



Coordinating Group on Alien Pest Species (CGAPS)

Annual Report

January 1 — December 31, 2015

Submitted to:
Department of Land and Natural Resources-Division of Forestry and Wildlife
Hawai'i Invasive Species Council
Hau'oli Mau Loa Foundation
National Park Service-Pacific West Region
U.S. Fish and Wildlife Service-Pacific Islands Office
University of Hawai'i-Pacific Cooperative Studies Unit

Introduction

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)

University of Hawai'i

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

Hawai'i Invasive Species
Council

The Nature Conservancy of
Hawai'i

The Invasive Species
Committees of Hawai'i

The Coordinating Group on Alien Pest Species (CGAPS) is a partnership of agencies and non-governmental organizations working together to close the gaps in Hawai'i's invasive species programs in the areas of prevention, early detection/rapid response and long-term control of harmful terrestrial and aquatic invasive species.

CGAPS hosts quarterly public meetings to provide a venue for participants to communicate issues, challenges, and progress. The CGAPS Steering Committee is responsible for strategizing actions and for shepherding their agencies or NGOs' progress toward our shared vision, "To achieve effective protection of Hawai'i's unique natural environment, economy, agriculture, and the health and lifestyle of its people."

Currently, CGAPS has a staff of four to facilitate the partnership, make progress on Strategic Plan goals and objectives, and to implement projects prioritized by the Steering Committee. The CGAPS staff consists of Amanda Skelton, Hawai'i-Pacific Weed Risk Assessment/Plant Pono Liaison; Andrew

Porter and Kevin Richardson, CGAPS Legal Fellows; and Christy Martin, Statewide Invasive Species Public/Community Outreach Coordinator (shortened to PIO).

For more information on CGAPS, its projects, or to see the 2015-2019 CGAPS Strategic Plan, 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.

About This Report

This report was compiled and submitted to funding agencies to provide a summary of the major initiatives and activities during the 2015 calendar year. Questions and comments are welcome. Contact Christy Martin at 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. Mahalo to the CGAPS Chair Domingo Cravalho, Chair Emeritus Rob Hauff, and Deputy Chair Michael Melzer for provided overall coordination of the partnership and supervision of the PIO. Mahalo also to the CGAPS Steering Committee for providing direction and a solid framework for our projects. Participation in CGAPS is voluntary, thus the time and energy commitment from individuals and agencies is our greatest asset.

The CGAPS staff and projects are supported by grants. Mahalo to the Department of Land and Natural Resources-Division of Forestry and Wildlife (DLNR DOFAW), Hau'oli Mau Loa Foundation (HMLF), Hawaii Invasive Species Council (HISC), U.S. Fish and Wildlife Service (USFWS), the National Park Service (NPS), U.S. Forest Service (USFS), for financial support of CGAPS and its 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 all our fiscal sponsors.

The UH William S. Richardson School of Law continues to be a strong partner in helping CGAPS manage the CGAPS Legal Fellowship Program, and UH faculty including Drs. Curt Daehler and Alison Sherwood of the UH Department of Botany provided advising and support for the second year of our marine invasive species risk assessment graduate assistant.

In-kind support is also appreciated and integral to our work. Mahalo to HDOA, 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 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!



CGAPS Strategic Plan Progress

CGAPS staff work plans, projects, and partnership meetings are aligned to advance our collective progress towards the five goals in the 2015-2019 Strategic Plan. Specific actions are listed for each goal, and details are provided for the action items where significant progress has been made in 2015.

Goal 1: Minimize the inter- and intra-state movement of pests

Action 1: Support development of effective quarantine and inspection.

CGAPS made progress elevating the discussion on biosecurity needs (see “Biosecurity Buzz” below).

Action 2: Find solutions to federal pre-emption

Past and present CGAPS Legal Fellows and the CGAPS PIO held multiple meetings with to better understand the federal-state inspection authorities, policies, and gaps, and to explore mechanisms to address these gaps. Two immediate projects came to light, including the immediate need to review a list of pests that USDA APHIS is proposing to reclassify as “non-actionable”, which is proposed for HMLF funding in 2016. The second is that Hawai’i as a state should request special recognition in Pest Risk Analyses. The potential implications and benefits are still being assessed.



Christy Martin and Rachel Neville of Oahu Invasive Species Committee (second and third from left) met with Phil Andreozzi (National Invasive Species Council) and DOI Deputy Director Esther Kia’aina in DC to talk about detector dogs and invasive species issues.

Action 3. Support reinstatement of HDOA Detector Dog program.

The CGAPS PIO continues to support this in multiple ways, including discussing this priority with DOI Deputy Director Esther Kia’aina (photo above). HDOA PQ has received fund-

Biosecurity Buzz

In preparation for the International Union for the Conservation of Nature-World Conservation Conference (IUCN WCC) which will be held in Honolulu in 2016, the CGAPS PIO and HISC Coordinator were asked to craft a Biosecurity Journey as one of the major organizing themes for the conference. In May, fellow IUCN planning committee leader Christopher Dunn reached out to CGAPS to ask for help drafting a biosecurity resolution for the Association for Tropical Conservation Biology conference in July. Through events and the many IUCN planning meetings it became clear that our messaging, even at the most supportive conservation level, needed help. Therefore, starting with the ATBC resolution, CGAPS began calling for the crafting and implementation of a 10-year State Biosecurity Plan that would lay out the major needs for prevention, early detection/rapid response, and control of terrestrial and aquatic invasive species. Chair Enright agreed and committed full HDOA support and has begun working with his counterparts on the HISC and with the Governor’s office. The plan is to contract a facilitator to conduct meetings in early 2016, and have a lean-and-mean 10 year plan and funding priority timeline in the Governor’s hands by September 2016 so that it can be announced as one of the State Commitments announced at the WCC.

ing and is moving forward with rebuilding the program, although civil service hiring is a long process. CGAPS and Maui Invasive Species Committee (MISC) have not yet contracted the little fire ant (LFA) detector dog and trainer, although a year remains on the HMLF grant supporting this. Support for this pilot project remains high with the Oahu LFA Response Team.

Action 4: Support the development of an effective hull-fouling and ballast water management program

CGAPS Legal Fellow Kevin Richardson is focused nearly 80% time on this project. In the absence of a Ballast and Hull-fouling Coordinator for most of 2015, Kevin has taken on more of the coordination for our HMLF project which contracted Smithsonian Institute Environmental Research Center to assess in-water cleaning practices and available technologies.



Meeting with stakeholders to discuss the issue of biofouling and gain a sense of in-water cleaning practices for all types of vessels operating in Hawai'i waters.

Action 5: Support voluntary and regulatory mechanisms that prevent inter-and intra-state movement of pests.

The CGAPS PIO and HDOA PQ managers worked together to identify and agree upon invasive species issues and questions for CGAPS Legal Fellow Andrew Porter. Andrew has been based at the HDOA PQ office since May, assisting with regulatory rule

questions.

