



**A Proposal to the
Hau'oli Mau Loa Foundation
for
2014 CGAPS Invasive Species Prevention Projects**

Rev. 12/12/13

Introduction

We are grateful to the Hau'oli Mau Loa Foundation for this opportunity to share our proposal for collaborative invasive species prevention projects. Our 2014 projects build off of momentum from 2013 projects, leverage past successes, and engage new partners. As with past proposals, each project directly addresses known gaps in knowledge, policy, tools, or communications, and they have been prioritized as areas where we feel we can and should move forward.

During our Plant Health Emergency Plan tabletop exercise on November 6, it was striking to see how many participants were either newly appointed to decision making positions, or who were new to such an interagency planning meeting. Also striking was the attendance of several originators of CGAPS, and it's precursor, the Alien Species Action Plan. It seems especially appropriate to spend this coming year looking back, looking around, and looking ahead as we engage in the strategic planning process.

We are also excited about the prospect of working with a graduate student and researchers at the University of Hawai'i, Hawai'i Institute of Marine Biology, DLNR Division of Aquatic Resources and others to convert and test an existing marine invasive species risk assessment tool. The support for this project from these experts has been wonderful, and we even have a potential student that we would like to interview.

Our ongoing projects with the legal fellows and outreach to promote use of the Hawai'i-Pacific Weed Risk Assessment are just as exciting in this second year, and we look forward to a full year of work on these issues.

We are honored to work with Hau'oli Mau Loa Foundation on the important job of protecting Hawai'i's environment. As always, please feel free to contact us with any questions, comments, or concerns on this proposal or any aspect of our work. We are happy to provide additional information or clarification. Mahalo nui loa for your support!

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Project: Compiling a Proposed List of Restricted Plants (CGAPS Action Item #3)

Executive Summary

This project will contract a qualified botanist (Shahin Ansari, Ph.D., former Hawai'i-Pacific Weed Risk Assessment screener, currently with SWCA Environmental Consultants) to 1) conduct research to compile a list of invasive plants that are either not yet present or are present in very limited numbers; 2) conduct risk assessment screening where necessary; 3) consult with stakeholder groups across the state to vet the list and gain support for restricting their importation; and 4) present a list (with supporting documentation) of high-risk plants that should be restricted from import and sale in Hawai'i.

Background

Invasive plants such as miconia, fireweed, and poison devil's pepper threaten our economy, watersheds, public health, and quality of life. Many plants have been introduced to the state intentionally by foresters, botanical gardens, commercial nurseries, and plant enthusiasts and more are being imported every year. In 2005, the Hawai'i-Pacific Weed Risk Assessment (HPWRA) transitioned from a research project to a voluntary public service which provides an accurate prediction (90% accuracy) of whether or not a plant will be invasive in Hawai'i. However, this free service is non-regulatory, and results are non-binding.

Although we have Federal and State noxious seed and weed lists, these rules regulate fewer than 200 species of plants, half of which are already present in Hawai'i. Until 2008, the Hawai'i Department of Agriculture (HDOA) did not have the statutory authority to restrict plants from entry or sale solely based on invasiveness. With this issue addressed by the State legislature, and with leaders in the landscape and nursery industries receptive to working together with government and conservation groups to form a list of invasive plants that should be restricted from entry and sale, we can help move this concept forward by providing a trusted contractor with botanical expertise to help form this list.

The project will contract a plant research specialist to utilize the HPWRA, other existing restricted plant lists (such as New Zealand's National Pest Plant Accord list), plant industry expertise, and a cost-benefit evaluation as a multi-dimensional method to come up with a proposed list of plants for regulation. These plants will be those that are



Prior to the HPWRA, there was no accurate, science based, transparent method for identifying which plants are likely to be invasive in Hawai'i. It was no better than roulette.

not yet valuable to industries (or those whose value does not exceed predicted harm), yet are predicted to be invasive in Hawai'i. The contractor will also consult with experts working on the HPWRA, at the Bishop Museum, and the Invasive Species Committees. The CGAPS HPWRA/Plant Pono Liaison, a former nursery manager knowledgeable about what plants are popular in the industry, will help foster understanding and acceptance of the HPWRA. In addition to HPWRA scores, information needed in regulatory processes such as the U.S. Department of Agriculture's APHIS Not Authorized Pending Pest Risk Assessment (NAPPRA) list will be collected.

