

**Title:** Invasive Species Detection, Control, and Outreach on Kauai  
**Organization:** Kaua'i Invasive Species Committee,  
Pacific Cooperative Studies Unit, UH  
**Period:** May 2023 – April 2024  
**Award:** \$659,677



**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. Hawaii Invasive Species Council funding provided partial operational 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.

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**Objective: Early Detection of high-risk invasive species**

*HISC Priorities:*

- *Prevention & Early Detection/Rapid Response for New Terrestrial & Aquatic Invasions*
- *Management of the Inter/Intra-Island Movement of Invasive Species*

**Expected Outcomes and Accomplishments:**

*Plant taxa delimited as potential new KISC targets.*

- Delimiting surveys and initial control efforts were conducted on 3 early detection taxa: *Juncus effusus*, *Morella cerifera*, and *Paulownia tomentosa*. A total of 113 mature plants and 17 immature plants were controlled. *M. cerifera* remains undetectable at all extirpated sites.
- The 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.
- The KISC Plant Early Detection Program monitors high-risk sites island-wide and contributes towards the Bishop museum biological survey records of new plant species in the state:
  - 1 new state record, 4 new island records, and 8 new naturalization records currently in review or editing for publication.
  - 184.9 acres surveyed (high-risk sites, trails, and species detection sites)

*Monitor traps at ports of entry*

- Crews monitor traps for species not known to occur in Hawaii (Africanized bees, Japanese Beetle) and for the inter-island movement of incipient species (coconut rhinoceros beetle, CRB).
- Lihue airport & Nawiliwili Harbor: 10 swarm traps and 37 CRB traps and 6 Japanese Beetle trap.
- On May 31, 2023, 1 live adult female CRB was detected in a port monitoring trap near the Lihue airport resulting in the first detection of CRB on Kauai. Initial multi-agency rapid response efforts were conducted near the port while an island-wide detection program was developed. (See *Rapid Response* section)



Picture 1: First CRB detected on Kauai

*9 areas with cultivated naio surveyed for potential Myoporum thrips*

- 52 cultivated naio (*Myoporum sandwicense*) plant locations for 9 population areas were surveyed for potential Myoporum thrips (*Klambothrips myopori*) with no thrips detected.

2-5 high-risk sites surveyed for little fire ants (*Wasmannia auropunctata*) and red imported fire ant (*Solenopsis invicta*).

- 11 high-risk sites and 8.3 acres were surveyed with no *W. auropunctata* or *S. invicta* detected at these monitoring sites. High-risk sites included green waste stations, ports-of-entry, nurseries, agricultural stands, and parks.

**Objective: Rapid response to reports on incipient invasive pests.**

HISC Priorities:

- Prevention & Early Detection/Rapid Response for New Terrestrial
- Management of the Inter/Intra-Island Movement of Invasive Species