Amanda Skelton, Plant Pono/HPWRA Liaison, focused on voluntary compliance and adoption of BMPs for pests and invasive plants through several projects, including the Big Island Invasive Species Committee's (BIISC) Plant Pono Endorsement program to recognize and promote nurseries that are following pest BMPs. KISC will be launching a similar program in 2016.

Action 6: Address lists regulating plants.

Through HMLF support, CGAPS contracted botanist and former HPWRA Screener Shahin Ansari to develop a procedure to select high-risk invasive plants not yet present in Hawai'i that could be proposed for restriction by HDOA and USDA APHIS. Amanda continued to assist this project by coordinating stakeholder meetings, and an update was co-presented by Shahin and Amanda at the Landscape Industry Council of Hawai'i conference in October.

Goal 2: Expand Hawai'i's Biocontrol Program

Action 1: Assist in developing messaging regarding the importance of biocontrol

Biosecurity planning process will aid in message development and in Action 2.

Action 2: Support the development of expanded capacity for biocontrol in Hawai'i

Biocontrol needs are routinely incorporated into outreach to policy makers.

Goal 3: Educate the public and decision-makers on importance of prevention*

Action 1: CGAPS will work with a professional contractor to develop a coordinated strategy

As shown by CGAPS public opinion surveys, the public is already supportive of prevention and control of many pests, even if it comes at a cost to themselves (see <http://www.cgaps.org/public-awareness-studies/>). Therefore, identifying the next appropriate

message/s becomes key. The 2016 biosecurity planning process will aid in message development and multi-stakeholder buy-in, which is necessary prior to contracting help.

Action 2: CGAPS will provide information support to decision-makers regarding prevention-based* policies and programs

The CGAPS staff provided information to decision makers and legislators on priority issues during and between sessions, and staff also provided information on their topics of focus.

*While “an ounce of prevention is worth a pound of cure” is sensible, it is unrealistic, as we must continue to work on mitigating damage from pests already present. Messaging is balanced so as not to impact funding or support for rapid response and control of pests that would cause unacceptable levels of harm if not mitigated.

Goal 4: Identify key invasive species threats and coordinate response plans

Action 1: Coordinate and develop strategies to detect, respond to, and control new invasive species

The serious nature of ROD came to light in 2015. Researchers were invited to present on ROD at the August CGAPS general meeting, which resulted in a surge of momentum on the issue. The need for strategic response planning came to the forefront, and funding to contract Dr. Lloyd Loope to draft a strategic response plan has been awarded by HMLF for 2016.

Action 2: Facilitate research on key threats and pathways using risk-based assessments

In addition to previously listed projects (federal non-actionable list; identification of invasive plants not yet present in Hawai‘i, in-water cleaning risk assessment), 2015 was the second year of a project supporting UH Mānoa graduate student Rachael Wade to transition and test a Marine Invasive Species Risk Assessment for Hawai‘i. The testing was

conducted with two groups and modifications to the tool are still underway.

Action 3: CGAPS will evaluate the effectiveness of control responses

CGAPS and HDOA staff discussed an assessment of the coconut rhinoceros beetle (CRB) response. HDOA and USDA APHIS arranged for an external assessment, which was conducted in August. A summary of the assessment has been requested.

Action 4: Support the redevelopment of capacity for mosquito vector monitoring and response

The loss and ongoing lack of mosquito monitoring and response capacity continues to be a message when talking to policy makers. The recent and ongoing dengue fever outbreak on Hawai‘i Island should provide increased motivation to re-build mosquito vector monitoring and control for Hawai‘i Department of Health.

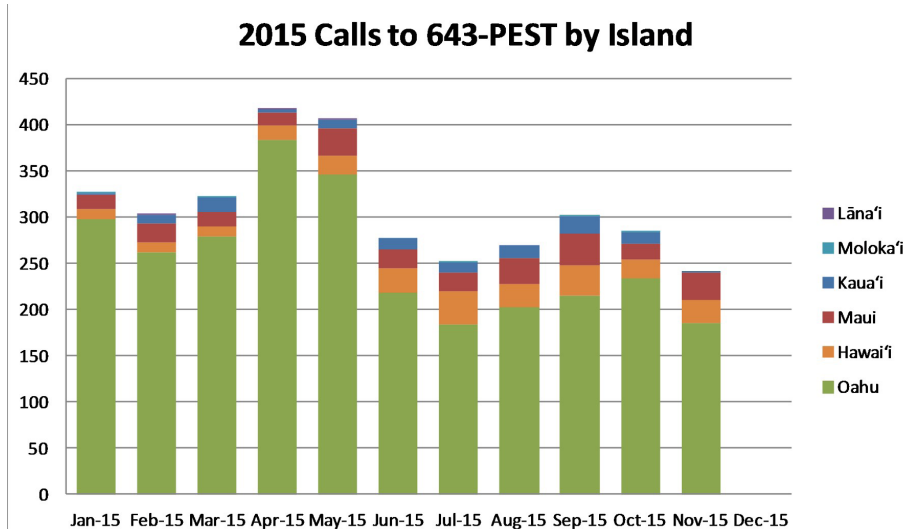
Action 5: Continue to help with effective pest reporting mechanisms

CGAPS continued to promote the State Pest Hotline (see summary graph next page). Earlier public awareness studies showed that people are not very likely to report unknown or unfamiliar species like ants or plant diseases. As part of HISC funding for LFA outreach, the CGAPS PIO and partners



2016 CGAPS Chair Domingo Cravalho (left) and Joshua Fisher, both of USFWS, were two of nearly 30 individuals from agencies, academia, and industry that participated in testing the Hawai‘i Marine Invasive Species Risk Assessment.

at Oahu Invasive Species Committee (OISC) created and moderated a Facebook page and Instagram account for “Spot the Ant Stop the Ant”. The month-long campaign was kicked off with Gov. Ige’s proclamation of September as Spot the Ant, Stop the Ant Month (see photo below and campaign summary in Spot the Ant Stop the Ant).



Left to right: Dr Duffy, Randy Bartlett, Gov. Ige, Chair Enright, LFA, and Erin Bishop at the ceremony proclaiming September as Spot the Ant Stop the Ant month.

Goal 5: Identify, synthesize, and share information about prevention and control measures

Action: Work with HISC and other partners to identify available data, develop indicators, and share to gain support for current and future work

With the leadership of Hawai'i Green Growth (HGG), CGAPS and HISC staff participated in developing invasive species indicators for the Aloha + Challenge Dashboard (see <https://dashboard.hawaii.gov/aloha-challenge>). The next step is to see mock-ups of the indicators before finalizing and posting on the website.

CGAPS Operational Goals

The Strategic Plan also identified two Operational Goals: to explore potential changes to the organizational structure as part of, or a first step to, securing stable funding for at least one CGAPS staff position; and to grant-fund CGAPS priority projects through additional staff capacity, including a project manager.