This project attempts to build on past successes working with the nursery, landscaping, and biofuel industries, botanical gardens, and other interest groups by working together to support future science based and agreed upon regulations to prevent the entry of high-risk plant species.

Deliverables

This project will result in a collaborative list of invasive plants, with supporting risk/benefit documentation for state agency rulemaking or legislative consideration. Adding the list of plants to an official state noxious or restricted plant list is necessary before petitioning for equal protection from federal agencies. Although this project could potentially be completed within one year, we are requesting an 18 month grant period, to term June 30, 2015.

Budget

(contact CGAPS for info)

Project: Strategic Planning (Status Review & Strategic Planning for next 5 years)

Executive Summary

This project will use a contractor to produce a new strategic plan. The contractor will review CGAPS's organizing documents for historic perspective and the 2009 Action Plan, consider overall progress, and identify impediments to progress and situational changes as a basis for strategic planning. The contractor will engage current CGAPS Steering Committee members and other knowledgeable experts to solicit input, organize information, facilitate meetings, and draft a five-year strategic plan for CGAPS.

Background

Reports from the 1990s (Office of Technology Assessment; NRDC/TNC), the Alien Species Action Plan, and the original 1995 CGAPS Action Plan provide a good baseline documentation of the issues around which CGAPS originally organized. The 2009 Action Plan articulated specific goals and actions, and provides a waypoint to evaluate progress. This project is an important opportunity to take stock of what we

set out to do, what has been accomplished, and what still needs to be done. It is equally important to reach outside of the CGAPS Steering Committee, to those that have been involved historically, and those that are not current participants, but who are stakeholders. The contractor should get a sense of the big picture goals and needs for prevention, early detection, and rapid response, control or mitigation of high-impact species, and facilitate up to 8 meetings with the CGAPS Steering Committee and other participants to gain consensus on goals, objectives, and measures wherever possible.

Deliverables

The contractor will organize all information into a document containing the status report and new strategic plan. Although this project could potentially be completed within one year, we are requesting an 18 month grant period, to term June 30, 2015.

Budget

(contact CGAPS for Info)



Planning processes like the 2013 Hawai'i Plant Health Emergency Plan Tabletop help CGAPS identify and engage new partners and resources, and prioritize collaborative actions.

Proposal: Testing an Aquatic Invasive Species Risk Assessment (CGAPS Action Item #5)

Executive Summary

This project will be a grant-in-aid to support a Marine Aquatic Invasive Species Risk Assessment Graduate Assistant (GA) within the Department of Botany at the University of Hawai'i at Mānoa (including salary, fringe, materials, supplies, travel, etc.) to work in collaboration with the Coordinating Group on Alien Pest Species (CGAPS), and UH Mānoa faculty Dr. Curt Daehler, and Dr. Alison Sherwood to convert an existing prototype Caribbean-based marine invasive species risk assessment tool to a Hawai'i-specific tool that will be freely available to State and Federal agencies, researchers, students, businesses and anyone with the intent that the tool be used to help make informed import, rapid response, or management decisions on non-native marine species. This collaborative project will also include vetting the tool with other subject-matter experts, resource managers, and businesses to explore the features and needs of such a tool; ask the student to engage the greater scientific and resource management community to test and propose platforms that would best promote use of the risk assessment tool.