**Expected Outcomes and Accomplishments:**

*Mongoose reports and response*

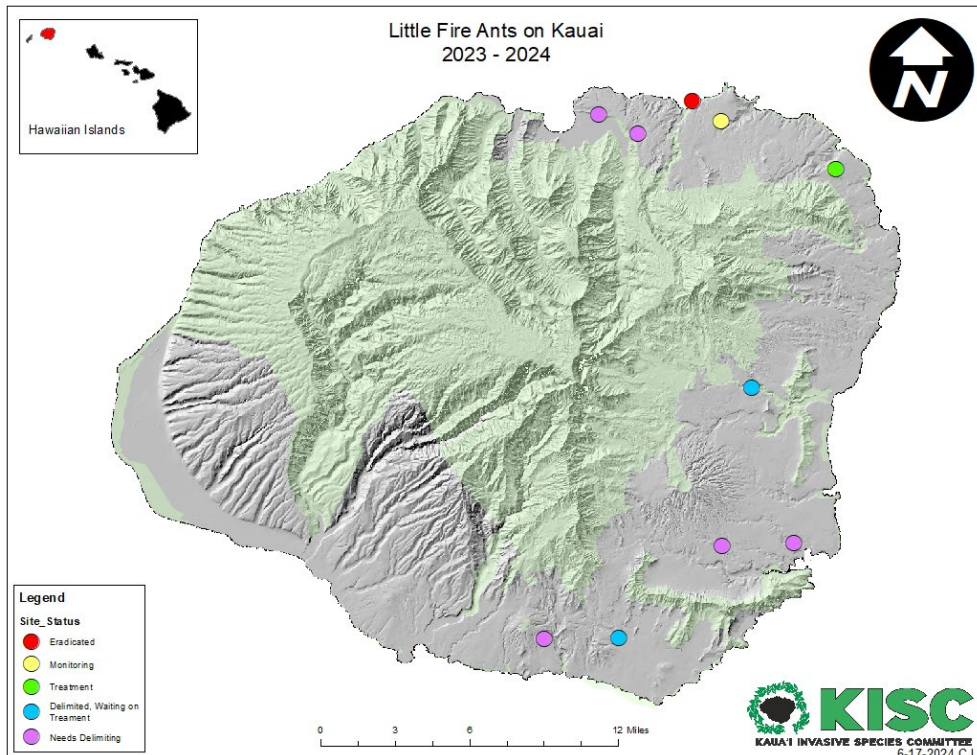
- A pregnant female mongoose was captured in the area of Nawiliwili Harbor on May 5, 2023. In response to credible reports by port workers, KISC crew and Dept of Health Vector Control Branch deployed 43 baited traps around the port. The mongoose was captured using fresh coconut on the 4<sup>th</sup> trapping night. KISC maintained the trapline for an additional 8 trapping nights with no additional captures.



Picture 2: Mongoose captured May 2023

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

- During this project period, public reports led to the detection of 3 new LFA sites. Kauai now has 10 sites ranging from 1 to 55+ acres in size. 3 sites have high-risk pathways for additional potential intra-island spread. Delimiting surveys are on-going. 31 acres surveyed.
- The size and frequencies of new LFA detections over the last 3 years highlight the need for the development of a comprehensive statewide LFA strategic management plan.