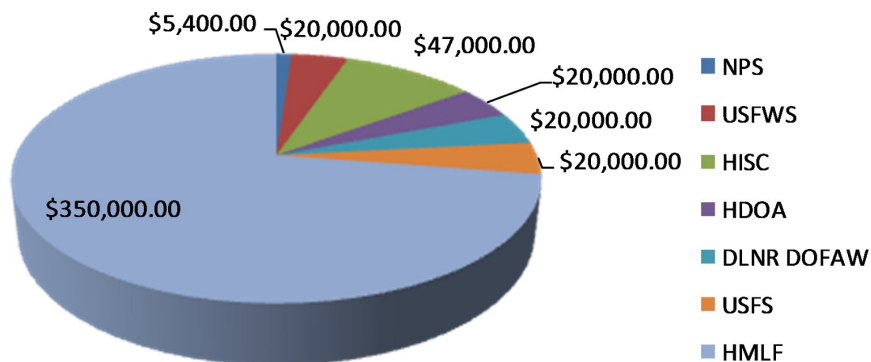
Currently, funding for the CGAPS PIO, HPWRA/Plant Pono Liaison and much of its operational costs is administered by PCSU for an indirect charge of 5% and a UH Office of Research Services direct charge (which varies for different funding agencies and year). As the Principal Investigator and Unit Leader, Dr. David Duffy is hired to teach, conduct research and run the unit. The indirect charge is used to support 40% of Dr. Duffy's salary (with UH supporting 60%) and the PCSU administrative staff that assists with grants management, book keeping for multiple grants, purchasing, and human resources. In a sense, these administrative support functions are cost-shared by multiple projects like CGAPS, the ISCs, Watershed Partnerships, forest and seabird recovery projects on Kaua'i and Maui, and more. The projects also benefit from having a University-supported and well-respected faculty/researcher as their liaison be-

tween UH, RCUH, policymakers, and funding agencies. Two of the looming questions are, who will lead PCSU on Dr. Duffy's retirement in the next few years, and are there opportunities to strengthen the organization?

To date, CGAPS has not been able to identify models for re-organizing its administration and human resources functions, nor examples where UH financially supports non-UH coordination functions, yet there may be opportunities to strengthen PCSU to the benefit of all projects. Therefore, the CGAPS PIO worked to assist the PCSU by planning and coordinating this process with the help of Dr. Peter Adler (Accord 3.0). To date, an internal assessment of its strengths, weaknesses, opportunities, and threats (a SWOT analysis) was conducted and a facilitated meeting with PCSU project managers, UH and RCUH leadership, funding agencies will be held in January 2016.

Some progress has also been made on sharing of financial support for one FTE for the coordination of CGAPS and its projects. Chair Emeritus Rob Hauff met with HDOA and DLNR DOFAW to request contributions of \$20K each, and both grant proposals are in process at these respective agencies (see 2016 funding chart below).

2016 Funds Requested or Received in Support of CGAPS Staff & Projects



CGAPS PIO

The PIO position description lists public and policymaker outreach and media-related duties at 50%; staff direction and supervision, partnership coordination, and partner project support services at 25%; grants, planning, and project management at 20%; with 5% other duties as assigned.

Grantwriting

The PIO increased grant-writing this year with new agencies supporting the PIO position, and new requests for Rapid 'Ōhi'a Death funding. Despite the increase in amount of grants written and received, the level of funding received for CGAPS staff and projects (non-ROD) remained level (see chart under Operational Goals).

With assistance from CGAPS progenitor Alan Holt, the multi-agency ROD team, UHF, UH, HMLF, and partners in the non-profit community, the CGAPS PIO helped to coordinate the requests for ROD strategic research and response priorities, receiving \$313,800 for 2016.

Outreach

The following is a snapshot of outreach projects and assistance provided last year.

- Updated and coordinated printing of revised Coconut Rhinoceros Beetle brochure
- Participated in the outreach working group for the draft PEIS for Rodent and Mongoose Control, assisted in preparing outreach materials and planning public scoping sessions. Provided updates at meetings including CGAPS, Kaua'i Conservation Alliance and the Oahu Invasive Species Committee meetings.
- Participated in the outreach working group and strategy working group on Rapid 'Ōhi'a Death, assisted in identifying and communicating messages with target audiences and funders. Provided information on ROD and the then-proposed quarantine to leaders of the Landscape Industry Council of Hawai'i, Hawai'i Floriculture and Nursery Association, and other industry associations. Information shared statewide by LICH via email and Facebook.
- Worked with the Office of Hawaiian Affairs PIO to convey information on ROD. The story was on the cover of the August issue of Na Wai Ola (see picture at right)
- As interim chair for the HISC Public Outreach Working Group, the PIO held monthly meetings for outreach staff statewide to coordinate messages and projects.
- Led the Little Fire Ant Response outreach working group (see Spot the Ant Stop the Ant, below).



Spot the Ant, Stop the Ant

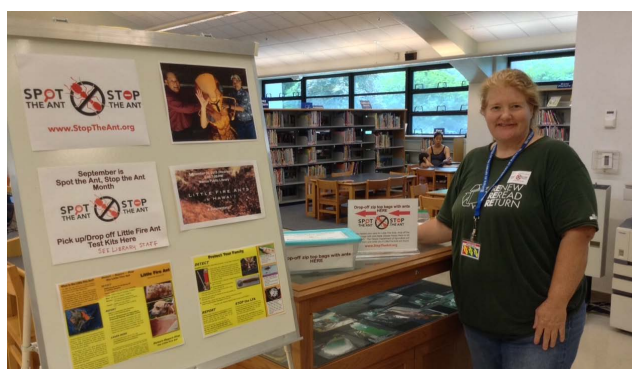
The CGAPS PIO has assisted HDOA by leading the outreach team for the interagency LFA Response since February, 2014. Planning, coordination, and implementation of outreach on little fire ants in 2015 is a great example of the value of collaboration for invasive species response. Assistance allowed the Response team to focus on surveying high-risk sites, regular treatments of infestations, and monitoring treatment efficacy. These are some of the major accomplishments of the LFA outreach group over the past twelve months:

- Coordination of funding requests to the HISC for public outreach needs resulted in funds for an Oahu radio campaign (CGAPS), design and printing of bus posters and funding for outreach staff time (OISC), and for FY16 funds for Waianae Mountains Watershed Partnership to conduct outreach in schools where they are already working
- Engaged teachers and students in surveying their yards or parks for LFA (CGAPS, KISC, OISC). Initiated in summer 2014, the curriculum was streamlined in 2015
- Revised and printed the LFA brochure that provides directions on how to survey for LFA (graphic design by Tiffani Keanini, KISC)
- Translated LFA brochure into Mandarin (translation by Mann Ko, HDOA) and Tagalog (translation by Renato Bautista, HDOA and Orville Baldos, UH CTAHR), both posted on the Spot the Ant website for download. Translation into



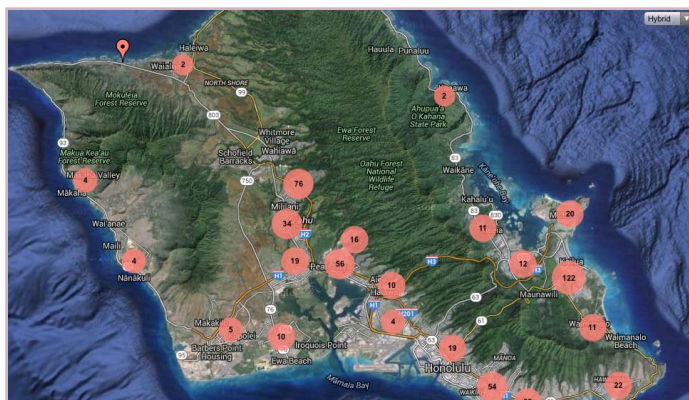
Teachers try the LFA ID lab at a STEM + teacher workshop hosted by Iolani School.