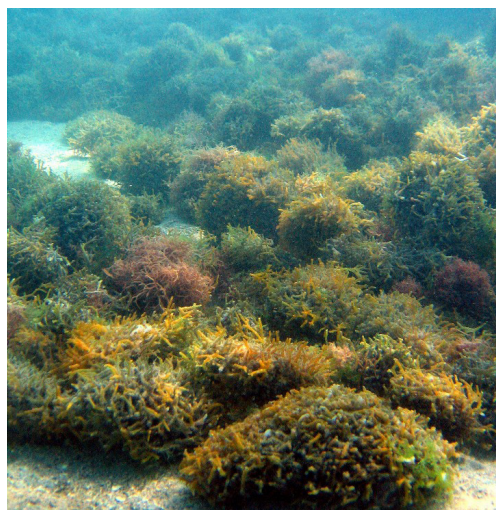
Background

The development of a weighted scoring system to assess the risk of a species becoming invasive was first developed in 1994 with the Australian Weed Risk Assessment, which was soon adapted for use in New Zealand. Since that time, the basic framework of the WRA has been adapted and adopted for use in a growing number of countries and regions worldwide. In 1998, UH Mānoa professor Dr. Curt Daehler modified the New Zealand WRA and tested it for use in Hawai'i. The resulting Hawai'i-Pacific Weed Risk Assessment (HPWRA) has since transitioned from a research project to an accepted and reliable system for identifying which terrestrial plants may become invasive in Hawai'i. However, accurate risk assessment systems for other taxa are lacking.

The developer of the Caribbean-based marine invasive species risk assessment tool evaluated the WRA and its weighting system, and then created his own weighted logic model that could lead resource managers through a series of questions and result in suggested management actions. Although the developer of this Caribbean marine invasive tool is with the Hawai'i Department of Land and Natural Resources-Division of Aquatic Resources (DAR), this work was done as a private contractor to Caribbean nations. The system is currently copyright protected, but the developer will provide the system so that once transitioned, tested, revised and the system is complete for use in Hawaii, it will be freely available for use. A graduate student will work with Dr. Curt Daehler and Dr. Alison Sherwood on this project to transition the system for Hawai'i, and vet with local experts and resource managers that could use such a tool here.

The student would be asked to work closely with professors and the marine community (including DAR staff) to review the system and results from testing in the Caribbean, and identify the changes needed, including any changes to weighting and logic resulting from those changes. Once the changes are complete, testing of the different marine taxa would be conducted. The results of testing would inform the next phase of the project. If testing proves successful for multiple taxa, we envision the student's participation in a scientific conference for sharing work to date, preferably via an "expert café" or tropical bioinvasion workshop or symposium. The Caribbean tool was built as an Excel spreadsheet, and one of the questions that would be answered in the course of this project would be if this is the best, most user-friendly platform.

The Marine Aquatic Invasive Species Risk Assessment GA project greatly benefits the University of Hawai'i in a number of ways. First, the GA will be directly supervised by Drs. Alison



Gorilla ogo (Gracilaria salicornia) was purposefully introduced and outplanted on Hawai'i reefs in the 1970s. Its thick growth smothers and replaces other reef species. Gorilla ogo is one example of the need for a scientific risk assessment tool for making import or management decisions.

Sherwood and Curt Daehler, both of whom have large bodies of work on invasive species. Dr. Daehler has also conducted a similar risk assessment transition and testing research, and this project follows this contribution to conservation in Hawai'i. Christy Martin will work with Dr. Sherwood and Dr. Daehler to ensure tasks and reporting are completed. Second, the GA will engage other UH researchers across multiple departments for input and testing. Third, the GA will be responsible for organizing and conducting beta run at the 2015 Hawai'i Conservation Conference (or similar conference that brings together resource managers, academia and students from across the Pacific). Fourth, the GA and the activities of this project will foster increased awareness and participation of current students and faculty, and will add to the University's leadership in providing science-based tools for protecting Hawai'i's environment.

Deliverables

A first year report would include an initial assessment of the tool as it works in the Caribbean, identifying and engaging experts on marine biota and risk assessment tools, and identifying changes needed for conversion. Progress in year one may extend to testing, but this will be completed in year two with an internal report to advisors and project managers for next steps. Local testing of the HPWRA showed that the tool is 95% accurate at flagging invasive plant species, and 85% accurate at passing non-invasive plant species. A similar accuracy assessment of the marine invasive assessment tool for different taxa will be a deliverable for this project, and an assessment of how best to share the tool. The final risk assessment tool, conference proceedings, journal publication, and the student's thesis (if that route is taken), will be deliverables in year 2. Running this project as a graduate assistantship has multiple benefits beyond the deliverables, including local capacity-building, and engaging new partners. This project will have a two year timeline, to term at the end of December, 2015.