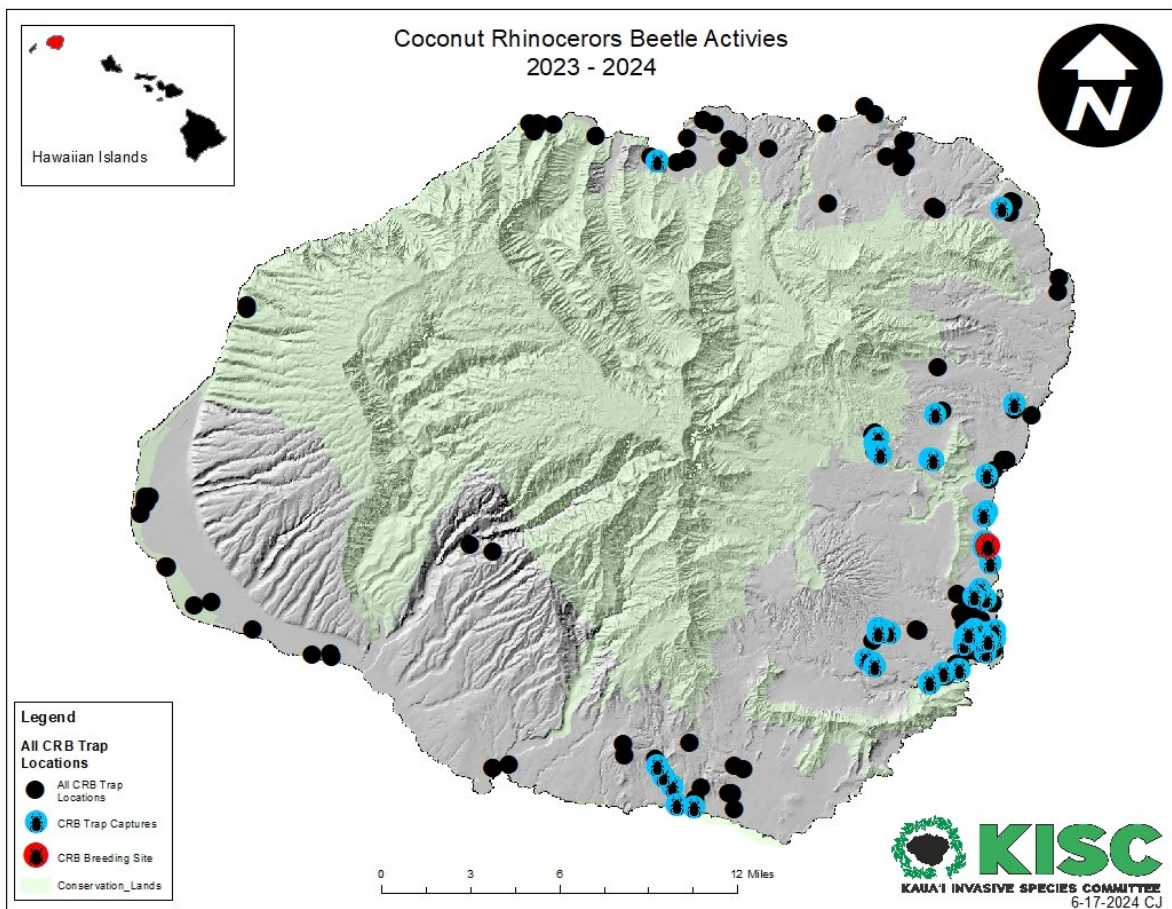
Map 1: LFA on Kauai

*Coqui frog reports and response*

- KISC crew members controlled 103 coqui frogs at 7 separate locations and collected one egg cluster with 101 eggs. The continued inter-island movement of coqui frogs now requires increased rapid response efforts for single incursions and continual control programs for breeding populations at nurseries and other sites.

*New or incipient pest species Rapid Response*

- HISC funding provides support for KISC to maintain a two-week response capacity to assist agencies and mobilize a field response team for high-risk incursions of priority species.
- Coconut Rhinoceros Beetle (CRB) was detected for the first time on Kauai and outside of Oahu during this funding period. During the initial multi-agency rapid response, KISC assisted with delimiting palm damage surveys, breeding site surveys, and deploying an additional 25 traps within the buffer zone while partner agencies began potential breeding site treatment.
- A multi-agency island-wide CRB management plan was not developed during this funding period, though KISC continued to assist the community and aid with limited response capacity. KISC maintained traps island-wide to monitor the spread, conducted palm damage and breeding site surveys in areas CRB were detected, and assisted partners with management actions.
- CRB have been detected in 51 of the 159 traps deployed island-wide, two breeding sites have been confirmed.
- 78 acres palm survey; 87.2 acres breeding site survey