- Spanish is awaiting layout (translation by Chris Frohlich, OISC; Ken Foote, USFWS)
- Re-branded the LFA campaign to “Spot the Ant, Stop the Ant” as part of the community-based social marketing planning process
- Coordinating the creation of a new logo to use in branding (CGAPS)
- Re-design and transition to Word Press of the LFAHawaii.org website, registration of stoptheant.org and spottheant.org URLs (coordinated by Lissa Strohecker, MISC, with assistance from CGAPS and the ISCs). The website garnered 4,032 visits during Spot the Ant, Stop the Ant month.
- Engaged Oahu public libraries to increase locations where ant samples may be submitted in September, and as venues for public talks on LFA (Chris Frohlich, OISC)
- Creation and administration of Spot the Ant, Stop the Ant Facebook page and Instagram feed (Erin Bishop, OISC). The total reach for social media during the campaign was 2,586 (31 on Instagram and 2535 on Facebook).
- Design and installation of Spot the Ant, Stop the Ant posters on Oahu public busses in September and October (Erin Bishop, OISC)
- Spot the Ant, Stop the Ant community survey campaign in East Maui (Lissa Strohecker, MISC)
- Editorial review of rough and final cuts of the new LFA video produced by Abe Vandenberg and Masako Westcott for MISC (CGAPS PIO; Dan Dennison, DLNR; Randy Bartlett, HISC)
- Augment Oahu LFA Response survey and control operations staff from HAL, HDOA, and OISC when requested (Oahu Army Natural Resources Program, UH Mānoa CTAHR, HISC, CGAPS, USFWS)
- Meeting logistics, notes, and related administrative support for the LFA Response and outreach meetings provided by HISC staff (Emily Montgomery and Randy Bartlett).
- Public ant sample submitted for ID were processed and information provided back to the public by HDOA (Bernarr Kumashiro, Bonnie Dietrich, Derek Arakaki)
- The CGAPS PIO mapped the locations for more than 500 ant samples submitted by the public and students in 2015.



Librarian Christel Collins with her LFA display at the Manoa Public Library.

- Planning & coordination of an Oahu radio campaign on KSSK and IHeartMedia stations for Spot the Ant, Stop the Ant month (CGAPS PIO)
- Coordination of City & County of Honolulu and State of Hawai'i resolutions declaring September as Spot the Ant, Stop the Ant month (Emily Montgomery and Randy Bartlett, HISC, CGAPS PIO), and Maui County (Lissa Strohecker, MISC)
- Planning and implementation of Spot the Ant, Stop the Ant contest in conjunction with Oahu radio campaign (Erin Bishop and Chris Frohlich, OISC, CGAPS PIO)



Students and community members surveyed their yards for LFA in 2015, all of them were negative for LFA.

PIO Media, Outreach Presentations, Workshops & Events

1/30	Presentation: Overview of invasive species issues for UH CTAHR PEPS class
2/12	Television interview: LFA, CRB and invasive plants on Trinity Broadcast Network
2/20	Outreach display: LFA and CRB outreach at Kunia Orchid Show
2/21	Outreach display: LFA and CRB outreach at Kunia Orchid Show
4/23	Presentation: LFA survey instructions for Ewa Orchid Society
5/4	Presentation: LFA survey instructions for Mililani Orchid Society
5/5	Presentation: Natural history of Hawai'i for Kaimuki Middle School
5/5	Presentation: LFA survey instructions for Mililani Orchid Society
5/28	Presentation: Biofouling, in-water cleaning project for Honolulu Harbor Users Group
6/6	Outreach display: CRB for Kewalo Park Clean-up and Pa'ina
6/10	Presentation: LFA survey instructions for Honolulu Orchid Society
8/24-9/30	Spot the Ant, Stop the Ant Month: 15 and 30-second radio PSAs, daily on-air info provided by Perry & Price; UH News article http://www.hawaii.edu/news/2015/09/02/september-is-spot-the-ant-stop-the-ant-month/ ; UH CTAHR Master Gardeners Newsletter article http://archive.constantcontact.com/fs133/1110730641287/archive/1121900574476.html
8/29	Radio interview: Spot the Ant, Stop the Ant at Perry & Price Saturday Morning Show
8/2	Radio interview: Spot the Ant, Stop the Ant morning drive time interviews on Island 98.5, Star 101.9, and 93.9 Jamz
8/5	Presentation: PCSU Public Outreach at the Hawai'i Conservation Conference. Hawai'i Tribune Herald news article http://hawaii-tribune-herald.com/news/local-news/co-op-plays-integral-role-park-conservation-efforts
8/8	Presentation: LFA at Kahuku Public Library
8/9	Presentation: LFA at Waimanalo Public Library
9/12	Presentation: Spot the Ant, Stop the Ant curriculum for Hawai'i State Science Teachers Association conference
9/15	Presentation: Spot the Ant, Stop the Ant curriculum for STEM + teacher workshop
9/17	Presentation: Biosecurity needs for OEQC Environmental Council
9/25	Presentation: LFA for Hawai'i Pest Control Association learning conference
9/30	Radio interview: Spot the Ant, Stop the Ant with Perry & Price
10/2	Presentation: Natural history of Hawai'i for Kaimuki Middle School
10/10	Outreach display: CRB, LFA for Conservation Council for Hawai'i annual meeting
10/20	Presentation and lab: Spot the Ant, Stop the Ant for Olomana School classes
10/24	Outreach display: CRB, ROD for Hawai'i Island Landscape Association conference
10/28	Presentation: NGO opportunities in conservation for Marine Option Program class
10/29	Web presentation: IUCN WCC and the Biosecurity Journey for the Invasive Species Advisory Committee prevention working group, co-presented with Josh Atwood
11/10	Presentation: Biosecurity policy needs. Rep. Lowen's invasive species forum in Kona; West Hawai'i Today article http://westhawaii.com/news/local-news/fast-spreading-ohia-wilt-disease-now-killing-trees-holualoa-kealahou
11/12	Presentations: Spot the Ant, Stop the Ant for Highlands Intermediate School classes
11/19	Radio interview: ROD interview on HPR's The Conversation
11/20	Presentations: Spot the Ant Stop the Ant labs for Highlands Intermediate
12/23	Assist with press conference on Rapid 'Ōhi'a Death. See http://bigstory.ap.org/article/777eed7a2da14176a487f6f779734526/fungus-killing-tree-critical-hawaiis-native-forests , which appeared in papers and internet news locally and internationally; and local television news, e.g. http://www.kitv.com/story/30823606/officials-plead-for-public-kokua-in-fight-against-deadly-ohia-disease

