species detected in 4 trees on Kauai. During the project period, KISC completed 1,998.5 acres of aerial survey and 170.3 acres of ground survey with 39 trees sampled. KISC continues to develop and update site-specific management plans for private landowners on Kauai with positive ROD detection.



Map 2: Ceratocystis detection as of December 2022 on Kauai. Map created by Brian Tucker, Rapid Ohia Death Data Manager with RCUH - PCSU

Objective: Education through public outreach

Invasive species outreach and education is an integral component of on-the-ground detection and control efforts by KISC. Community collaboration is essential in the discovery, prevention, and control of target and early detection invasive species. KISC works closely with the community to raise awareness and enhance invasive species management support. We create and deliver educational programs and effective communications tailored for Kauai's community, schools, and businesses to highlight their role to help preserve Kauai's native biodiversity and minimize adverse ecological, agricultural, economical, and cultural impacts.

2022 Expected Outcomes and Accomplishments:

Outreach data reported for January 2022 to December 2022 unless noted

Virtual Communications:

8 electronic newsletters & 8 blogs, bulletins, or updates

- KISC's produced quarterly newsletter, bulletins, and updates focused on partnership projects, common invasive species identification, rapid ohia death response efforts, rapid response to coqui and little fire ants, and planting pono. (18 newsletters; 1,502 subscribers)

260 social media posts

- Social media platforms continue to be critical outreach tools by delivering educational content and engaging with a wider audience. KISC maintains an active social media presence on Facebook [/kauaiisc](https://www.facebook.com/kauaiisc) and Instagram [@kauaiisc](https://www.instagram.com/kauaiisc).
 - Facebook 2022: 1,762 followers; 107 posts; post engagement for year: 10,446; Total reach for the year: 79,233.
 - Instagram 2022: 1,979 followers; 140 posts; post engagement for year: 13,426; Total reach for the year: 83,612.

KISC website available online

- In April 2023, KISC website was redesigned into a modernized mobile-friendly website allowing for our educational resources to be more accessible to the Kauai community.

Educational video series and content developed and available online

- In 2022, 15 educational videos were added to the KISC YouTube Chanel. Content includes the professionally developed animated ohia educational series, our Hawaii Invasive Species Awareness Month virtual huakai series, 2022 webinars, and KISC's 20th anniversary series.



Educational Displays:

Educational displays at 10 venues (in-person or virtual);

- KISC provided 17 in-person, interactive displays at community events island-wide. (3,253 People reached).
- Bootbrush & Educational Signage: Proper biosanitation is how each individual, organization, or agency can help protect Kauai's ohia and prevent ROD from spreading. Boot brush stations with educational signage are located at 36 public and private trailheads island-wide, in partnership with DLNR-DOFAW, USFWS, and KISC.

Educational workshops and presentations:

30 educational workshops, presentations, webinars, or school activities (in-person or virtual)

- 55 virtual and/or in-person educational workshops, presentations, webinars, and school activities. (1,870 people reached)

Pono Endorsement Program:

25 active Pono-endorsed businesses

- Pono Endorsed businesses practice and promote making pono plant decisions that benefit the health and wellbeing of Kauai. This program seeks to address invasive species directly linked to the nursery and landscaping trade by encouraging businesses to voluntarily remove target high-risk plants from nursery stock and to adopt best management practices that reduce the risk of spreading invasive pests and disease. (19 active Pono-endorsed businesses)

In the Media:

2-8 press releases or stories

- 6 press releases
- 29 print media articles featuring KISC and/or KISC messaging (The Garden Island Newspaper, Civil Beat, AP News, Honolulu Star-Advertiser, Kauai News Now, etc)

2-8 radio interviews

- 8 radio interviews (KKCR, KONG)
- 2 TV interviews and news stories (HNN)

Statewide Outreach Campaigns – Kauai Component:

Statewide Stop the Ant Month - LFA Awareness campaign, Kauai component

- 1,454 household kits distributed during Stop the Ant Month. Household kits were available at all public libraries and select farmer's markets with 109 kits returned for ant identification.
- Additional outreach activities included science-based school activities, Stop the Ant social media campaigns, and media relation campaigns. All numbers are reported in their respective category above.

Statewide Hawaii Invasive Species Awareness Month campaign, Kauai component

- KISC developed a virtual huakai series for Hawaii Invasive Species Awareness Month and hosted 1 virtual workshop and 1 webinar.

Statewide Ohia Love campaign, Kauai component

- Six days of in-person 'Ōhi'a Loves Fest activities included hikes, tree plantings, bio-sanitation kit give-aways, and a day-long celebration at Limahuli Garden & Preserve. All activities were produced with conservation partners.

Interviews, meetings, and conferences: KISC maintains a well-established outreach program involving the continued partnerships and relationships with the local community, various private businesses, and government agency partners. Highlights: Kauai Rapid Ohia Death Advisory Committee, member of the Kauai County Farm Bureau, and member of the Kauai Landscape Industry Council.

Partner collaboration: KISC is a project of the Pacific Cooperative Studies Unit (PCSU) with the University of Hawaii. KISC continued to work closely during 2022 with the UH-CTAHR, DLNR-DOFAW, The Nature Conservancy, Hawaii Department of Agriculture, US Department of Agriculture, the County of Kauai, Kokee Conservation Resource Conservation Program, Kauai Forest Bird Recovery Project, National Tropical Botanical Garden, Kauai County Farm Bureau, and US Fish and Wildlife Service.

Contact Information

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