OISC

O'AHU INVASIVE SPECIES COMMITTEE

2023 Report to the Hawaiʻi Invasive Species Council

OISC field staff hiking down Mauʻumae ridge from a Himalayan blackberry worksite.

The Oʻahu Invasive Species Committee (OISC) protects Oʻahu's watersheds, ecosystems and agriculture by preventing harm from invasive species before those species become uncontrollable. The OISC field crew conducts surveys and control for invasive species that have not yet become abundant enough to damage the island's agriculture and ecosystems, but likely would cause harm if not controlled. By removing invasive species before the effects are felt, we can prevent labor-intensive and costly remediation measures later.

OISC operations are guided by the OISC steering committee, which is made up of representatives of conservation organizations and land managers island-wide. Many of the people who serve on OISC's steering committee today were giving up their weekends to control invasive species as volunteers when OISC was first formed back in 2001. For 2023 operations, HISC awarded OISC $700,000 for surveys and control of priority invasive species and outreach. OISC raised an additional $1,298,351 from other sources. The deliverables and accomplishments described below include HISC-funded activities and leveraged funds.

<u>Above</u>: Miconia destroys the understory and promotes erosion, this photo is from Tahiti where miconia has taken over vast amounts of forest.

In 2023, OISC continued steady progress towards stopping the spread of incipient invasive species, including: miconia (*Miconia calvescens*), devil weed (*Chromolaena odorata*), cane ti (*Tibouchina herbacea*) Himalayan blackberry (*Rubus armeniacus*), and Cape ivy (*Delairea odorata*). OISC served as the co-lead for the multi-agency effort across Oʻahu to detect the two fungal pathogens that cause Rapid ʻŌhiʻa Death (ROD). In partnering with the Ports of Entry/Exit Monitoring Program (formerly Māmalu Poepoe), OISC facilitated early detection trap checks for coconut rhinoceros beetle (*Oryctes rhinoceros*) and Africanized honey bee (*Apis mellifera scutellata*) [insert additional species] at Honolulu's Daniel K. Inouye International Airport and Honolulu Harbor. OISC assisted the Hawaiʻi Ant Lab (HAL) with little fire ant (*Wasmannia auropunctata*) surveys and outreach. OISC is the primary outreach agency for little fire ant on Oʻahu and coordinates outreach efforts with the Hawaiʻi Department of Agriculture (HDOA), the Hawaiʻi Ant Lab (HAL) and the Coordinating Group for Alien Pest Species (CGAPS) in order to stay ahead of the invasion front. In addition to little fire ant outreach, OISC continued providing vital invasive species information to students, teachers, the landscape industry, recreational groups and other stakeholders throughout the island and state regarding watershed health and OISC target species.

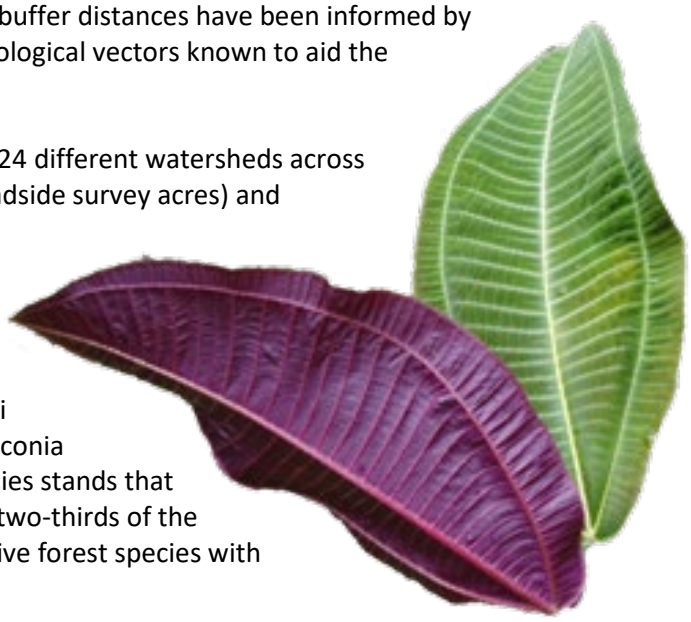
In order to combat the threats posed by these target species, OISC deploys teams of field biologists with expertise in off-trail hiking, survey and control methodologies, helicopter safety, and species identification. Areas with historic species locations and the areas adjacent to historic locations as informed by OISC's buffering system, are surveyed regularly until regional eradication is achieved. The eradication timeline varies by species and is determined by a number of environmental and biological factors specific to each target species. Typically, field staff will systematically scour survey sites along transects, by ground or air, and will control species immediately upon discovery. This system allows OISC to adapt our strategy to any species that the committee deems necessary for our organization to control.

Miconia (*Miconia calvescens*)

Miconia is the highest-priority target for OISC because once established, it will severely degrade O‘ahu’s watersheds. Miconia’s shallow root systems and leaf morphology promote excessive soil runoff during heavy rains by funnelling rainwater to the ground with tremendous force, thereby reducing soil retention. These characteristics indicate that a miconia-dominated forest is more prone to detrimental flooding impacts, including erosion and landslides, moreso than a native-dominated forest. More landslides will mean more opportunities for weed invasion in our upper watersheds and the effects of increased landslides and flooding hazards will be felt throughout communities surrounding forests invaded by miconia.

Miconia incursion will not only harm our terrestrial ecosystems and surrounding communities, but this species will also damage our marine ecosystems. Increased stream sedimentation and stormwater runoff will deposit excessive nutrients and nonpoint source pollution into our nearshore waters, aiding the spread of invasive algae and decreasing prime habitat characteristics for native marine species. Characteristics like higher turbidity and lower dissolved oxygen from excess sedimentation and runoff will push native species out of these areas and invite non native species who thrive in these conditions to invade these areas.

Unfortunately, miconia seeds remain viable in the soil for at least 18 years, making this a project that requires long-term financial comittment. OISC’s strategy is to survey the entire estimated seed bank of miconia every two to three years to find and remove trees before they mature. OISC utilizes a 1,600 meter buffering system around known plant locations. The inner 800 meter buffer is surveyed by ground, must be surveyed on a 3-year rotating schedule, and is the perferred method for detecting individual trees. Any areas deemed too steep to safely survey within the 800 meter ground buffer are surveyed by helicopter. The outer 800 meter buffer is surveyed once and then every 7 years when possible. This is the perferred method for detecting stands of miconia that have gone undetected in order to discover any outlier spread. These buffer distances have been informed by dispersal distance analysis and studies on biological vectors known to aid the spread of miconia.



In 2023, OISC conducted miconia surveys in 24 different watersheds across 3,525 acres by ground (including 1,088.2 roadside survey acres) and 4,839 acres by air. Crews controlled 1,814 immature and 5 mature miconia trees in 2023, protecting a total of 8,364 acres of forest across the island over 7,386 total work hours. The mature miconia trees were removed from the Ka‘alae‘a, Kalihi, Kawainui watersheds. OISC’s systematic control of miconia continues preventing the type of single-species stands that occur in Tahiti where this species threatens two-thirds of the forest and is directly threatening 25% of native forest species with extinction.

Left: staff hold bunches of immature miconia removed from the watershed.

Right: staff hand pull a large immature miconia.

The long-lived seedbank makes this species difficult to eradicate. Trees are sometimes missed because of thick vegetation and we have not been able to meet our goal of preventing maturation of trees in all watersheds. However, we have been able to prevent this species from establishing. When OISC first began surveys in 2002, we removed 40 mature and 3,347 immature trees from 2,042 acres. In 2023, OISC removed 5 mature trees over 8,364 acres, a drop in mature tree densities by 95% since 2002, while reducing the number of mature trees by 87.5% and more than doubling the number of acres surveyed.

Devil weed (*Chromolaena odorata*)

Chromolaena odorata is known as "devil weed" and for good reason. It is toxic to livestock and humans and a weed of conservation and agricultural concern throughout Africa and the Pacific. Populations of this species are currently known to occur at the Kahuku Training Area (KTA), ʻAhupuaʻa ʻO Kahana State Park, ʻAiea Loop Trail, Camp Smith, and a multitide of locations between Malaekahana and Pūpūkea on Oʻahu's north shore. Additionally, individual plants have been detected in Hauʻula and Mākaha, but no reproducing populations have been discovered during follow-up surveys. A lone plant on the outskirts of Lanikai Beach was also detected several years ago, but subsequent surveys revealed no additional recruitment.

In 2023 OISC continued early-detection surveys across 97.5 acres of Mākaha valley trails over the course of this reporting period during our annual camping operation with a team of seven to survey along trails and around historic point locations for detection and control of devil weed. Field crews detected no devil weed plants from the watershed across 280 hours of staff time although a single individual was detected by partner agency staff from the Waiʻanae Mountains Watershed Partnership along a fenceline that they maintain and reported it to OISC after treatment. Staff from partner agencies who work in this location have opportunistically found individual plants in the area, which has helped to direct OISC's efforts to focus on trails in addition to historic locations within the valley. Although our surveys have not revealed large patches of devil weed in Mākaha valley, this plant's ability to hitchhike on clothing and disperse itself has resulted in multiple detections in the area.

Staff filling Precision-Point Sprayer during an aerial control operation for devil weed in Kahana valley

In addition to devil weed survey and control operations in Mākaha, OISC conducted annual surveillance and control efforts in Kahana and at KTA. Field teams survey areas known to to have recurring historic devil weed populations twice per year. Staff remove flowers and seed heads of any mature plants they encounter and any seedlings too small for adequate field disposal. All vegetative material that cannot be disposed of in the field is hiked out in sealed containers and incinerated at waste facilities to ensure this species is not spreading through the transportation of green waste. Locations with high population densities in these two areas are chemically treated using a truck mounted power-sprayer or precision helicopter spray with low concentrations of non-toxic herbicides. All other plants are hand-pulled and hung securely to dry out roots leading to plant death.

Due to the expansion of devil weed at KTA, OISC shifted strategies to focus on treating hotspots and some trail and road surveyes at this site. OISC power-sprayed known and marked densley populated locations via trailer-mounted power-sprays over fewer camping operations. With less funding going toward this species due to its expanded establishment, OISC crews conducted two camping operations with six staff members. In the future, OISC will direct more effort toward outreach in areas adjacent to KTA while reducing field efforts. The strategy for devil weed in Kahana valley remains the same, and OISC staff will continue to ground survey and aerially treat the historic dense populations at this site. Steady population delcines continue at Kahana valley.

Some devil weed infestations on Oʻahu are now too large for OISC to be able to eradicate this species island-wide. Therefore, OISC has partnered with the Army Natural Ressources Program (ANRP), the

Department of Forestry and Wildlife (DOFAW), the Big Island Invasive Species Committee (BIISC) and the Hawai‘i Department of Agriculturre (HDOA) to test a biocontrol agent for future release. This gall-forming fly, *Cecidochares connexa*, has been released within several other pacific countries as a means to help control devil weed and has shown promising results. Currently, this biocontrol agent is undergoing host-specificity testing at the Pacific Basic Agricultural Research Center's (PBARC) biocontrol facility in Hilo. OISC continues collecting data on island-wide populations and plans to assist with the release of the biocontrol agent when it becomes available for distribution.

In combatting the spread of this tenacious species, OISC will continue to focus efforts on the edges of the infestation zones and move forward with supporting the biocontrol process. In total across O‘ahu, OISC controlled 602 mature plants and 5,481 immature across 295 survey acres in 2023, including 1,548.5 total work hours.

Rapid ʻŌhiʻa Death (*Ceratocystis huliohia and Ceratocystis lukuohia*):

Staff felling an ʻōhiʻa tree that tested positive for *C. huliohia*

Rapid ‘Ōhi‘a Death (ROD) is a forest disease caused by two species of fungal pathogen within the genus *Ceratocystis*. The pathogens have killed ʻōhiʻa trees across thousands of acres on Hawai‘i Island. So far, only the less virulent of the two species (*C. huliohia*) has been detected on Oʻahu. Utilizing high-resolution aerial imagery and data collected during biannual reconnasiance helicopter flights, OISC and its partners collect wildland samples of the most symptomatic and safely accessible trees. Staff also responds to public reports of dead or dying ʻōhiʻa, most often on private residential properties. A total of 14 trees since 2019 have tested positive for *C. huliohia*, and of the three positive detections in 2023, all three came from trail surveys within Mākaha valley.