2015 Hau'oli Mau Loa Foundation Prevention Projects

In 2011 Hau'oli Mau Loa Foundation selected CGAPS as their partner to help achieve some of their environmental protection priorities. Each year, the CGAPS Steering Committee prioritizes a short list of projects for funding consideration, and 2015 was the fourth year of collaborative projects. Some projects are multi-year, others have a 1-year term. Summaries are provided as updates on progress, summarized from progress reports submitted by contractors and project personnel.

CGAPS Legal Fellowships

CGAPS Legal Fellow Kevin Richardson worked primarily on aquatic invasive species (AIS) issues, both in State and with regional partners on the West Coast, filling a greater role in coordination and communications with the vacancy in the State Ballast and Hull-fouling Coordinator position. As the two primary vectors for AIS introduction to Hawai'i, ballast water discharge and vessel biofouling garnered the most attention. At the federal level, congress introduced legislation that would significantly weaken national ballast water discharge standards and authority, including "incidental discharge", which can be interpreted as biofouling. Kevin worked to research, track, and submit CGAPS legal analysis to Hawaii's congressional delegates on the issue. The proposed legislation would effectively preempt ballast water rules at the state level, so Kevin, in conjunction with DLNR Division of Aquatic Resources (DAR) staff, made the decision to postpone any proposed rulemaking to update Hawaii's ballast water rules. In the interim, Kevin continued outreach and consultation with industry stakeholders. In 2016, the decision to reengage rulemaking will be reassessed.

In early 2015, the Smithsonian Environmental Research Center (SERC) released the Hawai'i Biofouling Report conducted in

2014. Kevin presented the results of the report at the Pacific Ballast Water Group's annual meeting in Seattle and the Hawai'i Conservation Conference in Hilo. In addition, Kevin collaborated with the Western Regional Panel on Aquatic Nuisance Species' Coastal Committee to develop regulatory documents and a white paper in anticipation of a regional biofouling management plan. In 2016, Kevin will work with DAR staff to develop and implement a State biofouling management plan.

In addition to biofouling and ballast water, Kevin will be working on two additional initiatives for 2016. First, working with DLNR and Hawai'i Department of Health Clean Water Branch to promulgate in-water vessel cleaning rules and/or best management practices. In 2015, CGAPS, SERC, and DAR collaborated to hold a Hawai'i In-Water Cleaning Vessel Workshop. The results of this workshop and additional research into



Denise Antolini (front, center) convenes a monthly meeting of the legal fellows network and DLNR Chair Suzanne Case (front row, second from left). CGAPS Legal Fellows Kevin Richardson (back row, third from the right), and Andrew Porter (back row, fourth from the right) are regular participants.

Hawaii's in-water cleaning practices will be documented in an upcoming 2016 report. The report's findings will inform future policy decisions.

CGAPS Legal Fellow Andrew Porter started in late April and has been positioned at the HDOA Plant Quarantine Branch (PQ), working closely with PQ staff on numerous rule changes and research projects involving invasive species.

Andrew has assisted PQ with the drafting of multiple proposed rule changes including changes to Hawai'i Administrative Rules (HAR) Chapter 71, covering the import of wild animals, and HAR Chapter 72 covering the intrastate movement of non-domestic animals. Andrew also assisted PQ in various roles during the development of the Rapid 'Ōhi'a Death (ROD) emergency rule. He will continue to assist as nursery certification agreements are developed and implemented to certify that qualifying Big Island nurseries are free of *Ceratocystis*, the pathogen that causes ROD, and in the permitting process to ship quarantine material interisland.

Andrew has also conducted multiple research projects for PQ including topics such as interstate trade of nursery grown plants, liability of freight forwarders for inspection costs, labeling requirements for the importation of Myrtaceae, and the legality of PQ entering into and enforcing cooperative

agreements with nurseries.

Another large project that will carry over into 2016 for Andrew will be moving various Department of Agriculture regulations under the jurisdiction of the new environmental court system. This will include a related project covering the development and implementation of a civil fine system for violation of select PQ regulations.

Kevin and Andrew will also continue working with Denise Antolini and the William S. Richardson School of Law in preparing for the IUCN WCC, and with the CGAPS Steering Committee on proposed Hawai'i Commitments including the State Biosecurity Plan and taking a step towards aligning federal and state importation, risk assessment, and inspection policies and practices.

For example, CGAPS staff are investigating drafting a letter to USDA-APHIS requesting that Hawai'i be granted special consideration, separate from the continental U.S., in Pest Risk Analyses. Currently, federal rules draw little distinction between Hawai'i and the continental U.S. when considering trade importations of various commodities even though Hawai'i is geographically isolated, is free of many pests that may be established in the continental U.S., and has a markedly different climate that may allow the proliferation of certain pests that may not pose a threat in temperate areas.

Capacity Support for CGAPS (annual)

Plant Pono/HPWRA Liaison Amanda Skelton continued to meet directly with nursery owners and managers, botanical garden staff, and landscape architects around the state to discuss the HPWRA and Plant Pono website as a resource for information and alternative plants. She has found that direct contact in their places of business is the most effective way to communicate and build trust.

Visits to nurseries have allowed Amanda to look at the species for sale. When new or unusual plants are found, they are identified and a HPWRA assessment is requested to determine the risk level of the introduction. These visits also help us to understand which plants and traits are in high demand, as well as how often new plants are introduced, so we can be proactive and determine low-risk alternatives.

One example of Amanda's work was at the Big Island Nursery Association Plant Sale where she looked at the plants for sale, met with approximately 15 nurseries, and encouraged new plant introductions to be screened for their potential to become invasive. One vendor was selling Barbados gooseberry (*Pereskia aculeate*), an early detection target species, and one be-

lieved to be eradicated on the Big Island. After hearing about the plant's invasive tendencies, the grower agreed to destroy their stock of these plants.

Amanda was active on the board of the Kaua'i Landscape Industry Council (KLIC) and again chaired KLIC's annual Arbor Day Plant Giveaway. She worked with the council to ensure that all 1200 plants represented at the event were native or low-risk plants. Plant Pono was mentioned in Arbor Day press and was present at the event with attendance of approximately 700 people.