Budget

(contact CGAPS for info)

Project: Reducing Interisland Pest Movement at the Source (CGAPS Action Item 1, 6)

Executive Summary

The little fire ant and coqui frog continue to be spread between islands, primarily from Hawai'i Island. This project will be a grant-in-aid to support the work of Dr. Arnold Hara at the University of Hawai'i College of Tropical Agriculture and Human Resources (UH CTAHR) to work with nurseries that ship plants and cut flowers and foliage interisland to improve pest management practices within nurseries and growing areas to reduce the chance of pests like little fire ant and coqui from spreading to uninfested islands. Dr. Hara currently has federal U.S. Department of Agriculture Farm Bill funding to work with export nurseries on this systems-based approach to mitigate pests moving on potted plants exported out of state. This proposal is to support an expanded focus to include the 10-12 nurseries and growers that primarily ship plants, cut foliage, and flowers interisland. The timeline for this project is 3 years.



The development and testing of hot water shower boxes like this drive through model is an example of Dr. Hara's work to prevent pest movement in nursery materials.

Background

Interisland movement of plants for planting, cut flowers and foliage are proven high-risk pathways for the movement of pests, including little fire ant (LFA) and coqui frog from Hawai'i Island where populations are widespread, to other islands, where small infestations are limited and are in the process of eradication. Plant materials move through business and non-business pathways, by sea and air (with or without inspection by HDOA) and by carry-on baggage in aircraft. Given the number of potential pathways for pests to move interisland, it is of greater benefit and value to address the issue at the plant nursery/grower level.

This project will use survey and monitoring techniques to identify pest issues and current practices of approximately 10-12 nurseries and growers, and will deliver and teach strategies and tactics to mitigate coqui frogs, LFA, and other interisland quarantine pests by implementing effective field pest management and postharvest treatments. Educational outreach programs with bulletins, PowerPoint presentations, and workshops on mitigating interisland quarantine pests will also be conducted.

Examples of methods are as follows:

Coqui frogs:

1. Sound activated recorders will be installed at plant nurseries to monitor for coqui frogs in shade houses and greenhouses.
2. Coqui frogs located in nurseries will be mitigated by pyrethrins or hot water spranches (combination spray and drench).
3. Immediately prior to shipment, plants will be sprached and/or showered with hot water as developed by the systems approach for export nurseries at a minimum of 109 F for 5 min.

Little Fire Ant:

1. Nurseries will be surveyed for LFA by placing peanut butter bait on chopsticks every 15 ft.
2. Nurseries will be mapped for areas infested with LFA and other ant species of quarantine significance.
3. Effective bait insecticides will be recommended and a demonstration trial on its effectiveness will be conducted at infested nurseries.
4. Barrier treatments with synthetic pyrethroids, such as Talstar around borders of the nursery will be recommended once LFA is eradicated from the nursery production area.
5. Immediately prior to shipment, plants will be baited with peanut butter to assure no LFA on plant materials.

Although there is no guarantee that the nurseries and growers will continue the practices after the project ends, engaging them in the process over a span of 3 years will likely create “habits” and model the thought processes that they will need to repeat on a daily basis. The incentive for nurseries and growers that export products is always to minimize rejections since inspection and scrutiny in California is high. As noted on the CGAPS legal priorities table (#4) is the review how to better incentivize the use of best-management practices, or deter the movement of pests interisland. The results of this project will be useful to mitigate impacts to industry in the event of rulemaking.

Deliverables

Annual reports and periodic progress reports will be provided. Year 1: Surveys of 10-12 plant nurseries and cut flower/foilage growers for pests, and document current control and nursery practices, pre-shipment protocol, etc. Deliverables for Year 1: Survey summaries to be discussed with each nursery regarding points of pest entry, efficacy of current practices, etc.

Years 2 and 3: Working with each nursery to address points of pest entry, implement efficacious control and nursery practices, and/or cooperate in trials to evaluate efficacy of new products and practices. Deliverables: Survey with baits, lures, and traps to assess control efficacy. Summaries of findings will be discussed with each nursery, and best management practices that are practical and cost-effective will be developed for specific pests from these discussions. Outreach efforts (presentations,

printed materials, web postings) sharing this information with other shippers, including intra- and inter-island transport, will take place in Years 2 and 3.