In order to maintain a robust early detection and rapid response effort for ROD, OISC co-leads the O‘ahu ROD working group with staff from DOFAW, CGAPS, and ANRP. This working group implements strategies determined at the statewide level and addresses any island-specific considerations for response. Distributing sampling efforts between multiple partner agencies allows for a more complete effort across multiple land-ownerships to ensure that all safely accesible symptomatic trees are sampled. In 2023, OISC continued facilitating bimonthly meetings and will continue to co-lead this multi-agency partnership.

OISC performed early detection surveys over 122,504 acres of O‘ahu's ‘ōhi‘a forest by ground and air in 2023. Forest health surveys using the United States Forest Service Digital Mobile Sketch Mapping (DMSM) software allowed for one full island-wide surveys across 122,491 acres of ʻōhiʻa forest throughout the Ko‘olau and Wai‘anae Ranges. Additionally, staff surveyed 13.1 acres of Oʻahu trails and responded to 3 positive *C. huliohia* detections. In coordination with staff from ANRP and DOFAW, OISC

assisted in felling one positive detection in Mākaha but left the other two infected trees standing as felling would've damaged surrounding ʻōhiʻa and opened those healthy trees up for infection.

The work on Oʻahu is part of a statewide effort that is conducting early detection using the same methodology on all islands and is done in close cooperation with the Koʻolau Mountains Watershed Partnership (KMWP), DOFAW, and other partner agencies. In total, OISC collected 20 samples of ʻōhiʻa, including 15 samples from 15 public reports of dead or dying trees.

Staff using Digital Mobile Sketch Mapping (DMSM) technology to map single trees and stands of ʻōhiʻa forest showing signs of ROD.

Cape Ivy (*Delairea odorata*)

Cape ivy invades dry forests on the Big Island and can smother native plants. The OISC crew has been monitoring and controlling a cape ivy infestation in Pālehua in the Waiʻanae Mountains since 2009. Through persistent treatment, the infestation has been drastically reduced from patches that were too numerous to count to only 8 individual immature plants and zero mature plants in 2021. Despite an uptick last year from discovering a previously unknown patch of cape ivy likely resulting from habitat modification from the homeowner, the population appears to be again in decline. In total during 2023, OISC surveyed 44.8 acres at known sites across the 100-acre region, detecting and removing 31 immature plants, down from 192 in the previous year.

OISC also assisted the Hawaiʻi Department of Agriculture (HDOA) in the release of a cape ivy biocontrol agent that has already been approved for release. *Secusio extensa* is a species of moth native to Madagascar and southern Africa, and was released as a biocontrol agent for fireweed (*Senecio*

madagascariensis). Fortunately, this agent is also known to control cape ivy, another well-known invasive weed that remains incipient on O'ahu. This moth substantially reduces the fitness of target species via defoliation, thereby reducing a plant's ability to photosynthesize.

A table showing the decline in plants is shown below:

Year	Mature	Immature	Acres
2023	0	31	44.8
2022	0	192	53.92
2021	0	8	52.80
2020	0	27	85.65
2019	0	44	79.46
2018	0	150	78.85
2017	1	503	217.59
2016	1	1,365	291.36
2015	6	1,384	126.11

Himalayan blackberry (*Rubus discolor*; syn: *Rubus armeniacus*)
Himalayan blackberry is a thorny vine that is a serious problem in the Pacific Northwest. OISC staff have been told that it was planted on public land by a resident of Pālolo for fruits and to dissuade trespassers. It has since spread up the valley into the native ʻōhiʻa forest, threatening the native species there. Himalayan blackberry is difficult to control since it is resistant to available herbicides and re-grows easily from cut stems and roots. Despite these challenges, OISC has drastically reduced Himalayan blackberry numbers. Staggered chemical treatments reduced population numbers enough that OISC now focuses on manual removal for this species. OISC conducted 28.8 acres of ground surveys in 2023 around known accesible sites, detecting no Himalayan blackberry plants.

A table and graph demonstrating the decline in plant numbers for each location is shown below:

Action Year	Mature	Immature	Acres	Total People Hours
2023	0	0	28.87	294
2022	0	1	29.31	250
2021	0	4	32.73	250
2020	0	4	33.11	240
2019	0	7	28.76	184
2018	0	5	29.28	248
2017	0	23	58.23	485

Cane Ti: (*Tibouchina herbacea*)

Cane ti threatens priority native watershed habitat in Poamoho, an area in the northern Koʻolau Range. ANRP staff discovered the highly invasive cane ti (*Tibouchina herbacea*) in the Poamoho region in 2008. This aggressive weed was not known to be naturalized on Oʻahu, but it is widespread on both Hawaiʻi island and Maui where it is beyond the scope of eradication. On these islands, cane ti forms dense thickets that crowd out native plant growth and can proliferate in pockets of intact native forest. In 2023, OISC surveyed 211.5 acres by ground and air, controlling a total of 215 mature and 283 immature plants within the Poamoho region.

Staff inspecting a large cane ti plant while wearing Tyvek suits to prevent contamination.

Field staff conducted aerial helicopter surveys across 188.3 acres on the windward and leeward sides of the Poamoho summit, adjacent to core populations, in order to delimit outlier populations and inform aerial treatment locations in areas inaccessible by ground. Utilizing the helicopter precision spot spray method, OISC treated 204 mature and 53 immature cane ti individuals within these outlier areas. Both aerial and ground operations are conducted in conjunction with control efforts from the Natural Ecosystems Management & Protection (NEPM) sector of DOFAW, and staff from KMWP.

EARLY DETECTION & RAPID RESPONSE

Early-detection and rapid-response (EDRR) is a critical component for the biosecurity of our island and our state. Despite funding shortfalls in 2023, OISC continues to fill a crucial role in EDRR activites for Oʻahu. Mostly through outreach until more funding becomes available, OISC responds to public reports of target and high-priority pests and responds either with direct field intervention or delegation to partner agencies.

PORTS OF ENTRY/EXIT SPECIES

Africanized honey bee (*Apis mellifera scutellata*):

OISC conducts early detection surveys via trap checks for Africanized bees at Daniel K. Inouye International Airport in Honolulu and Honolulu Harbor as part of a collaborative statewide effort coordinated by the Ports of Entry/Exit Biosecurity Monitoring Program (formerly, the Māmalu Poepoe

Program). This Ports Biosecurity program is a partnership between the Hawai'i Department of Transportation (HDOT) and the Hawai'i Invasive Species Council (HISC) established to conduct early detection of high-priority pests at Hawai'i ports of entry and exit. In past years, OISC has facilitated trap checks at the airport but expanded in late 2022 to include areas at Honolulu Harbor.

OISC conducted trap checks for this species once per month during what historically has been the low bee activity season (October – April) and twice per month when bee activity tends to increase (May – September). This strategy resulted in a total of 12 traps checked a total of 20 times at the Daniel K. Inouye Airport and 13 traps checked 19 times at the Honolulu Harbor. OISC staff did not detect any Africanized honeybees in 2023.

Coconut Rhinoceros Beetle (*Oryctes rhinoceros*)

Coconut rhinoceros beetle (CRB) is becoming widespread on Oʻahu but initial detections have occurred on Kauaʻi, Maui, and Hawaiʻi Island. A separate CRB response team is taking the lead for the response but OISC assists with tree surveys and trap checks at the ports of entry/exit, Daniel K. Inouye Interntional Airport in Honolulu, to supplement the island-wide efforts. CRB damage can kill coconut and other palms and is a widespread problem on neighboring Pacific Islands. In 2023, OISC conducted 14 trap checks of 11 unique traps and conducted 1 palm survey to check for beetle damage. One CRB was confirmed in a trap and the palm survey yielded potential damage that will continue to be monitored at regular intervals. OISC also sent outreach and field staff to a training organized by the CRB Response Team to develop detection skills for larvae in mulch piles and identifying CRB damage on palms. Unfortunately, CRB has now become widespread across the island and the statewide strategy is shifting to preventing this species from infiltrating neighbor islands. OISC will continue checking traps in order to help prevent this species from travelling through O'ahu ports and infesting novel locations statewide.

Staff training with the CRB Response Team to learn CRB larval detection protocols for mulch piles.

Japanese Beetle (*Popillia japonica*)

Japanese beetle is a high-profile invasive pest that feeds on more than 300 species of host plants, including some turf species. OISC staff checks Japanese beetle traps twice per month during the active season of May through the end of October at both Honolulu Harbor and the Daniel K. Inouye Interntional Airport in Honolulu. In 2023, OISC scouted, identified, and selected trap locations with staff from the United States Department of Agricuulture (USDA) and the Hawaiʻi Invasive Species Council (HISC). OISC staff checked 13 traps 12 times at Honolulu Harbor, and 10 traps 12 times at the Daniel K. Inouye Interntional Airport, detecting no Japanese beetles in 2023.

Foreign Trade Zone Species

In partnership with the Hawai'i Department of Land and Natural Resources (DLNR) Ports of Entry/Exit Monitoring Program, OISC has expanded surveillance of species not yet detected on Oahu, some not yet detected in the state, to the Hawaii Foreign Trade Zone (FTZ). Located at the entrance of Honolulu Harbor, the FTZ is a secured-access building with very strict rules, including no photographs and no moving of any items within the building while on survey. OISC assisted in identifying appropriate sites for sticky traps and putting up and checking those traps for a variety of high-priority pest species outside of the building with the idea that future operations beyond 2023 may include surveillance within the building as well.

In 2023, OISC selected sites and erected three different types of sticky-traps for detection of five distinct invasive pests: brown marmorated stink bug (*Halyomorpha halys*), Asian longhorned beetle (*Anoplophora glabripennis*), Queensland longhorned beetle (*Acalolepta aesthetica*), spongy moth (*Lymantria dispar*), and spottend lanternfly (*Lycorma delicatula*). Over the course of 11 trap checks, OISC staff detected none of these species outside the FTZ.

OTHER EDRR SPECIES

Little Fire Ant (LFA) (*Wasmannia auropunctata*)

LFA is a tiny stinging ant that is established on Hawai'i Island and was accidentally introduced to O'ahu in two separate locations. OISC has primarily focused on outreach for this species since 2019, but has increased field assistance to OISC partner agency Hawai'i Ant Lab (HAL) as infestations have expanded across the island, despite no specific funding for LFA operations. In 2023 OISC assisted in 30 days of surveys and 29 treatment days, an increase of over 328% for surveys and 190% for treatments since 2022. These efforts took place island-wide, mostly along the windward coast where the species continues to spread, but also throughout the urban core and one survey at the Daniel K. Inouye Interntional Airport.

Additionally, OISC provided field capacity for two vegetation maintenance days in preparation for survey and treatment while having one treatment day cancelled due to weather. Outreach staff assisted HAL staff regularly with access permission and community response coordination throughout the year. Several OISC staff members also attended an ant species identification workshop hosted by the HAL. The primary responding agency for LFA survey and control is the HAL, and OISC has worked diligently to secure additional funding to assist in the face of increasing LFA populations. In 2024, OISC will have more staff to assist HAL more regularly and increase outreach capacity.

Attendees practice ant identification in a training hosted by HAL.

