

Public Information Officer & Projects

Annual Report

January 1 — December 31, 2014

Submitted to:
U.S. Fish and Wildlife Service-Pacific Islands Office
National Park Service-Pacific West Region
Hau'oli Mau Loa Foundation
University of Hawai'i-Pacific Cooperative Studies Unit
CGAPS Steering Committee

The CGAPS Steering Committee is comprised of participants from the following agencies and NGOs:

- Hawaii Department of Agriculture
- Hawaii Department of Land and Natural Resources (Division of Aquatic Resources and Division of Forestry and Wildlife)
- U.S. Department of Agriculture (Animal and Plant Health Inspection Service and U.S. Forest Service)
- U.S. Department of Homeland Security/Customs and Border Protection
- U.S. Fish and Wildlife Service
- The Hawaii Invasive Species Council
- The Nature Conservancy of Hawaii
- The Invasive Species Committees of Hawaii

The collaboratively-produced CGAPS 10-Point Vision and Action Plan (2009) outlines the most important issues, with tasks that must be accomplished in the short and long term. The CGAPS 2015-2019 Strategic Plan provides guidance on priorities over the next five years. Please visit www.cgaps.org for more information.

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.

About This Report

This report was compiled and submitted to funding agencies by Christy Martin, the CGAPS Statewide Invasive Species Public/Community Relations Coordinator (shortened to PIO), to provide a summary of the major initiatives and activities during the 2014 calendar year. Questions and comments are welcome, christym@rocketmail.com; (808) 722-0995; P.O. Box 61441 Honolulu, HI 96839.

CGAPS Support

Many people worked together to support the CGAPS partnership, its goals, projects, and staff. The CGAPS Steering Committee provided the framework and direction for the PIO, participants served as agency/NGO points of contact and resources, and Chair Rob Hauff, Chair Emeritus Jodi Chew provided supervision for the PIO and leadership for the partnership and its projects. Participation in CGAPS is voluntary; therefore, participation and commitment from individuals and agencies is our greatest asset.

Mahalo to the U.S. Fish and Wildlife Service (USFWS), the National Park Service (NPS), Department of Land and Natural Resources (DLNR), U.S. Forest Service (USFS), Hawai'i Invasive Species Council (HISC), and Hau'oli Mau Loa Foundation (HMLF) for funding to support the PIO and CGAPS projects. Most funds were administered by the Pacific Cooperative Studies Unit (PCSU) of the University of Hawai'i at Mānoa (UH), with some HMLF-funded projects administered by the University of Hawai'i Foundation (UHF) and the Hawai'i Conservation Alliance Foundation.

Mahalo to our new partners at the UH William S. Richardson School of Law for helping to manage the legal fellowships, and to Curt Daehler and Alison Sherwood of the UH Department of Botany for advising our marine invasive species risk assessment graduate assistant.

In-kind support is also appreciated and integral to our work. Mahalo to HDOA, USFWS, DLNR, and TNCH for providing meeting spaces. DLNR and HDOA also provided office space for the legal fellows, PCSU provided office space for the PIO, and the Kaua'i Invasive Species Committee (KISC) provided administrative support and office space for the Plant Pono/HPWRA Liaison. Kaua'i Nursery and Landscaping and the Kaua'i Landscape Industry Council provided partial travel and conference attendance support for the Liaison.

Mahalo nui loa to everyone for supporting the CGAPS partnership and projects!



Goals and Objectives

The PIO position description was modified in July 2014 to reflect added duties and responsibilities. The position is now 50% outreach and media-related duties; 25% staff direction and supervision, partnership coordination, and partner project support services; 20% grants, planning, and project management; and 5% other duties as assigned.

Goal #1: To educate public officials, special interest groups, and the general public about invasive species in order to effect a change in perception, actions, or funding for invasive species issues.

- Objective A: Organize and/or participate in outreach to legislators and public officials
- Objective B: Provide guidance to the landscape and nursery industry on invasive species issues to reduce the importation and spread of invasive species
- Objective C: Conduct outreach activities, provide information and materials for target audiences, and the general public; assist partner agencies and groups with designing, producing, or conducting outreach, including products and curricula
- Objective D: Plan and conduct measures of effectiveness at appropriate intervals

Success in reaching this goal will be seen by the introduction or passage of bills, resolutions, or other mechanisms to aid in prevention or control; an increase in funding for invasive species programs in the State; a change in the actions of people in regards to invasive species; or a change in public awareness or perception of the issue. Other measures may include numbers of people reached, and products or services provided.

Goal #2: Develop plans and projects to support CGAPS and its priorities, prepare grants and reports, and manage projects, and personnel in meeting project goals.

- Objective A: Work with the Steering Committee and partners to identify priorities and projects; secure funding or partners to support implementation
- Objective B: Organize and manage priority projects from inception to final reports
- Objective C: Supervise and provide direction for CGAPS staff and interns; provide gap-filling support services to partner agencies and NGOs.

Success in reaching this goal will be seen in funding for CGAPS and its projects and the accomplishments of its staff and interns summarized in the annual PIO report.

Goal #3: Coordinate the CGAPS partnership and Steering Committee, and assist partner agencies in accomplishing the goals and objectives described in the 2009 CGAPS Vision and Action Plan, and in the new Strategic Plan.

- Objective A: Organize and hold quarterly CGAPS meetings and ad hoc Steering Committee meetings
- Objective B: Engage participants and new partners in CGAPS meetings or initiatives
- Objective C: Participate in regional invasive species coordination efforts where practical and necessary

Success in reaching this goal will be seen in participation in quarterly CGAPS meetings, Steering Committee meetings, discussions, and engagement in initiatives on local and regional invasive species programs, and progress made on the Vision and Action Plan, and Strategic Plan.