Budget

(contact CGAPS for info)

Project: CGAPS Invasive Species Law Fellowship (Multiple Action items, listed by issue)

Executive Summary

This project will be a grant-in-aid to provide support for two full-time William S. Richardson School of Law Legal Fellows (including salaries, fringe, materials, supplies, travel, etc.) to work in collaboration with CGAPS in reviewing and writing invasive species prevention related statutes and rules. In the second year of this fellowship program, we will continue to work with the current legal fellows, the UH Richardson School of Law Environmental Law Program and appropriate legal counsel on priority prevention projects.

Background

Existing funds for the two legal fellows will be depleted 4/30/14. With a projected 3% schedule increase starting 7/01/2014, we will need \$129,000 for salary and fringe to continue to support our existing fellows through 1/30/15, plus a \$600 for materials/

supplies and \$1,400 for local travel/conference registration costs.

The CGAPS Law Fellowships greatly benefit, and are closely connected to, the Law School and specifically the Law School's Environmental Law Program in a number of ways. First, the fellows are directly supervised by Associate Dean Antolini, who is the former Director of the Environmental Law Program. Dean Antolini holds biweekly meetings with the Fellows and is a resource for their professional development, as well as ensuring the project tasks and reporting are completed in coordination with CGAPS through Christy Martin. Second, the Fellows return to the Law School to guest lecture, mentor current law students, and are involved in occasional teaching portions of environmental law or writing classes. Third, the Fellows will be hiring (and thus directly mentoring) current law students for externships (academic credit), summer internships (paid or unpaid), and pro bono (community service) work, which replicates and expands the impact of this fellowship program, building the next generation of junior attorneys interested in this field. Fourth, the Fellows are an important information resource for our current students and faculty who are working in the areas of natural resources law, invasive species, agricultural policy, and environmental law. In summary, the CGAPS Fellowship program has already and will continue to make significant contributions to the Law School, its faculty, and its students in an area of law that is particularly important to Hawai'i and where career opportunities for our students and alumni have been relatively inaccessible until the initiation of these Fellowships.



Biweekly meetings with Associate Dean Antolini (left) help track the progress of each of the Fellows, and provides insights into different agencies and issues as they network.

Deliverables

The legal fellows are currently making progress on the following issues:

#	Legal Issue	In Progress:
1	Gaps in response authority and notification by federal agencies re: human health vectors. Review rules (or lack thereof) regarding federal agency response to human health vectors, i.e., mosquitoes and biting flies when found in foreign conveyances. Propose mechanisms to allow/compel appropriate agencies to take action, including the prompt notification to relevant state agencies. *Note: this incl. fed/state notification issue.	Research, meetings in progress; draft brief for CGAPS consideration spring 2014
2	Plant import rules – preemption (and internal training) Review the existing analyses regarding the State's plant import rules, federal constitutional and statutory restrictions (preemption), and federal assistance programs to protect Hawai'i from a greater suite of pest plants and plant pests. Propose options for action within the existing structure. Develop training for internal use.	Research in progress; training materials and program in 2014; brief