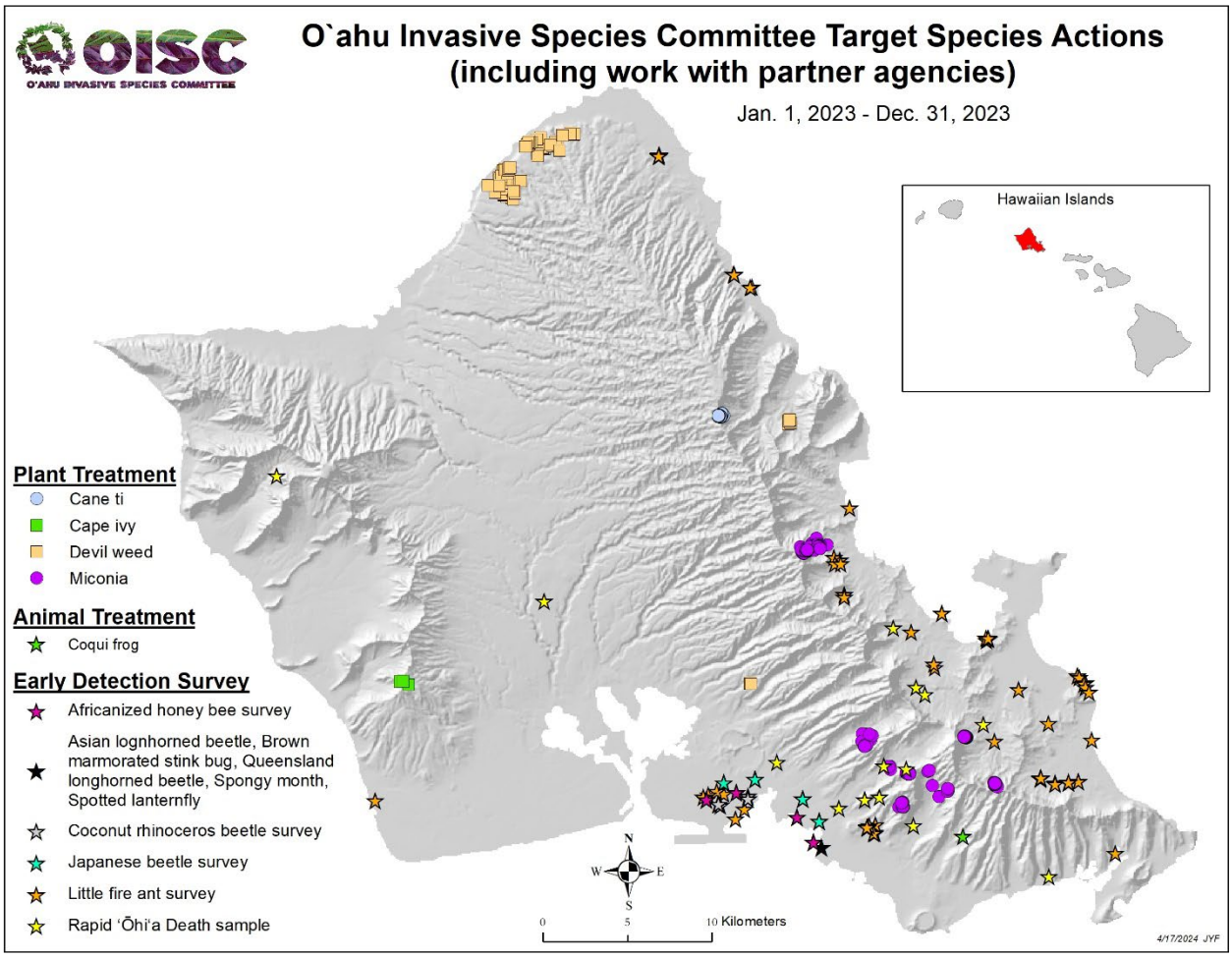
Staff showcasing LFA testing supplies (peanut butter and chopsticks) at the annual Punahou Carnival Plant Sale.

Coqui Frog (*Eleutherodactylus coqui*)

OISC provides support to the HDOA for early detection of coqui frogs by responding to public reports and passing on that information along to appropriate points of contact. Coqui frogs can be stowaways on plants and other items such as vehicles, boats and construction materials from areas on Hawai'i Island with large coqui frog populations. Whenever possible, OISC assists with response to these public reports on O'ahu through coordinated monitoring and subsequent control efforts with HDOA staff.

In 2023, OISC was not awarded funding specific to coqui frog control operations but did assist in the on-going response led by HDOA, the Department of Land and Natural Resources (DLNR), and the Hawai'i Invasive Species Council (HISC). After some helicopter treatments in 2022, OISC consulted with the Maui Invasive Species Committee (MISC) since they have an extensive coqui control program as the strategy for the Waimānalo population shifted back to utilizing a citric pipeline for extensive treatment. Utilizing partner funds for supplies, OISC constructed the initial leg of the citric pipeline but none of the partners could resolve the lack of pressure in propelling the citric acid formulation to the work site. OISC consulted with a retired fluid dynamics engineer to determine the necessary specifications needed to

finish the pipeline, but the project is more complex than originally thought and beyond that engineer's expertise. OISC will continue consulting with engineering experts in order to get the pipeline functioning. OISC staff also assisted with two power-spray operations in Palolo, two site visits to the Waimānalo population to plan the pipeline, and six days in the field constructing the initial leg of the pipeline.



A spatial overview of all OISC field operations taking place across Oʻahu.

OISC ANNUAL OUTREACH REPORT 2023

2023 was the year of rising LFA detections on O'ahu and much of OISC outreach efforts went to supporting early detections and messaging that supports efforts to "Wave Goodbye" to LFA.

OISC Outreach staff dressed as LFA at the Pest World Conference, October 2023.

OISC outreach program is dedicated to promoting our mission to prevent, detect, and eradicate invasive species on O'ahu.

Prepared by Erin Bishop, Outreach Coordinator

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OISC OUTREACH TEAM


OISC Outreach Staff at ʻŌhiʻa-Free Wreath Making Workshop. - December 2023

L: Erin Bishop, OISC Outreach Coordinator
R: Jamie Miller, Outreach & Education Associate

The OISC outreach program is dedicated to furthering our mission of preventing, detecting, and eliminating invasive species on Oʻahu. This goal is accomplished through interactions with local schools and communities, developing and sharing educational materials, coordinating volunteer outings, and partnering with other organizations to enhance outreach activities. Additionally, the program ensures access for field operations.

The outreach team comprises two essential members: the Outreach Coordinator and the Outreach & Education Associate. The Coordinator is responsible for overseeing the program, aligning strategies with OISC goals and funding objectives, delivering outreach messages at community events, ensuring access for field operations, and supervising the Outreach & Education Associate. On the other hand, the Associate focuses on creating content, managing social media, presenting Hōʻike LFA Activity sessions in schools (K-12), and engaging in outreach events.

The following report provides detailed insights into OISC's outreach endeavors and highlights how we spread awareness about invasive species a remarkable 596,226 times in 2023.

2023 FUNDER GOALS:

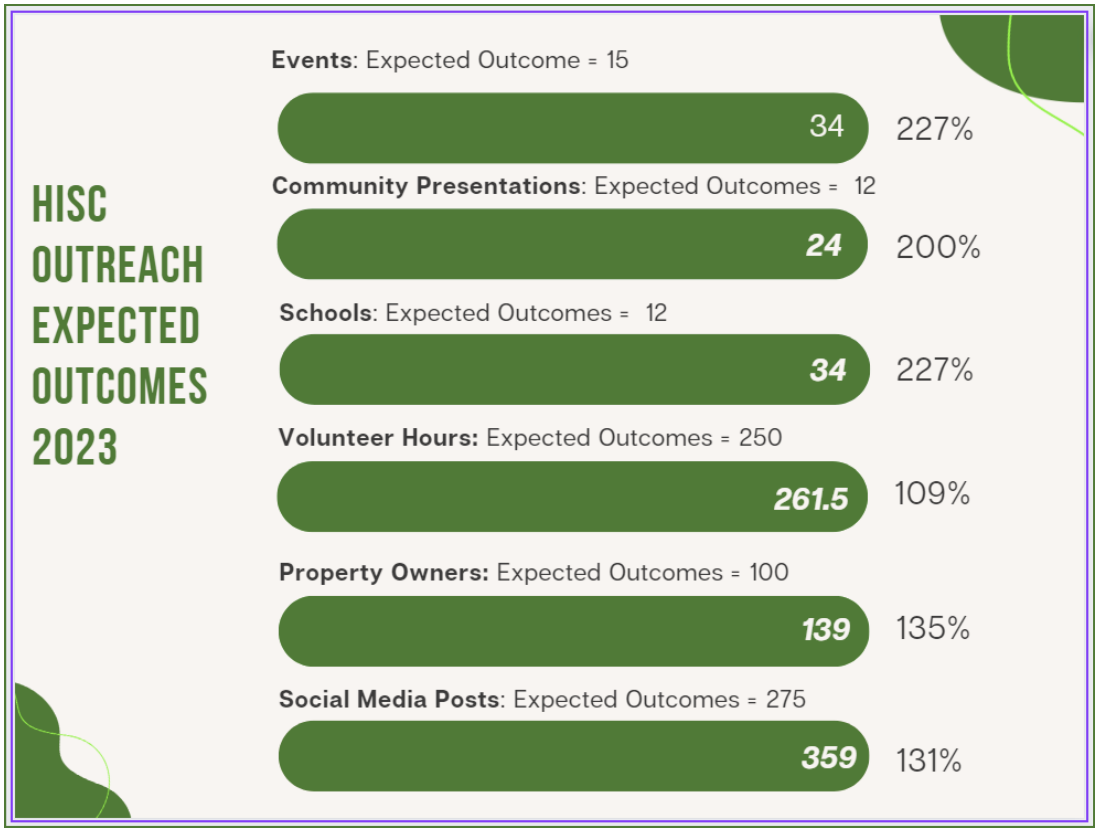
OISC received funding from the Hawai'i Invasive Species Council (HISC), the Honolulu Board of Water Supply (BWS), and the Watershed Partnerships (WP), Army Natural Resources Program- O'ahu (ANRP) for outreach activities in 2023.

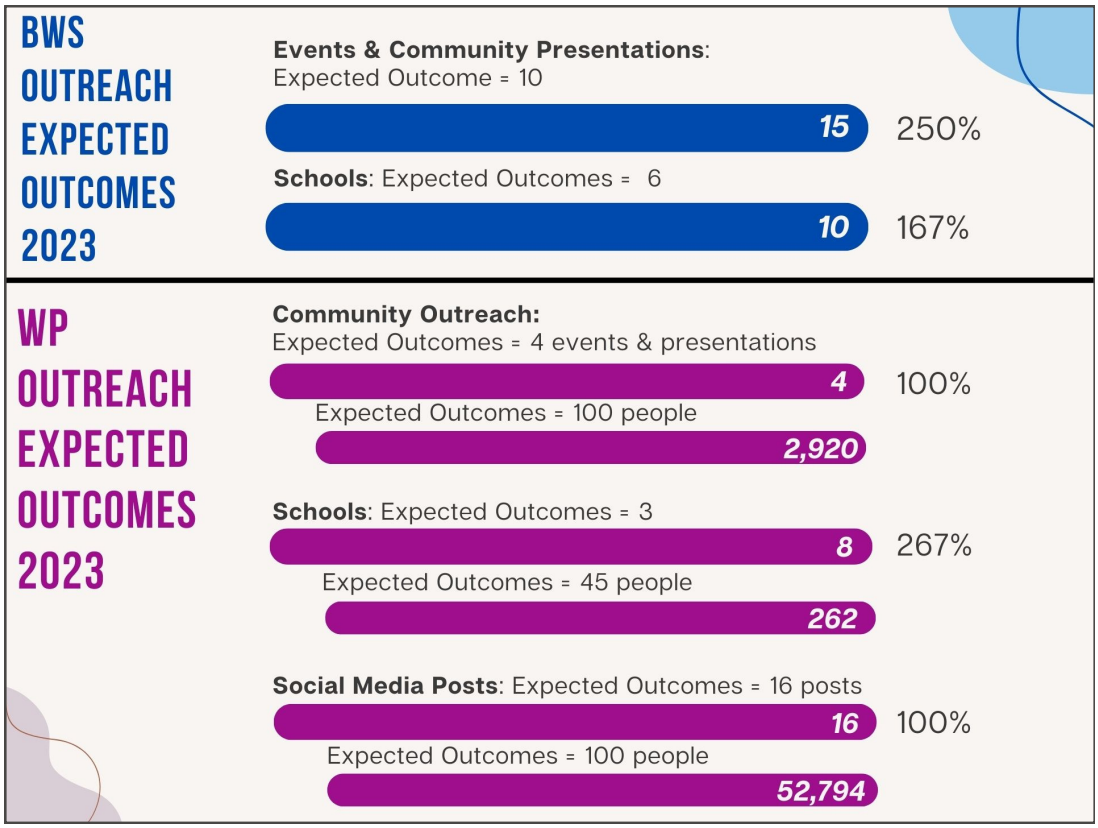
We reached or exceeded all expected outcomes except for ANRP-O, which received an extension until March 31, 2024.

