

**Coordinating Group on Alien Pest Species
(CGAPS)**

Annual Report

January 1 — December 31, 2021

Submitted to:
Hau'oli Mau Loa Foundation
Hawai'i Community Foundation
Hawai'i Invasive Species Council
National Park Service-Pacific West Region
USDA Forest Service
U.S. Fish and Wildlife Service-Pacific Islands Office
University of Hawai'i-Pacific Cooperative Studies Unit

Introduction

Acronym Index

BIISC: Big Island Invasive Species Committee
CGAPS: Coordinating Group on Alien Pest Species
CTAHR: University of Hawai'i-College of Tropical Agriculture and Human Resources
DAR: DLNR Division of Aquatic Resources
DLNR: Department of Land and Natural Resources
DOFAW: DLNR Division of Forestry and Wildlife
DOD: Department of Defense
EDRR: Early detection & rapid response
EPA: Environmental Protection Agency
HAL: Hawai'i Ant Lab
HCAF: Hawai'i Conservation Alliance Foundation
HCF: Hawai'i Community Foundation
HDOA: Hawai'i Department of Agriculture
HDOT: Hawai'i Department of Transportation
HGG: Hawai'i Green Growth
HIBP: Hawai'i Interagency Biosecurity Plan
HPWRA: Hawaii-Pacific Weed Risk Assessment
IUCN: International Union for the Conservation of Nature
KISC: Kaua'i Invasive Species Committee
LFA: Little Fire Ant
MISC: Maui Invasive Species Committee
MoMISC: Maui-Moloka'i Invasive Species Committee
NPS: National Park Service
OISC: O'ahu Invasive Species Committee
PCSU: University of Hawai'i-Pacific Cooperative Studies Unit
RCUH: Research Corporation of the University of Hawai'i
ROD: Rapid 'Ōhi'a Death
TNCH: The Nature Conservancy of Hawai'i
UH: University of Hawai'i
UHF: University of Hawai'i Foundation
USDA APHIS: U.S. Department of Agriculture-Animal and Plant Health Inspection Service
USDA FS: U.S. Department of Agriculture-Forest Service
USFWS: U.S. Fish and Wildlife Service
VIDA: Vessel Incidental Discharge Act

Overview of CGAPS

Two significant reports (NRDC TNCH 1992; OTA 1993) found that Hawai'i had the nation's worst invasive species problem due to gaps in prevention, detection, and control programs. These reports concluded that increased communication, cooperation, and public participation could help close these gaps. In 1997 the Coordinating Group on Alien Pest Species, "CGAPS", (pronounced "C-GAPS") formed as a partnership of agencies and non-governmental organizations working together to close the gaps in Hawaii's biosecurity programs. In short, we "see the gaps" and try to fill them.

Quarterly meetings are held to facilitate information exchange and networking between all entities that have a stake in biosecurity, while CGAPS Steering Committee meetings focus on strategy and progress toward our vision, that "Hawaii's natural environment, agriculture, economy, and the health, lifestyle, and culture of its people are protected from the impacts of invasive species."

CGAPS has five full-time, grant-funded staff employed through the Research Corporation of the University of Hawai'i (RCUH): Andrew Porter, Aquatic Legal Fellow; Stephanie Easley, Terrestrial Legal Fellow; Ambyr Mokiao-Lee, Statewide Rapid 'Ōhi'a Death (ROD) Outreach Coordinator; Kailee Lefebvre, CGAPS Planner; and Christy Martin, Program Manager, and occasional Interns and student Assistants. For staff contacts and more information, visit www.cgaps.org.



The CGAPS mission is to coordinate and catalyze action among government and non-government partners to prevent and manage invasive species in Hawai'i, as well as communicate key issues to the public.

Acknowledgement of CGAPS Support

Each year the CGAPS Steering Committee selects a Deputy Chair for the calendar year, who then serves as Chair the following year, and a third year as Chair Emeritus, providing support and guidance to the Deputy and Chair. The Deputy position rotates from State, to Federal, and then non-governmental organizations (such as academia, Bishop Museum, etc.), so that the Chair structure is always comprised of these three perspectives. Mahalo to the CGAPS Steering Committee for working to advance the [HISC & CGAPS 2025 Joint Strategy](#), and especially to Chair Benton Pang, Chair Emeritus Mark Fox, and Deputy Chair Adam Radford for your multi-year commitment to the work of this community. Mahalo also to the staff of the Hawai'i Invasive Species Council (HISC), for what has become a seamless collaboration that uses everyone's strengths.

CGAPS staff and projects are supported solely via grants. Mahalo to **Hau'oli Mau Loa Foundation** (herein the Foundation), the **CHANGE Fund** and **Omidyar Ohana Fund** of the **Hawai'i Community Foundation (HCF)**, **HISC**, **U.S. Department of Agriculture Forest Service** (via Department of Land and Natural Resources-Division of Forestry & Wildlife pass-through), **National Park Service** (via Hawai'i-Pacific Islands Cooperative Ecosystem Studies Unit agreement #P17AC01216 Mod2), and the **U.S. Fish and Wildlife Service**.

CGAPS core funds were administered by the University of Hawai'i at Mānoa (UH) Office of Research Services and the University of Hawai'i Foundation (UHF) through the Pacific Cooperative Studies Unit (PCSU), through the College of Tropical Agriculture & Human Resources (CTAHR) for the Statewide ROD Outreach Specialist, and through the William S. Richardson School of Law for the Legal Fellows. The Hawai'i Conservation Alliance Foundation and the O'ahu Economic Development Board also served as fiscal sponsors for some CGAPS projects, and we are grateful to each for this help.

Thank you to William S. Richardson School of Law Professor Denise Antolini, Environmental Law Program Director David Forman, and Pamela Taura, and to Drs. Mike Melzer and J.B. Friday of CTAHR for their leadership. We are also honored to work with Emma Anders and the team at the Hawai'i Conservation Alliance and Foundation, Celeste Conners and the Hawai'i Green Growth team. We are truly grateful for each of these relationships, and humbled by the kuleana of our work together.

Mahalo to the UH Department of Botany for office space for the Program Manager, Planner, and ROD Statewide Outreach Coordinator, or more accurately, for providing space that we will one day return to once the pandemic is tamed. Finally, thank you to Dr. David Duffy, PCSU Director Dr. Shaya Honarvar and staff, and to Jung Song, Sylvia Flores, and Alyssa Tanabe of UHF, and to RCUH for being excellent. Mahalo nui loa!

CGAPS Steering Committee

Hawai'i Department of Agriculture
Hawai'i Department of Land and Natural Resources (Division of Aquatic Resources and Division of Forestry and Wildlife)
Hawai'i Conservation Alliance Foundation
Hawai'i Invasive Species Council
The Invasive Species Committees of Hawai'i
U.S. Department of Agriculture (Animal and Plant Health Inspection Service and U.S. Forest Service)
U.S. Department of Defense-Naval Facilities Engineering Command Pacific
U.S. Department of Homeland Security-Customs and Border Protection
U.S. Fish and Wildlife Service
University of Hawai'i-College of Tropical Agriculture and Human Resources
Valued emerita members

HISC & CGAPS 2025 Joint Strategy Progress

The CGAPS Steering Committee is comprised of management-level participants from agencies and NGOs, with decades of experience and a deep understanding of the issues and gaps. In 2002, the legislature established the Hawai'i Invasive Species Council which provided the framework for engaging the appointed executives of the state agencies. In 2019, these two networks joined together to assess the greatest needs from the Hawai'i Interagency Biosecurity Plan to create the five-year HISC & CGAPS 2025 Joint Strategy. Via video conference meetings in 2021, Working Groups continued to make progress on five of the strategies, while other approaches were used to make progress on the remaining five strategies. Each Working Group is chaired by a lead agency participant, and HISC and CGAPS staff support each working group through planning and meeting coordination, as well as by leading work on some Key Actions.

For each Strategy, the Key Actions are listed in the left column, and progress made in 2021 is listed in the right column with the following terms:

Achieved / Nearly complete: Action achieved for the year, is complete, or nearly complete

Ongoing: work that was done on a function which is perpetual in nature

In process: advances were made and continuing towards completion of the action

No opportunity for progress: no significant progress was made in 2021

Strategy 1: Prevention & early detection/rapid response for new terrestrial invasions

Objective: Keep Hawaii's top invasive species threats from arriving and establishing in the state, by identifying and addressing high-risk pathways and major modes of introduction, and by improving early detection/rapid response.

Lead/Chair: HDOA & CTAHR. Support by Stephanie Easley, CGAPS & Leyla Kaufman, HISC.

Key Actions:

1. HDOA, HISC, and other partners collaborate on generating a non-regulatory Hawai'i Prevention Priority List to guide prevention and rapid response.
2. Assess capacity to detect, mitigate and/or treat each species on the Hawai'i Prevention Priority List, including procedures, training, and technology.
3. Conduct risk analyses and risk assessments along known and high potential pathways for invasive species introductions.

Progress:

Achieved. Led by HDOA, a preliminary non-regulatory Hawai'i Prevention Priority List was developed in 2020. In 2021, a Pathways task group reviewed, validated, and updated the list to make it more representative of the highest priority species across all taxa.

2 & 3 In process.

- Likely pathway/s of introduction were added for each.
- Dr. Michael Melzer is working with HDOA, Hawai'i Department of Health, and other UH researchers to assess diagnostic capabilities for pathogens and other pests species.
- Next steps will include additional taxa, agency discussions on capacities to prevent and detect at ports of entry, and assessments of rapid response capacity and needs for the various taxa.
- The Hawai'i-Pacific Weed Risk Assessment (HPWRA) was used to screen plants not known to occur in Hawai'i.

Key Action:

4. Address regulatory gaps for terrestrial invasive species in Hawai'i to address high-risk pathways and other modes of introduction.

Progress:

In process:

- CGAPS staff helped HDOA to assess the Noxious Weed Seed Administrative Rules and Species List (Chapter 4-67 HAR) and the Noxious Weed Administrative Rules and Species List (Chapter 4-68 HAR). A memo and potential administrative rule language was provided to HDOA to consider for rulemaking.
- CGAPS contractor Rachel Neville continued to submit petitions for federal import restriction on a list of plants that are high-risk of being invasive and are not known to occur in Hawai'i. State rulemaking to restrict domestic import of these plants did not get scheduled for the BOA Subcommittee on Plants & Animals in 2021.
- The Working Group formed a Firewood task group to discuss approaches to address the potential for the spread of invasive pests through the importation and movement of firewood in Hawai'i. Information was collected about the types of imported firewood for sale in Hawai'i and potential suppliers of local firewood.

5. Continue to support adoption and implementation of Myrtaceae import restriction (domestic and foreign) and apply this approach for the protection of additional key native and economically important plant species.

Nearly complete. On July 2, 2021, USDA APHIS restricted the importation of plants for planting of all Myrtaceae taxa from foreign sources destined for Hawai'i. This followed the May 2020, domestic import restriction. This leaves only foreign imports of cut flowers (including myrtle foliage) as the remaining open pathway.

6. Fund and fill key positions listed in the HIBP to enforce existing and new Administrative Rules and Hawai'i Revised Statutes. [link to Obj 6]

Ongoing:

- One big win in 2021 saw the shift of the DAR Ballast Water & Biofouling Coordinator from soft funds to civil service funds. Also, this and other positions such as the HISC Coordinator position did not receive General funds, but the positions themselves also did not get taken away as was the case with other state agency positions that were vacant during the 2021 legislative session.
- HISC continued support of the HPWRA Screener position through non-competitive administrative funds.