Goal 1, Objective A: Policymaker Outreach

The CGAPS PIO worked with several state legislators by providing information on invasive species, commenting on draft bill language, and providing information for constituents. Examples include providing the introduction to issues for the joint Energy and Environment/Energy & Environmental Protection briefing in January, participating in legislative town hall meetings, and providing comments on the challenges and needs for interisland biosecurity.



Photo: 'Ōhi'a rust (*Puccinia psidii*) killing rose apple, a close relative of native 'ōhi'a. Since its discovery in Hawai'i in 2005, CGAPS has advocated for a rule restricting the importation of myrtle family plants (Myrtaceae), which can carry in additional strains of 'ōhi'a rust into the state. Photo by Forest and Kim Starr.

One key initiative led by CGAPS legal fellows Melissa Miyashiro and Jarrett Keohokalole and supported by the CGAPS PIO was the introduction and passage of HCR 47, which urges the federal and state departments of agriculture to adopt rules to protect 'ōhi'a, and myrtle family plants from additional introductions of 'ōhi'a rust (Puccinia psidii). Although the process was slow, the excellent work by Melissa to prepare the draft rule package, and her initiation of monthly conference calls between USDA APHIS and HDOA finally came to fruition. The Myrtaceae Restriction is now going through the public rulemaking process in parallel with the federal rule, and there is good

coordination and communication between state and federal departments of agriculture to enact rules in tandem.

At the invitation of the Conservation Council for Hawai'i and their National Wildlife Federation affiliate, the CGAPS PIO also participated as one of fifteen invasive species specialists in an "invasive species fly-in" in Washington D.C. in June to provide outreach to congressional delegates. The main topic of discussion was promoting the need for modernizing the Lacey Act.

Although the CGAPS PIO usually participates in the legislative session, little time was spent at the capitol due to the CRB and LFA responses. Instead, legislators sought information on these pests from CGAPS and partners, and assisted us by passing information along to their constituents. One legislator took it upon himself to verify that the use of his funds was for public benefit, and therefore consistent with

campaign spending, and had 4000 LFA brochures printed and direct mailed to each of his constituents. Others put together LFA survey kits and distributed them as they campaigned house to house.

Goal 1, Objective B: Outreach to the Plant Industry

Relationships built with the landscape and nursery industry proved important in 2014 with the arrival of LFA and CRB. Examples include working with The Nature Conservancy Hawai'i Chapter director Suzanne Case to contact and test for LFA at nurseries donating plants for the Punahou Carnival, and arranging for OISC to conduct comprehensive LFA surveys of priority nurseries.

As a board member of the Landscape Industry Council of Hawai'i, the CGAPS PIO attended LICH meetings and functions, and functioned as a liaison between

conservation interests and plant industry leaders. The PIO also helped plan and find speakers for the annual Green Industry Conference and Tradeshow. Presentations included LFA, CRB, and other pests of significance to this industry.

The LICH magazine provided a good avenue for outreach, with a distribution list of more than 6000 recipients statewide. A regular column on invasive species co-authored by arborist Carol Kwan, Rob Hauff and the CGAPS PIO featured articles on CRB. albezia, and other pests of significance. In response to industry questions about how to prevent or treat for LFA, the PIO edited a technical publication by Dr. Arnold Hara of the UH College of Tropical Agriculture and Human Resources, to function as a BMP guide for preventing or controlling LFA. The article was reviewed by Dr. Hara, Dr. Cas Vanderwoude of UH PCSU/ Hawai'i Ant Lab. and the HDOA Pesticides Branch, and published in the LICH magazine (see http://www.slideshare.net/ lichorganization/201405-landscape-hawaiimagazine-may-jun-2014).



Photo: Hawaii Landscape has an estimated reach of over 20,000. By partnering with others to author and edit articles, nearly every issue of the magazine featured information on invasive species.

Work also continued on the Plant Pono website (www.plantpono.org), to add functionality and transition the site to a CMS. The PIO drafted an RFP for the contract, which was supported by funds from the USFWS, U.S. Forest Service and the Kaulunani Urban and Community Forestry Program, and the work was overseen by Amanda

Skelton, the CGAPS Plant Pono/HPWRA Liaison. Since the launch of the site in August 2012, there have been a total of 12,800 unique visitors viewing an average of 3.5 pages per session. Of note is that there were also 16,100 "sessions", which shows that there is a core audience that returns to use the site more than once. Amanda also conducted plant industry outreach which is detailed in the HMLF project update section.

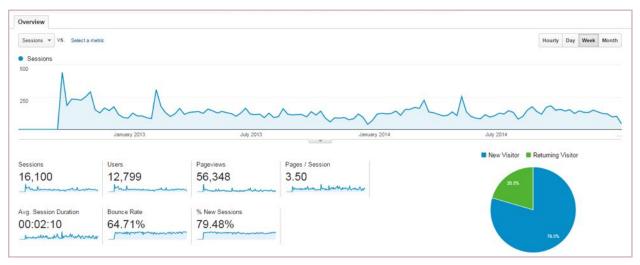


Figure 1: Overview of visitors and users of the Plant Pono website since launch. The peaks in visitors largely corresponds to articles or outreach presentations about the project.