Funder	Expected Outcomes	Completed
HISC	Display at 15 events	34
	12 community presentations	24
	12 school presentations including Hoike LFA activity	36
	250 volunteer hours	273.5
	100 property owners contacted	139
	275 posts to social media	359
	Assist with Stop the Ant Month	Yes
	Assist with HISAM	Yes
	5% engaement rate (social media)	15%
BWS	Display at 10 community events	15
	10 school presentations	10
	HaSTA & HEEA watershed health curriculum	Yes
WP	16 social media posts (cane ti)	16
	>100 people engaged on social media (cane ti)	52,794
	3 school presentations (cane ti)	9
	>45 students at school (cane ti)	262
	4 events and/or community presentations (cane ti)	4
	>100 people engaged at event/community presentations (cane ti)	2920
*ANRP	3 agriculture related events	3
	Direct outreach to 6 farms/ranched	In progress
	Create & distribute materials for farmers/ranchers	In progress
	Webpage resource for chrodo	In progress

**ANRP Grant is extended until March 15th, 2024. At the time of this report all expected outcomes are on track to be completed by the extension date.*

FUNDER EXPECTED OUTCOMES - 2023


HISC OUTREACH EXPECTED OUTCOMES 2023
Events: Expected Outcome = 15
34
227%
Community Presentations: Expected Outcomes = 12
24
200%
Schools: Expected Outcomes = 12
34
227%
Volunteer Hours: Expected Outcomes = 250
261.5
109%
Property Owners: Expected Outcomes = 100
139
135%
Social Media Posts: Expected Outcomes = 275
359
131%


BWS OUTREACH EXPECTED OUTCOMES 2023
Events & Community Presentations:
Expected Outcome = 10
15
250%
Schools: Expected Outcomes = 6
10
167%
WP OUTREACH EXPECTED OUTCOMES 2023
Community Outreach:
Expected Outcomes = 4 events & presentations
4
100%
Expected Outcomes = 100 people
2,920
Schools: Expected Outcomes = 3
8
267%
Expected Outcomes = 45 people
262
Social Media Posts: Expected Outcomes = 16 posts
16
100%
Expected Outcomes = 100 people
52,794

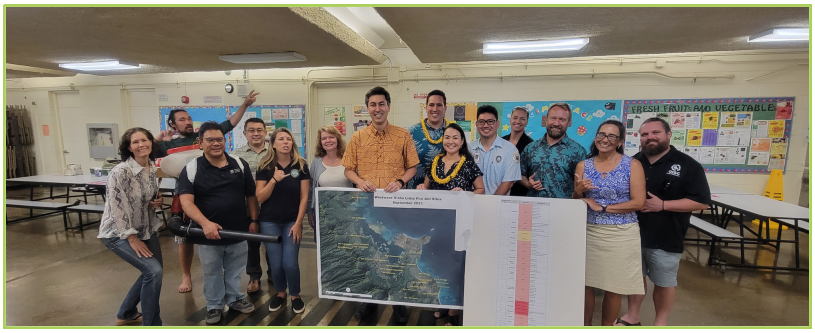
2023 OISC PROGRAM GOALS:

OISC outreach program has in-house goals and objectives that align with, and often go above our funding projected outcomes (AKA "deliverables/EOs"). Priority issues and messaging were identified at the beginning of 2023 and a strategy was developed to meet all our in-house and funder goals.

1. Increase awareness and knowledge about miconia impacts on environmental services provided by watersheds in Hawai'i.
2. Increase public understanding of OISC operations and messaging
3. Increase reporting (ED/RR).
4. Support Hawai'i Ant Lab in Little Fire Ant efforts.
5. Maintain and grow social media following and engagement.

SPECIES MESSEGING: HIGH PRIORITY

- Miconia *(Miconia calvenscens)*
- Little Fire Ant *(Wasmannia aurpunctata)*
- Devil Weed *(Chromolaena odorata)*
- Rapid ʻŌhiʻa Death *(Ceratocystis spp.)*
- Cane Ti *(Tibouchina herbaces)*
- ED/RR - Reporting



OISC staff attended numerous LFA Townhalls in 2023: here staff is pictured at the Kāneʻohe Town Hall hosted by Sen. Keohokalole on 9/20/2023.

OISC staff (L to R): Field Crew Leader, Meleana Kastner and Outreach & Education Associate, Jamie Miller interviewed on KHON's Living 808 on 8/7/2023.

REPORT INVASIVE SPECIES
643-PEST
643pest.org
CALL OR CLICK TO PROTECT HAWAII

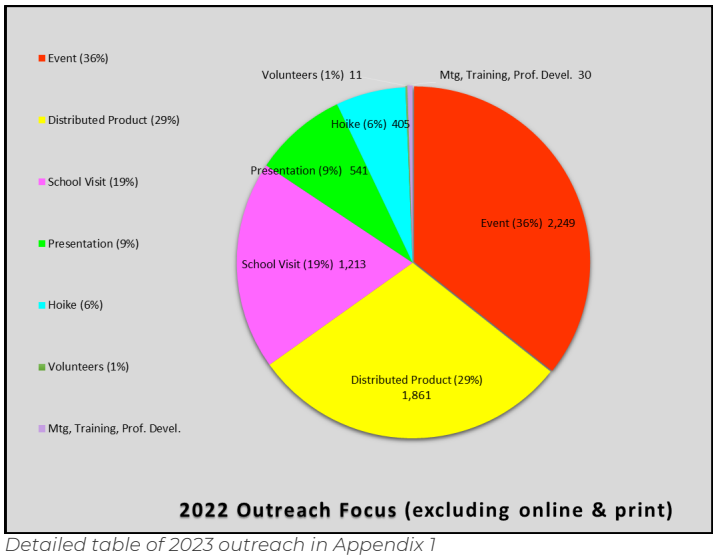
2023 COMPLETED OUTREACH: 596,226

The outreach team disseminated our message a total of 596,226 times throughout 2023. Subtracting the audience reached by the Stop the Ant Month ads (421,487) from this total reveals that the outreach for 2023 stood at 174,739. This marked a significant 74% surge from the previous year's total of 43,887.

Key factors contributing to this upsurge in outreach included the KHON “Living 808” interview, the LICH Magazine Article, product distribution efforts, and heightened engagement on social media platforms.

OISC participated in numerous collaborative efforts this year with HISAM 2023, Stop the Ant Month, ʻŌhiʻa Love Fest, Earth Month and attended the ROD Outreach Symposium in Hilo (May 2023).

Type	Audience
Article - Ads	421,487
Article - Authored	6,000
Distributed Product	6,099
Events	3,636
Hoike	1,149
Interview	100,302
Meeting	34
Presentation	696
Professional Development	71
School Visits	1,492
Social Media (engagement)	41,944
Volunteer Trip (OISC)	31 (261.5hrs)
Volunteer Trip (AAP)	10
Website	13,240
TOTAL	**596,226**

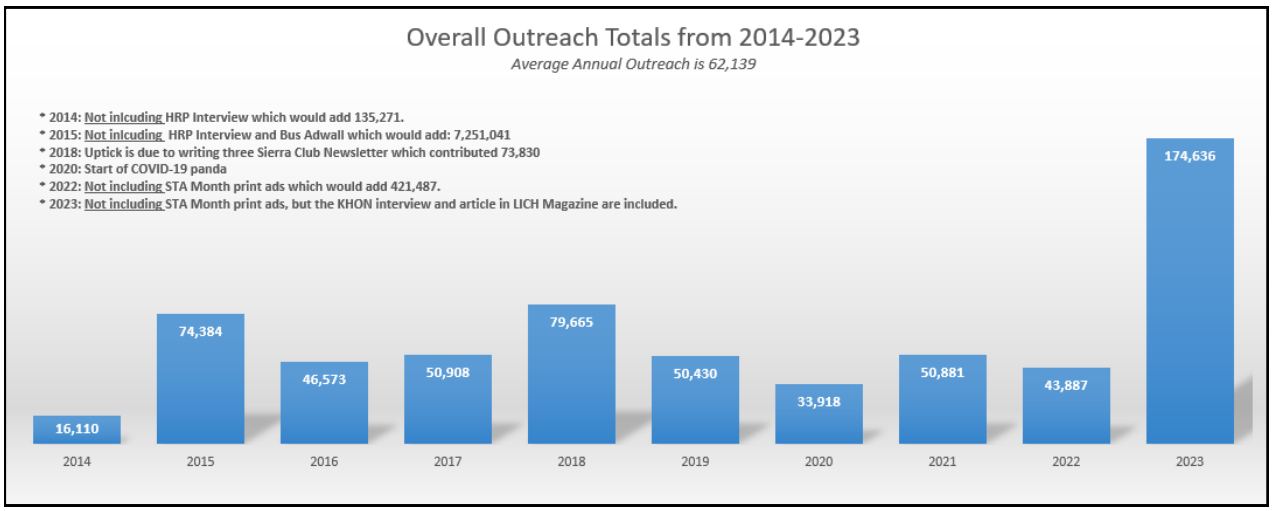


Detailed table of 2023 outreach in Appendix 1

OISC Outreach Team at the 2023 ROD OUtreach Workshop, HIlo, HI.

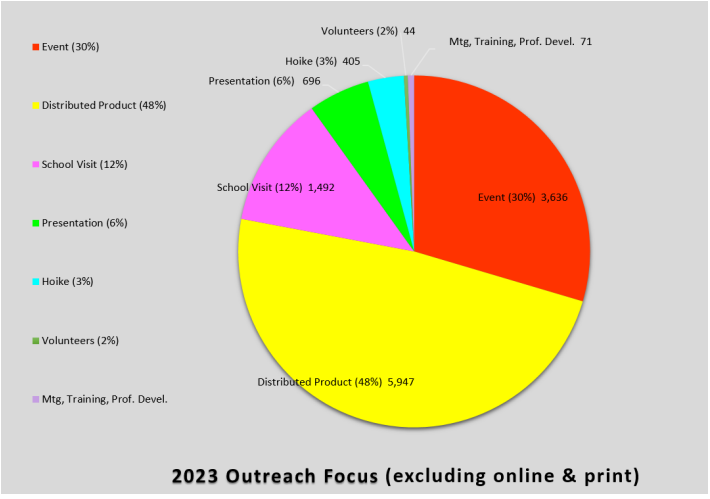
OISC OUTREACH TOTALS -2023

OVER THE YEARS: On average, outreach totals are around 62,000 annually. Some huge estimates spike totals when doing radio interviews or mass print ads...but those have been teased out (as described in the chart) to get a more realistic overview. In 2023, the audience reached with the KHON Living 808 interview and LICH magazine article were kept in the total since those topics were directly related to OISC outreach efforts.



The primary outreach methods utilized for both OISC objectives and fundraising initiatives include events, community presentations, school visits, social media engagement, website utilization, and volunteer programs. Additionally, secondary outreach methods encompass written articles, radio or television interviews, print advertisements, and product distribution. Although the latter garners broader reach and increased engagement, the efficacy of the outreach primarily focuses on raising awareness of the issues rather than facilitating a deep understanding of the problem and the necessary actions to address it.

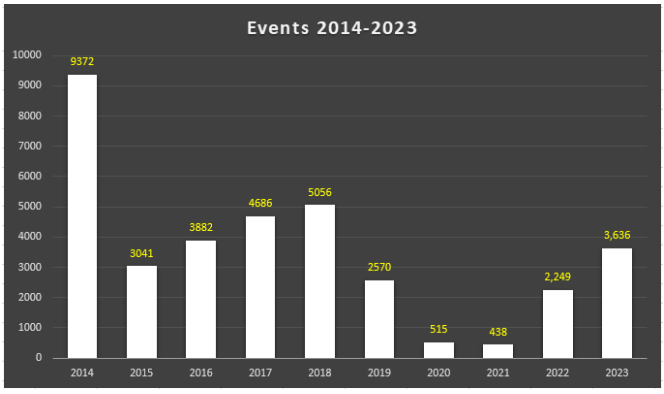
When used collectively, employing diverse messaging techniques can efficiently prompt desired actions, such as reporting incidents, advocating for legislative support, securing access for field operations, or promoting practices like decontamination.