Key Actions:

7. Support HDOT to make the Māmalu Poepoe airports pilot project permanent to enhance monitoring and detection of the Federal Aviation Administration approved list of invasive species (disease spreading mosquitoes, fire ants, coconut rhinoceros beetle, and Africanized bees). [link to Obj 2]
8. Identify and provide Best Management Practices (BMPs) for reducing pest risk at critical control points in systems, such as airports, harbors, and procurement contracts.
9. Strengthen early detection and rapid response (ED/RR) capacity on each island for regulatory agencies and partnership projects, including mobilizing species-specific teams for high-risk terrestrial incursions.
10. Support HDOA in implementing transitional inspection facilities and opportunities to inspect other high-risk commodities.
11. Support HDOA to promote and achieve clean nursery operations (e.g., treatment requirements, incentives). [link to Obj 2 & 7]

Progress:

Ongoing.

- HISC staff continued working with HDOT to find ways to continue and expand the program.
- HISC and CGAPS staff conducted interviews with agency partners and found that the program was beneficial and that agencies would like it to continue at airports, expand to include locations in Honolulu Harbor, and add additional target species.
- HISC and CGAPS staff submitted requests for Congressionally Directed Spending to support an expanded pilot program. Senators Schatz and Hirono listed it as a top agriculture priority project for \$600,000, although this and other federal funding bills remained in limbo through 2021.

Ongoing.

- BMPs for species of concern under the Māmalu Poepoe have been reviewed and approved by HDOT Airports.
- PCSU and CGAPS were awarded \$96,155 from USDA in 2021 to support the ISCs to conduct the PPA Pono Nurseries outreach on pest identification and prevention BMPs.

Ongoing.

- HISC staff developed an Africanized Bee strategic plan.
- CGAPS and HISC staff filled coordination roles for interagency work, including new infestations that require working together as described in the multi-agency [Plant Health Emergency Response Plan](#).
- CGAPS staff researched rapid response policy tools and drafted a memo proposing amendments to the Hawai'i emergency declaration statutes (Chapter 127A HRS) that would permit the Governor or a mayor to declare an emergency related to an invasive species detection, following an example set by Washington State.

No opportunities for progress. The HDOA Plant Industry Administrator position was filled in September after an 8-month vacancy. Administrator [Dr. Helmuth Rogg](#) has since taken on many collaborative projects with HISC and CGAPS.

No opportunities for progress. A memo drafted in 2019 by CGAPS staff was revised and updated in 2021 and will be shared with partners in 2022.

Key Actions:

- 12. Maintain and strengthen the Pest Risk Committee and other mechanisms for federal and state agencies to share data, effective practices, lessons learned and informal observations.
- 13. Track and report annually on status of Hawai'i Priority Prevention List species (e.g. not established, prevented at source; detected & intercepted, established). [link to Obj 2]

Progress:

Ongoing.

- The Hawai'i Risk Assessment Committee (HI-RAC) continues to meet and be a valuable way to share sensitive information across jurisdictions.
- The Working Group developed a protocol for reporting new detections of potentially invasive species between CTAHR and HDOA and procedures related to inter-island movement of material requiring an HDOA permit.

In process. The Working Group Chair initiated this action in 2021 to request and report on the number of interceptions and new programs, tools, or capacities adopted for lead State and Federal agencies.

Strategy 2: Inter/Intra-island movement of terrestrial invasive species

Objective: Keep Hawaii's top invasive species threats from spreading within Hawai'i (inter- and intra-island), by identifying and addressing high-risk pathways and major modes of introduction and spread, and by improving early detection/rapid response for new populations.

Lead/Chair: HDOA & CTAHR. Support by Stephanie Easley, CGAPS & Leyla Kaufman, HISC. The Working Group for Strategies 1 and 2 are combined to maximize HDOA and other partners' participation and develop projects that address both the prevention and intra-state spread of high-risk invasive species.

Key Actions

- 1. HDOA, HISC and other partners collaborate on generating a Hawai'i Limited Distribution Priority List of high-impact localized invasive species to address inter-island and intra-island movement.
- 2. Include an assessment of the Hawai'i Limited Distribution Priority List to support HDOA in developing and executing a clean nursery program that reduces inter/intra-island movement of invasive species. [link to Obj 1]

Progress:

No opportunity for progress. In 2020, HDOA prepared a preliminary Hawai'i Limited Distribution Priority List. In 2021, the Pathways task group focused on the Prevention list but was not able to review, validate, and add pathways to this list. HDOA will need to take the lead on assessing internal capacity to prevent, detect, or mitigate inter- and intra-island spread.

In process. HDOA and partners focused on addressing spread of CRB through regulation of the greenwaste, mulch, and living palm pathways, which is a difficult and important priority.

Key Action:

3. Conduct risk analyses and assessments to identify and prioritize pest pathways and high-risk gaps for movement of terrestrial invasive species within Hawai'i.
4. Identify and implement cost-effective tools, technologies, and methods that improve management of priority pathways by state agencies and private companies.
5. Clarify HDOA authority and determine capacity needed to assess and inspect high-risk non-agricultural commodities and cargo and develop voluntary initiatives to mitigate risk.
6. Work with ISCs to increase County support for prevention and rapid response of invasive species not known to occur on their island(s). [link to Obj 6]
7. Support HDOT implementation and 2022 update of the Statewide Noxious and Invasive Pest Program Strategic Plan in cooperation with public and private stakeholders.

Progress:

3 & 4 Ongoing.

- For plants, the HPWRA continued to be used. To date, 2,213 plants have been screened.
- Māmalu Poepoe is supporting the development of mosquito sound traps with the UH CTAHR Wright Lab.
- CGAPS and HISC staff helped HDOA revise a draft interim rule to regulate mulch and green waste via compliance agreements to reduce the spread of coconut rhinoceros beetles (CRB) on O'ahu. In December the Subcommittee on Plants and Animals agreed that the situation was an emergency requiring an interim rule, which was sent to the Board of Agriculture.
- The CTAHR Agrosecurity Lab continued work evaluating a hand-held molecular diagnostic unit to quickly detect and identify plant diseases. Training workshops for inspection agency staff and others are planned and will be held in 2022.
- HISC and CGAPS continued to support the ISCs, Hawai'i Ant Lab, and other effective, gap-filling capacities for inter- and intra-island response.

No opportunities for progress.

Ongoing: CGAPS coordinated testimonies in support of a percentage of the allocation of a new Honolulu City & County Transient Accommodation Tax for invasive species work. In response to CGAPS testimony, Vice Chair Esther Kia'aina clarified that invasive species work is one of the intended purposes of the funds. The bill passed and was signed into law on December 14, 2021.

No opportunities for progress. The program is still operating with contractors from SWCA.

Key Action:

- 8. Create standardized contract language for BMPs to minimize the spread of invasive species and incorporate into contracts by state agencies and other partners.
- 9. Promote the use of the State Pest Reporting System. [link to Obj 7]
- 10. Track and report annually on status of species on the Hawai'i Limited Distribution Priority List (e.g. prevented at source, detected & removed, established, other).

Progress:

Ongoing.

- Māmalu Poepoe BMPs are draft language for HIDOT contracts.
- HISC and CGAPS staff supported HDOA in the creation of coconut rhinoceros beetle (CRB) BMPs and contract language.

Ongoing. Continued use of 643-PEST (7378) and 643PEST.org as a call to action for invasive species campaigns and pest alerts.

In process.

- The Working Group Chair initiated part of this action for Strategy 1 and 2.
- In 2021, at least eight new LFA infestations were detected outside of Hawai'i Island and are being controlled.

Strategy 3: Aquatic biosecurity

Objective: Prevent the introduction and spread of aquatic non-native species (ANS) into, between, and around the Hawaiian islands, by reducing species movement through ballast water, biofouling, intentional import and release, and unintentional modes of introduction.

Lead/Chair: DLNR DAR. Support: Andrew Porter, CGAPS, Chelsea Arnott, HISC.

Key Actions:

- 1. Conduct risk assessments to identify and prioritize aquatic pest pathways and risks into and within Hawai'i.
- 2. Develop aquatic rapid response plans to address high-risk vessels.
- 3. Establish a vessel inspection program in Hawai'i harbors with the maritime industry and government partners, including a framework to co-regulate commercial vessels related to ANS as incidental discharges regulated under VIDA.

Progress:

Ongoing.

- DAR continued work on a comprehensive species database to help prioritize action.
- DAR developed a quick risk assessment matrix for species and taxonomic groups to help prioritize species in a more efficient manner.

2 & 3 No opportunity for progress. It is clear that the State is authorized to enforce, or co-enforce federal regulations and standards, but those have yet to be developed. The 2021 legislature did not entertain requests for new staff or programs, and although Congress created the grant program authorized by VIDA, they did not fund it.

Key Action:

4. Develop framework and associated rules to manage ANS risks from non-commercial vessels (those not exempted and not covered under VIDA).
5. Fund and establish an aquatic biosecurity team to perform vessel ballast water and biofouling risk assessments within Hawai'i. [link to Obj 6]
6. Identify and implement tools, technologies, and methods that improve detection and/or management of priority species and pathways. [link to Obj 1 & 2]
7. Increase awareness of key private stakeholders of their role and opportunities to help address aquatic invasive species introduction and spread. [link to Obj 7]
8. Research and develop a list of high-risk aquatic animals and prohibit their introduction to Hawai'i.

Progress:

No opportunity for progress. Capacity will need to increase to achieve this Action. There are two staff to manage both commercial vessels and conduct rulemaking to address ANS risks from non-commercial vessels.

Ongoing. In 2021 the Ballast Water & Biofouling Coordinator position was added to DAR as a civil service position and the grant-funded position became a planner.

Ongoing.

- DAR continued the Autonomous Reef Monitoring Structures (ARMS) project at harbors to detect certain types of newly arrived species. CGAPS helped DAR find students and volunteers for sorting and identification.
- CGAPS, DAR and other Working Group members continued to participate in the Stony Coral Tissue Loss Disease (SCTLD) Working Group for Pacific Preparedness and began work on an early detection and rapid response plan for this coral-killing disease.
- DAR began work on a Rapid Response decision tree to aid in reporting and rapid response.
- CGAPS and DAR continued to advocate to the Environmental Protection Agency (EPA) for the use of “in-water cleaning with capture” for situations where hull husbandry work would discharge unacceptable levels of pollutants, including invasive species into waters.
- HISC provided partial support for *Avrainvillea* spp. control projects with UH and DAR and expanded the use of native urchins for the control of invasive seaweeds, including pilot studies with the help of Malama Maunaloa.

Ongoing: CGAPS and DAR held three Alien Aquatic Organism Task Force (AAOTF) meetings to discuss issues related to VIDA and draft EPA regulations.

In process: A short list was formulated and a graduate student continued conducting risk assessments for each. With the likelihood of a lengthy rulemaking process, DAR will be seeking the best strategy to efficiently protect Hawai'i from these proven high-risk species.

Key Action:

- 9. Establish a baseline for aquatic biosecurity and initial measures for tracking effectiveness at preventing introduction and spread of ANS.

Progress:

Ongoing. The Working Group continued collaborating on databases to document the variety of marine and estuarine taxa and species present in Hawai'i.

Strategy 4: Large-scale control of high-impact invasive species

Objective: Implement at least one new large-scale control or eradication project for an invasive species population with highly significant ecological, economic, and/or health impacts in Hawai'i, and build momentum for action on other widespread high-impact species (e.g. mosquitoes, rats, marine algae).

