



**A Proposal to the
Hau'oli Mau Loa Foundation
for
2015 CGAPS Invasive Species Prevention Projects**



Introduction

The little fire ant and coconut rhinoceros beetle took center stage in our work in 2014, and will continue to do so until locally eradicated and measures are in place to reduce the chances of new infestations. For each of these responses, we are working side-by-side with Federal, State, and City government agencies and NGOs at a truly unprecedented level. For this, we thank Hau'oli Mau Loa Foundation, for supporting the Plant Health Emergency Plan and Tabletop exercise in 2013, completed just one month before both infestations hit. This year has truly been challenging only because the pests themselves are so tough to find and control, not because we lack the planning and practice of a multi-agency response. One project that is a high priority that did not make it into the 2015 request is to hire a contractor (preferably the facilitator for the 2013 tabletop) to conduct a "hot wash" of the coconut rhinoceros beetle response to date to ensure that the issues that helped and stymied the collaborative response are highlighted and the information can be used to help the ongoing response.

CGAPS strategic planning is nearly complete, as is the Hawaii Invasive Species Council strategic plan. CGAPS contractors Makena Coffman and Kim Burnett and HISC planner Emily Montgomery succeeded in ensuring that the processes moved forward in tandem and with good synergy, while helping participants focus on the unique missions and capacities of each.

The CGAPS legal fellowship has graduated its first two fellows with Melissa Miyashiro accepting the position of Operations Director for Blue Planet Foundation, and Jarrett Keohokalole recently elected to the state House of Representatives. While with CGAPS, Melissa and Jarrett set in motion several projects. One, the myrtaceae rulemaking project, is now being reviewed by the new Deputy AG hired to assist with the backlog of Plant Quarantine rule changes. Another, updating the state ballast rules, is ready for a new fellow to step in and follow the rulemaking timeline. Melissa prepared briefings and suggested next steps for each of the projects in preparation for new fellows.

CGAPS staff Amanda Skelton continued with outreach to nursery and landscape industry to promote understanding and use of the Hawaii Pacific Weed Risk Assessment. Amanda is also assisting contractor Shahin Ansari in setting up and coordinating meetings statewide on the Offshore and Incipient Invasive Plants project (AKA the Restricted Plant List), and coordinating changes to the Plant Pono website.

January through October is always as busy as can be. Yet every fall and winter there is time to reflect on accomplishments and lessons learned, and to be thankful for the community that helped. Mahalo to Hau'oli Mau Loa Foundation for your help! Please feel free to contact us with any questions, comments, or concerns on this proposal or any aspect of our work. Mahalo nui loa for your support!

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Project: CGAPS Invasive Species Law Fellowship Program (Multiple Action items)

Executive Summary

This project will provide continued salary and operational support for two full-time William S. Richardson School of Law Legal Fellows to work in collaboration with CGAPS in reviewing and writing invasive species prevention related statutes and rules.

Background

As of November 2014, both the legal fellow positions are vacant, with \$127,544 in funds remaining. Both positions have been changed from Special Faculty to Research Corporation of the University of Hawai'i (RCUH) positions and are ready to be advertised in mid-November. It is possible that two new fellows can start by the end of November, 2014.

The uncertain start date, combined with the unknown cost of benefits makes budget projections uncertain (the RCUH system allows employees to select their benefits package upon hiring). For example, the selected package may cost as little as \$224 per month for single person coverage, or as much as \$944 per month for the most expensive family coverage.

This proposal is based on projected needs assuming 2-party benefit coverage (mid-range cost), for both positions, with an expected start date near the end of November 2014. The cost per month (salary and mid-level fringe) for two fellows is approximately \$(*figure removed*). Therefore, our remaining 2014 funds will last approximately 9.4 months (late November 2014-August 30, 2015). This request is for salary, fringe, and operating budget to continue to support two FTE legal fellows for 5 months, from September 1, 2015 through January 31, 2016.