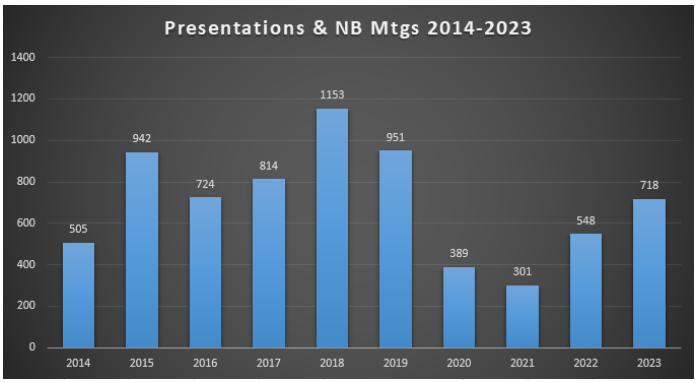
OISC OUTREACH TOTALS -2023

OISC OUTREACH TOTALS -2023

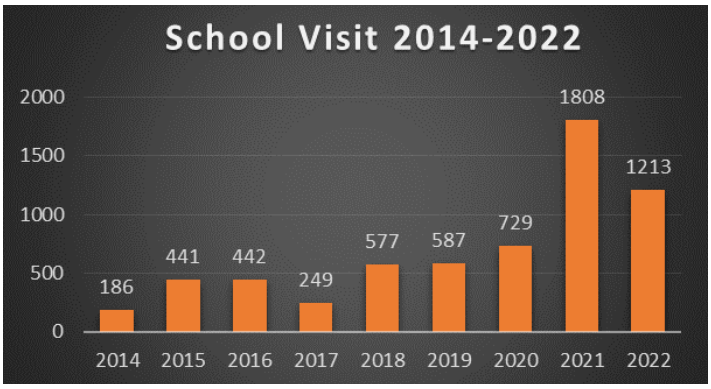
OISC attended **35 unique events, reaching 3,636 people** in 2023 reaching approximately 3,636 people. We are pleased to see our outreach is climbing back towards pre-COVID rates. Events attended this year include the Pest World Confernce and HI Pet Expo.

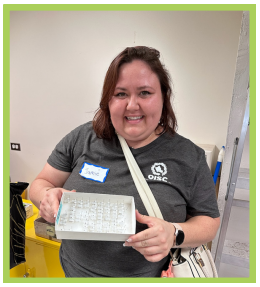


OISC reached over **700 people with 25 unique community groups** in 2023 including LICH Conference, DOD Pesticide Training, Western Chapter of the International Society of Arboriculture Conference, and numerous town hall and neighborhood board meetings.

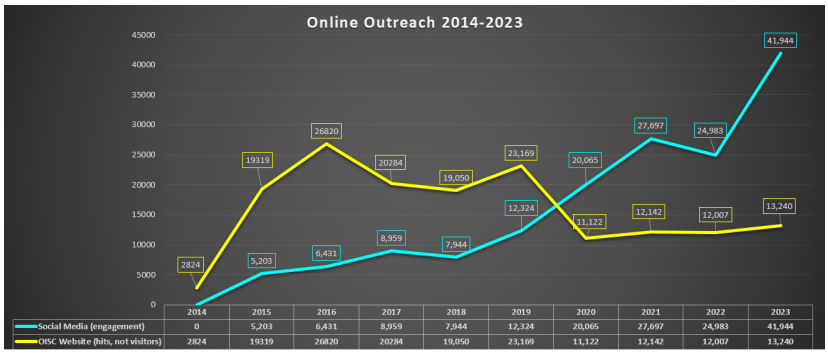


OISC delivered presentations to fifty classes at K-12 and university levels, engaging with 1,213 students across 20 schools in 2023. The Hōʻike LFA Activity is separately accounted for and is not included in the school visits data.





The OISC website encountered a significant decline in traffic in 2019 and has since sustained lower visitor numbers. Last updated in 2014, the website became outdated and lacked mobile responsiveness. Towards the end of the current year, OISC initiated a website redesign in collaboration with Websites with Aloha. The relaunch, scheduled for 2024, aims to deliver a more mobile-friendly, succinct, and user-centric website. Additionally, the revamped site will feature additional pages showcasing community initiatives focused on addressing invasive species.



Throughout the year, OISC monitors our online presence closely. We have observed a consistent growth in our social media reach. After appointing the OISC Outreach & Education Associate to handle social media, we have noticed an increase in interactions. This report includes details on OISC's social media strategy and performance metrics.

Volunteer programs at OISC have evolved over the years. Currently, OISC has partnered with HI State Parks Adopt-A-Park program that allows us to conduct volunteer trips at Pūpūkea-Paumālu State Park Reserve. In 2023, we conducted ten trips, dedicating 181.5 hours to survey 71 acres and removed 1533 devil weed plants, 4 of which were mature.

In addition to monthly AAP trips, OISC devil weed crew added 80 hours to survey 141 miles of trails and remove 811 plants. OISC also partnered with MCBH to survey for devil weed at Camp Smith.

OISC volunteers with the Adopt-A-Park program at Pūpūkea-Paumālu (devil weed surveys).

OISC OUTREACH TOTALS -2023

DWC

Beginning in 2021, COVID-19 restrictions and PCSU's new volunteer policy had significant impacts on how we conduct volunteer opportunities. To compensate, OISC developed the self-led volunteer program "Devil Weed Crew (DWC)" implemented and revamped with a "DWC Challenge" in 2022 to include incentives such as stickers, cups, and t-shirts. We launched another challenge in late summer 2023, but promotion for the challenge lagged as little fire ant outreach took priority. The majority of data is from Conservtion Dogs of Hawai'i and we continue to get requests for DWC Field Guides, mailing out 13 guides in 2023.

How to use AllTrails to record & report surveys.

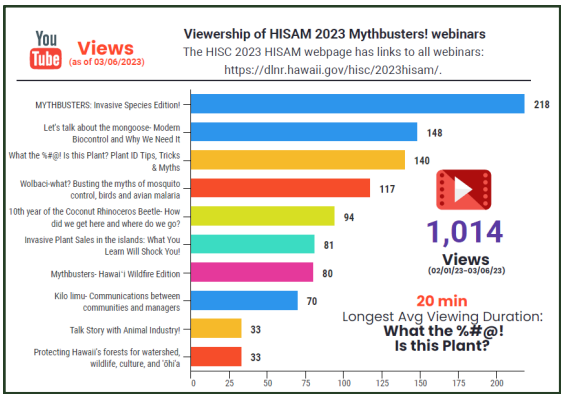
2023 Devil Weed Crew	
Volunteer Hours	80
DWC Guides Mailed	13
Unique Trails	9
Miles of trails	141
Hours	80
Unique Vols	6
Imm	777
Mat	34

Devil Weed Crew

- Launched in February 2021.
- Annual Summertime DWC Challenge
  - Survey 5 mi...get a hat (gave away 7 since 2021, 1 in 2023)
  - Survey 15 mi...get a 20oz tumbler. (gave away 7 since 2021, 1 in 2023)
  - Survey 20 mi...get a t-shirt.(gave away 3 since 2021, 1 in 2023)
- List of trails to be surveyed on website (kept up to date with latest surveys).
- Look-a-like guide for volunteers upon request (114 since 2021, 13 in 2023).
- Rack card on how to use the AllTrails app to survey.
- Five (5) videos for YouTube
  - DEVIL WEED SEEDS AND FLOWERS
  - DEVIL WEED CREW...HOW TO FOR EARLY DETECTION TRAIL SURVEYS FOR DEVIL WEED
  - DEVIL WEED CREW VOLUNTEER PRESENTATION
  - ID ME CHROMOLAENA ODOARATA
  - INVASIVE SPECIES AND AGRICULTURE: A CLOSER LOOK AT DEVIL WEED

OISC OUTREACH TOTALS -2023

The Hawai'i Invasive Species Awareness Month (HISAM) is an annual campaign organized by the Hawai'i Invasive Species Council (HISC), in which OISC participates. Overall, HISAM 2023 hosted 10 webinars and live feeds during the month of February. There were a total of 342 live participants and 1,014 views on YouTube.



During HISAM, OISC participated in 3 HISAM Webinars; "Mythbusters", "Wolbaci-what?", and "Invasive Plant Sales in the Islands".

- Links to HISC 2023 HISAM webinars: https://dlnr.hawaii.gov/hisc/2023hisam/.
- Link to HISAM 2023 Stats Report: https://drive.google.com/file/d/1Gkbm7i83HZrgjIuCCUl09kZpc7IBqnkG/view?usp=sharing

Watershed Curriculum developed by OISC in early 2019 is designed for students grades 3-5 and adheres to the Next Generation Science Standards (NGSS). The lesson consists of four sections; Plants, Watersheds, Hawaiian Land Divisions, and Threats. Each section is accompanied by a recorded webinar, PowerPoint, classroom activity, and three vocabulary worksheets.

The Watershed Curriculum is available for download on OISC Website and links are posted on the Hawaii Science Teachers Association (HaSTA) website and the ClimbHI Bridge, an online portal that connects businesses, educators, and students. OISC also attended the HaSTA Conference on Sept. 16, 2023 promoting the Watershed Curriculum. The curriculum has been viewed on OISC website 208 times in 2023, and 902 times since it was posted in 2019.

**The Hawaii Environmental Education Alliance (HEEA) has not been consistently active since 2018. Updates to their website have lapsed and it is unlcear whether or not they have any active staff.*

- OISC: http://www.oahuisc.org/watershed-curriculum/
- ClimbHI Bridge: https://climbhi.org/portals/
- HaSTA: https://hasta.wildapricot.org/Learning-Resources
- * http://heea.org/resource/about.aspx?s=131711.0.0.89929: LINK NO LONGER WORKING

Stop the Ant Month (STA) is an annual statewide outreach campaign led by CGAPS with each island's ISC taking leads for their respective county. The actionable request to the public was to request an ant collection kit and submit ants for identification. On O'ahu, distributed kits increased by 41% from last year, kit requests by mail decreased by 16%, and samples submitted increased by 9%. This shows that even though kit requests dropped a bit, samples submitted and kits distributed are increasing.