Lead/Chair: DLNR. This Strategy does not have a working group. Instead, HISC and CGAPS staff and networks are participating in new (novel) large-scale control projects that meet the intent of this strategy.

Key Actions:

- 1. Identify and prioritize at least five established invasive species (aquatic or terrestrial vertebrates, invertebrates or plants) with populations that have highly significant ecological, economic and/or health impacts and where large-scale projects could be implemented in the next 10 years (e.g. mosquitoes, rodents, marine algae).
- 2. Research and identify tools, technologies, and methods that are proven effective (or have high potential) for large-scale control or eradication of at least three priority invasive species by 2021.

Progress:

Achieved. Rodents, mosquitoes and the diseases they carry, little fire ants (LFA), and coqui frogs are top invasive pests that have critical momentum and they require novel control technologies. A subset of these could benefit from the help of the HISC & CGAPS networks. While there are other highly significant invasive species, viable options for novel technologies for large-scale control are either not known or are beyond a ten-year horizon.

Achieved.

- CGAPS and HISC staff continued to participate in the Steering Committee and Public Engagement subcommittee for the “Birds, Not Mosquitoes” project.
- HISC staff supported the multi-year Lehua rodent eradication which was declared a success in 2021.
- CGAPS, HISC, and MISC began assisting HAL to advance regulatory approvals for the use of insect growth regulators applied aerially for the control of LFA.
- MISC and HAL continued aerial control of LFA in Nāhiku.
- HISC and MISC staff worked together to secure a Special Local Needs permit for the use of [Herbicide Ballistic Technology](#) for targeted weed control.

Key Action:

3. Select first pilot/ demonstration large-scale eradication project and identify political, regulatory, funding, social, cultural, and other barriers/opportunities to implementation with possible ways to reduce barriers and leverage opportunities.
4. Develop and implement a model community engagement plan (BMP) for the first large scale control or eradication project(s) and make it available for future large-scale projects. [link to Obj 7]
5. Work with partners to implement at least one large-scale project and initiate planning for at least one more.
6. Ensure the large-scale impact is sustained, including regular monitoring and follow-up. [link to Obj 6]
7. Assist lead agencies to evaluate the large-scale project(s), including model community engagement, evaluation and follow-through.

Progress:

3 & 4 In process.

- The Birds, Not Mosquitoes (BNM) Steering Committee, Subcommittees, strategic plan, and monthly meetings are on track.
- The request for import permit was approved in public meetings by the Subcommittee on Plants and Animals, then by the Board of Agriculture.
- CGAPS staff worked with BNM project coordinators to interview and select a public outreach associate. As part of the engagement team, Lukanicole Zavas and project coordinators began implementing the community engagement plan, including branding, a new project name, and small group meetings with community leaders.
- Executive briefings apprise agency leaders of progress and needs.
- BNM partners at Haleakala National Park initiated public scoping in December, to close in January, 2022.

Ongoing. BNM and previously mentioned projects are advancing.

No opportunity for progress. Monitoring and other work to maintain a rodent-free Lehua will continue in 2022.

In process. Lessons learned from the Lehua rodent eradication are informing current projects.

Strategy 5: Pacific regional biocontrol center

Objective: Increase the capacity and scope of biocontrol work in Hawai'i by creating a Pacific regional biocontrol center with planning for new facilities, base funding, and core staff in place. With existing capacity, release biocontrol agents for at least three top priority established invasive species and annually assess, prioritize, and advance critical biocontrol projects.

Support: Christy Martin and Kailee Lefebvre, CGAPS, Chelsea Arnott, HISC. Monthly partners teleconference meetings have been held since February 2020.

Key Actions

1. Build a broad coalition to support the building and long-term maintenance of Pacific regional biocontrol facilities that can test potential classic biocontrol organisms across different taxonomic groups.
2. Develop a feasibility assessment for raising capacity of new Pacific regional biocontrol facilities for Congressional delegates and agency use.
3. Identify and secure lines of potential funding, site(s) and designs for climate-resilient containment facilities, including options for natural hazard mitigation. [link to Obj 6]
4. Maintain and develop new regional and international partnerships to strengthen regional biocontrol capacity and success of exploration missions.
5. Secure funding and increase biocontrol staff for both state and federal biocontrol projects. [link to Obj 6]
6. Test at least eight biocontrol agents, and release five by 2025.

Progress:

1-5 In process.

- A second annual all-partners meeting was held in January via video conference. Key agencies and partners remain engaged and meet monthly, coordinated by HISC staff. A third-annual meeting was planned for January 2022, and the aim is to have high-level participation in an Executive Briefing.
- CGAPS staff again took the lead in drafting and submitting appropriations requests which was also submitted by DLNR.
- CGAPS and HISC staff worked with staff of Hawaii's Congressional delegation to strategize next steps.
- CGAPS and partners secured letters of support for the new facilities from more than fifteen local, regional, and national organizations.
- HISC passed [Resolution 21-1](#), committing state agencies to working together to plan, construct, and operate new biocontrol facilities.
- HDOA submitted a Capital Improvement Project (CIP) request to the Governor but it was not approved for inclusion in the administrative budget request for the 2022 session.
- Biocontrol practitioner partners maintained regional and international partnerships, some of whom have become partners in this effort.

In process.

- Working group partners completed testing on three agents (miconia caterpillar, tibouchina beetle, and *Aprostocetus nitens*, a second biocontrol for the gall wasp). Draft EAs were posted for comment and await processing and release permits by HDOA in 2022.
- Testing is completed for a fourth (an agent for coffee berry borer) and the draft EA will be published in 2022.
- Two other projects are in the testing process.

Key Action:

7. Evaluate and harmonize the biocontrol regulatory process for greater efficiency.

Progress:

Ongoing. DOFAW has streamlined part of the Environmental Assessment (EA) process by creating a biocontrol webpage where the public can review and comment on draft EAs.

8. Build and maintain public support for 21st century biocontrol practices. [link to Obj 7]

Ongoing.

- CGAPS and DOFAW worked with a contractor to produce a [biocontrol explainer video](#).
- CGAPS engaged a professional communications contractor for work in 2022 to implement the Biocontrol Strategic Communications Strategy.

9. Measure effectiveness of released biocontrol agents over time (>5 years) and track the number of biocontrol agents in pipeline and released annually.

Ongoing: On track to meet target.

Strategy 6: Increased and diversified funding for invasive species priorities

Objective: Increase & diversify funding for invasive species priorities to secure at least \$100M annually through county, state, federal, regional, and private sources, including \$90M for operational and personnel requirements and \$10M for essential facilities (in support of other Strategies).

This Strategy does not have a Chair or Working Group. HISC and CGAPS staff continued to pursue new funding opportunities, and partners in the Working Groups continued to focus on opportunities that align with each Strategy.

Key Actions:

1. Work with a diverse group of advocates to increase State general funds to DLNR, HDOA, UH, HDOH and HDOT for implementing HIBP actions (e.g. staff, electronic databases, adopting new technologies).
2. Secure additional HISC project funding to support specific critical new initiatives in the HIBP and 2025 Strategy, including risk assessments.

Progress:

Ongoing. Opportunities to advocate for, and secure increases in State general funds were extremely limited. However, in addition to not losing positions (previously mentioned), DOFAW received nearly \$1 mil. for ROD response, \$4 mil. for CIP fencing projects, and \$5 mil. for a State Conservation Corps internship program from federal stimulus funds to the State. The 2021 legislature also initiated a shift of HDOA inspectors from Special (cargo fee) to General funds, hopefully additional new funds in 2022.

No opportunity for progress. Agencies were not allowed to request legislative “plus-ups” to the HISC budget (which is administratively attached to DLNR’s budget) and partners were also discouraged from making requests.

Key Action:

3. Secure a funding mechanism (public and/or private) to provide at least \$1 million annually for emergency response to new terrestrial or aquatic incursions.
4. Increase annual support from all four counties to ensure stable and effective Invasive Species Committees (ISCs), ROD response and other priority invasive projects.
5. Double private discretionary funding to support CGAPS' ongoing and new invasive species initiatives. (estimated at \$700K per year). [link to Obj 10]
6. Build a relationship with visitor industry decision-makers and develop mutually beneficial projects.
7. Investigate existing and new lines of federal funding for invasive species work.
8. Identify invasive species management as a priority use for DLNR's forest carbon offset program and secure annual commitment in addition to annual appropriations to HISC funds and Watershed Partnership Program Grants.

Progress:

No opportunity for progress. CGAPS and HISC staff had limited discussions with Department of Interior, National Invasive Species Council, and individual legislators. There will be new, temporary federal grant programs in 2022.

In process. One area of success in 2021 was the new City & County of Honolulu TAT Ordinance No. 21-33 which will collect a 3% tax on O'ahu visitor accommodations, 8% of which will support natural resources management projects, for an est. \$18 mil. in new competitive funding opportunities for work on O'ahu.

In process. CGAPS applied for and was awarded \$40K from the CHANGE grant of HCF.

Ongoing. CGAPS and HISC staff participated in Hawai'i Green Growth and other meetings related to the new destination management plans.

Ongoing.

- Two new federal grant opportunities were pursued, the USDA PPA 7721 grant award mentioned previously, and a DOD grant due in January, 2022 to support HAL.
- CGAPS and HISC advocated for "Congressionally-Directed Spending" funds for a new pilot project that would expand the Māmalu Poepoe Airport monitoring and add Honolulu Harbor.
- CGAPS, HISC, and partners began looking into opportunities from the Infrastructure and Jobs Act.

No opportunity for progress.

Key Action:

- 9. Secure capital funding for essential facilities. [link to Obj 5]
- 10. Repeat funding analysis conducted by LRB in 2015 to assess progress.

Progress:

In process. Details in previous sections.

No opportunity for progress. This analysis should occur once agency funding normalizes.

Strategy 7: Engaged and supportive community

Objective: Raise or maintain strong awareness and support (70% in polls) for key invasive species issues and expand, diversify, and mobilize a network of allies to achieve 2025 Strategies.

Lead/Chair: CGAPS. Support: Ambyr Mokiao-Lee, CGAPS, Elizabeth Speith, HISC.

Key Actions

- 1. Provide quality, timely, accessible information to community, decision-makers and allies.
- 2. Develop resonant/targeted messages (related to the core values of the audiences) and use effective methods/channels.
- 3. Increase adoption of specific biosecurity behaviors at ports of entry, especially airports. [link to Obj 1 & 2]
- 4. Identify and engage influencers in different sectors, industries, and groups who can champion invasive species priorities.
- 5. Increase CGAPS & partner understanding and use of social science and raise capacity for the effective use of social science concepts and social marketing for invasive species messages.

Progress:

Ongoing. HISC, CGAPS, and partners provided current, timely, accurate, and accessible information.

Ongoing. CGAPS staff continued to chair the Public Outreach Working Group and the LFA Outreach Working Group, and coordinate the ROD Outreach Working Group, all with outreach specialists from each county. Social marketing concepts and practices are used to plan messages, delivery methods, and in assessments.

In process.

- Airport biosecurity display site selection complete, MOU in process between Bishop Museum and CGAPS.
- Māmalu Poepoe signage posted internally, directed at airport staff.
- ROD messaging continued to focus on reducing spread.

Ongoing.

- CGAPS' 'ōhi'a advocacy project is working with schools to teach civic engagement, the importance of 'ōhi'a, and threat of ROD, by engaging kids in passing a bill in 2022.
- The 'Ōhi'a Love Fest featured popular local retailers and artists, along with cultural influencers.

Ongoing. Annual outreach campaigns such as Stop the Ant Month allow the Working Group to assess messages, audience groups, delivery methods, and ways to reduce barriers to desired behavior adoption.