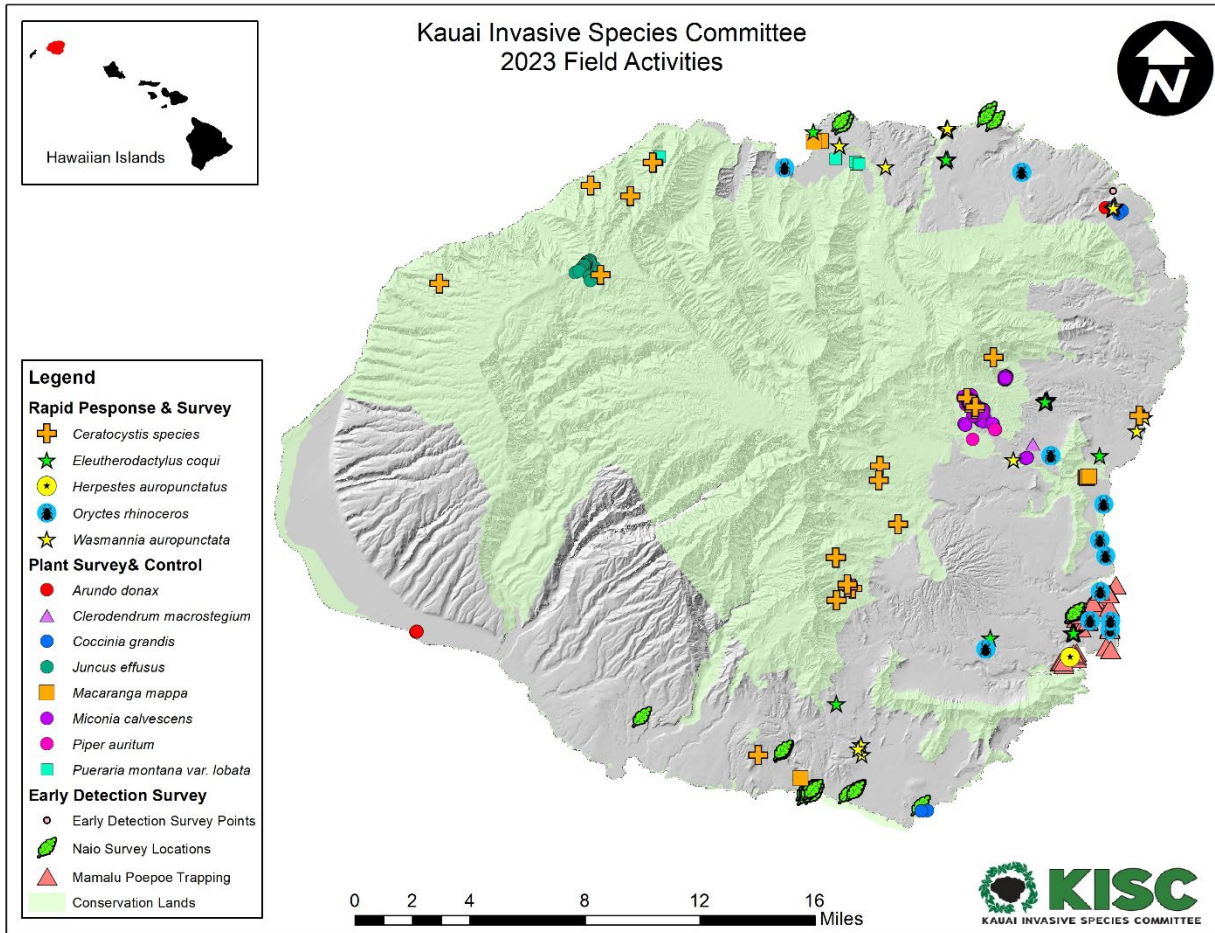


Map 2: CRB traps on Kauai

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

HISC Priorities:

- Prevention & Early Detection/Rapid Response for New Terrestrial & Aquatic Invasions
- Management of the Inter/Intra-Island Movement of Invasive Species



Map 3: KISC 2023 field activities. Does not include full reporting period.

**Expected Outcomes and Accomplishments:**

*Estimated 200 acres of aerial survey and 100 acres of ground survey and control for Miconia calvescens*

- Survey and control of *M. calvescens* was focused in the Wailua Watershed. 820.2 acres of aerial survey were completed. The expanded albizia canopy coverage in the area has impeded the ability to locate and identify immature miconia plants before they reach mature during aerial surveys. KISC crews controlled a total of 21 mature and 3,893 immature plants during 208.2 acres of ground survey.

*Population control and seedling suppression of 8 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 84 acres ground surveyed and 186 individual plants controlled.

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

- 25.5 acres of monitoring surveys at the Kalihiwai resulted in no LFA detected. Annual monitoring surveys of the Kilauea LFA sites were postponed to 2024 due to prioritization of delimiting new LFA sites during this project period.

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

- 1.62 acres surveyed. Full site survey and hotspot treatment were postponed until 2024 due to prioritization of delimiting surveys at new LFA sites.