SPOT THE ANT STOP THE ANT
www.StopTheAnt.org

Kits Requested	Oct 2021	Oct 2022	Oct 2023	% increase of Oct from 2022
Hawaii Is	68	126	203	38%
Maui	23	135	35	-286%
Oahu	224	340	294	-16%
Kauai	18	98	300	67%
TOTALS	**333**	**684**	**832**	**18%**

STA Month October 2023	Kits Requested 2023	Samples Submitted 2023	Return Rate 2023
Hawaii Is	203	26	13%
Maui	35	62	177%
Oahu	**294**	**92**	**31%**
Kauai	300	15	5%
TOTALS	832	195	23%

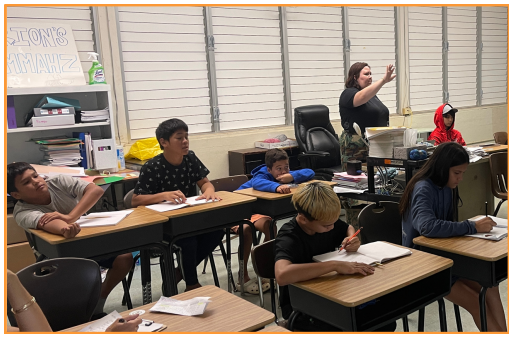
Outreach Type (Oct. STA Month)	Type Total
Article/Print (Star & Midweek)	421,487
Distributed Product (294 mailed LFA KITS)	832
Events (4)	221
Hoike (4) Sept 1-Oct 31	151
Presentation (4)	175
School Visit (1)	115
Social Media (posts)	11
Social Media (engagement)	9%
Social Media (reach)	5,993
Samples Submitted	92
Legislator Outreach	30

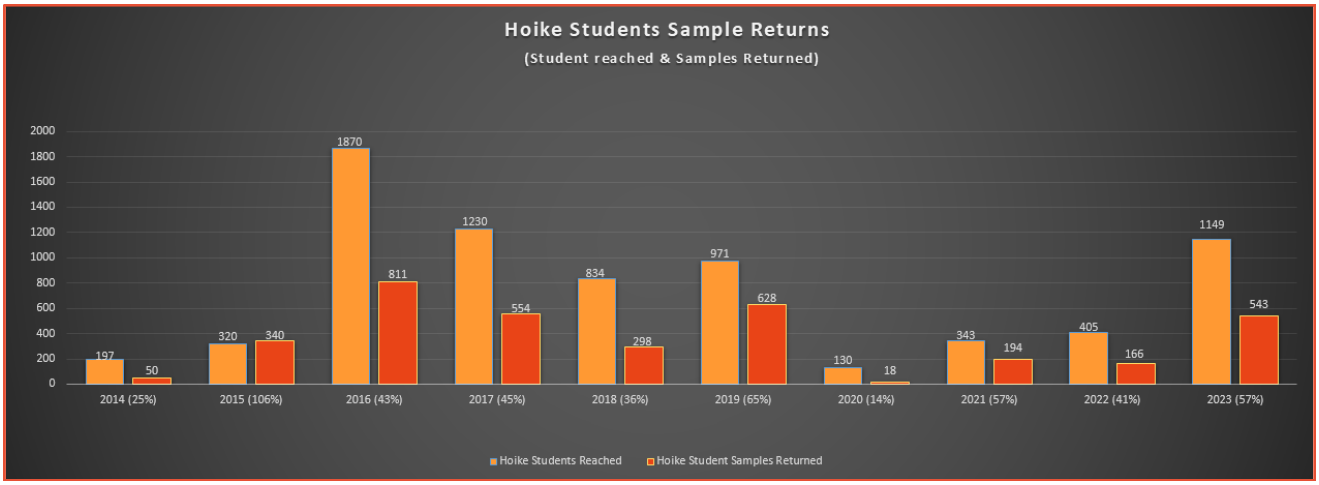
OISC was responsible for creating and placing ads in a Sunday Star-Advertiser and printing of The Midweek. OISC conducted 4 Hō'ike LFA Activities during October and some part 2 of the activity carried into November. OISC sent LFA updates and STA Month letters to 30 C&C and State Legislators, providing them with outreach materials to share with their constituents. OISC also created social media templates for the statewide group and had nearly 6,000 engagements across our social media platforms.

Ad in the Star Advertiser (10/8/23) and Midweek (10/18/24).

PROJECTS & CAMPAIGNS

Hōʻike LFA Activity Update: The Hōʻike initiative shows signs of recovery as in-person activities resumed in 2023, garnering significant participation. The internal target set by the OISC was to reach 12 unique schools, an objective nearly met with 11 schools. In 2023, Jamie Miller conducted the Hōʻike sessions in 77 classrooms, interacting with 1,149 students and collecting 543 ant samples, resulting in a remarkable 57% return rate surpassing our goal of 50%.



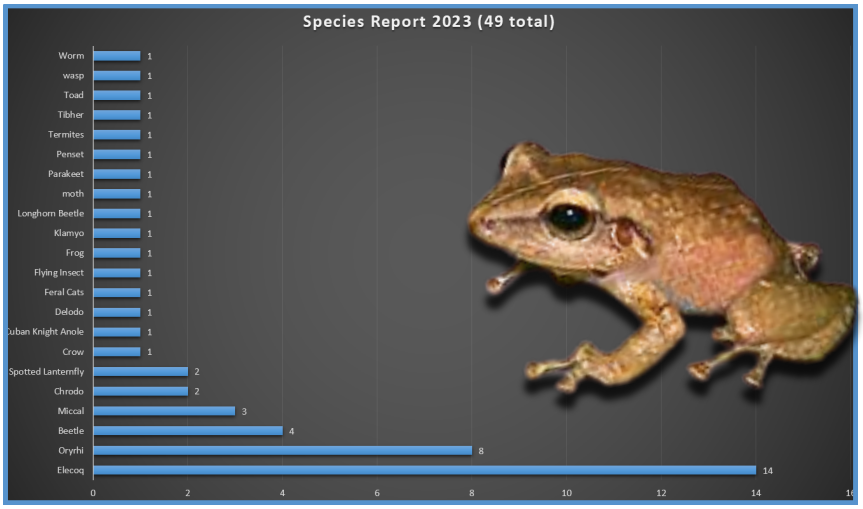


One of the student samples from Kahuku came back positive for LFA. The address is near a known LFA site (Kahuku), but it expanded the intended delimiting area. OISC is working with Hawai'i Ant Lab to plan for future outreach to this site.

Hoike 2023	
Unique schools	**11**
Students reached	**1149**
Days	**28**
# of times presentation given	**77**
Samples rec'd	**543**
Return Rate	**57%**
Pos LFA	**1**

Boy Scout Troop participating in the 2022 Hōʻike LFA Activity.

- **PUBLIC REPORTS:** This year, OISC received 49 public pest reports, not including ROD and LFA reports. The majority of reports were for coqui suspects at 14, with CRB following closely at eight. Out of these reports, 11 pertained to OISC or HDOA targets, and only two miconia reports required action by OISC field crew. These two reports were situated in the Mānoa Valley within our current survey buffer zone. In all other instances, either the species was misidentified or it wasn't a pest that required action.



Actionable Reports 2023 (11)	
Coqui	3
Devil weed (chrodo)	2
CRB (oryrhi)	3
Miconia (miccal)	2
Cuban Knight Anole	1

- **ANTS/LFA:** In 2023, HAL, OISC, or 643Pest received 1,362 inquiries regarding ants or requested an LFA kit. OISC handled 1,331 (98%) of those inquiries and sent out 1,144 kits. Additionally, OISC received 333 ant samples, with 36 positive detections and identifying 16 new sites.

The OISC Outreach staff conducted training and facilitated the testing of over 1,000 donated plants for the Punahou Carnival plant sale, finding no LFA.

Ant Inquiries 2023	
All Calls	1,362
OISC response	1,331 (98%)
Mailed kits	1,144
Samples (36 pos)	333
Submitted samples using an LFA Kit	267 (80%)
Kit requested AND sample submitted	153 (13%)

PUBLIC REPORTS - 2023

Presentation Evaluations: Outreach staff sends evaluations to teachers and attendees of our presentations to gauge how our content and messaging are being received. In 2023, our overall performance was evaluated 26 times for 21 unique presentations with an overwhelmingly 95% satisfaction rate. Feedback consistently highlights the popularity of our specimens.

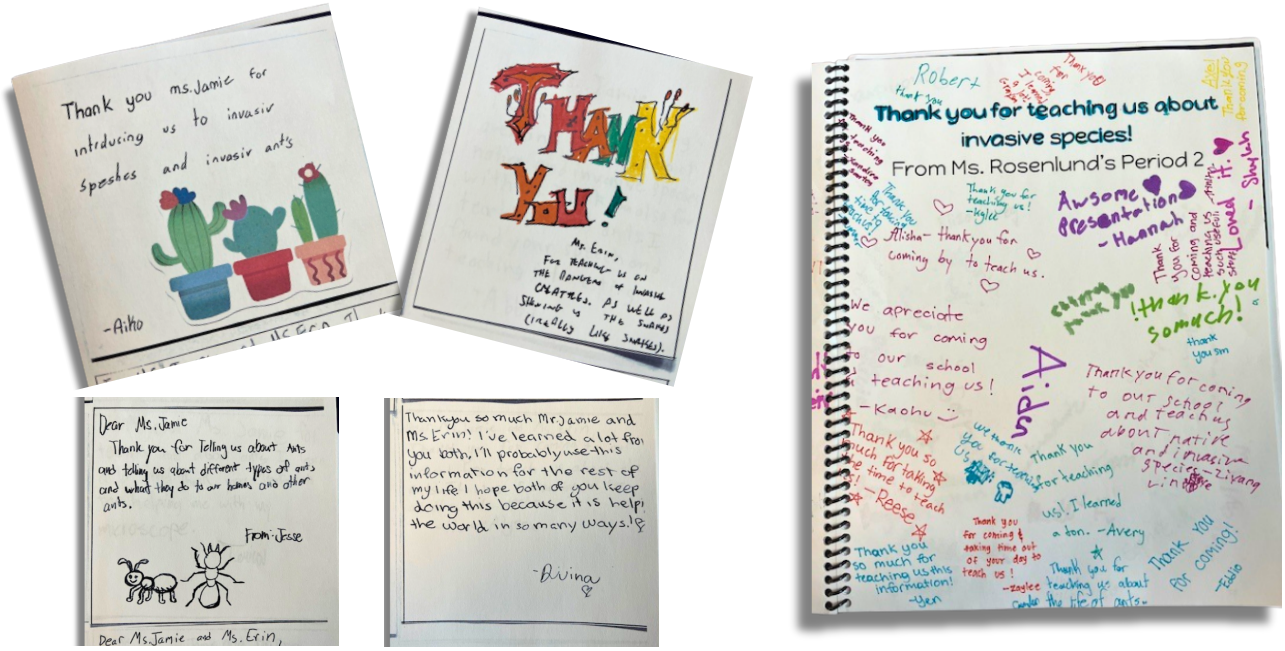
The presenter **delivered** the material in a clear and structured manner.	The presenter was **knowledgeable** about the topic and any related issues.	The presenter **maintained audience interest** during the entire presentation.	The presenter was **well organized** and **prepared**.	The presenter was **enthusiastic** about the topic.	The presenter was **confident and well spoken.**	The **visual aids** were effective.	The presentation was **concise and informative.** Knowledge was imparted.
98%	99%	96%	99%	99%	99%	98%	98%

"*Ms. Jamie was engaging and well informed; as well as her slide show presentation. Both students and adults alike can't wait for Ms. Jamie to come back so we can learn more.*" - Aliamanu Middle School, 7th grade Hō'ike

"*Jamie was really great! and my students enjoyed her presentation and activity so much that they told me we should have more speakers like her.*" - Kahuku Intermediate, 7th grade Hō'ike

"*As always, Erin did a wonderful job. The students loved (or were disgusted) with some of the specimens, but that's part of what makes it so engaging. Mahalo nui for coming out and educating my students.*" - Kamehameha High, 10 grade

"*Erin Bishop is consistently one of the most impactful guest lecturers at our pesticide applicator trainings. She has mastered the material and is an exceptional speaker and educator. I am so grateful for Erin's and OISC's support over the years.*" - NAVFAC Pacific, DOD Pesticide Training



2023 SOCIAL MEDIA REPORT

O'AHU INVASIVE SPECIES COMMITTEE

Prepared by Jamie Miller, Outreach and Education Associate
Approved by Erin Bishop, Outreach Coordinator

INTRODUCTION

Throughout 2023, we continued to share information about the important work we do on O'ahu. Through this effort, we posted a total of 359 times on our combined channels. Last year, we improved our reach, engagement, and fanbase while posting less content. This means we are creating better content more tailored to our audiences!

This report breaks down our messaging and performance on each channel, including goals as we move forward in 2024.