Deliverables

The legal fellows will be responsible for continuing work on the following issues:

- Gaps in quarantine action authority for federal agencies when human health vectors are found in international cargo or conveyances.
- Continue the public process to update Hawai'i ballast rules. Look into how we might address interisland unmanned barges which fall into a gap and are not required to comply.



Former CGAPS Legal Fellows Melissa Miyashiro and Jarrett Keohokalole with Denise Antolini, Mark Fox, and Christy Martin.

- Begin the process for new biofouling rules, including drafting new DAR rules to manage biofouling to minimize the further introduction of AIS into Hawai'i.
- Address DAR policy gaps regarding aquaculture, including permitting for culture, facilities inspection (for biosecurity purposes), and compliance.
- Assist as necessary in local actions to support federal rule changes such as the Lacey Act update, the listing of Myrtaceae to federally actionable list, etc.

Budget

(contact CGAPS for more information)

Project: O'ahu Little Fire Ant (LFA) Detector Dog Pilot Program (CGAPS Action items 1, 6, 9)

Executive Summary

Funds are requested to support a collaborative pilot project between the Hawai'i Ant Lab (Dr. Cas Vanderwoude, University of Hawai'i PCSU), the Maui and O'ahu Invasive Species Committees (University of Hawai'i PCSU), and the Hawai'i Department of Agriculture to develop and run a little fire ant (*Wasmannia auropunctata*) detector dog program on O'ahu. The acquisition and training of the dogs will be contracted out to a qualified professional with a proven track record in training dogs and handlers for this task. Once fully developed, this team will be used to detect LFA in high risk locations where they may exist in incipient form and for post-eradication detection and validation. We envisage that this team will act as a proof-of-concept model for additional teams working within biosecurity agencies. This proposal presents an exciting opportunity for significant advances in invasive species detection technology and extends the role of the University of Hawai'i in applied research.

The University of Hawai'i will further benefit from this project in the following ways. As UH projects, MISC, OISC and the Hawai'i Ant Lab host interns from across the state, who often go on to or return to school, including the University of Hawai'i. All three projects have staff with undergraduate and/or graduate degrees from the University of Hawai'i. These UH projects routinely interact with researchers from the University of Hawai'i and other institutions by providing data and/or input to their studies. The Hawai'i Ant Lab, MISC and OISC will present and/or publish results from the work, acknowledging the University of Hawai'i. Public acknowledgement of the University will be included in all reports and outreach materials.

Background

Detector dogs are the most effective and efficient tool for detecting odors at low concentrations. Their widespread use in quarantine (biosecurity detection),

drug searches, bomb detection and searches for missing persons is a testament to their utility. In recent years, scent dogs have been developed that are able to detect ants and differentiate individual ant species. For example, scent detection dogs are routinely used to detect incipient colonies of Red Imported Fire Ants (*Solenopsis invicta*) and LFA in Australia.

LFA pose a significant threat to agriculture, the environment, and the health and wellbeing of people and animals. LFA are now widely established on the Big Island, leaving the rest of the state at permanent risk. In December 2013, LFA were found in hapu'u logs being sold at garden centers, nurseries, and "big box" stores on Maui and O'ahu. Infested logs had already been used in landscaping on Lāna'i, and a number of logs were sold to the public. Today, more than fifteen infestations on O'ahu, Maui, Kaua'i, and Lāna'i are being treated under the direction of the Hawai'i Ant Lab, with the goal of eradication. In mid-September, LFA were discovered in an overgrown unmanaged area of East Maui.

There most certainly are other infested sites on O'ahu and Maui, but surveying even high-priority sites such as nurseries is time consuming and staffing intensive, resulting in inadequate prevention. Additionally, LFA continue to move in commodities from the Big Island, despite inspection. Big Island and Maui HDOA inspectors recently used the peanut butter chopstick survey method to test for LFA on three separate shipments of hapu'u logs, but did not pick up the ants in any of the shipments. However, on closer inspection of the third shipment, the Maui HDOA inspectors discovered LFA by looking at the hapu'u and noticing small red ants moving around. Follow-up surveys at the destination nursery revealed that the ants were on the first two shipments as well, yet they had gone undetected.