*Delimiting surveys at new LFA sites detected in FY22*

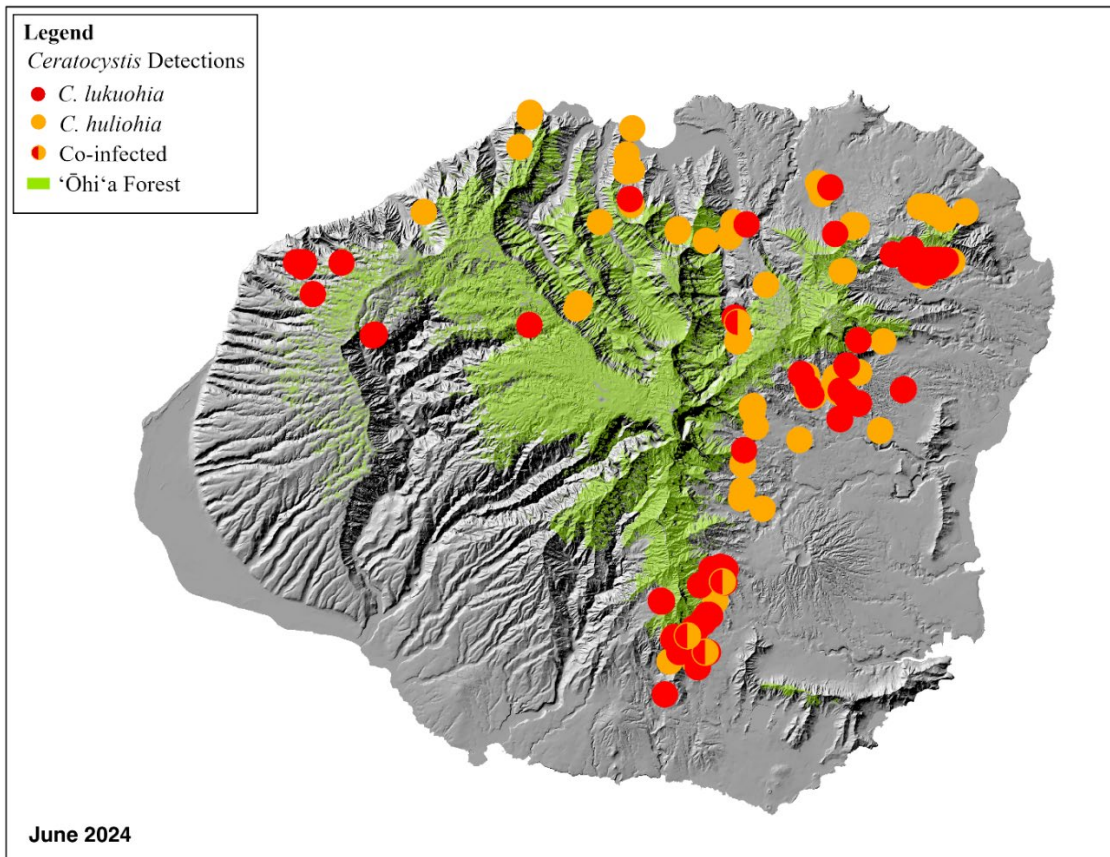
- Delimiting surveys at Wailua and Koloa/Omao LFA sites were completed. Completion of delimiting surveys at the Princeville site was postponed during this project period due to property access issues. 3.6 acres surveyed. Long-term control at new LFA sites is beyond KISC’s current capacity.

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

HISC Priorities:

- Management of the Inter/Intra-Island Movement of Invasive Species

KISC continued ROD detection and rapid response management in collaboration with DLNR-DOFAW. As of June 2024, a total of 797 trees were sampled. *Ceratocystis lukuohia* was detected in 204 trees and *C. huliohia* was detected in 138 trees with both species detected in 4 trees on Kauai. During the project period, KISC completed 326 acres of aerial helicopter survey and 194.1 acres of ground survey with 26 trees sampled. In partnership with DLNR-DOFAW, KISC participated in 44,597 acres of DMSM survey. 1,078 acres of drone survey were completed with imagery analyzed for suspect trees and shared with partners for long-term forest monitoring plots. KISC continues to develop and update site-specific management plans for private landowners on Kauai with positive ROD detection.



Map 4: *Ceratocystis* detection as of May 2024 on Kauai. Map created by Brian Tucker, Rapid Ohia Death Data Manager with RCUH - PCSU

**Objective: Education through public outreach**

HISC Priorities:

- Prevention & Early Detection/Rapid Response for New Terrestrial & Aquatic Invasions
- Management of the Inter/Intra-Island Movement of Invasive Species
- Implementation Large-Scale Control of Widespread, High-Impact Invasive Species
- Increase Pacific Regional Biocontrol Research & Capacity
- Maintain an Engaged & Supportive Community

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 priority 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 in protecting Kauai from invasive species impacts.