PROFILES DISCUSSED IN THIS REPORT

- @oahuisc Instagram profile
- @oahuisc Facebook profile
- @oahuisc TikTok Profile
- Oahʻu Invasive Species Committee YouTube profile

CROSS-CHANNEL PERFORMANCE

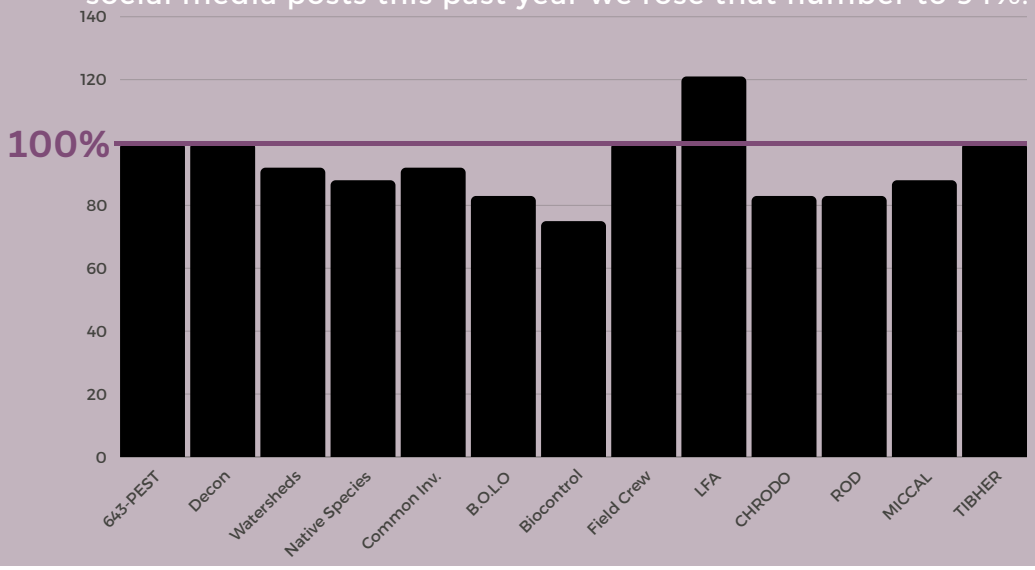
Different platforms offer us various ways to connect with the public online. Depending on the content and observing what performs well on each channel, we determine which platforms are the best for sharing our message. We have a regular audience of almost 7,300 individuals who subscribe to our content. Highlighted below are key metrics for the year, including how many times we mentioned some of our main messages. Areas where we saw increases are highlighted in green and decreases are highlighted in red.

KEY PERFORMANCE INDICATORS

	2023	2022
TOTAL REACH	791,880	165,961
TOTAL POSTS	359	491
TOTAL ENGAGEMENTS	41,927	29,443
TOTAL FAN BASE	7,294	5,721
INCREASE IN FAN BASE	27.50%	15.85%

KEY MESSAGES OF 2023

In 2022 we met 92% of our goals to talk about key messages through our social media posts this past year we rose that number to 94%!



INSTAGRAM: STATS AND TRENDS

Instagram remains our best tool for engaging with the public online. Our fan base continues to grow, and in 2023, we surpassed our goal of 4,000 followers! Our top posts this year have numbers that are double or triple those of our top posts from last year. Native plants and short, sweet, useful information were some of the most popular posts in 2023. Despite posting less frequently, we saw an increase in impressions, engagements, and reach! To me, that indicates an improvement in the quality of our content, which is a significant achievement. I look forward to continuing to grow our fan base and reaching 5,000 followers next year, while also fine-tuning our content to better serve our audience.

Wins for 2023:

- The engagement rate remained consistent.
  - Range **3% - 12%** with Avg. **8%**
  - Avg in 2022 was **8%**
- Engaged an avg. of **1131** accounts/mo.
- Easy to read shareable graphics.
- **398,000+** Impressions. That is how many times our content was seen. This includes accounts that saw the same content more than once. That is up from 288,000+ impressions last year.

Goals we met in 2023:

- New icons and organization for the story threads that live on our home page.
- Increase Reel creation! Our goal was **12** and we made **21**.
- Increase fan base to **4,000** followers.

Goals to meet in 2024:

- Try collaborating with 2 new profiles of popular conservation creators.
- Increase reel creation to 24.
- Increase fan base to 5,000 followers.

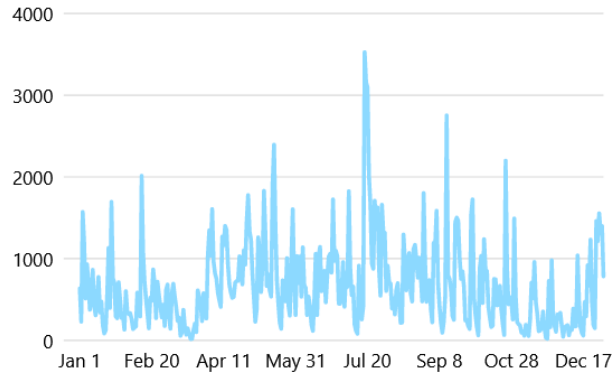
IG STATS	2023
Total Posts	139
Total Stories Posted	632
Engagements	31,722
Impressions	398,209
Total Followers	4,062
Average Reach Each Month	7,345

LAST YEAR IG STATS	2022
Total Posts	170
Total Stories Posted	403
Engagements	18,555
Impressions	288,000
Total Followers	3,172
Average Reach Each Month	6,497

INSTAGRAM: STATS AND TRENDS

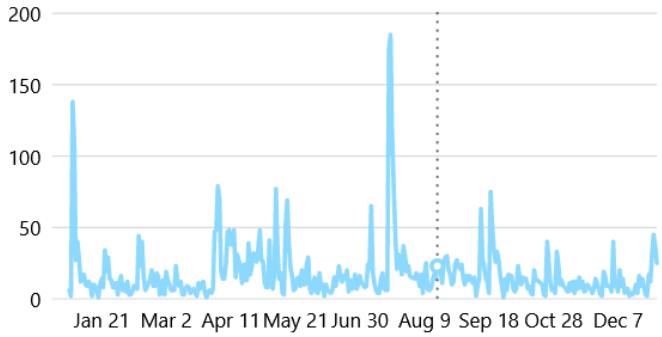
Instagram reach

47.0K ↑ 3.3%



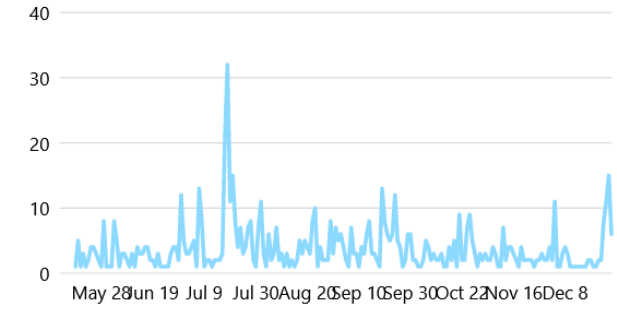
Instagram profile visits

6,397 ↑ 40.7%



New Instagram followers

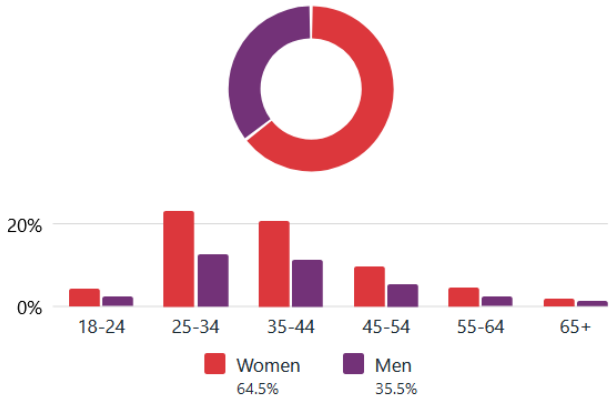
793



Instagram followers

4,136

Age & gender



Top cities

Honolulu, HI 25.9%

Kailua, HI 4.9%

Kaneohe, HI 3.4%

Hilo, HI 2.3%

Ahuimanu, HI 1.7%

INSTAGRAM: TOP POSTS

These were the top posts of 2023 based on likes.

1

Kick off NHPM Reel with Jazzy Notorius BIG Song

- Likes; 718
- Comments: 4
- Shares: 48
- Reach: 6,254

2

Native Hawaiian Plant Color Pallettes

- Likes; 666
- Comments: 24
- Shares: 90
- Reach: 4,946

3

West Indian Wood Nettle Sold as Māmaki

- Likes; 610
- Comments: 34
- Shares: 138
- Reach: 4,053

4

'Ōhi'a Narrative 1st Person

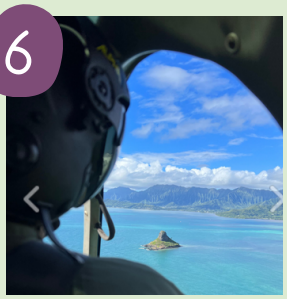
- Likes; 559
- Comments: 12
- Shares: 100
- Reach: 2,325

5

Centipede in 'Ōhi'a Tree

- Likes; 526
- Comments: 63
- Shares: 269
- Reach: 5,288

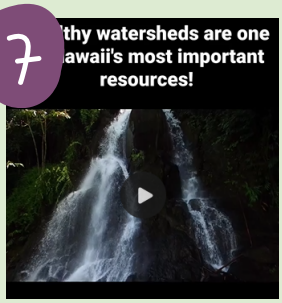
6



Weekly Dose of VIews from the Bird

- Likes; 483
- Comments: 15
- Shares: 12
- Reach: 2,477

7



Healthy Watersheds Waterfall Reel

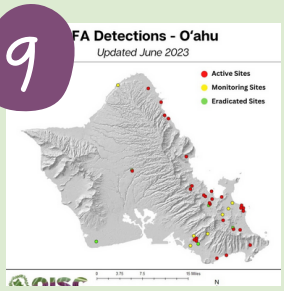
- Likes; 443
- Comments: 2
- Shares: 28
- Reach: 3,595

8

Guinea Grass Invasive Highlight

- Likes; 372
- Comments: 47
- Shares: 12
- Reach: 2,434

9



June 2023 LFA Detections

- Likes; 365
- Comments: 31
- Shares: 230
- Reach: 5,658

10

B.O.L.O. Spotted Laternfly

- Likes; 334
- Comments: 12
- Shares: 104
- Reach: 2,392

FACEBOOK: STATS AND TRENDS

Facebook continues to prove itself as a vital tool for sharing information, especially for longer posts with multiple links (on Instagram, you can only share one link). Similar to Instagram, we posted less content this year (20% fewer posts). With our fan base continuing to grow and our content more finely tuned, we witnessed significant improvements in statistics in 2023 compared to 2022. We are experiencing much higher engagement with our content and received **over 900 shares**, which is double the amount from 2022.

Wins for 2023:

- We received about **1,400 link clicks** on links within our content.
- Reached an avg. of **1,845 accounts per post**. That is 6x the number from last year.
- We only had **22 unfollows** all year.

Goals for 2024:

- Learn how to prevent spam comments
- Make webinar ads more engaging.
- 3,000 followers
- To have another viral post that gets a ton of reach. See below...

One post that stands out based on reach:

Strawberry Guava Biocontrol

- Likes: 104
- Comments: 31
- Shares: 20
- Reach: 179,982

Our strawberry guava post may rank fourth in most-liked posts, but it went viral when you consider its reach. This post was shared 20 times, including in the Facebook group 808 Green Thumbs (a private group with almost 20,000 members), earning it a reach of almost 180,000. That one post alone accounted for 53% of our reach for the year. So crazy!