3	Policy gaps regarding aquaculture HDOA permits imports for aquaculture (restricted commodities), with permit conditions, but they lack the capacity to inspect for compliance; they do not give DAR priority for permit conditions. Add to DAR administrative rules to require a DAR permit to culture with provision to allow inspection and compliance of HDOA permitted facilities/ops in addition to their existing authorities. Include commercial, private, and research.	
4	Interisland movement of pests Review rules related to the interisland movement of pests and propose legal mechanisms to mitigate, incl. the negligent transport of known pests.	(Ballast only; as below)
5	Biofouling rules Create new DAR rules to manage biofouling to minimize the further introduction of AIS into Hawai'i. Spring 2014 est. completion of risk assessment to provide justification. Require notification of intended arrival, baseline hull husbandry, ability to board vessels, verify compliance, enforce.	Research & propose rule wording in summer 2014
6	Evaluate/update ballast rules HI ballast rules refer to outdated US federal rules. Update by DAR rule change to match more stringent rules. Look into how we might address interisland unmanned barges which fall into a gap and are not required to exchange, so they discharge anywhere.	Research & proposed changes complete; prep materials for 2014 rulemaking
7	Importation of biocontrol agents Review of HRS 150A and HAR Ch. 71 to address the import of biocontrol agents. Propose new language that removes it entirely from restricted species rules (as these rules reply to unrelated situations)	
8	Smuggling Review recent invasive species smuggling cases (including illegal pets), the relevant federal and state rules and staffing resources. Propose changes and explore ways to ensure appropriate penalties.	Research & review with # 9, criminal citation; propose changes for agency and AG review
9	Criminal citation form revision (internal HDOA)	(with #8)
10	State agency MOU/MOA or deputizing for inspection/enforcement/ collaborative work as in a response	
11	Consistency/gaps across State agencies on invasive species	(some areas X)
12	Review HDOA Chapter 70 rules and promulgation (part of Myrtaceae process)	Research & rule review complete, sent to AG; continue rulemaking in 2014
13	Added 10/18/13 for future: USFWS is working on an update to Lacey Act to address gaps. The service is trying to expedite how they do reviews of vertebrates, and looking at how to expand taxa, such as plants and diseases of concern for conservation (driver is amphibian diseases moving interstate in pets). Interior solicitors will review language, and it will probably come back out in 6 months. Legal fellows should review current Lacey Act, HDOA, and DLNR regulations for import/export for vertebrates to prep.	
14	Restricted Plant list and admin rules	
15	Other updates to Plant Import rules	

Budget

(contact CGAPS for info)

Project: Capacity Support for CGAPS Prevention Projects (Multiple Action items)

Executive Summary

Funds are requested for partial support for up to two months of salary and fringe, plus operating costs for the CGAPS Public Information Officer (PIO) to continue the momentum of the CGAPS Action Plan, coordinate with partners, and facilitate communication and collaboration on prevention priorities. Funds are also requested for the second year of the HPWRA/Plant Pono Outreach Liaison, for salary and fringe, plus operating costs.

Background

CGAPS Public Information Officer

Foundation support for up to two months of salary would provide a cushion of time between the end of existing funds and the potential encumbrance of new funds.

CGAPS Staff Support

Funds are requested to support the HPWRA/Plant Pono Liaison for the remainder of 2014 (mid-June, when existing funds are depleted), through January 31, 2015, with a small travel, website maintenance contract, materials and supplies budget. The Plant Pono Liaison will work with the PIO to continue progress on the tasks outlined for 2013 funds, and will assist the PIO and Restricted Plant List contractor in outreach and landscape/nursery industry communication needs associated with that project.

Deliverables

The CGAPS PIO will be the project coordinator for these projects, and supervisor for the legal fellows and the Plant Pono Liaison. A final report will be generated for these and a variety of other accomplishments at the end of the year.



The CGAPS PIO and Plant Pono Liaison (Amanda Skelton, second from right) helped the Landscape Industry Council of Hawai'i plan and host a plant fashion show. All plants were required to pass the HPWRA before being promoted in the show.

Budget

(Contact CGAPS for info)

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

Provide support for the leadership and coordination of HGG.

Background

In FY2014 (July 2013 – June 2014), HGG will continue to advance collaborative action on all four priorities and incorporate work on three new initiatives (green jobs, fisheries and ocean management, and waste reduction) identified at HGG's annual strategy retreat. Priority objectives of particular interest to CGAPS and the Foundation include:

- Work with DLNR to develop a 2030 sub-target for invasive species management for the Aloha+ Challenge, which HGG is working to launch and announce internationally in 2014 with statewide support led by Hawaii's six elected Chief Executives – Governor, four Mayors, and Chair of the Office of Hawaiian Affairs.
- Continued cross-sector support to increase State (and other) funding for effective natural and invasive species management mauka to makai, with invasive species priorities identified by CGAPS and the Hawai'i Invasive Species Council.
- Build a new Green Jobs & Business Team in collaboration with the Workforce Development Council to help guide HGG's action on this key target.

Deliverable

HGG staff will continue coordinating participants and ensuring collaborative actions to advance the priorities listed above and in its strategic plan. The CGAPS PIO will continue to participate in HGG and assist with actions on shared priorities.

Budget

(contact CGAPS for info)