Presentations on the HPWRA were made throughout the year, including at CTAHR Master Gardener functions, the Kaua'i Garden Fair, KLIC, and at Kaua'i High School. Amanda also supported the work of the Invasive Species Committees, surveying for pests and early detection targets. Amanda participated in several conferences, including the international Ecology and Management of Alien Plant Invasions in Waikoloa in September, and the LICH conference in October.

Amanda continued to guide work on the Plant Pono website and was the main point of contact with the database contrac-

tor. Website traffic increased approximately 21% in 2015; with averaging 680 sessions per month, compared with 564 sessions per month in 2014, where we had 6768 hits, averaging 564 sessions/month. About three quarters of the users were new to the site, and 23% were repeat visitors.

Amanda assisted Shahin Ansari with organizing and hosting meetings about the data gathering and evaluation of invasive plants not known to be present in Hawai'i as a basis for a restricted plant list (see project summary below). Amanda also continued to assist BIISC Early Detection staff with their Plant Pono Endorsement Program. Eleven nurseries have successfully adopted best management practices for pests and use of the HPWRA, and more than 40 additional nurseries around the island have expressed interest and are in various stages in achieving the endorsement. In exchange, BIISC and Plant Pono are supporting these nurseries' voluntary efforts by promoting them. The nurseries are listed at www.plantpono.org/pono-businesses.php. Amanda is also assisting KISC with the launch of their "Growing Pono" endorsement program in spring 2016.

Compiling a Proposed List of Offshore & Incipient Invasive Plants for Restriction (2014, extended to June 30, 2016)

Contractor Shahin Ansari continued work assessing the invasive potential of a list of plants, and conducting outreach to stakeholders in the plant and nursery industry. The Maui meeting held in April, 2015 at the Maui Community Service Building. In spite of prior outreach by CGAPS and MISC, no representatives from the industry attended this meeting. However, the meeting was attended by the Maui Invasive Species Committee staff that provided significant input on the project methodology. Big Island stakeholder meetings were held in June in Kona and Hilo on the Big Island, and were well represented by landscape and nursery industry professionals and local HDOA staff, which and helped address questions and concerns from the industry stakeholders as well as the HDOA. A presentation on the project was also presented at the Landscape Industry Council Annual Tradeshow and Conference in Honolulu in October 2015

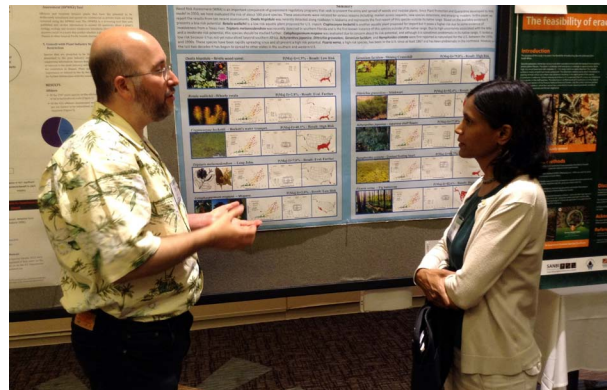
Shahin, Christy, and Andrew met with HDOA PQ and Plant Pest Control managers and USDA APHIS in April 2015, which helped facilitate understanding, project support and participation. As one result of the meeting, HDOA PQ arranged for their managers from around the state to attend a presentation on Oahu about the HPWRA given by Chuck Chimera, current HPWRA screener.

From a list of 1047 plants from various invasive species lists around the world, Shahin worked with Alex Lau to use the Bishop Museum database to eliminate plants that were already

known to be present in Hawai'i. Plants that were already restricted by state and federal regulations were also eliminated. After these eliminations a total of 242 documented invasive plant species were found to be in commercial trade (and therefore likely to be imported to Hawai'i), unregulated, and not known to occur in Hawai'i. So far, 40 species were assessed using the HPRWA and 35 have a high potential of becoming invasive in Hawai'i.

Shahin is also documenting the plant species that are known to be invasive elsewhere, and are on watch lists by early detection botanists and the HPWRA Specialist. Out of the 99 plants that are considered incipient (present in Hawai'i, but in the very early stage of spread), 40 were found to be in commercial trade. Using the HPWRA, 30 of these plant species were found to have a high potential for becoming invasive in Hawai'i and are currently not regulated. This second list poses an additional opportunity for regulation, although the mechanism for accomplishing this is still unclear.

In the next six months Shahin will continue to screen the remaining 202 plants not known to occur in Hawai'i and will provide updates and a final report for agencies and stakeholders.



Shanin Ansari talks risk assessments with Anthony Koop, USDA APHIS Weed Risk Assessment Lead.

Travel Support for Hawaiian Entomological Society for Biosecurity Forum

The Hawaiian Entomological Society brought biosecurity professionals together to participate in a Biosecurity Forum held on April 3 in conjunction with the Pacific Entomology Conference. The half-day forum was moderated by Rob Hauff and Josh Atwood, with panelists Greg Hodges (Florida Department of Agriculture and Consumer Services), Robert Dowell (California Department of Food and Agriculture), Aubrey Moore and Roland Quitugua (University of Guam), Gregg Goodman (USDA Plant Protection and Quarantine/Permitting), and Neil Reimer (HDOA).



The Biosecurity Forum was a moderated discussion where panelists discussed biosecurity questions, challenges, and opportunities.

Attendees and panelists contributed questions and discussion on procedures and policies from what are arguably the most critical biosecurity control points for the U.S. (see Biosecurity Forum notes at www.cgaps.org).

In coordination with the conference and forum, a half-day regional coconut rhinoceros beetle meeting was held in the afternoon of April 3. To maximize these opportunities, HMLF funds were also used to support the attendance of two key CRB eradication partners at Naval Facilities Hawai'i and Marianas.

Biofoul In-Water Clean Technical Report

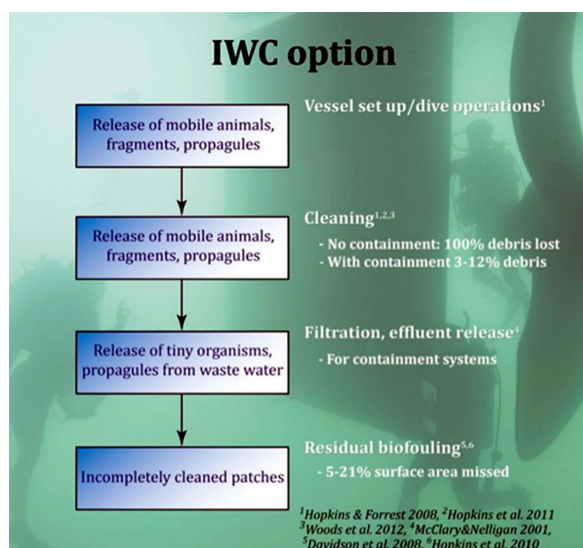
Smithsonian Environmental Research Center (SERC) contractor Dr. Chela Zabin worked with Brian Neilson (DLNR DAR) and Kevin Richardson to plan and conduct a shipping and boating community stakeholder meeting in June with the following objectives:

1. To share information on the marine biosecurity and contaminant risks associated with vessel in-water cleaning (IWC) and to work together to identify and gather support for the lowest risk approaches.
2. To inform development of IWC policy and/or best management practices in Hawai'i.
3. To create information sharing between management agencies and key industry stakeholders on the nature of vessel in-water cleaning activities in Hawai'i.