Goal 1, Objective C: Public Outreach & Agency Assistance

Most public outreach conducted in 2014 has been on LFA and CRB in support of partner agencies, with the PIO providing outreach planning, coordination, and direct outreach. From these two responses, it has become more apparent than ever that agencies lack the personnel and capacity to quickly develop outreach products and conduct targeted outreach for projects like these. The activities below are a sample of projects from 2014. A summary of outreach presentations, displays, and media is listed at the end of this report.

In January, the CGAPS PIO was asked by HDOA and the US Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) to be the Liaison for the multi-agency response team for the CRB eradication. The response used the Incident Command organizational structure as envisioned in the 2013 Plant Health Emergency Plan and Tabletop, and further used the response as real-world training by bringing in a series of USDA Incident Command response specialists from across

Photo: Multi-agency response to CRB headquartered in HDOA Plant Quarantine. Photo by Carol Russell.

the nation to assist. As the Liaison officer, the CGAPS PIO produced the CRB brochure, public outreach PowerPoint and display, and organized and held training classes and site visits for cooperators like arborists and tree trimmers.

In February, the Incident Command for LFA on Oʻahu was formed, and the CGAPS PIO transitioned to coordinate public outreach for this multi-agency response on Oʻahu. The CGAPS PIO worked with the outreach team to identify key messages, audiences, and product needs. The results of the past ten months of work are truly an amazing testament to partnerships and teamwork. Accomplishments include the revision and redesign of the LFA brochure, creation of the outreach PowerPoint and display, revision and testing of the LFA survey activity for schools, the creation of a three-minute survey video (see



Photo: Field trip to CRB site attended by nearly 50 cooperators including agency staff, arborists, conservation groups, and military personnel.



Photo: Testing of the LFA ID lab activity with Mililani Middle School students.

com/97558997), a training and implementation program for City and County of Honolulu personnel, and more.

As part of the LFA work, the CGAPS PIO used the Hoike LFA module and the Ant Watch activity to create a short version of the schools presentation, survey activity, and ID lab. By partnering with the Wai'anae Mountains Watershed Partnership and OISC, the activity was successfully tested with three Mililani Middle School teachers and their 450 students. The last phase of testing involved resolving data issues with the help of OISC and Emily Montgomery of HISC. The shortened LFA schools activity and PowerPoint were provided to ISC and other key outreach staff statewide.

Goal 1, Objective D: Measures of Effectiveness

http://vimeo.

A tremendous amount of outreach was conducted this year on LFA and CRB, which resulted in an avalanche of calls to the State Pest Hotline. The Hawai'i Department of Agriculture (HDOA) maintains the hotline, which uses a computer system to automatically route calls from each island to the HDOA office on that island. After hours, all calls are routed to one of the phone lines at the inspection office at Honolulu International Airport. This has proved problematic in the past, as inspectors are not always available, the phone line is used for other business, and there was no answering machine or message for callers.

With the increase in calls from less than two hundred per month to over 700 calls per month, HDOA asked the CGAPS PIO to assist in planning changes to ensure that calls were at least captured, which were implemented in fall of 2014. While the system is still not optimal (there is still no logging and tracking mechanism or procedure to document topics and follow-up for all pest reports), the process engaged Plant Quarantine managers, HDOA airport supervisor, and the Hawaiian Telcom engineers who set up the hotline system in 2002 so that there can be direct communication.

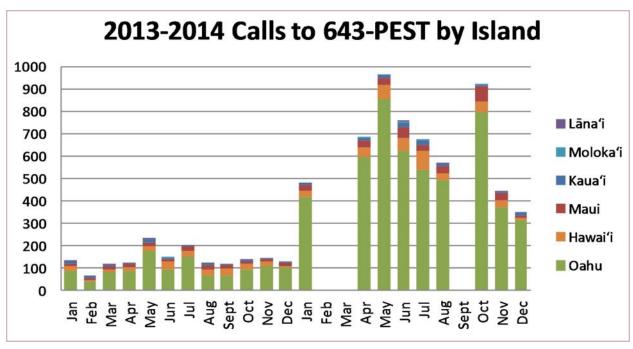


Figure 2: Summary of calls per month by island from January 1, 2013-December 31, 2014. Data not available for some months.

Another measure of effective outreach can be seen by the consolidated data available for the O'ahu LFA Response on Podio for the locations of ant samples submitted by the public from January -October 2014. This data will be used to focus additional outreach efforts in communities that have not been moved to submit ant samples. Logging of data by participants of the O'ahu response is time consuming, and has been seen as burdensome. However, the time and effort are clearly helpful in multi-year responses.



Map: The main public message has been to survey yards for LFA and turn in ant samples to HDOA. This map summarizes those surveys conducted by the public from January - October, 2014.

Goal 2, Objective A: Grants

Funding for CGAPS and its initiatives is still via soft funds. The reduction in available federal dollars resulted in higher funding requests to the Hawai'i Invasive Species Council.

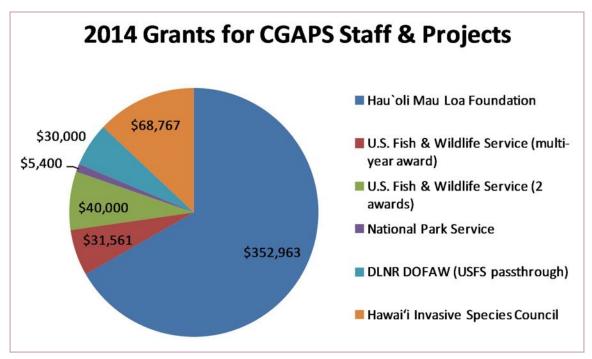


Figure 3: Grants received in 2014 for CGAPS staff and projects totaled \$528,691.