Key Action:

6. Increase political will to support policy and funding needs.
7. Coordinate statewide or regional strategies and messages across lead agencies and partners; provide communications/ coordination support for agencies and partners for key issues.

Progress:

6 & 7 Ongoing.

- HISC and CGAPS staff continued to meet with local, regional, and national decision makers and agency leadership on a variety of issues.
- CGAPS staff provided critical capacity to DAR in meetings with EPA, assessing regional strategies and local needs, communicating issues with partners, and formulating the State’s comments related to VIDA rulemaking.
- HISC and CGAPS staff continued as part of the core team of the Pacific Regional Invasive Species and Climate Change (Pacific RISCC) management network, to focus research and communications on the synergistic effects of invasive species and climate change in Hawai’i and the US-affiliated Pacific Islands.
- CGAPS staff worked with DLNR, TNCH, HCAF, and IUCN Oceania to plan the Oceania-Hawai’i Pavilion, and CGAPS staff also served as a media liaison to link journalists with Hawaii delegation experts.
- CGAPS worked with colleagues in the Pacific Invasives Partnership to bring about the inclusion of the Honolulu Challenge reporting in a [IUCN WCC session](#) organized by the United Nations Secretariat, Convention on Biological Diversity, and IUCN. More information in the IUCN 2020 WCC section of this report.

8. Evaluate effectiveness of communications periodically and use these lessons to improve future initiatives.

Ongoing. One accomplishment was that the Public Outreach Working Group developed and adopted common metrics for social media and other tracking.

Strategy 8: HISC engagement across sectors

Objective: Improve HISC’s engagement and support across key sectors (agriculture, conservation, economy, health, tourism, transportation, and culture/way of life), and systems (terrestrial and aquatic), as measured by engagement in HISC activities and effective use of HISC tools (e.g. funding, policy resolutions, testimony).

Lead: HISC staff, Council members or designees, and working group chairs.

As Strategy 8 is an internal HISC Strategy, progress on key actions are not included in this report.

Strategy 9: Strong CGAPS network

Objective: Include representatives across the diverse invasive species community of practice in the CGAPS Network and actively engage all partners needed to implement this 2025 Strategy.

Lead: CGAPS staff and Steering Committee members.

Key Actions

1. Continue to engage and support CGAPS partners by assessing and improving current network communications, including general meetings, list-serve, website, information sharing and other network activities.
2. Provide and socialize a simple description of what CGAPS does and how it relates to HISC with all CGAPS participants, especially Steering Committee members.
3. Challenge the CGAPS Steering Committee to actively lead, implement and/or support elements of the 2025 Joint Strategies (Objectives and/or Key Actions) most relevant to their positions and agencies.
4. Identify and recruit additional public and private sector partners needed to implement the 2025 Joint Strategies, using various meeting formats, venues and other engagement mechanisms.

Progress:

Ongoing.

- Four quarterly general meetings were held, all via video conference. All were well-attended, averaging fifty participants from across Hawai'i and Guam.
- Meetings were scheduled at the start of the year, a practice that will continue in 2022.
- Listserve participation was steady, as was website usage. A website redesign will likely occur in 2022, to better align the menu tabs and content with the Strategy.

In process. CGAPS staff has been testing different ways to describe and differentiate these networks. Key phrases include “catalyze action”, “close gaps”, and “federal, state, and non-government organizations”.

Achieved. Four Steering Committee members or their Alternates are leading Working Groups for Strategies, while others are leading or supporting Key Actions or elements of the plan.

Ongoing.

- Continued to expand CGAPS and HISC networks and increase focus on the HIBP through Hawai'i Green Growth.
- Several of the Strategies and Key Actions engaged new public and private partners. Using a variety of engagement mechanisms and formats remains challenging with Covid.

Key Action:

- Track member participation and periodically gather input on their satisfaction with the CGAPS network and opportunities for adaptive management.

Progress:**Ongoing.**

- The 2020 survey of CGAPS partners and meeting and listserve participants continued to guide the format of general meetings.
- Multiple agency and NGO partners commented on the value of our collaborative work and the capacities that the HISC and CGAPS staff bring to projects.

Strategy 10: Stable CGAPS funding and staffing

Objective: Secure committed, consistent annual contributions from CGAPS partners to provide core support for two staff and core operations (est. \$250K per year, not including project funds).

Lead: CGAPS, Steering Committee members.

Key Actions

- Review CGAPS funding needs with the Steering Committee and request/secure annual contribution commitments from all members.
- Work with the CGAPS Steering Committee to assess the potential core funding mechanisms, contributors, and amounts to ensure CGAPS financial security and continuity after 2022 (when HMLF 11-year commitment ends).
- Secure additional annual commitments from active CGAPS partners outside the Steering Committee.
- Complete the first eleven years of partnership with HMLF and agree on future partnership priorities by 2022.
- Present CGAPS “value proposition” and funding needs to the Environmental Funders Group (EFG) to seek core funding and/or project support.

Progress:

Achieved. The annual funding spreadsheet was shared at the fourth quarter Steering Committee meeting with the request for support. As noted previously, some agencies are not able to contribute funding for a variety of reasons, making the other Actions an even higher priority.

2 & 3 Ongoing. There are several options that have been discussed and will be revisited in 2022, 1) applying for grants that align with one or more of the 2025 Joint Strategies and that can include salaries. However, the staff is at or beyond its capacity. CGAPS would need to add a grantwriter that can also draft reports; 2) increasing the amount of funds from existing supporters. These funds are not “annual contributions”, they require proposals and reports, but that work would not necessarily increase; 3) identifying additional funding sources, starting with partners that may be able to contribute. Development functions could use some assistance.

Ongoing. CGAPS staff met with the Foundation Board in April 2021 and presented a 10-year summary of achievements.

No opportunity for progress. CGAPS presented to the EFG in December, 2020, but it was a “no-pitch zone”. Next steps are not clear.

Key Actions:

- 6. Explore feasibility of permanent funding for one CGAPS position in a partner institution's budget (e.g. faculty specialist at UH).
- 7. Provide annual CGAPS budget and financial report to the Steering Committee, especially tracking core support from partners.

Progress:

In process. Although a specialist position is feasible, it would likely require external private funding to establish and fund in order to maintain the focus and capacities of the position.

Achieved.



Photo: In December, HISC Planner Chelsea Arnott organized a learning field trip to Mt. Kaala for the HISC and CGAPS staff and Laura Brewington, a collaborator on the Pacific RISCC and the IUCN WCC 2020. From front to back: Chelsea Arnott, Kailee Lefebvre, Laura Brewington, Leyla Kaufman, Stephanie Easley, Elizabeth Speith, Andrew Porter, and Chuck Chimera. Missing are Ambyr Mokiao-Lee and Christy Martin.

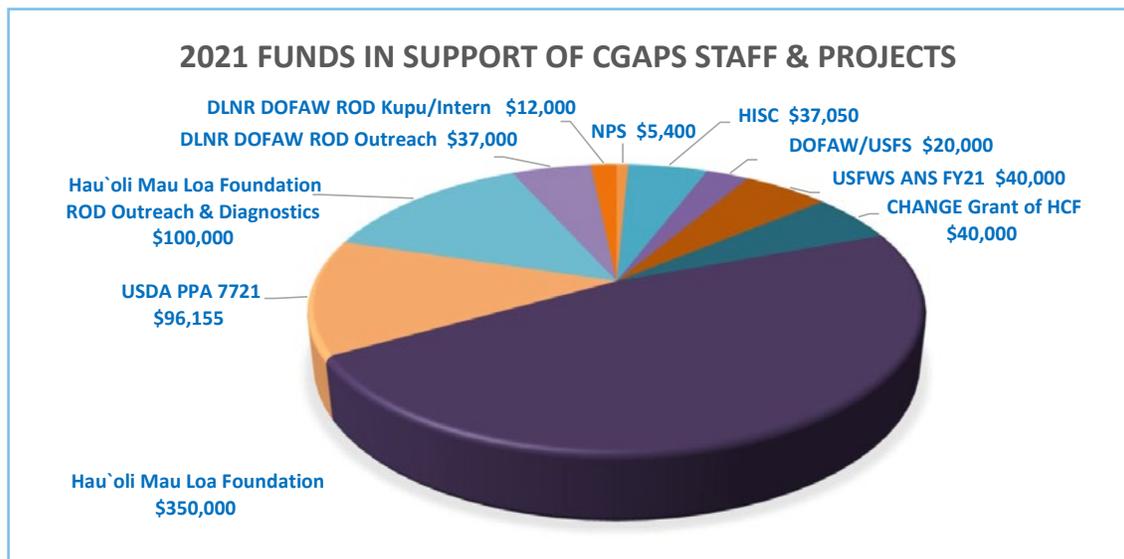


Fig. 1 Total funding committed in 2021 is \$737,605, an increase from \$708,400 in 2020. The USDA PPA 7721 funding supports the ISCs Outreach Specialists and materials and supplies as a priority project (it does not provide core support for CGAPS staff), and although \$12,000 was slated to be used for a Kupu Intern for ROD Outreach, the plans for those funds may change slightly in 2022. Grants are awarded at different times of the year, therefore, funds are counted in the calendar year when the majority of funds will be expended.

Hau'oli Mau Loa Foundation Projects

In 2011, Hau'oli Mau Loa Foundation selected CGAPS as their partner to help achieve their mission to protect Hawaii's natural environment by preventing the arrival and establishment of new invasive species. Each year, the CGAPS Steering Committee prioritizes and submits a short list of projects for funding consideration, and 2021 was the tenth year of the Foundation's ten-year funding commitment which was graciously extended through 2022 due to the ongoing pandemic. Summaries are provided as progress reports for some multi-year projects, and as final reports for others. In addition, project and salary funds for the CGAPS Program Manager and Statewide ROD Outreach Coordinator are provided by a combination of sources, including the Foundation.

Invasive Plant Prevention/NAPPRA (2020-2021, extension to 9/30/22)

In 2020, CGAPS contracted Rachel Neville, the former OISC Program Manager, to research and complete petitions to place 35 plants that are high risk for being invasive if imported into Hawai'i on the "Not Approved Pending Pest Risk Analysis" (NAPPRA) list which would restrict their importation. This same list is also part of the Petition for Restricted Plant Rule and List that the Board of Agriculture in February 2019 approved to be sent to the Subcommittee on Plants and Animals (no movement to date). However, her research on the last set of plants found that they were in cultivation for forestry in the U.S. Instead of proceeding with those plants, it was decided that six of the ISC target weeds would be researched and proposed for the NAPPRA list because they are under a control program. In addition, Rachel is drafting petitions for five high-risk species recommended by HPWRA Screener Chuck Chimera and four species from the Centre for Agriculture and Biosciences International's (CABI) list of medicinal plants in long distance trade. The change in the petition list resulted in a delay in completing the project in 2021.

Support for Hawai'i Green Growth (annual)

Funding provided by the Foundation through CGAPS supports the general operating cost of the Hawai'i Local 2030 Hub, a UN-designated sustainability hub, which includes facilitation of the [Hawai'i Green Growth](#) (HGG) local network and processes. These funds support HGG staff and network projects that drive progress on the [Aloha + Challenge](#) Goals. These goals and targets are measured using progress towards implementing the Hawai'i Interagency Biosecurity Plan (HIBP) as part of the Natural Resource Management goals, achieving implementation of the HIBP also supports—and protects our ability to reach—the goals of doubling local agriculture, smart & sustainable communities, and increasing the green workforce.