Currently, the best detection tools we have – peanut-butter baits and visual inspection – are far from perfect, yet quarantine professionals in Australia have discovered and proved that dogs can be trained to detect LFA. The dogs can tell if a shipment of plants is clean, if a car or vehicle has LFA, or if a row of plants in a nursery has been infected. The dog can also help tell if an infestation has been eradicated. Dogs aren't the solution for every situation, but a detector dog program on O'ahu represents an important new tool for helping prevent little fire ants from becoming established.

The Maui Quarantine Fund and the Hawai'i Invasive Species Council have committed funds for a pilot LFA detector dog program based on Maui (managed by the



In May, 2014 the Maui Invasive Species Committee arranged for professional detector dog trainers Craig and Tracey Murray to visit Hawaii and discuss the Queensland's Department of Agriculture, Fisheries and Forestry little fire ant detector dog program. The Murrays developed the LFA scent imprint technology and designed the Queensland Detector Dog Program.

Maui Invasive Species Committee and Hawai'i Ant Lab), but with some ability to travel to other islands. Realistically, O'ahu needs its own dog and handler, given existing detection techniques, the nearly 200 nurseries and garden shops present on the island, the volume of goods moving between islands, and the limited resources available to survey for little fire ants. In addition to nurseries, the dog team could be used during HDOA inspections at the harbor and airport, as a proof-of-concept to help rebuild HDOA's detector dog program. HDOA Plant Industry Administrator Dr. Neil Reimer is positive and supportive, with the offer to look into the use the HDOA detector dog facilities on O'ahu for training and kenneling (currently being used by US Department of Agriculture). Having a second team in the islands would also provide a support network and enhanced learning opportunities.

This proposal is to support a professional services contract for dog selection and training, handler training, associated travel, and administrative costs. Dogs are selected based on a strong "play drive" and other key attributes (may be rescue animals). It then takes about 5-6 months to train the dog and 3-4 additional weeks to train the handler. The trainer, dog handler, and dog then work together to "transition" from training to real-world situations. The total cost to start the O'ahu LFA detector dog program is estimated at \$160,000. O'ahu and Maui CGAPS participants are actively seeking matching funds to reach this total. Therefore, we request a 2 year grant period.

Budget

(contact CGAPS for more information)

Proposal: Biofoul In-Water Cleaning Technical Research (CGAPS Action Item #5)

Executive Summary

Vessel biofouling is the attachment of organisms to the wetted parts of ships, boats and submerged structures. It is a major pathway for the introduction of non-native species into Hawai'i's marine ecosystems. With the assistance of the Hau'oli Mau Loa Foundation, DLNR is working with contractors to collect and analyze hull husbandry information and relative risk that will be used to create a Hawai'i biofouling policy to allow for more proactive management of the risk. However, one way to ensure that vessels maintain clean hulls is to allow cleaning of the hulls, a service that is typically done in ports, either by removing the vessel from the water (more expensive, less frequent), or through in-water cleaning (less expensive, more frequent). While in-water cleaning is an important tool for reducing biosecurity risks, it also carries some risk which must be managed. This project would use contractors to review and assess

available in-water cleaning techniques and their relative risks to inform policy making.

Background

There are a range of technologies available for in-water cleaning, but none are without risk of spreading species as they are removed. Therefore, the purpose of this project is to develop an understanding of current and emerging technologies for in-water cleaning in the United States to understand the relative risk for each method to help guide decision makers on creating in-water cleaning policies and procedures that are clear and risk-based. With both the state of California progressing biofouling regulations and New Zealand's implementation of its Craft Risk Management Framework in 2014, in-water cleaning requests in Hawai'i are likely to increase. Hawai'i, however, has not had the capacity to develop a framework to assess when the risks of cleaning are acceptable.



In-water cleaning can be a valuable tool for preventing the spread of invasive pests, but current technologies do not allow for 100% capture of fouling material. Future policies for allowing in-water or other cleaning methods should be based on relative risk. Photo: Triton Diving Services, Ltd.