Goal 2, Objectives B & C: HMLF Projects & Staff Supervision

Six of seven 2014 HMLF projects had grant periods of greater than one year (the only exception was Support for Hawai'i Green Growth, with a Jan. 1-Dec. 31, 2014 grant period). Several projects also had funds remaining from 2012 and were awarded no-cost extensions. Therefore, the summaries are provided as updates on progress, summarized from progress reports submitted by project personnel. Support was also provided for Hawai'i Green Growth, although HGG progress is not detailed in this report.

CGAPS Legal Fellowships (2013; extended to June 30, 2014; 2014 additional support)
This year CGAPS "graduated" its first legal fellows. In May, Jarrett Keohokalole took a leave of absence from duties to successfully campaign for House of Representatives. In June, Melissa accepted a position with the Blue Planet Foundation as their Operations Manager, leaving both positions vacant through the fall. Prior to their departures, they were able to make significant progress on their projects.

To continue to support the need for rulemaking to protect 'ōhi'a, Melissa and Jarrett coordinated a meeting with Rep. Jessica Wooley, Denise Antolini and members of the

CGAPS Steering Committee to provide background on 'ōhi'a rust, the efforts to date to restrict the importation of Myrtaceae, and to brainstorm possible legislative help. At Rep. Wooley's request, Melissa provided the team with a draft resolution urging federal and state action, and coordinated CGAPS testimony, which resulted in the passage of HCR 47. CGAPS successfully solicited letters of support from the Hawai'i Floriculture and Nursery Association, Hawai'i Farm Bureau Federation, and the Landscape Industry Council of Hawai'i, which provides a public record of small business support (visit http://www.capitol.hawaii.gov/measure_indiv.aspx?billtype=HCR&billnumber=47 for the resolution and supportive letters).

Thanks to Melissa's work preparing and submitting the draft rule packet, and to Chair Enright for requesting an additional Deputy AG, the draft rule was picked up and reviewed by the new Deputy AG in August. Since then, the draft rule has passed the Plants & Animals Committee and in December, the BOA approved it for public hearings. Melissa also coordinated and participated in conference calls with U.S. Department of Agriculture (USDA) officials in Maryland regarding Hawai'i's parallel petition to restrict Myrtaceae imports from foreign sources. USDA is continuing to move their rule along and is expected to provide their draft rule for HDOA review before posting it in the Federal Register in May, 2015. At a recent briefing, Neil Reimer provided an update with a projection that the rules will be finalized together in June, 2015.

Jarrett worked primarily on rulemaking to update the ballast water rules, while planning for rulemaking on biofouling. Jarrett assisted the DLNR Division of Aquatic Resources Ballast and Hull Fouling coordinator in meeting with various stakeholders, the Hawai'i Department of Health Clean Water Branch, and Hawai'i Department of Transportation. Jarrett prepared the rule package for AG review, although Chair Aila requested that additional industry outreach and consultation be conducted prior to submission to the Board of Land and Natural Resources for approval to enter rulemaking. This outreach and consultation will be conducted in 2015, with assistance from the new CGAPS Legal Fellow, Kevin Richardson.

For biofouling, Jarrett conducted the research necessary for staff to understand the different agency regulations regarding this issue, including new Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) rules regarding in-water hull cleaning. As the Hawai'i Department of Health implements the NPDES rules regarding ship hulls, Jarrett met with Health department staff to relay DLNR needs, which were met with an agreement to cooperate on information gathering.

Jarrett and Melissa's information-gathering to identify the



Photo: Denise Antolini, Christy Martin, Jarrett Keohokalole, Melissa Miyashiro, and Mark Fox after a monthly legal fellows breakfast meeting.

agency with the authority over human disease vectors (pests) in foreign conveyances found that the Centers for Disease Control has the authority. However, CDC staff does not have the capacity to inspect for these pests. Further, Customs and Border Protection staff are much more likely to come into contact with these, yet lack the authority to do anything without an MOA between CDC and their agency. The next step will be to sit down with CDC, APHIS, and CBP to discuss an MOA or other mechanism to ensure that action can be taken if such vectors are encountered.

Both Jarrett and Melissa were relied on by their host agencies for help during the 2014 legislative session. Melissa provided assistance to HDOA on legislation to address the interisland movement of pests, and Jarrett provided assistance to DLNR on aerial shooting of ungulates on state land on Hawai'i Island.

In the fall, the CGAPS PIO and William S. Richardson staff worked together to establish the two positions as RCUH position, and discontinue them as Special Faculty. The two positions were advertised and interviews conducted in December, 2014, with one selected candidate accepting the position. The second position will be readvertised in January, 2015.

Strategic Planning (2014)

The 2009 CGAPS Vision and Action Plan served several purposes. As the Action Plan was the first since the formation of CGAPS in 1995, the drafting process helped the CGAPS Steering Committee identify and engage appropriate partners missing from the table, and resulted in a clear set of short term objectives and entities responsible for achieving them. The Plan also provided staff with guidance for prioritizing projects.

Funds received for 2014 allowed CGAPS to contract Makena Coffman and Kim Burnett to coordinate and draft a new Strategic Plan, which was conducted in tandem with the HISC Strategic Planning Process implemented by Emily Montgomery. This year-long process was well-planned and there was a good level of participation by a variety of agency & NGO partners. While the Vision and Action Plan identified the ten most important issues that need to be addressed, the Strategic Plan identifies five priority goals with specific actions to focus on over the next five years, and outlines the



Photo: Makena Coffman guiding the CGAPS Steering Committee through the planning process.

resources needed to accomplish the goals.