In addition to organizing and hosting HGG Network meetings and working group meetings on policy and other topics, HGG staff focused work on updating the Aloha+ Challenge Natural Resource Management and Invasive Species Target content on the Dashboard. Updates include improving multi-stakeholder communication of the HIBP actions' progress through interactive tracking dashboards and exploring new methods of



The Hawai'i Green Growth annual meeting was again held via video conference, but still provided opportunities to participate in meaningful dialog with other participants.

communicating Hawaii's efforts on addressing invasive species.

HGG also engaged local and international leaders in video conference workshops and webinars, to continue to drive attention to the unique challenges, opportunities, approaches that are part of islands and the island mind-set. The webinars spoke to the core of what holds the HGG Network together, that with finite resources, we must work together to do what needs to be done to care for ourselves and the environment on which we depend, without harming the ability of future generations to do the same.

Preventing New Invasives (2021, extended through 2022)

Foundation funding was provided to the UH Agrosecurity Lab to test new hand-held molecular diagnostic units for the detection of viruses and other pests in plants and plant parts. Testing was going well, but the workshops to demonstrate and train agency staff on their operation and use were delayed. If successful, these units could help fill technology gaps for inspection, detection, and rapid response for several Prevention Priority List species and taxa.

Strategic Communications (2020, extended through 2022)

As part of the Strategic Planning process in 2019, a Strategic Communications Plan was drafted for the top two priority Strategies or Actions that were determined to be fundamentally important, that required additional planning, partners, and the support of a professional communications company. The top two issues/needs were to address the pest pathway related to the live plant trade, and to reduce the proliferation, spread, and impacts of pests and weeds through the construction of new biological control facilities. In 2020, it was determined that the former was not quite ready to proceed and there were several opportunities unique to the latter, so a Strategic Communications Plan to implement Strategy 5 was drafted. This contract was signed by CGAPS and a local communications firm in December, for work in 2022.

Little Fire Ant Detector Dog (2015-2016, extended through June 2021)

Foundation funding for this pilot project (#14-1210-31-210; UHF 12702104/ORS 450362, returned to the Foundation in 2020, re-awarded with HCAF as administrator in 2020) secure the services of a Western Australia company that selects, trains, and provides detector dogs for the Australian Government, to select and train a detector dog for Little Fire Ant (LFA) detection, and send one or two handler staff to Western Australia to train with the dog. However, the new timeline was derailed due to the closure of Australia's borders due to Covid-19. The possibility of travel only recently resumed, yet the selected dog is likely too old to have a long work-life. This project still has a lot of potential, as can be seen from the success of USDA APHIS detector dogs now being used to find Coconut Rhinoceros Beetle larvae in mulch and greenwaste material. An additional extension has not yet been requested, as partners need to meet to determine the next steps.

Testing In-Water Cleaning Technologies (2018 – 2019, extend through 2023)

This project, administered by HCAF, was initially delayed due to the passage of the Vessel Incidental Discharge Act in December, 2018, which made it unclear how in-water cleaning may or may not be regulated, and if so, what sort of data was needed to support the goals of clean hulls and clean water. The October 2020 publication of EPA's proposed rules establishing discharge standards did not include numerical discharge standards for in-water cleaning technologies. In summer 2021, EPA re-engaged states (including Hawai'i) in scoping. Additional comments are due at the end of January, 2022, after which the EPA will publish their final rule. The use of these funds to test in-water cleaning technologies could lead to national discharge standards, as EPA is required to review standards every five years, but this project

will continue to be on hold until we and our Pacific Coast partners analyze EPA's final rule language.

CGAPS Legal Fellows (annual)

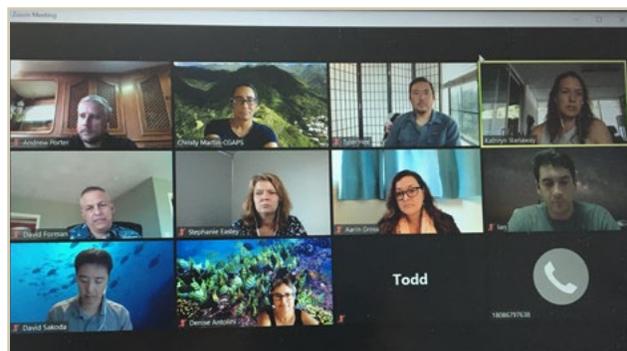
The CGAPS Legal Fellows (#19-1211-08-333 and 20-1209-12-352) is a collaborative project between the UH William S. Richardson School of Law and CGAPS. The work of the Legal Fellows is crucial in helping HISC, CGAPS, and partners with legal research and potential policy changes to support better invasive species prevention and response programs. The Legal Fellows also assist the Environmental Law Program through occasional talks, working with Legal Interns and Externs, and other special projects. Educating this community of next-generation leaders in invasive species issues helps us meet longer-term goals of CGAPS.

Andrew Porter remained on board as the CGAPS Aquatic Legal Fellow in 2021 and has continued to focus on the issues of ballast water and biofouling within the shipping industry. Andrew worked closely with the DAR Ballast Water and Biofouling Coordinator, Natalie Dunn, until her departure from DAR in November 2021 and then helped the new Ballast Water and Biofouling Planner, Elizabeth Monaghan, get caught up on invasive species issues related to the Vessel Incidental Discharge Act of 2018 (VIDA). Andrew assisted DAR in coordinating the Aquatic Biosecurity (Strategy 3) working group, and assumed more of a leadership role after Natalie's departure from DAR.

Andrew started off 2021 by working with DAR staff to draft an Aquatic Biosecurity resolution for the 2021 legislative session, aimed at keeping the issue in the minds of legislators, agencies, and vessel operators, and educating new legislators on VIDA. In drafting the Resolution, Andrew and DAR staff held focus group meetings with attendees from DLNR, HDOT, HDOH, as well as prominent stakeholders and State Legislators. While all attendees were in favor of the underlying premise and goals of the proposed draft resolution, it was ultimately decided that the goals could be achieved through other means. In particular, Rep. David Tarnas stepped forward with an offer to chair a working group as VIDA implementation advances.

As hoped, the EPA initiated a limited scoping process and timeline in June, with focused discharge-specific listening sessions held through the summer and into fall. Andrew, Stephanie, and Natalie participated in these sessions, and Christy joined for the many planning and coordinating calls with Pacific Coast partners. During this process, Andrew worked closely with Pacific Coast colleagues to draft a redline of the EPA's proposed regulation, including background information to help track implications and rationale for proposed language. Andrew and Stephanie worked with DAR staff in developing and presenting input and comments. The EPA set a deadline of January 31, 2022 for Governors or their representatives to submit all final comments that had not previously been raised. With the Ballast Water & Biofouling Coordinator position vacant, DAR Administrator Brian Neilson has asked CGAPS to take the lead in drafting and Brian will ensure that Chair Suzanne Case submits it to the EPA.

In the summer of 2021, Andrew worked with Intern Lake Davidson (in his 3rd year at William S. Richardson) to plan and coordinate



As the senior Legal Fellow, Andrew continued to coordinate the monthly "Fellows and Friends" networking meetings with Professors Denise Antolini and David Forman, the new PI for the CGAPS Legal Fellows.

a *Briefing on Aquatic Invasive Species and the Vessel Incidental Discharge Act in the Pacific* for aquatic resource managers and local policy offices throughout the USAPI to share VIDA-related AIS issues unique to island jurisdictions and to open lines of communication to work together. The briefing was held on August 25, 2021 and also served as a forum in which participants could discuss potential impacts that VIDA could have on in the tropical Pacific.

One issue that is a common concern among Hawai'i and USAPI is the potential introduction of the deadly Stony Coral Tissue Loss Disease (SCTLD) from Florida and Caribbean reefs to Pacific reefs. To learn more, and because ballast water (and possibly biofouling) is believed to be a vector, Andrew has also been participating in the National Oceanic and Atmospheric Administration's (NOAA) SCTLD Implementation Plan Working Group. SCTLD is a coral disease that infects stony corals, resulting in rapid large-scale die-offs of entire colonies. While the exact vector for this disease is not certain, preliminary studies have shown a strong correlation with the movement of vessels, as such, ballast water and biofouling are currently hypothesized to be the leading long-distance vectors. In this group, Andrew has been involved in discussions about how to work within existing laws and regulations as well as the upcoming VIDA framework to prevent movement of SCTLD into the Indo-Pacific region.

Andrew also attended meetings within the SCTLD Preparedness in the Indo-Pacific Workshop and in October set up a small meeting with Caroline McLaughlin, a NOAA affiliated researcher at the University of Florida, to discuss Hawai'i specific regulations and capabilities for early detection and rapid response.

In addition to her work with the team on VIDA, **Stephanie Easley** continued in her role as the CGAPS Terrestrial Invasive Species Legal Fellow and focused on building relationships and working with HDOA staff to support and accomplish invasive species prevention and response projects and priorities.

One of Stephanie's primary responsibilities was to participate in and provide support to the Prevention & Early Detection/Rapid Response (EDRR) Working Group. Stephanie also led and participated in a variety of Working Group task groups, most of which utilized Stephanie's research and drafting skills.

One of the biggest projects was the noxious weed/noxious weed seed task group which Stephanie led in coordination with Becky Azama of HDOA. The goal of the task group was to collect input from a variety of stakeholders and use that information to revise and update the Noxious Weed Seed Administrative Rules and Species Lists (Chapter 4-67 HAR) and the Noxious Weed Administrative Rules and Species List (Chapter 4-68 HAR). Stephanie and Intern Dion Dizon researched, summarized, and presented the existing language in sections for the group to discuss and comment on, then took all of the comments and needs of the agency and community and drafted proposed revisions of the rules, which was also presented to the task group. Together, the task group submitted the proposed revisions of the rules to HDOA in July 2021

With the hiring of Dr. Helmuth Rogg, the new HDOA Administrator in September, the working group was able to focus on the firewood pathway by identifying actions to prevent the



Stephanie participated in meetings with Hawaii's congressional delegation staff to discuss the projects in the four appropriations requests submitted in support of the Strategies

introduction of invasive species via imported firewood. The firewood task group collected information regarding the types, sources regions, and locations of firewood for sale in Hawai'i and attempted to find vendors of firewood sourced from Hawai'i. Stephanie assisted HDOA in developing text that could be used as a new HDOA administrative rule to prohibit the importation of firewood that has not been treated to kill pests, and that is not properly labeled to reflect treatment or other required information. HDOA hopes to move forward with this new rule in 2022.

Stephanie also provided review, drafting, and consistency support for the coconut rhinoceros beetle task group which was formed to support HDOA's effort to prevent the beetle from spreading within O'ahu and from O'ahu to other islands through Board of Agriculture approval of an interim rule,

The discovery and official notification to agencies of new (not known to occur) pest detections can be a sensitive matter, and the protocols for notification, documentation, and even movement or importation of research species must be communicated. As part of her work coordinating Prevention Key Actions, Stephanie helped organize the communications protocols task group which worked to develop and ensure that UH-CTAHR researchers and extension staff follow and teach timely reporting of new pest detections and that research materials are properly permitted and inspected.

Stephanie also supported the pathways task group which worked to modify the non-regulatory Hawai'i Prevention Priority Distribution List to refine the list and add the potential pathways of introduction for each species. The goal is to validate the list and make it more representative and useful as a prevention tool beyond just checking on their status every year (introduced or not introduced).

As part of the Working Group, Stephanie assisted HISC staff in interviewing State and Federal partners to assess the Māmalu Poepoe program and develop suggestions to modify the program as we sought a permanent funding source.