The meeting was well-attended and included representatives from shipping companies and support vessel businesses operating in Hawai'i waters, U.S. Coast Guard departments responsible for clean water and discharge compliance (such as ballast and effluent from vessel cleaning), private small boat owners, and in-water cleaning companies.

SERC submitted draft reports on in-water cleaning technologies and risks associated with in-water cleaning, but the project is awaiting data collection by DLNR DAR from local stakeholders about their current in-water cleaning practices. These will be conducted as in-person interviews by the incoming Ballast and Hull-fouling Coordinator, who starts in January, 2016. SERC will assist DLNR DAR in analyzing the data, and will produce a final report that will include this analysis, the tech and risk reviews, and policy recommendations for mitigating risk.

This project has been extended through 2016 to provide the new coordinator time to acclimate, accomplish the survey, and produce the final report.



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 test quarantine treatments to prevent the spread of pests, and to develop and promote the use of best management practices to survey for and control coqui frogs, LFA, and other interisland quarantine pests at approximately 10-12 plant nurseries that ship interisland. Additional grants from other agencies to Dr. Hara for testing quarantine treatment for cut flower and produce export, and other commodity treatment work greatly enhances the benefits of this project.

Quarantine Treatment Research

- Dipping trays of potted orchids into hot water (45°C/113°F for 5 min) can be an interisland disinfestation protocol for coqui control on orchids. Visual inspections must still be conducted for eggs on any untreated plant parts. During the interval between treatment and shipping, treated plants must be held in designated coqui-free holding areas.
- Natural and synthetic pyrethroids are often incorporated in nursery chemical rotations for insect management, but its treatment efficacy for coqui frog control has not been evaluated. Data collection on pyrethroids for control of all stages of coqui frogs is ongoing.
- Nurseries can control LFA workers with contact sprays of pyrethroids, pyrethrins, or insecticides.

- For plants tolerant to citric acid, spraying pyrethroids (Pyronyl) plus 16% or 8% citric acid will kill both coqui frogs and LFA workers.
- Soapy water is an effective post-harvest dip to rid cut flowers, foliage and fruit of small, soft-bodied arthropods, so its efficacy on LFA was evaluated. Soapy water (1/4 tsp per gal) and Safer insecticidal soap (24 ml/gal) used as a dip for 15 min was found to be effective on LFA workers. Neem oil was also evaluated and found to be ineffective, with more than 50% of workers remaining intact. Efficacy for colonies within cut flowers, foliage and fruit was not evaluated. An informational bulletin on soapy water dips was produced and distributed to Hawai'i growers and shippers.

HOT WATER TREATMENTS: NON-CHEMICAL CONTROL OF INVASIVE PESTS

A. HARA, C. JACOBSEN, E. OUCHI, S. MARR, & R. MINO DUPOINTE

All photos by Mr. CTHARL HARRIS
all artwork tolsted

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HEAT TOLERANCE TO MILK PESTS

(lowest temperature, shortest duration to achieve 100% mortality)

PLANT TOLERANCE TO HEAT

(highest temperature, longest duration to achieve 100% tolerance)

HEAT TOLERANCE TO MILK PESTS
(lowest temperature, shortest duration to achieve 100% mortality)

Pest	Temperature (°F)	Temperature (°C)	Duration
Infested	122	50	10 min
Burrowing nematode	120	49	15 min
Root mealybugs	120	49	15 min
Julie Coughlin	117	47	5.5 min
Cockle scale	117	47	6 min
Green scale	117	47	7 min
Spiraling whitefly	117	47	10 min
Nettle caterpillar (pupa)	113	45	7 min
Long-tailed mealybug	113	45	10 min
Obscure mealybug	113	45	12 min
Pink hibiscus mealybug	113	45	12 min
Foliar nematode	113	45	10 min
Nettle caterpillar (larva)	113	45	12 min
Snails adults	113	45	5 min
Coqo fruit adults & eggs	113	45	5 min

PLANT TOLERANCE TO HEAT
(highest temperature, longest duration to achieve 100% tolerance)

Plant	Temperature (°F)	Temperature (°C)	Duration
Anthurium 'gobo' (propagative material)	122	50	10 min
POTTED PLANTS	120	49	
10 min: Rhapis palm	120	49	10 min
10 min: Dracaena 'Massangiana', 'Compacta', Bromelad 'Tillandsia'	120	49	10 min
10 min: Ficus palm, Citrus 'Mokone'	120	49	10 min
10 min: hot water conditioning at 102 °F (39 °C): Palms: Parlor, Bamboo, Phoenix, Fatsia, Dracaena 'Janet Craig' and 'Lemon Lime'	120	49	10 min
PROPAGATIVE MATERIAL	120	49	
10 min: unrooted Chrysanthemum (Dendranthema grandiflora), Taro	120	49	10 min
10 min: Cardenia, Ginger (edible), Plumeria, Dracaena: lip cuttings	120	49	10 min
10 min: Janet Craig, L. cutbacks: Massangiana, Jumbo, Warneckia, money tree	120	49	10 min
60 min: hot water conditioning at 109 °F (43 °C) for 30 min: Banana corn	120	49	60 min
CUT FLOWERS & FOLIAGE – see page 2	117	47	
POTTED PLANTS	117	47	
Orchid Oncidium	117	47	10 min
Sherry Bay Sweet Fragrance	117	47	10 min
Orchid Vyleteakra	117	47	10 min
Bromelad	117	47	10 min
Wineas Flamingo, Purple cactoid, V. coccinifer	117	47	10 min
Chrysanthemum	117	47	
Chrysanthemum	117	47	10 min
Dracaena	117	47	10 min
Wineas Flamingo	117	47	10 min
Wineas Flamingo	117	47	10 min
Bromelads	117	47	
Guzmania 'Fiesta', Marjan 'Puna Gold'	117	47	10 min
Ornamentals	117	47	
Awa, Canaia, Chitum, Dendranthema, Dracaena, Taro, colemanii, Easter lily, Kalanchoe, Cereus, Pandanus, Schefflera, Salvia, Stromanthus, Citrus stromanthus, Xanthoxylon	117	47	10 min
Landscaping	117	47	
Bougainvillea, Kigelia, Ficus, Lantana, Lantana 'Fem. Lilliput', Poinsettia, Pedicularis, 'L. Kawaii', Zinnia grass	117	47	10 min
Orchids	117	47	
Dendrobium, Den Ching, Bala, Balaia, Pegg, Ror, Cypripedium, Epidendrum, L. Kawaii, Zinnia grass	117	47	10 min
POTTED PLANTS	113	45	
Ornamentals	113	45	10 min
Ornamentals	113	45	10 min