The five goals are: 1) to minimize the inter-and intra-state movement of pests; 2) to expand Hawai'i's biocontrol program; 3) to educate the public and decision-makers regarding the importance of prevention of invasive species in Hawai'i; 4) to identify invasive species threats to Hawai'i and coordinate the development of response plans for key threats; and 5) to identify, synthesize, and share information about prevention and control measures.

The Strategic Plan also looked at the internal support functions for CGAPS staff and funding, which resulted in two operational goals: 1) to secure stable funding for at least one CGAPS staff position; and 2) to grant-fund CGAPS priority projects through additional staff capacity, including a project manager. The Strategic Plan (minus the operational goals) is available on the CGAPS website, http://www.cgaps.org/what-we-do/.

Compiling a Proposed List of Offshore & Incipient Invasive Plants for Restriction (2014)

This project is being led by contractor and former Weed Risk Assessment Specialist Shahin Ansari, with assistance from Amanda Skelton, and is still underway with the term date of June 30, 2015.

Due to a turbulent history of attempts to add invasive plants to the HDOA Restricted Plant List, and the need to enact parallel rules on the federal side, this project started with an internal meeting with representatives from HDOA, USDA, USFWS and HISC to plan the project and stakeholder involvement. Shahin then conducted a conference call with technical experts to ensure that the types of information necessary for federal and state rulemaking were collected and documented.

The Oʻahu stakeholder meeting was held in May, 2014, at the Hoʻomaluhia Botanical Garden and was well represented by state and federal regulatory agencies, members of the invasive species committees, and botanical gardens; but it was poorly represented by members from the landscape/nursery industry, and no participants from forestry and biofuel industries. As a result, it was decided to make a focused effort to involve these under-represented stakeholders for the future meetings.

The Kaua'i stakeholder meeting was held in June, 2014 at Kaua'i Nursery and Landscaping, and was attended by a good variety of industries. Some important stakeholder comments and questions addressed during this meeting included:

- The process of developing the restricted plants list needs to be science-based, clear, and transparent. (Agreed. The entire process will be documented and posted on CGAPS website.)
- Were the regulatory agencies involved? (Yes)
- The restricted list needs to be dynamic; that is, the process needs to be able to add and remove species from the list. More importantly this process needs to have a reasonable time limit. (Agreed. The technical process will remain dynamic and this comment/sentiment of the industry will also be resonated during the public process that provides the regulatory framework for this list).
- The industry would be open to developing a "green or clean" list as long as they are involved in the process. (This comment will be shared with the regulatory agencies).
- How would all the smaller nurseries and distributors be made aware of the restricted plants list? (There will be extensive outreach through Landscape Industry Council of Hawai'i to reach small nurseries and distributors).

For several logistic reasons it was a challenge to organize the stakeholder meetings on Maui and Big Island in 2014, although they are being planned for February and March of 2015.

Work on the draft list is progressing. Shahin compiled an initial list of 1238

invasive plant species that are documented weeds on lists such as the U.S. Noxious Weed List, Australia's Weeds of National Significance, New Zealand's National Plant Pest Accord List, and regional lists from Australia and all 50 U.S. states. Of the 1238, 442 (36%) were found to be in the nursery trade (that is, these 442 species had the potential of being distributed/ traded deliberately through commercial or private avenues). The list of 442 species, 213 are either already regulated or naturalized in Hawai'i, leaving 229 species which comprise the first draft list; these plants are documented to be weedy elsewhere, are in the nursery trade, and are not known to occur in Hawai'i.

Shahin is currently using the Hawai'i Pacific Weed Risk Assessment (HPWRA) to screen the 229 plant species to determine their potential to become invasive in Hawai'i. Only those that are flagged as high risk by the HPWRA will comprise the 2nd draft list, which will be presented to the stakeholders for their input to form the final list of invasive plant species that are recommended to be placed on restricted lists.

Testing a Marine Invasive Species Risk Assessment (2014-2015)

This project to convert a Marine Invasive Species Risk Assessment from a Caribbean-focused to a Hawai'ifocused tool is being conducted by Rachael Wade, a Graduate Assistant under the direction of UH Department of Botany professors Alison Sherwood and Curt Daehler, DAR staff and CGAPS. Rachael started by researching and becoming familiar with the different types of species risk assessments, and found that the Centre for Environment, Fisheries and Aquaculture Science (CEFAS; Defra, United Kingdom) adapted the original New Zealand Weed Risk Assessment tool to create the Marine Fish Invasiveness Screening Kit (MFISK) and Marine Invertebrate Invasiveness Screening Kit (MI-ISK).



Photo: A risk assessment tool for newly arriving marine species (such as those found on tsunami debris) or proposed imports could help agencies prioritize response efforts and prevention measures. Photo by DAR.

These toolkits provide additional opportunities for comparison of risk assessment tools, and they provide good models for final aesthetics and user-friendly interfaces.

Rachael presented the project outline and goals of the Hawai'i Marine Invasive Risk Assessment (HMIRA) at several meetings to solicit feedback and to pave the way for engaging participation in testing and using the tool when it is ready. While these questions provided a conversation starting point, many of these interviewees provided significant contributions to the objectives and methodology of the project as a result of their experiences, including suggestions for publication strategy and names of additional experts to contact.