Stephanie also utilized her background in legislative drafting to assist in preparing appropriations requests for the Pacific Regional Biocontrol Facilities, the funding of the Coastal Aquatic Invasive Species Mitigation Grant Program and Mitigation Fund (authorized by VIDA), funding to continue and expand the Māmalu Poepoe pilot program, and to correct a technical error in VIDA. Stephanie submitted these appropriations requests on behalf of the HISC and CGAPS networks, and also provided the language to DLNR, who also submitted the requests.

In support of the William S. Richardson School of Law, Stephanie was a guest speaker/panel participant in Administrative Law, Legislation, and Wildlife Law classes. She also worked with CGAPS volunteer Intern Abby Matsumoto, a Stanford undergraduate from Hawai'i who was exploring legal work through a summer internship with Pitluck, Kido & Aipa, LLP. As part of her internship, the firm allowed Abby to do a volunteer legal project for CGAPS, which was to research and draft a memo on the designation of 'ōhi'a as an official Symbol of Hawai'i, under a new category, the State Endemic Tree.

Andrew Porter and Stephanie Easley worked together to supervise two



Stephanie (top left) and Andrew (bottom right) worked closely with the Interns to guide and review projects. With external events shifting the timeline and focus of Lake Davidson's (bottom left) project, Lake opted to continue in the fall as an Extern.

CGAPS legal interns. Dion Dizon, a rising third year law student at UH William S. Richardson School of Law, joined CGAPS as a summer intern. She assisted Stephanie in the preparation of the revised noxious weed administrative rules and participated in the noxious weed/noxious weed seed task group meetings and provided legal research related to the revised language. Topics she researched included the rules applicable to conservations districts in Hawai'i, the requirements for cooperative agreements used by State agencies, and penalties available for certain unlawful actions.

Our second legal Intern, Lake Davidson, worked both as a summer Intern and then continued his time with CGAPS as an Extern during the fall semester. Lake is a third year law student at UH William S. Richardson School of Law. Under Stephanie's guidance, Lake's summer projects were focused on researching legal mechanisms (rulemaking and emergency declarations) available to address a new detection of a high-risk invasive species. Part of his research was to identify the "trip steps", or problem areas, within these mechanisms that could result in their ultimate ineffectiveness in dealing with invasive species.

Working with Andrew, Lake also provided some preliminary work on developing an aquatic invasive species learning workshop to identify common policy problems and solutions among Pacific Island jurisdictions. His work included identifying appropriate workshop participants from those jurisdictions. With the EPA re-engagement with States related to VIDA, this workshop shifted focus to brief participants on VIDA, the proposed EPA discharge standards, and potential AIS issues. During the fall semester, Lake drafted a memo proposing changes to the emergency declarations statutes in Hawai'i that would permit the Governor or the mayor of a county to utilize emergency funds and authorities to respond to the detection of an invasive species. Lake received law school credit for his externship work.

ROD Emergency Special Funding Projects (2019, 2020, 2021)

HMLF has provided special additional support for emergency response work on ROD, which is deeply appreciated. Most ROD funds are administered by the University of Hawai'i Foundation and Office of Research Services because UH plays a key role in the research, response, and extension work on ROD.

Funding provided for 2019 (#18-1212-22-321) has been extended through 2022. A portion of the funds supported Ambyr Mokiao-Lee and her work as the ROD Statewide Outreach Coordinator, and to fill a gap in funding for lab technician Eva Brill, housed at USDA ARS, to help process the thousands of samples submitted for ROD pathogen testing. The remaining funds are being used to support the production of more effective boot brush stations and signage, a project that was put on hold during the pandemic because of the cost and difficulty of procuring items for the stations.

Funding for 2020 (#19-1211-13-338) again provided partial payroll support for lab tech Eva, and half of the salary and operating costs for Ambyr. Most of these funds are expended. An additional project (#19-1211-14-339) to conduct public awareness surveys on ROD and related issues, was not initiated in 2020 or 2021 due to the pandemic and the thought that opinion poll results would likely not represent public sentiment on the



Participants of the ROD Outreach Workshop series gathered each week to learn about the advances in the research on ROD, topics like experiencing 'ōhi'a through songs and chant, social science best practices, and technology tips for better outreach.

relative importance of the work. Funding for this project is administered by HCAF and has been extended.

Ambyr Mokiao-Lee works under the supervision of CGAPS, with Drs Mike Melzer and J.B. Friday as Principal Investigators.

Ambyr worked closely with Hoku Pihana, the Hawai'i Island ROD Outreach Specialist, Kim Rogers, the Kaua'i ROD Outreach Specialist, and J.B. Friday, CTAHR Extension Forester to plan and conduct outreach projects.

The ROD Strategic Response public engagement strategy calls for extending our reach by training the trainers, and each year, a workshop is held for individuals that conduct or are likely to conduct outreach about 'ōhi'a. Ambyr helped coordinate and run the 4th annual ROD outreach workshop which was held virtually due to COVID. The purpose of this workshop was to provide these educators with the knowledge and tools to conduct 'ōhi'a and ROD outreach in their networks and to work together to assess and plan ROD outreach messaging. In-person workshops in the past hosted 30-35 participants from across the state. However, the virtual platform allowed us to reach an average of 45-55 participants in workshops were held over the course of 5 weeks with 10 science and 10 social science presentations. Feedback from the workshops was overwhelmingly positive with participants saying that they thoroughly enjoyed it and learned a lot of new skills that they could use in their work.

Because 'ōhi'a is so abundant in some areas, and because it holds such significance and beauty, 'ōhi'a flowers and foliage is used in lei and wreaths. 'Ōhi'a-free lei and wreath making workshops were held as a way to talk to this audience and teach people that such practices can injure and open 'ōhi'a up to infection, and that other materials can be used, which protects 'ōhi'a. Ambyr led 3 'ōhi'a -free lei making workshops in May 2021 which were attended by over 90 people. Surveys (n=43) showed that 24% of attendees were from out of state, and 91% increased their knowledge and learned something new, the majority had learned a lot about sustainable harvesting practices, and most said they were willing to share what they learned with their communities. For these and many other online workshops, Ambyr and the team worked together to ensure that the speaker could focus on delivering the content while someone else monitored the chat on the video conference platform.

In December, Ambyr planned and hosted an 'ōhi'a -free wreath making workshop with a total of 45 attendees. The participant survey (n=14) contained great reviews and most importantly, 93% of respondents mentioned that they would only use 'ōhi'a -alternatives in future wreath making endeavors. Participants also said they want to see us hold more workshops.

Ambyr coordinated and hosted, with the help of the ROD outreach team, the 5th annual 'Ōhi'a Love Fest from November 3rd-6th. Due to COVID, this was the second year it

was hosted virtually and consisted of three days of online workshops, with the last day coinciding with Hawaii's annual Arbor Day festivities. This year's events included virtual video tours of Hawaii's 'ōhi'a forests, learning how to identify the different varieties of 'ōhi'a found across the main Hawaiian Islands, and a panel discussion on collecting 'ōhi'a seeds, growing 'ōhi'a from seeds, and how to properly plant a maturing 'ōhi'a seedling. This year's theme was Celebrating our Native 'Ōhi'a Forests; Kinikini Ka 'Ōhi'a, Ola Mau Nā Ululā'au Hawai'i, translated as Multitudes of 'Ōhi'a, perpetuate the health and wellness of



The 'Ōhi'a Legacy Initiative's JC Watson led a workshop on planting, growing, and caring for 'ōhi'a for participants of the 'Ōhi'a Love Fest.

our native forests. This theme and offerings was intended to provide participants with the tools and resources they need to take action in their communities to perpetuate ‘ōhi‘a growth and abundance.

In order to generate attention and attendees, Ambyr and the team worked with radio stations and contracted radio ads with in-kind time provided for interviews about the ‘Ōhi‘a Love Fest. Radio advertising was paid for by a grant from the Omidyar Ohana Fund of the Hawai‘i Community Foundation. This year we took a different approach to advertising. We decided instead of doing media/TV advertising that we would increase our radio advertising to include more stations per island for a larger audience listenership since radio is a primary form of communication on some of the outer islands.

In addition to advertising via radio and social media platforms, the ROD outreach team also created keiki craft kits that were distributed to 27 libraries across 5 islands, totaling over 500 kits. The keiki craft kits contained information about ‘ōhi‘a, ROD, and crafts for kids to teach them about the cultural and ecological importance of ‘ōhi‘a.

Surveys were conducted after each of the ‘Ōhi‘a Love Fest workshops that provided insight into what people learned and recommendations for future events. In summary, 249 people attended the three hosted workshops with most attending the Tour of Hawaii’s Forest Workshop (n=131). The primary responses from attendee surveys (n=124) showed that people were interested in taking action to support ‘ōhi‘a by planting more ‘ōhi‘a, sharing information with family and friends, and/or participating in ‘ōhi‘a advocacy efforts. Results from our survey also showed a significant increase in knowledge about ‘ōhi‘a after attending our event. Suggestions for improving future events

included creating a hybrid festival model that combines virtual and in-person events, greater inclusion of the cultural importance of ‘ōhi‘a in the presentations, and making all the events available online after the conclusion of the festival (they were recorded and we are in the process of uploading and making them available). In conclusion, we found there to be many benefits to hosting the ‘Ōhi‘a Love Fest virtually, yet we did recognize the importance of in-person learning exchanges and experiences.



Fig. 2. The website RapidOhiaDeath.org has been the central website for the science and public information about ROD. In the 2021 calendar year, there were 13,032 users, nearly 80% of whom were new users, and 20,590 sessions, which means that many users visited the site multiple times.

Outreach to schools has been a main priority of the ROD outreach team and Ambyr, Kailee, and Christy began a legislative campaign to designate ‘ōhi‘a lehua as Hawaii’s first State Endemic Tree, as described in the Planner update. This project has been over a year in the making and finally came to fruition in 2021. Both Kailee and Ambyr began doing presentations to schools across the state as a 2-part process. Ambyr would conduct the first presentation with an introduction to ‘ōhi‘a and its importance, and how it is being affected by ROD, and Kailee would present the second topic of advocacy and how to make your voices heard in the legislative process. To date, Ambyr and Kailee have presented to over 25 schools and some classes have already reached out to their legislators to talk about ‘ōhi‘a and the proposed bill.

Capacity Support for CGAPS Program Manager/PIO and Planner (annual)

In past years, the Foundation provided 100% of the funds supporting the CGAPS Planner salary and operating costs. In 2021, a grant from the Hawai'i Community Foundation CHANGE Grant program will provide approximately 50% of CGAPS Planner Kailee Lefebvre's salary and fringe for 2022. Hau'oli Mau Loa Foundation funds also supported a portion of the salary and operating costs for the CGAPS Program Manager/PIO, with additional 2020 funds received from the U.S. Forest Service through DOFAW, NPS (#P17AC01216 Mod2), USFWS, and HISC.

Kailee Lefebvre continued as CGAPS Planner and took on several new projects in 2021. Kailee worked with Māmalu Poepoe coordinator and HISC staff Leyla Kaufman, and Christy on the interactive biosecurity display at the Daniel K. Inouye International Airport. She researched interactive exhibits and potential contractors, and coordinated meetings and site visits, including to the Bishop Museum to meet with Exhibits Manager Brad Evans. The team did a site visit to the airport with Brad and HDOT Airports staff to select possible locations and begin planning for the display.