W. Nigrescens
10 min

Coqo Fruit (L. Agave)
10 min

Chrysanthemum white rust
10 min

Little fire ants
10 min

Snails adults
5 min

Coqo fruit adults & eggs
5 min

W. Nigrescens
10 min

Coqo Fruit (L. Agave)
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Little fire ants
10 min

Snails adults
5 min

Coqo fruit adults & eggs
5 min

Kyle Onuma, project personnel, surveyed for LFA and applied treatments as needed at several sites on Hawai'i island. Cinder piles at Nursery 1 (Waiakea Uka) continue to be treated and monitored every 6 weeks. Bifenthrin was sprayed along the nursery borders since LFA continues to reinfest the property. Hapu'u log orders have resumed, so the nursery owner intends to have them inspected and treated with Talstar Select, HDOA PQ to witness treatment.

inter-island airport cargo areas, inter-island shippers of plant material on the island of Hawai'i were visited by project personnel. Most of the nurseries are situated in East Hawai'i (20), with one nursery in Kona (Kainaliu), two in Kohala, and one in Kamuela. Of the 24 shippers visited by project personnel, 12 ship potted plants and/or propagative material, 10 ship cut flowers and/or foliage, and 2 ship fruit.

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Outreach

Dr. Hara and his team provided training for approximately 53 professional landscapers and arborists, and personnel from state and federal agencies, 50 representatives of 16 Soil & Water Conservation Districts throughout the state, and approximately 250 export growers and shippers, end-users of locally-grown nursery products, and representatives of agricultural support industries. Outreach increased their ability to identify plant pests and their damage symptoms, best management practices for control, preventing, or slowing the spread of pests such as LFA.

Dr. Hara also conducted public outreach for 95 attendees of community sessions, and more than 3,500 people at plant sales. Following three separate training sessions, 12 East Hawai'i Master Gardeners passed a practical test on their proficiency in using simple ant keys and a stereomicroscope to distinguish LFA from other ant species. Their ability to positively identify LFA for homeowners expedites the implementation of control and containment measures, possibly preventing or hindering their spread to non-infested areas of the island.

Little Fire Ant Detector Dog (2015-2016)

HMLF funding for this pilot project has been held at UHF while MISC coordinates additional funding for full implementation. A draft RFP for procuring and training an LFA detector dog is under review and is expected to be posted in early 2016.

Support for Hawai'i Green Growth (annual)

Hawai'i Green Growth (HGG) recruited the partnership's first Executive Director, expanded the staff leadership team and made significant progress on 2015-17 priorities identified by the Working Group. Key 2015 achievements and milestones include:

Aloha+ Challenge Dashboard Development & Launch

In April, HGG launched the Aloha+ Challenge Dashboard in partnership with Governor David Ige, Mayor Kirk Caldwell, Mayor Billy Kenoi, Mayor Alan Arakawa, Mayor Bernard Carvalho Jr., Ka Pouhana & Chief Executive Officer Kamana'o pono Crabbe of the Office of Hawaiian Affairs, and President David Lassner of the University of Hawai'i with over 160 sustainability leaders at the Hawai'i State Capitol. The Aloha+ Challenge Dashboard is an online platform designed for decision makers and the public to provide accountability, transparency and track progress on Hawaii's commitment to achieve six sustainability targets by 2030. The dashboard currently features indicators at the state and county levels for clean energy and solid waste reduction targets, and will be completed with indicators for all six targets in 2017.



Aloha + Challenge Dashboard launch in April, 2015

HGG is currently working with technical and cross-sector experts to develop indicators, narratives and collect data for the Aloha+ Challenge natural resource management target in the areas of freshwater security, watershed protection, invasive species, native species and marine management. The Aloha+ Nature Dashboard will be showcased at the 2016 IUCN World Conservation Congress.

Aloha+ Challenge Annual Priorities & Action Agenda

HGG members developed shared legislative priorities to advance the Aloha+ Challenge

with multi-sector and inter-agency stakeholders for the 2015 Hawai'i State Legislature; 11 of HGG's 16 top legislative priorities passed or made progress. In preparation for the 2016 legislative session, HGG co-hosted the first Aloha+ Challenge Legislation and Policy Retreat with Senator Gabbard, and Representatives Yamane and Lee in November to build consensus and develop recommendations for a high-impact joint 2016 action agenda by state, county, federal and private sector partners.

Building on national, regional and global attention, HGG is chairing two outcome-focused World Conservation Congress committees to catalyze high-leverage, high-impact "Hawai'i commitments" that demonstrate powerful multi-sector collaboration and Hawaii's leadership in integrated sustainable development. These committees will

ensure coordination on priorities identified at the Aloha+ Challenge Legislation & Policy Retreat, and drive a tangible action agenda for Hawai'i to showcase at the IUCN World Conservation Congress in September 2016.

Smart Sustainable Communities Roundtable

HGG co-developed and launched this collaboration to bring business, environment, government and community leaders together to advance sustainable economic growth, robust environmental health and community resilience. Led by Hawaiian Airlines, Conservation International and HGG, the Roundtable will develop shared sub-targets, metrics, organization-specific actions and a joint action agenda for the smart sustainable communities target (sustainability in the built environment) by 2017.

2016 HMLF Projects

	2016 Projects	Term	Subtotal	Admin	Overhead	Total
1	Law Fellowship Program year 4 funding for two legal fellows (RCUH), + up to 2 summer interns, materials & supplies, travel, conferences	1/30/2017	\$ 111,150	UHF 5%	\$ 5,850	\$ 117,000
2	Support for UH entomology & plant pathology experts to review arthropods and microorganisms listed as federally non-actionable, and other relevant risk assessments to provide CGAPS and HDOA with the documentation for requesting federal protection	12/31/2016	\$ 28,500	UHF 5%	\$ 1,500	\$ 30,000
3	Contract for technical analysis and strategic response planning for Rapid 'Ōhi'a Death	12/31/2016	\$ 48,420	HCAF 10%	\$ 5,380	\$ 53,800
4	Support for CGAPS PIO 3 months sal & fringe, operational; 7.5 month funding for Plant Pono Liaison salary, fringe, operational; PCSU 5% direct (sal & fringe for PCSU admin staff support of CGAPS)	1/30/2017	\$ 95,000	UHF 5%	\$ 5,000	\$ 100,000
5	Support for Hawai'i Green Growth	12/31/2016		OEDB		\$ 25,000
6	Reduce interisland pest movement at source (funding received in 2014, borrowing from 2015 and 2016)	12/31/2016	\$24,000 2014; \$23,000 2015; \$23,000 2016	UHF 5%	\$1,264 2014; \$1,211 2015; \$1,211 2016	\$ 24,211
Total						\$ 350,011

11/24/2015