Mark Fox of The Nature Conservancy assisted Rachael in scheduling a meeting

with TNC marine staff in December to assess the tool, look at individual questions, and assess the needs for transitioning the questions/information to Hawai'i-specific information. The concern raised by TNC staff was that the weighting for each question really requires a very high degree of marine risk expertise. Therefore, the next step in 2015 will be to meet with the creator of the tool to discuss the technical aspects of weighting. In the interim, Rachel will be working on a list of non-native marine species (those that have become invasive in Hawai'i and those that have not; and those that have become invasive in similar environments that could potentially arrive) that can be used to test the HMIRA for accuracy.

Reducing Interisland Pest Movement at the Source (2014-2016)

This project provides three years of support to Dr. Arnold Hara of the UH College of Tropical Agriculture and Human Resources, to develop and promote the use of best management practices to survey for, and control coqui frogs, LFA and other intersisland quarantine pests at approximately 10-12 plant nurseries that ship interisland.

During this grant period, Dr. Hara conducted industry outreach at multiple events, and continued quarantine treatment trials to inform HDOA policy. Dr. Hara's team also worked with four nurseries, successfully mitigating LFA and banana bunchy top virus (BBTV) movement from those nurseries. Two of these are described below by Dr. Hara:

Nursery 1: Waiakea Uka (Hawai'i Island) Little fire ants (LFA) were suspected in propagative hapu`u stumps originating from this nursery. This nursery also bags and ships volcanic cinder intra- and interisland; however, no LFA was ever detected in cinder from this nursery. Currently, Hawaii Department of Agriculture, Plant Quarantine inspects only propagative plant material and does not inspect cinder or hapu`u logs. Kyle Onuma, project personnel, surveyed for and detected LFA on April 23, 2014 around the cinder pile, packing area, bagged cinder storage area, and surrounding properties, and applied Probait. No LFA were found in bagged cinder on the premises. Approximately one week later (April 29,



Photo: Nursery packing area with cinders and pallets can easily be infested with coqui or LFA. Nursery BMPs would help keep pest populations down at the source. Photo by Arnold Hara.

2014), K. Onuma created a buffer zone around the cinder piles and packing/storage sites by applying herbicide to control noxious weeds (grass species, Tibochina herbacea, Clidemia hirta), and treated nursery borders with Talstar for LFA. Probait was reapplied at the nursery 13 weeks after the initial treatment (July 29, 2014), and again after 8 weeks (September 18, 2014) when LFA were detected on a lychee tree on the nursery property. The buffer zone was maintained with a reapplication of herbicide and Talstar approximately 6 months after the first applications (October 20, 2014), and Amdro was applied throughout the nursery. HDOA's current rules

and regulations for inter-island shipments should include media inspection and treatment, if necessary.

Nursery 2 (Waiakea Uka) (Hawai'i Island)

This nursery grows ornamental potted plants for intra- and inter-island shipping. On April 30, 2014, the nursery was surveyed for LFA, which was detected in two areas on the site as well as along the surrounding perimeter and on two residential lots adjoining the nursery. All sites were treated with Probait by Kyle Onuma. Six months later, LFA were detected on lychee and banana plants on the nursery, so Tango (S-methoprene) was applied. At the same time, banana trees with symptoms of banana bunchy top virus (BBTV) were detected, and the plants were destroyed.

State Biofouling Risk Assessment & Bishop Museum Biofoul Organism Identification (2013; extended to Dec. 31, 2014)

This project was conducted by Sonia Gorgula of the Division of Aquatic Resources, contractors Ian Davidson and Greg Ruiz with the Smithsonian Environmental Research Center (SERC), and Bishop Museum marine species specialists, and the final report is in review.

The report reviews the introduction of non-native marine species to Hawai'i, the vast majority of which are unintentional introductions of species to the state in ballast tanks of ships, in water systems of boats (bilge tanks), in the dry ballast of historical vessels, and most prominently, attached to submerged surfaces of vessels as biofouling. Up to 78% of the introduced and cryptogenic marine species in the state have been brought to the islands by vessel biofouling.

The report also evaluated the shipping traffic to Hawai'i, and assessed current hull husbandry practices via a voluntary questionnaire. One hundred and twenty-five unique vessel responses were received and analyzed, which is approximately one-third of the unique vessel arrivals to Hawai'i annually. The results show that the majority



Photo: Biofouling experts from several countries and states participated in a webinar organized by Sonia Gorgula of DAR. Topics included New Zealand's nearly decade-long work documenting biofouling risk and rules which will go into effect in 2015.

of vessels that responded tended to dry-dock on a three-year rather than a five-year cycle. This increases the likelihood that the coatings used to reduce biofouling accumulation on vessels are within their recommended time span for use. Since this is the primary means of reducing biofouling risk, it is encouraging that a large proportion of Hawai'i's visiting vessels adopt such a strategy.

Risky behaviors by some of Hawai'i's fleet include long durations between maintenance, long lay-up times in foreign ports, and generally poor responses regarding in-water cleaning (indicating little intervention between dry docks or poor record-keeping). Providing a regulatory incentive for all ships to perform to an acceptable level of biofouling management, as already adopted by some vessels, and as instituted in New Zealand, will likely provide strong risk-reduction for future biofouling-mediated species introductions.

Finally, the report also provides recommendations for research and monitoring. Some of the highest priorities are to conduct standardized and repeated baseline surveys for biofouling invasions in the Hawai'i, and the collection of vector data (sampling vessels) to evaluate current species transfers (now) and measure policy efficacy (later). The final report will be posted on the CGAPS website.