In support of two Strategies, Kailee embarked on a new project with Statewide ROD Outreach Coordinator Ambyr Mokiao-Lee to engage students and teachers across the state in the legislative process in Hawai'i and to teach students about the importance of protecting 'ōhi'a through a project to designate 'ōhi'a as the State Endemic Tree in the 2022 legislative session. As the co-leads, Kailee and Ambyr scheduled meetings with legislators and community leaders to assess any concerns and gain support for this idea. With the help of summer Intern Abby Matsumoto and CGAPS Legal Fellow Stephanie Easley, a draft of the proposed bill and statutory language was developed and shared with legislators. By years' end, the Chairs of House and Senate Water and Land committees confirmed that they would introduce the bill. Kailee developed curriculum on how to participate in the legislative process and presented to 10 classes between November and December, with more scheduled in January. Students will be submitting testimony for this bill, contacting their local legislators to talk about the importance of 'ōhi'a , and gaining more support from their communities.

Kailee assisted with the USDA PPA Pono Nurseries project by researching and compiling information for presentation. She also helped with annual projects by CGAPS, HISC and partners through planning, logistics, and content creation for the 'Ōhi'a Love Fest, Stop the Ant Month, and Hawai'i Invasive Species Awareness Month. Kailee also participated in meetings with the Coconut Rhinoceros Beetle Response to draft and plan for the implementation of an HDOA Interim Rule to manage the spread of CRB through compliance agreements with producers and transporters of host material including greenwaste, mulch, and palms.

In support of the CGAPS partnership and community, Kailee continued to coordinate the logistics for the quarterly CGAPS General and Steering Committee meetings and monthly staff meetings. She also maintained the listserve and continued to work on the CGAPS website.

Christy Martin continued as the Program Manager for CGAPS, responsible for public and policy maker outreach and media-related duties (50%); staff direction and supervision,



Kailee Lefebvre (center), Leyla Kaufman (right), and Christy Martin met with Bishop Museum's Brad Evans to begin planning an interactive display on biosecurity that will be installed at the Daniel K. Inouye International Airport. Three interactive activities are being planned, with signage and other elements.

partnership coordination, and partner project support services (25%); grants and reports, planning, and project management (20%); and other duties as assigned (5%). In this position, Christy continued to supervise and guide the CGAPS staff, contractors, and projects, work with fiscal staff and administrators on procurement and contracting, and assist the CGAPS Chairs, Steering Committee, and the Working Groups, to advance action on the Strategies.

Christy continued to support partners and advance the Strategies by chairing the Public Outreach Working Group (Strategy 7), chairing the Statewide LFA Outreach Working Group, serving as a steering committee member for DAR's Ballast Water and Hull-fouling program, organizing and hosting the O'ahu LFA Incident Command System (ICS) meetings, as part of the strategic planning team and engagement subcommittee team for the Birds, Not Mosquitoes landscape-scale mosquito control project, as the strategic communications lead for the Pacific Regional Biocontrol Facilities (Strategy 5), as a founding member and part of the core team of the Pacific Regional Invasive Species and Climate Change ([Pacific RISCC](#)), by participating in the ROD Outreach Working Group, and several other projects related to the Strategies. Details on some of these projects are provided below.



With partners at DLNR, Christy worked with the producers of PBS Insights to identify panelists and collect and send photos and other materials in preparation for the live-televised [program on invasive species](#). Panelists included DLNR Chair Case, Dr. Mike Melzer of the UH Agrosecurity Lab, Tiffani Keanini of KISC, and Christy.

The Pacific RISCC core team continued to focus attention and advance knowledge, understanding, and communication on the synergistic effects of climate change and invasive species. In 2021, Pacific RISCC participated in regular cross-RISCC meetings with Northeast RISCC and other RISCCs in various states of formation. A few accomplishments of the Pacific RISCC in 2021 include the expansion of the core team to include members from other US-affiliated Pacific Island jurisdictions beyond Hawai'i, securing funds and initiating the hiring process for a dedicated staff person to coordinate and advance priorities, and presentations about the synergistic effects at local, national, and international conferences and meetings.

There were many questions about emergency rapid response mechanisms in response to the discovery of brown treesnakes on Cocos, a small island off the coast of Guam where biologists released endangered Guam rails after the island had been cleared of the snakes, questions that also came up during the [2013 Tabletop Exercise](#). Foundation funds were used for a small contract with Dr. Mindy Wilkinson of Primum Terrae, and formerly with DLNR and the National Invasive Species Council, to help research and document the use of emergency declaration authorities and potential policy or programmatic solutions. With the help of Stephanie and Lake, several months of interviews and meetings were held with a variety of agency staff across the U.S. In conjunction with this work, Christy organized an EDRR session for the annual NAISMA conference, with a series of talks featuring a U.S. federal/multi-state/Canada example, a federal/state example, and examples from Hawai'i and Guam. The Guam and Hawai'i case studies and needs were reprised at the annual Brown Treesnake Technical Working Group meeting. Mindy's work will culminate in a white paper or possibly a journal article in 2022.

With Foundation funding and the guidance of CGAPS Steering Committee member Alan Holt, Christy and Kailee worked with Pauline Sato as the executive producer of the popular

program *Outside Hawai'i*, to plan and produce a story about LFA and the work of the Hawai'i Ant Lab. This and a story that will be produced in 2022 aim to support the case for requesting new funding or policy support for the priorities identified in the 2025 Strategy. The program ran several times on OC16 during the fall and is posted on the Outside Hawai'i website and [online](#).

As part of the UH PCSU and RCUH community, Christy supported links between the University, the community, and invasive species work through lectures, informal advising, and other communications and collaborative projects with students and faculty. Talks are typically tailored for each group, and one annual presentation is to Dr. Andy Kaufman's Landscape Architecture class at UH Mānoa. This talk always includes the natural history of Hawai'i, the importance of using the HPWRA to guide their plant selection choices, and how to use the Plant Pono website. A full list of the staff's outreach work is listed in the Outreach & Media section of this report.



Fig. 3. Users of the [PlantPono.org](#) website continues to increase. In 2021, there were 23,874 users, nearly 90% of whom were new. There were 30,057 sessions, meaning that there were a lot of repeat users and that it is a valuable resource.

HISC-Funded Projects

Biocontrol Explainer Video

With funding to CGAPS from HISC, Christy worked with DLNR DOFAW Biocontrol Planner Andy Cullison and contractor Hyperspective LLC to create a short video explaining the concept of “classical biological control”, or biocontrol that is host-specific and regulated. Christy worked with PCSU staff to draft and post a Request for Proposals, and selected local media firm Hyperspective, LLC through the competitive process. Andy and Christy drafted the script and proposed “shot list”, and worked with Hyperspective to refine and produce the video. In his new role as DLNR DOFAW Education Coordinator, Josh Atwood posted the [video on DLNR's biocontrol website](#), and produced a media kit with talking points for the Public Outreach Working Group to use in their social media, web, and other outreach work. Christy and partners also drafted a media release for the UH News, which was picked up and posted to their e-news audience. The end of the video mentions how biocontrol saved the endemic wiliwili tree from extinction, which will be the story line for the second short video to be produced in 2022.



A screenshot of the short video explaining modern-day biocontrol procedures. More than fifty biocontrol species have been tested and released since the 1970s when new protective procedures and regulations were put in place.

Stop the Ant Month: Statewide Outreach on LFA

CGAPS staff continued to provide outreach and communications support to HDOA, the lead agency for responding to Little Fire Ants (LFA) through the Public Outreach Working Group (Strategy 7), and the Little Fire Ant Outreach Working Group. In 2021, Christy and working group partners from HDOA, KISC, OISC, MISC, BIISC, DOFAW, and HAL coordinated the 7th annual Stop the Ant Month campaign in October. Through the HISC, CGAPS received \$15K to support materials, supplies, and radio, print, television, and social media communications to promote public awareness and engagement in collecting and submitting ant samples for identification. As in past years, this group worked together to analyze past messages and methods, the barriers to success, potential benefits, and other information to plan and implement the 2021 campaign. This evaluation led to the addition of a new “call to action” for the 2021 campaign, which was to “request a free ant collection kit”.

The working group updated the collaborative www. StopTheAnt.org website with the latest infestation information for each island and to update materials. Funds were used to contract Websites With Aloha to add a request form and to move the hosting of the site to consolidate operations. The website was also referenced in most outreach and communication pieces. In 2021, there were 3,855 users (up from 3,159 users in 2020, and 446 in 2019) and 8,825 pageviews. The top three pages were the Homepage with 2,265 users (this is the landing page where all radio and news media pointed), the Request for Ant Collection Kit page with 1,587 (either from the homepage, or from links in social media posts, links from other websites, and QR codes), and the Report LFA page with 568 users. Interestingly, visitors to the site used: 71.6% Mobile, 24.4% Desktop, 4.1% Tablet, which represents a huge shift from just a few years ago when the majority of site visitors were using desktop computers.

Erin Bishop updated and sent a request to legislators to include the LFA info in their communications during Stop The Ant Month. Several officials included one or more pieces of the information in their newsletters or social media posts, and Senator Ke’ohokalole’s weekly e-news contained the infographic throughout October.

Each year the group’s social media presence and activity has generated increasing amounts of attention and engagement, all thanks to the planning, advice, and work of the outreach staff of the ISCs. This year, CGAPS managed posts to the Stop The Ant Facebook page, while the ISC were responsible for posting to their own pages and networks, and sharing each other’s posts. Statewide message posts were developed primarily by Jamie Miller of OISC and Kawehi Young of BIISC and shared with others for posting.

Similar to 2020, CGAPS again contracted with KHON to run a 30-second version of the one-minute video call-to-action as a “pre-roll” ad that ran before on-demand video news stories. KHON also posted an ad to Facebook and Instagram to reach their considerable online audience. Part of the advertising package included a short television interview with Christy and Serena Fukushima, MISC’s new outreach specialist about [Stop the Ant Month for Living 808](#) which aired twice during October.

HISC funds also supported the purchase of radio broadcasting time to run LFA information ads in Maui County where two ads ran 236 times and on Hawai’i island where



In 2021, Stop the Ant Month messaging included directions to “request your free ant collection kit”, and provided ways to do that. O’ahu print ads included OISC’s phone number because print audience and those most willing to do this action are the mid-to older generations.

two ads ran 412 times. On O’ahu, OISC and CGAPS worked with O’ahu Media Group to run a print ad in the weekly free publication MidWeek, and on a Friday in the Star Advertiser. Erin Bishop designed the ad which included a QR code to help direct readers to the website using the camera on their phones. KISC did not do any radio ads, but was able to get coverage with an interview on KKCR radio and in the Garden Island newspaper. Serena Fukushima of MISC also worked with Hawai’i News Now on a news story, and an interview about the LFA work on Maui with “The Conversation” on Hawai’i Public Radio. HDOA assisted by drafting and sending a press release that was used in media outlets on October 1.

Through USDA Forest Service passthrough funds, CGAPS was able to hire Brigham Young University of Hawai’i (BYUH) senior Sterling Kerr as a student assistant to help conduct survey and outreach work in his Lā’ie community. For Stop the Ant Month, Sterling designed and printed 360 door hangers and stapled ant collection kits to them. Sterling and Christy delivered these door to door in the highest priority communities in Lā’ie. The ISCs and HAL staff delivered display boxes with ant collection kits to libraries, garden shops, hardware stores, and other locations across the state. Nearly 7,000 kits were distributed, hundreds of which were requested through the Stop The Ant website.



BYUH senior Sterling Kerr assisted the O’ahu LFA response by surveying for LFA and providing ant collection kits in his Lā’ie community

Between Oct. 1 and Nov. 30, there were 106 samples submitted on O’ahu (no records immediately available for other islands), and stickers on the collection kits show that people continued to send samples in through the end of the year. Two of the samples from O’ahu residents were identified as LFA as a direct result of the campaign.