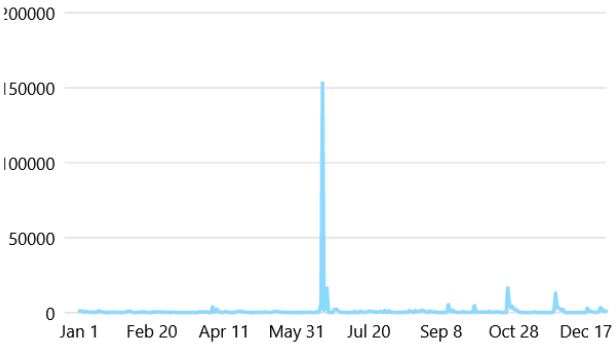
FB STATS	2023
Total Posts	185
Total Post Shares	911
Engagements	8,589
Average Reach Each Month	28,441
Total Followers	2,636

FB STATS	2022
Total Posts	230
Total Post Shares	417
Engagements	4,677
Average Reach Each Month	5,629
Total Followers	2,230

FACEBOOK: STATS AND TRENDS

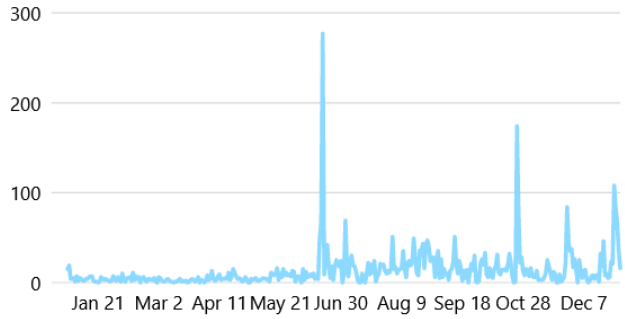
Facebook reach

293.4K ↑ 556.7%



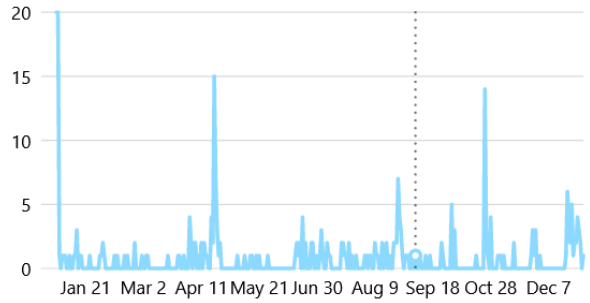
Facebook visits

4,754 ↑ 436.6%



Facebook Page new likes

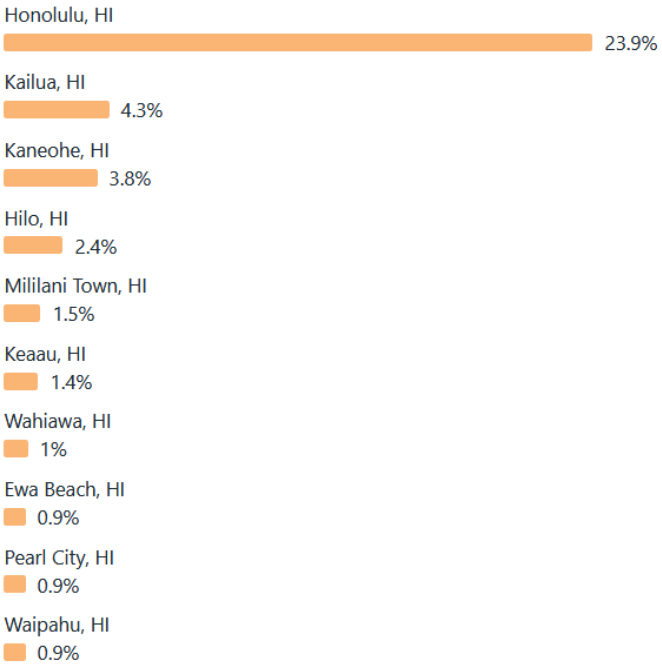
290 ↑ 35.5%



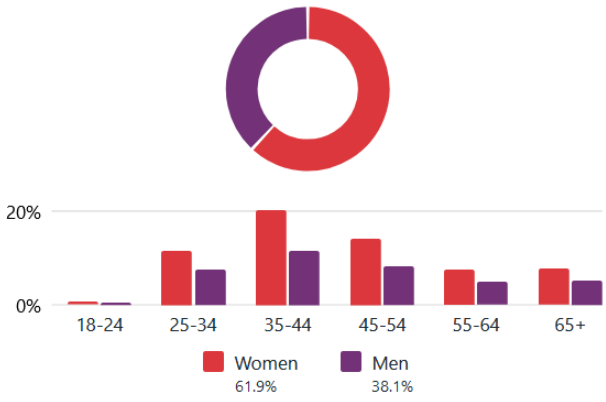
Facebook followers

2,664

Top cities



Age & gender



FACEBOOK: TOP POSTS

These were the top posts of 2023 based on likes aka reactions.

1

Mean Mug Cane Ti in Native Forest

- Likes: 262
- Comments: 24
- Shares: 25
- Reach: 26,664

2

West Indian Wood Nettle Sold as Māmaki

- Likes: 134
- Comments: 31
- Shares: 170
- Reach: 36,734

3

Centipede in ʻŌhiʻa Tree

- Likes: 112
- Comments: 27
- Shares: 32
- Reach: 9,550

4

Strawberry Guava Biocontrol

- Likes: 104
- Comments: 31
- Shares: 20
- Reach: 179,982

5

PK and Cane Ti Elimination

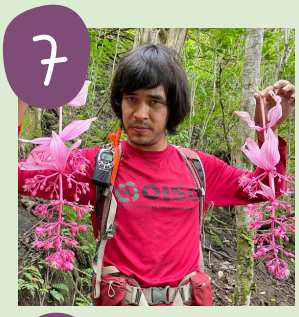
- Likes: 86
- Comments: 5
- Shares: 4
- Reach: 920

6

Staining & Sampling on ROD Positive Tree

- Likes: 58
- Comments: 3
- Shares: 4
- Reach: 5,371

7



NSM, Medinilla, and Melastomes

- Likes: 56
- Comments: 12
- Shares: 6
- Reach: 4,340

8

ʻŌhiʻa Narrative 1st Person

- Likes: 54
- Comments: 7
- Shares: 62
- Reach: 9,035

9

Sleeping Grass Invasive Highlight

- Likes: 50
- Comments: 11
- Shares: 10
- Reach: 2,954

10

Last Known Glory Bush Removed

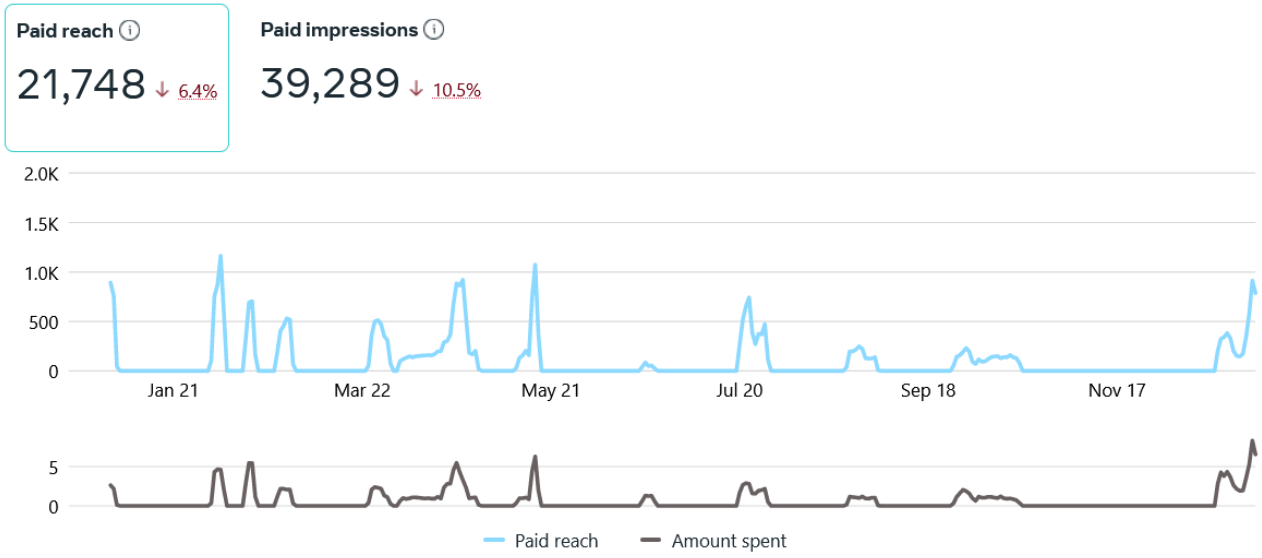
- Likes: 50
- Comments: 7
- Shares: 14
- Reach: 1,737

AD BOOST

Throughout the year, we use funds to boost some of our social media posts to reach more of our target audiences. We prioritize spending this money on posts with higher priority messages. In 2023, we spent a **total of $230 on boosting posts** on Instagram and Facebook, compared to **$290 in 2021.** These funds helped us reach a total of **21,748 additional accounts.** Many of these accounts are from people who do not already follow us, which serves as a useful tool for growing our fanbase.

Month	Budget ($)	Spent
Jan	15.00	10.98
Feb	40.00	42.58
Mar	15.00	11.51
Apr	45.00	48.04
May	15.00	17.68
Jun	15.00	5.23
Jul	15.00	20.70
Aug	15.00	6.94
Sep	30.00	6.42
Oct	50.00	21.60
Nov	15.00	0.00
Dec	15.00	37.94
TOTAL	**285.00**	**229.62**

For 2024, I would like to maintain the budget at $300. In 2023, we initially allocated $250 and reserved $50 for flexible spending. This approach enabled us to adjust our budget as needed, resulting in a total expenditure of $230. Toward the end of the year, I did not utilize as much of the budget as I could have for boosting posts. This resulted in not utilizing the full $300 we could have. My goal for 2024 is to come closer to fully utilizing the $300 budget by year-end.



TIKTOK: STATS AND TRENDS

On TikTok in 2023, we did not post as much as I had anticipated, but we still experienced significant increases in statistics. Our total likes rose by 395%, and our video views surged by 770%! Most of the increase in views stemmed from a single video in November, describing Miconia and its impacts. It was captured in the field and narrated by Mele Ana. That video alone garnered 39.8K views!

TIKTOK STATS	2023
Total Posts	9
Total Likes	648
Video Views	43,320
Total Followers	478

TIKTOK STATS	2022
Total Posts	9
Total Likes	131
Video Views	5,626
Total Followers	456

YOUTUBE: STATS AND TRENDS

Once again on YouTube, we witnessed growth in our channel despite not actively engaging with it. YouTube continues to serve as an educational hub for our longer videos, offering content that differs significantly from other platforms. Frequently, we use our other platforms to direct followers to our YouTube channel, where they can access presentations, identification videos, and more. Although we only uploaded one video last year, our total views increased by 17%, and our watch time rose by 31%. Next year, we plan to enhance our video content and expand our YouTube channel.

YOUTUBE STATS	2023
Total Posts	1
Total Views	1,294
Watch Time (Hours)	49.8
Total Subscribers	43

YOUTUBE STATS	2022
Total Posts	1
Total Views	1,102
Watch Time (Hours)	38.1
Total Subscribers	35

LOOKING FORWARD

Looking forward to 2024, we will continue to use social media to spread awareness and gain support for the important work we do. We aim to expand our video content across all platforms, including YouTube. Additionally, I intend to strengthen our outreach relationship with the field crew and improve our photo content. The more we can collaborate with them to identify the types of photos and videos that resonate best, the better equipped they will be to gather top-notch content.

FOCUSED GOALS

- Growing our fanbase on all platforms.
- Taking a class in May from Olelo on creating video content with your cellphone.
- Continuing to use the goal tracking sheet.
- Creating more engagement with field crew and photo-taking.
- Continuing to align messaging with the current objectives of our organization.
- Posting less while maintaining the same level of reach and engagement.

APPENDIX...DETAILS OF ALL OUTREACH 2023
TOTAL REACH: 596,226

Article - authored	**427487**
Two (2)LFA Ads for STA Month and Pampas grass article in LICH	
Distributed Product	**6099**
DWC Guides	13
LFA Kits Passed Out	2352
LFA Kits Mailed	1144
LFA Postcard	2590
Event	**3636**
(35 events over 39 days)	
Hoike	**1149**
11 schools	
28 days to 77 classrooms	
543 samples (57% return)	
Interview	**100302**
KHON - LFA	
KITV - West Indian Wood nettle	
KHON - Living 808 - OISC	
KITV-Evening News-LFA Oahu	
Meeting	**34**
Presentation	**696**
27 presentations to 25 unique groups	
Professional Development	**71**
Attended ROD Outreach Symposium (Hilo)	
HAL Ant ID, Apimel, and CRB training	
School Visit	**1492**
Presented to 50 classes at 20 unique schools	
Social Media	**41944**
Avg Annual Engagement rate across all platforms	8%
New Followers	1860
Posts	359
Volunteer Trip OISC (hrs.)	**261.5**
OISC vols hrs.	181.5
DWC hrs.	80
DWC Miles surveyed	141
71 acres	71
Imm	2306
Mat	38
Volunteer Trip Other	**31**
Partnered with MCBH and Waihee Community	
Website	**13240**
Total	**596,226 encounters/message delivered**
	174,739 w/out STA ads

Link to Google Drive for detailed outreach information:

https://docs.google.com/spreadsheets/d/1m0yT-b_LfcTlXkVl2Y6urjAGfkb9l5mu/edit?usp=drive_link&ouid=108814632114028959927&rtpof=true&sd=true

APPENDIX