This project proposes to utilize the services of a contractor as the expertise and personnel are not available within DLNR. The contractor will also provide a transparent, unbiased representation of the data and management recommendations for consideration by DLNR. The contractor will work regionally with the Pacific Ballast Water Working Group, participants of the Alien Aquatic Organism Task Force (including shipping industry representatives), and the governments of New Zealand, Australia, and Western Australia who are currently developing in-water cleaning policies.

Deliverables

- A literature review of available US and regional technologies for in-water cleaning
- An assessment of the biosecurity risks posed by the available technologies and recommendations for future technological development
- A workshop in Hawai'i to gather information of in-water cleaning activities in the region and development of a data collation form
- An analysis of in-water cleaning activity data collected by DLNR and recommendations for a risk-assessment framework.

Budget

\$(contact CGAPS for more information)

Project: Travel Support for Pacific Entomology Conference (Multiple Action items)

Executive Summary

Conferences offer the opportunity to network and collaborate to address regional and international issues. In April 2015, The Hawaiian Entomological Society (a 501(3)c non-profit) will be hosting the 15th Pacific Entomology Conference at the Hilton Waikīkī Beach Hotel. Symposia will include biosecurity, invasive ants (a follow-up to the Pacific Invasive Ant Conference last held in Darwin, Australia in 2011), honey bee health, persistent pest issues (covering issues of coffee berry borer, macadamia felted coccid, and coconut rhinoceros beetle), and biocontrol. Funds are requested to support travel costs for four identified specialists to participate in the conference.

Background

The pattern of trade and related movement of invasive species links Hawai'i, Guam, California and Florida. Therefore, conference organizers would like to invite speakers from these areas to participate as speakers on the topic of biosecurity at the conference. Invited speakers would cover the following topics during the opening day biosecurity session: threats to other municipalities and how best to detect and react to those threats.

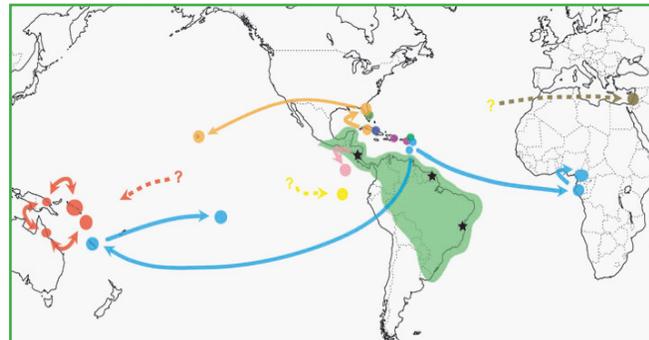
Organizers are also proposing a Biosecurity Forum to be held on the last day of the conference, which would be open to non-registered participants that have a vested interest in biosecurity in Hawai'i including the Hawai'i Department of Agriculture, U.S. Department of Agriculture, Customs and Border Protection, U.S. Fish and Wildlife Service, the University of Hawai'i, Hawai'i Invasive Species Council, and the National Invasive Species Council, among others. The forum would focus on more specific issues including collaboration between agencies to enhance programs in Hawai'i, enhancing information sharing, identifying obstacles, and determining long term and imminent threats Hawai'i should be preparing for.

Deliverables

Summaries of the Biosecurity symposium and Forum will be made available.

Budget

(contact CGAPS for more information)



Tracing the movement of species like little fire ants (orange arrows above) via genetic studies has helped identify key pathways and ports of entry for a variety of species. An update to this map might include an arrow from Hawaii to Guam and California. The orange arrows would be the same if the species were coqui instead of LFA. (from Foucaud, et al. 2010)

Project: Support for the Hawai'i Green Growth Initiative (HGG)

Executive Summary

Provide support for the leadership and coordination of HGG and its 2015 goals.