**2023 Expected Outcomes and Accomplishments:**

**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 coconut rhinoceros beetles, mongoose, and little fire ants, and planting pono. (14 newsletters; 1,450 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](#) and Instagram [@kauaiisc](#).
  - Facebook: 2,274 followers; 157 posts; post engagement for year: 2,288; Total reach for the year: 125,018.
  - Instagram: 2,226 followers; 164 posts; post engagement for year: 7,276; Total reach for the year: 59,334.

*Educational video series and content developed and available online*

- 12 educational videos were added to the KISC YouTube Chanel. Topic highlights include: Rapid Ohia Death, Who Protects Hawaii, Coconut Rhinoceros Beetle, and Sustainable Lei Practices.

**Educational Displays:**

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

- KISC provided 21 in-person, interactive displays at community events island-wide. (3,436 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)*

- 56 virtual and/or in-person educational workshops, presentations, webinars, and school activities. (1,593 people reached)

**Coconut Rhinoceros Beetle Outreach Program:**

*Incipient species detected 2023– no deliverable included in agreement*

- Following the first detection in May 2023, KISC developed and implemented an island-wide CRB outreach program that raises awareness on best management practices and promotes community based early detection strategies. Best management practices training workshops were provided to help residents, businesses, and farmer proactively minimize the risk and impacts of CRB infestations on their property.
- KISC developed an island-wide community trap monitoring program with over 61 traps maintained by community members and partners. This not only helps monitor the spread of CRB, it also helps inform the landowner of the presence of CRB in their area encouraging them to implement strategies to mitigate impacts as soon as possible.

**Pono Endorsement Program:**

*28 active Pono-endorsed businesses*

- Pono Endorsed businesses practice and promote making pono planting decisions. 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. Although there was not an increase in endorsed businesses on Kauai, there was an increase of training and workshop attendance from horticultural professionals. (18 active Pono-endorsed businesses).

**In the Media:**

*2-8 press releases or stories*

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

*2-8 radio interviews*

- KISC partnered with KKCR to launch The Invasive Informant, a monthly radio campaign discussing the importance of Kauai’s fragile natural resources, target invasive species, and invasive species management. 10 monthly campaigns.
- 2 radio interviews (Hawaii Public Radio, KKCR)



**Statewide Outreach Campaigns – Kauai Component:**

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

- 1,255 household kits distributed during Stop the Ant Month. 215 ant kits were submitted 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*

- Statewide HISAM did not occur during this reporting period, HISAM was moved to May 2024.

*Statewide 'Ōhi'a Love campaign, Kauai component*

- This year's participation in 'Ōhi'a Love Fest included weeding in Koke'e with Waimea High School students, a public weeding opportunity sponsored by Keoki's Paradise and supported by Koke'e Resource Conservation Program, a forest journaling event held at Kaua'i Museum, and our second all-day festival event with hourly presentation/talks and music and tabling at Limahuli Garden & Preserve. The event was promoted with newsletter, social media, and radio support.

*Statewide 'Ōhi'a Lehua Day, Kauai component*

- KISC led an island-wide effort to raise awareness of 'ōhi'a as part of the statewide 'Ōhi'a Lehua Day promotion that included training to Keoki's Paradise employees, as well as, public presentation as part of Keoki's Malama 'Āina series, a Keoki's employee service day in Koke'e, a forest journaling workshop at NTBG's Herbarium, and a give-away of 'ōhi'a seedlings in partnership with NTBG at both their South Shore Visitor Center and Limahuli Garden & Preserve.

**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, member of the Kauai Landscape Industry Council, member of Kauai Chamber of Commerce.

**Partner collaboration:** KISC is a project of the Pacific Cooperative Studies Unit (PCSU) with the University of Hawaii. KISC continued to work closely during 2023 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.

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**Contact Information**

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