Capacity Support for CGAPS (2013; extended to Dec. 31, 2014; 2014)

This grant provided partial funds for the CGAPS PIO and a full year of salary and operational support for Amanda Skelton to focus on promoting the Hawai'i-Pacific Weed Risk Assessment, its web portal www.plantpono.org, and related outreach to high-priority audiences that import and promote plants. Amanda's progress in 2014 is summarized in this section.

Since starting outreach to plant industry personnel in 2013, Amanda found that although many had heard of the HPWRA, there was still a lack of understanding about the tool and how it works. Further, personnel that were considered plant "experts" were not likely to request that a plant be screened. Therefore, a deliverable in 2014 was

to identify plant industry individuals that would benefit from workshops. Amanda organized a series of workshops taught by HPWRA Specialist Chuck Chimera and held on Kaua'i in October. Two were for "lay-people" which provided a non-technical overview of the HPWRA and focused on traits that make a plant likely to become invasive. Nearly 30 people attended the workshops, with representatives from forestry, Farm Bureau, nursery and landscaping, master gardeners, and others involved in horticulture. The third workshop focused on the technical elements of assessments, and invited participants were six plant experts that had a strong botanical background. Additional workshops will be planned in coordination with Chuck and the Invasive Species Committees on each island



Photo: HMLF support enabled staff to conduct outreach to the plant industry and groups that promote and use plants. Amanda Skelton conducted formal presentations and workshops, informal nursery visits, wrote articles, coordinated website work, and supported related CGAPS projects.

Amanda conducted direct outreach and nursery visits on Kauaʻi, Oʻahu, Maui, Molokaʻi, and Hawaiʻi this year, formally and informally talking about the HPWRA and Plant Pono website as a resource for information and alternative plants. Direct contact is very effective and will continue. Nursery visits were also important in finding new or

unusual plants in the trade. These plants are identified and a HPWRA assessment is requested to determine the risk level of the introduction. Amanda also started outreach to a new group this year, the tropical fruit growers.

Amanda continued participation on the board of the Kaua'i Landscape Industry Council (KLIC) and was active in organizing KLIC's annual Arbor Day Plant Giveaway, where all 1200 plants were native or low-risk plants, and Plant Pono information was provided to attendees.

In cooperation with the Big Island Invasive Species Committee (BIISC) and UH Master Gardeners, Amanda helped launch a nursery endorsement program. As part of the endorsement, nurseries agree to screen new plant introductions with the HPWRA, discontinue use of 36 target invasive plants, avoid use of all high-risk plants, and to adopt proper BMPs to reduce the risk of spreading pests like LFA and coqui. BMPs were developed in collaboration with the Hawai'i Ant Lab and Dr. Hara. Plant Pono and BIISC staff approached all known nurseries in the Kona area and have started reaching out to nurseries around Kamuela. Twenty-one out of 34 nurseries in Kona have expressed interest in the program; only two were unwilling to engage. Of the 21 nurseries inspected, 4 were found compliant and ready for endorsement. The remainder will need to control coqui frogs before receiving an endorsement.

Amanda also oversaw work on the Plant Pono website by working with the contractor on website changes. One change will allow plant enthusiasts to fill out an online form with proposed plants and planting information for the "pono" plant database. Amanda also engaged Master Gardeners in the program by creating a volunteer job description and training volunteers to increase the database of pono plants.

Goal 2, Objective B: 2015 HMLF Projects

	2015 Projects	Term	Subtotal	Admin	Overhead	2015 Amount
	Law Fellowship Program year 3 funding for two legal fellows,		4			
1	materials & supplies	13 months	\$ 71,250.00	UHF 5%	\$ 3,750.00	\$ 75,000.00
2	Oahu LFA Detector Dog Pilot Program	2 years	\$ 61,750.00	UHF 5%	\$ 3,250.00	\$ 65,000.00
3	Biofoul In-Water Cleaning Research (contract)	1 year	\$ 27,273.00	HCAF 10%	\$ 2,727.00	\$ 30,000.00
4	Travel support for Pacific Entomology Conference	1 year	\$ 10,000.00	HES		\$ 10,000.00
5	Support funding for Hawaiʻi Green Growth	1 year	\$ 22,500.00	Tri-Isle 10%	\$ 2,500.00	\$ 25,000.00
	CGAPS PIO 5 months core support, operational; 13 month funding for Plant Pono Liaison core support,					
6	operational; PCSU direct	13 months	\$ 114,000.00	UHF 5%	\$ 6,000.00	\$ 120,000.00
	Total					\$ 325,000.00

rev. 12/10/14

Summary of Media & Outreach

The CGAPS PIO provided extra outreach support on CRB and LFA this year, although new partners made during this process also resulted in invitations to present invasive species overviews to new audiences.