Table 1

Method	# of Posts	Impressions (# of times content displayed)	Reach (# of people who see content)	Engagement (# of clicks, likes, shares, comments)	Cost
KHON Pre-roll	1 30-sec video	49,687 (27,059 or 54% to completion)	-	43 (.09%)	\$1,500
KHON FB	1 ad, multiple boosts	134,215	-	4,374 (3.26%)	\$2,000
CGAPS STA FB	3	-	65,675	592	-

Table 1. CGAPS contracted KHON to post and boost an ad to their social media audience and to run a 30-second ad as pre-roll. The large reach was surprising this year, and the team will focus on turning these engagement numbers into ant submissions. Social media numbers were not readily available for all partners.

IUCN 2020 World Conservation Congress (special project)

In the spring of 2021, it became clear that the IUCN World Conservation Congress would be held in Marseille after being delayed due to Covid. Through HCAF, Hau'oli Mau Loa Foundation provided funding to support the travel and participation of two CGAPS representatives, and the CGAPS Chairs selected Christy and Chelsea Arnott as the HISC Planner and interim HISC Coordinator, while additional funds from the Foundation HCF, and several other foundations supported a "Pavilion" space and participation by a 40-person Hawai'i delegation. Note that this summary is provided as a snapshot of CGAPS-related work and views, and it does not begin to cover the hard work and accomplishments of everyone involved.

A small team was formed to coordinate the decoration, protocol, programming, logistics, and staffing of the Oceania-Hawai'i Pavilion, a presentation and gathering space with a 40-person seated capacity. The team included IUCN Oceania's Fipe Tuitubou, Michael Cain and Leah Laramie of DLNR, Sam Gon of TNCH, Tara Meggett of HCA, and the bi-monthly meets were organized and led by Christy.

Also during this time, Chelsea, Christy, Pacific RISCC colleague Laura Brewington, and NAPPRA contractor/former OISC Manager Rachel Neville worked together to organize and present two hour-long sessions, one on the [Honolulu Challenge](#), and the other on the dual drivers of [climate change and invasive species](#). Because so many of our Pacific island partners would not be able to attend, work focused on preparing video presentations from partners, with in-person presentations by members of the Hawai'i delegation.

Less than a month before WCC, we learned that only Ken Kassem would be able to attend for the IUCN Oceania staff, and planning shifted again to incorporate live, remote



On behalf of Gov. Ige and HCAF, NTB President Chipper Wichman and DLNR Chair Suzanne case presented IUCN Global Director Enrique Lahmann with makana (photo inset) to represent respect for the leadership and kuleana of this work.



Marques Hanalei Marzan, Kathryn Wong, Mike DeMotta, and Sam 'Ohu Gon III worked with WCC participants to learn Ka Hei-hei o na Keiki, as a lunchtime workshop.



On behalf of Pacific RISCC partners, Chelsea, Christy, Laura, and Rachel presented on the Synergistic Effects of Invasive Species & Climate Change.

participation, despite the time difference. The Hawai'i team worked closely with Ken to support Oceania's programming, and night-shift support by Tara and Emma Anders allowed us to stream some content to the HCA Facebook page. In all, there were thirty-four events scheduled for the Pavilion (half of which were Hawai'i programming), and additional cultural workshops during lunch.

The Pavilion also served as home-base for the work of the Hawai'i delegates in the Motions process, so when U.S. State Department officials offered to share their space in the nearby U.S. State Department Pavilion, the team greatly appreciated the offer.

With Denise Antolini and David Forman's leadership, the IUCN Motions Drafting Class and students, and the collaboration with local groups, Hawaii's priorities moved from ideas, to Motions, to Resolutions adopted by the international community, which drives change. Collaborative work on two Motions in particular played out at the WCC like the very best nail-biting thriller. One of these was [Motion 003](#) which called for the IUCN to create a 7th Commission, the Climate Crisis Commission, which was adopted during the last hour of the last day. This is a tremendous achievement, yet it is really just the first step that will generate greater focus and resources on



The U.S. State Dept. shared their Pavilion space for Hawai'i team meetings. Sol Kahooalahala (center) shared information behind Motion 048, calling on the IUCN to renounce the Doctrine of Discovery, which was adopted as [Resolution 119](#).



UH William S. Richardson School of Law students and interns presented on the Environmental Law Program and the experience of working on international soft-law during the Motions process.

this issue and compounding and synergistic change-drivers (such as invasive species).

Similarly, there has been important work that has gone into the issue of biofouling by the international community, stemming in part from the [2016 Biofouling Resolution](#), and these actions on the Resolution continues to be tracked on the IUCN Resolutions portal.

The decision to provide support for the delegation's travel, the Pavilion, and the supplies was likely not easy. However, funding also provided the impetus for many hours of work on issues of global and local importance that preceded WCC and that will expand into the future. Mahalo nui loa for this support.



As the lead for the Hawai'i Pavilion programming, Michael Cain was able to schedule a limited number of presentations for the large central stage, like Kua'aina Ulu 'Auamo's (KUA) event on indigenous and local community marine resource management..

CGAPS Staff Outreach & Media

Staff participated in a number of outreach opportunities in 2021, nearly all of which were conducted via online video conference or streaming. The following is a list of events where Ambyr Mokiao-Lee (AML), Stephanie Easley (SE), Andrew Porter (AP), Kailee Lefebvre (KL), and Christy Martin (CM) conducted outreach to the public or groups via presentations, workshops, booths at community events, or via radio, print, television, or social media.

- 2/1 Presentation (CM): *Natural history of Hawai'i: native, non-native, and invasive species* for Honolulu Waldorf School 6-8th grade
- 2/2 Presentation (AP & SE): VIDA Case Study for Administrative Law students at UH Richardson School of Law
- 2/18 Presentation (CM): [Speak for the Trees \(or Coral\): how to participate in the legislative process](#) for Hawai'i Invasive Species Awareness Month
- 2/19 Workshop (AML): *'Ōhi'a-Free Lei Making* for KUPU Teachers
- 2/24 Interview (CM): *Top five invasive species* for Conservation Conversations Hawai'i podcast with Kuhea Asiu
- 3/3 Presentation (AP & SE): CGAPS work on invasive species in Hawai'i, participants in a student presentation for Wildlife Law students at UH Richardson School of Law
- 3/3 Presentation (AML): *ROD Outreach Workshop #1* for outreach educators
- 3/10 Presentation (AML): *ROD Outreach Workshop #2* for outreach educators
- 3/12 Presentation (AML with Marian Chau): *Seed Banking Workshop* for East Maui Watershed Partnership
- 3/24 Presentation (AML): *ROD Outreach Workshop #3* for outreach educators
- 3/31 Presentation (AML): *ROD Outreach Workshop #4* for outreach educators
- 3/31 Presentation (CM): *Invasive Species* for the UC Berkeley Fung Fellows
- 4/7 Presentation (AML): *ROD Outreach Workshop #5* for outreach educators
- 4/7 Presentation (CM): *Speak for the Trees: how to participate in the legislative process* for participants of the ROD Outreach Workshop
- 4/26 Press release & article (CM): [How is Hawai'i protected from invasive species?](#) in UH News
- 5/7 Workshop (AML): *'Ōhi'a-Free Lei Making Workshop #1* for public
- 5/13 Workshop (AML): *'Ōhi'a-Free Lei Making Workshop* for Mokapu Elementary School
- 5/14 Workshop (AML): *'Ōhi'a-Free Lei Making Workshop #2* for public
- 5/28 Workshop (AML): *'Ōhi'a-Free Lei Making Workshop #3* for public
- 6/9 Presentation (AML): *ROD* for KUPU HYCC Program
- 6/10 Presentation (CM): *ROD* for the Western Chapter of the International Society of Arboriculture annual conference
- 6/24 Presentation (CM): *Update on new little fire ant infestation in Mililani Mauka* for Mililani Town Hall meeting
- 7/22 Presentation (AML): *'Ōhi'a-Free Lei Making Workshop* for Ag Discovery



In March, Rep. Val Okimoto joined a multi-agency LFA survey team in her Mililani Mauka district, and organized a presentation on the infestation for a Town Hall meeting in June.

- Day for UH Mānoa
- 8/25 Presentation (AP, SE, CM): [Briefing on marine invasive species issues related to EPA rulemaking for VIDA](#) provided for US-affiliated Pacific Island and other participants
- 9/3 Presentation (CM and partners): [Bold action on invasive species: a review and next steps for the 2016 IUCN WCC Honolulu Challenge](#) for participants of the IUCN WCC in Marseille, France
- 9/6 Presentation (CM and partners): [Synergistic effects of climate change + invasive species: a call for RISCC management](#) for participants of the IUCN WCC in Marseille, France
- 9/16 Interview (CM and partners): [Invasive species](#) for PBS Insights
- 9/30 Presentation (CM and partners): *Early detection & rapid response stories from Hawai'i and Guam* for the North American Invasive Species Management Association annual conference
- 10/7 Interview (CM and Serena Fukushima of MISC): [Stop the ant month with free collection kits](#) on KHON's Living 808
- 10/8 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Kalaheo High School
- 10/14 Presentation (CM): *Intro to policy* for UH Mānoa Botany 350 class
- 10/19 Presentation (CM): *Plant pono* for UH Mānoa Landscape Architecture class
- 10/20 Presentation (CM): *Nonprofits (and invasive species work)* for UH Mānoa Marine Option Program class
- 10/26 Article (CM and Lissa Strohecker of MISC): *Earn CEUs and protect Hawai'i: sign up for a free pest prevention training program* submitted to the Landscape Industry Council of Hawai'i for the January/February Landscape Hawai'i magazine issue
- 11/9 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Waipahu High School
- 11/15 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Mānoa Elementary School
- 11/16 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Kaneohe Elementary School
- 11/16 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Waipahu High School, O'ahu
- 11/17 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Hawai'i Technology Academy, Kaua'i
- 11/17 Presentation (CM): *Early detection & rapid response stories from Hawai'i and Guam* for the Brown Treesnake Technical Working Group annual meeting
- 11/18 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Kāne'ohe Elementary, O'ahu
- 11/18 Presentation (CM): *Identifying and preventing the next miconia* for UH CTAHR invasive pest mini-conference
- 11/19 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Island School, Kaua'i
- 11/19 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Kalaheo High School, O'ahu
- 11/22 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Mānoa Elementary, O'ahu
- 11/29 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Kamehameha Schools, Maui

- 11/29 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Kilo Books Hawai'i Club
- 11/30 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Kamehameha Schools Maui
- 12/3 Presentation (AML): Importance of 'Ōhi'a and ROD talk for 'Ōhi'a Advocacy Project for Iolani Elementary School
- 12/7 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Iolani School, O'ahu
- 12/8 Presentation (CM): *Careers in conservation* for Honolulu Waldorf 8th grade class
- 12/9 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Kamehameha Schools, Maui
- 12/10 Presentation (KL): *Hawaii's legislature and 'ōhi'a advocacy project* for Le Jardin Academy, O'ahu
- 12/10 Presentation (AML): 'Ōhi'a-Free Wreath Making Workshop #1 for public



This image and the cover image are photos of koa trees on Wa'ahila Ridge, taken at the beginning and the end of 2021.

This report was submitted by January 31, 2022 in compliance with grant agreements. The report was drafted by CGAPS staff with HISC staff providing some information on progress towards the Strategy. Nothing in this document requires any agency to expend funds that have not been appropriated and allocated. For more information about this report, please contact Christy Martin at christym@rocketmail.com.