Background

Funds are again requested to help support the Hawai'i Green Growth Initiative (HGG). In 2014, HGG launched the Aloha+ Challenge jointly with Hawai'i's six elected Chief Executives (Governor, four Mayors, and Chair of the Office of Hawaiian Affairs). This Challenge is a commitment by these leaders to achieve six sustainability targets by 2030 - in clean energy, food self-reliance, natural resource management, waste reduction, smart sustainable communities and climate resilience, and green jobs and education. HGG also assisted State government to create the first Hawai'i State Sustainability Coordinator position to facilitate government collaboration.

Now that the Aloha+ Challenge is launched, the next fiscal year (July 2014 – June 2015) calls for HGG to transition from its start-up/test phase to a new strategy and structure needed to achieve the Aloha+ Challenge targets over time.

HGG's active Working Group includes leaders from more than 45 organizations. Funding secured to support HGG core operations and the measures project in FY2014 is approximately \$200K and FY2015 is \$282K (of \$316K budget). This request is for \$25K in support of HGG.

Deliverables

With continued support, HGG will:

- Hold an annual HGG Strategy Retreat to identify 3-year priorities for collaborative action to help achieve the Aloha+ Challenge targets, including engaging the new Governor, Cabinet and Legislators elected in 2014.
- Assist the Hawai'i State Sustainability Coordinator to prepare a compelling mandated 2015 Legislature Report for the Aloha+ Challenge resolution, with recommendations for implementing and tracking progress on the targets. Coordinate HGG support for key legislative priorities for green funding and policy.
- Launch the Aloha+ Challenge dashboard with shared statewide indicators for clean energy and waste reduction, and outline process to include the other four targets. Coordinate with HISC and CGAPS on effective indicators for the invasives subtarget and with UHERO on green jobs indicators.
- Design an effective statewide leadership and network structure needed to achieve the Aloha+ Challenge targets long-term, and use this to guide HGG's future business plan.

Budget

(contact CGAPS for more information)

Project: Capacity Support for CGAPS PIO and Plant Pono Liaison (Multiple Action items)

Executive Summary

Funds are requested for 5 months of salary and fringe, plus operating support for the CGAPS Statewide Invasive Species Public/Community Relations Coordinator (shortened to PIO). The goals of this position are to facilitate engagement and inter- and intra-agency communication; to coordinate and catalyze collaborative projects towards the goals outlined in the CGAPS Action Plan; to promote key outreach messages; to educate decision makers, special interest groups, and the public about invasive species in order to effect a change in perception, actions, rules, or funding for invasive species issues.

Funds are also requested for the third year of the HPWRA/Plant Pono Outreach Liaison, for salary and fringe, plus operating costs for 2015. The goals of this position are to work with the CGAPS PIO to promote awareness and use of the Hawai'i Pacific Weed Risk Assessment in the nursery and landscape industry and other key groups; and to continue to develop the Plant Pono website and program.



HPWRA/Plant Pono Liaison Amanda Skelton conducted outreach to target audiences statewide, including this group of Master Gardeners on Kaua'i.

Background

The University of Hawai'i is a key resource in the effort to protect Hawai'i's natural resources, economy, and residents from the threats posed by invasive species. Under the direction of Dr. David Duffy and in partnership with the CGAPS Chairs, this project will benefit the University of Hawai'i by integrating faculty, researchers and students in Hawai'i's biosecurity programs. Close collaboration between biosecurity agencies and the University also provides research and outreach capacity where there are currently gaps, and in turn, greater integration between the University and in Hawai'i's biosecurity programs will enable faculty to identify job training and research pathways.

Funding for CGAPS PIO will cover 5 months of salary and fringe to continue work on CGAPS goals, manage HMLF prevention projects, contractors and staff. Existing funds from the Hawai'i Invasive Species Council, U.S. Forest Service, and U.S. Fish and Wildlife Service will enable progress through December 2015.

Funding for 13 months to support the HPWRA/Plant Pono Liaison will enable progress through January 2016. The Liaison will continue with outreach to target audiences, manage the newly redesigned Plant Pono website and continue to assist the

Restricted Plant List contractor in this extended 2014 project.

Deliverables

A final report will be generated for these and a variety of other accomplishments at the end of the year.

Budget

(contact CGAPS for more information)

Budget Summary

(contact CGAPS for more information)