1/8	Presentation: Overview of invasive species issues for legislative briefing				
1/15	Radio program: LFA interview of Rob Curtiss, HDOA for Hawai'i's Tomorrow				
1/30	Presentation: CRB for DOD pesticide applicators class				
1/21	Presentation: CRB for Honolulu International Airport operators committee				
1/24	Presentation: CRB for early detection cooperators				
2/6	Presentation: LFA for City & County Arborist Advisory Committee				
2/14	Article Submitted: LFA alert. Submitted by request to Rep. Kobayashi for constituent newsletter				
2/19	Radio program: Interview of Julia Parish of OISC and Josh Atwood of DLNI for Hawai'i's Tomorrow				
0/04					
2/24	Presentation: LFA for Aiea Orchid Society				
2/28	Presentation: LFA for Ewa Orchid Society				
2/28	Article Submitted: Please participate in this sting operation. Submitted to UH Master Gardeners for the statewide Master Gardener newsletter				
3/1	Presentation: LFA module for teachers, UH Curriculum Research and Development Group				
3/4	Presentation: LFA for Kunia Orchid Society				
3/12	Invited guest on the Mike Buck radio program regarding LFA				
3/19	Radio program: Interview of Mark Fox of TNC and Emma Yuen of DLNR for Hawai'i's Tomorrow				
3/21	Presentation: LFA at Windward Orchid Show				
3/22	Outreach display: LFA at Kunia Orchid Show				
3/23	Presentation: LFA at Windward Orchid Show				
4/16	Radio program: Interview of Manuel Meija of TNC Marine Program for Hawai'i's Tomorrow				
4/17	Article Submitted: Best management practices to prevent and control LFA.				
	May/June 2014. Hawai'i Landscape				
4/24	Presentation: LFA for DLNR Kaulunani program brown bag				
4/26	Outreach display: CRB at Ft. Shafter Earth Day				
5/3	Outreach display: LFA at Mānoa Orchid Show				
5/5	Article: Grzebik, Jayme, Martin, Christy. Test your yard to prevent spread of				
	little fire ants. Honolulu Star Advertiser. 5/5/14.				
5/8	Presentation: LFA and CRB for Scenic Hawaii				
5/9	Presentation: LFA class for Hui Mālama O Ke Kai				
5/12	Presentation: LFA for Waimānalo Neighborhood Board				
5/27	Presentation: LFA ID lab for Hui Mālama O Ke Kai				
6/12	Presentation: Hawai'i project updates for USFS Forest Health funds. Presentation to D.C. Forest Health program managers				

- 7/10 Presentation: Overview of invasive species & BMPs for LFA and CRB for Leeward Community College grounds & facility maintenance managers
- 7/14 Outreach: Assist partners in answering questions at Mililani community meeting on LFA
- 7/15 Presentation: Overview of invasive species issues in Hawai'i for state-military environmental managers at the Hawai'i Environmental Forum
- 7/15 Presentation: Closing keynote presentation on social media in invasive species work at the Hawai'i Conservation Conference
- 7/16 Presentations: LFA module for teachers at Hawai'i State DOE annual conference
- 7/23 Article: US Wildlife officials propose limiting snake trade. Associated Press. Provided information. http://bigstory.ap.org/article/us-wildlife-officials-propose-limiting-snake-trade
- 7/24-25 Outreach display: CRB early detection training for Hawai'i Floriculture & Export Nursery Association conference attendees
- 7/30 Presentation: LFA for Wahiawa community members attending Rep. Oshiro's legislative forum
- 8/5 Presentations: LFA ID lab for Mililani Middle School science classes
- 8/12 Presentation: LFA class & ID lab for Leeward Community College biology class
- 8/19 Presentation: Overview of invasive species for DOD & Federal agency environmental managers
- 8/20 Article Submitted: Invasive species fly-in. Submitted by request to the Conservation Council for Hawai'i for *Kolea*.
- 8/21 Presentation: Overview of invasive species for OEQC Environmental Council meeting
- 8/26 Presentation: LFA for Terminix technicians
- 9/2 Presentations: LFA lab for Mililani Middle School science classes
- 9/13 Presentation: Waimānalo community & Go Farm LFA survey training
- 9/18 Presentation: Overview of marine invasive species issues for Hawai'i Pacific University marine biology seminar series
- 9/23 Presentation: CRB for Terminix technicians
- 9/30 Presentation: LFA presentation and survey protocol for City & County of Honolulu parks & facilities managers; KITV media coverage http://www.kitv.com/news/city-joins-the-fight-against-invasive-species/28345018
- 10/2 Presentations: LFA class for Mililani Middle School biology classes
- 10/9 Presentations: LFA and CRB early detection training for landscape technicians, nursery staff and arborists at annual Landscape Industry Council of Hawai'i conference
- 10/10 Presentation: LFA ID class at Mililani Middle School biology classes
- 10/15 Presentation: LFA for community meeting in Waimānalo
- 10/22 Presentation: NGOs & invasive species opportunities for Marine Option Program students
- 10/23 Outreach: Assist HDOA in LFA survey practical training for C&C managers
- 10/28 Presentation: LFA class for Hawai'i Job Corps landscape students

- 10/30 Presentations: Natural history of HI and current invasive species issues for Kaimuki Middle School classes
- 11/1 Outreach: Stop LFA Day community survey and outreach in Waimānalo; KHON media coverage http://khon2.com/2014/11/01/volunteers-unite-to-stop-little-fire-ants/
- 11/3 Presentation: LFA survey training for Waimea Valley landscape staff
- 11/17 Presentation: LFA module & survey training for Leeward Community College pre-service teacher class
- 11/17 Article Submitted: Students help stop the little fire ant. Submitted by request to Hawai'i State Science Teachers Assn. for *The Catalyst*
- 11/25 Presentation: LFA & CRB for Kamehameha Middle Schools
- 11/26 Presentation: LFA & CRB for Kamehameha Middle Schools
- 11/26 Presentation: LFA class & ID lab for Leeward Community College biology
- 12/14 Article Submitted: Focus on invasive species. Submitted by request to the Office of Environmental Quality Control for inclusion in their annual report



Photos: CGAPS volunteers at work. Top left, "Beetle Buster" team students in UH Natural Resources & Environmental Management educate UH Earth Day participants; top right, Wendy Foster (white shirt) educates Hawaii Conservation Conference attendees; bottom photo, community activist Tom Grande (left) helps Waimānalo residents prep for community LFA survey.