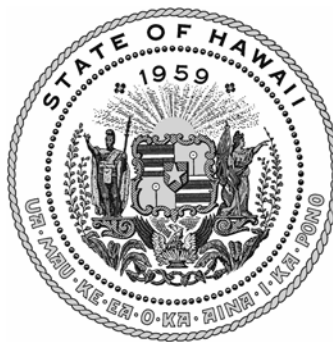


REPORT TO THE TWENTY-SEVENTH LEGISLATURE
REGULAR SESSION OF 2014

BUDGETARY AND OTHER ISSUES REGARDING INVASIVE SPECIES



Prepared by:

THE STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE

In response to Section 194-2, Hawai'i Revised Statutes

October 2014

Table of Contents

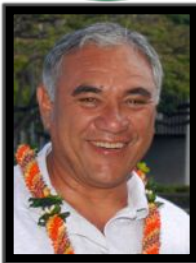
Executive Summary	1
I. Introduction	3
II. Budgetary Issues Relating to Invasive Species	
Invasive Species Funding Needs	4
HISC FY16-17 Request	5
The Cost of Inaction: Examples of Invasive Species Costs in Hawai‘i	6
III. HISC-Funded Projects, FY14-15	
Summary of FY14-15 Budgets	14
Projects Funded by the HISC in FY14	15
Summary of Project Achievements Supported by FY14 HISC Funds	16
Projects Funded by the HISC in FY15	17
IV. Council Actions in Fiscal Year 2014	
HISC Meetings in FY14	20
Hawai‘i Biosecurity Resolutions Package	20
Hawai‘i Invasive Species Awareness Week 2014	21
V. Advice to the Governor and the Legislature Regarding Invasive Species	
FY14 Resolutions of the Hawai‘i Invasive Species Council	23
Testimony Provided During the 2014 Legislative Session	23
Overview of the Invasive Species Problem in Hawai‘i	26
Appendix 1: Chapter 194, Hawai‘i Revised Statutes: INVASIVE SPECIES COUNCIL	29



2015 Executive Summary

HAWAI'I INVASIVE SPECIES COUNCIL

PROVIDING STATE POLICY DIRECTION, COORDINATION, & PLANNING TO PROTECT HAWAI'I FROM THE IMPACTS OF INVASIVE SPECIES



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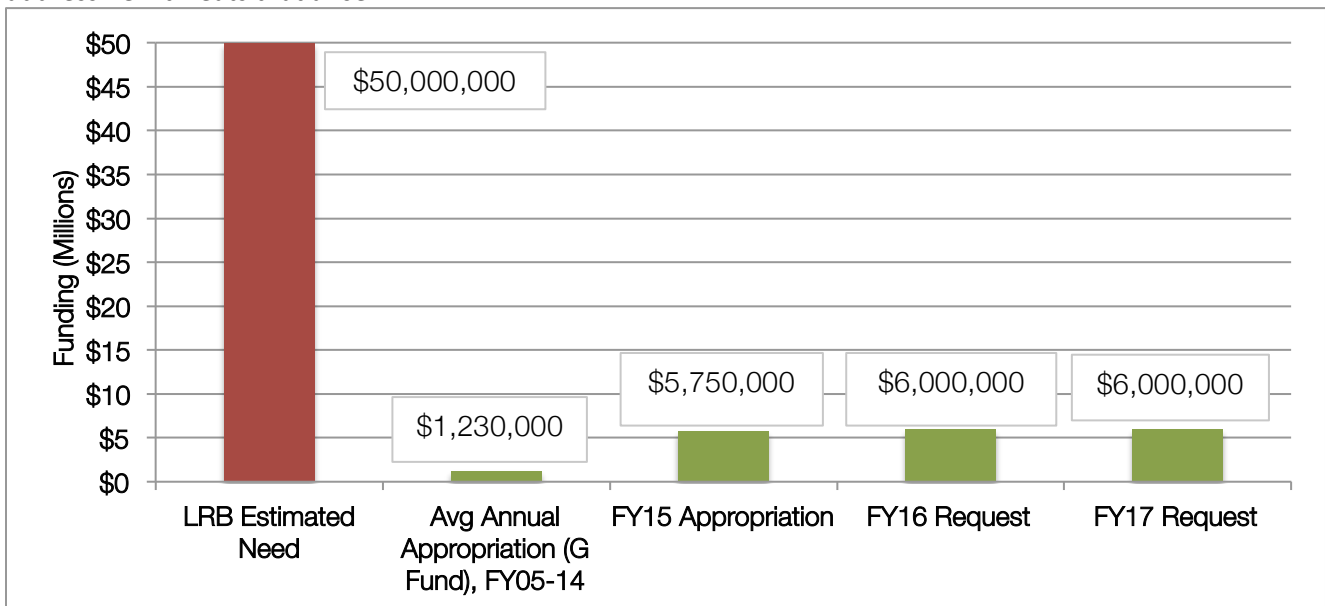
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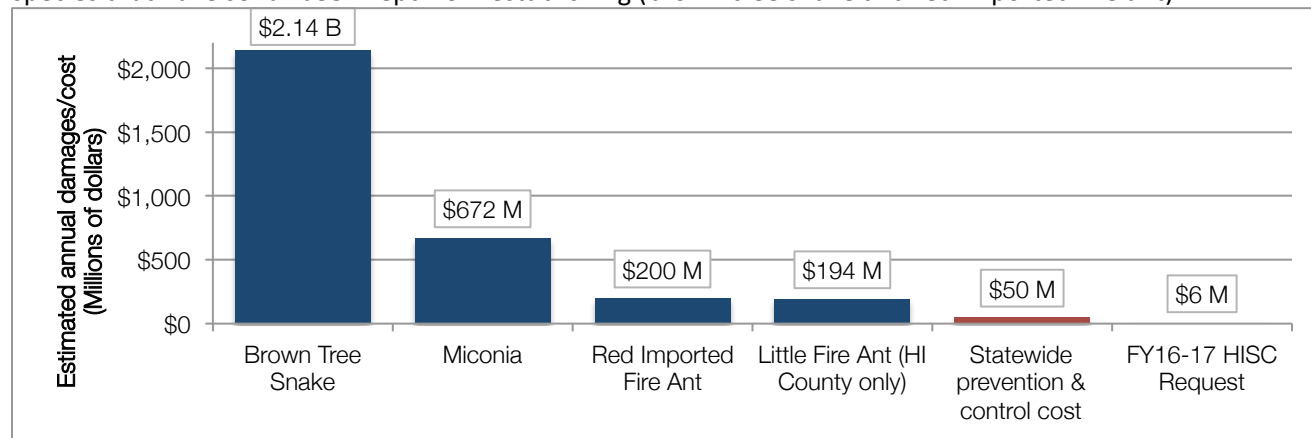
Budgetary Issues relating to Invasive Species: Funding Needs

- A 2002 Legislative Reference Bureau study estimated the total amount of funding needed to protect Hawai'i from invasive species at **\$50,000,000**
- State agencies address invasive species issues both within departmental budgets and in the interagency budget for the Hawai'i Invasive Species Council. HISC funds allow the State to strategically expand upon existing departmental programs to quickly and effectively address new invasive species threats.
- Interdepartmental spending on invasive species, via the Hawai'i Invasive Species Council, totals **\$5,750,000 in general funds** in FY15. This includes \$750,000 appropriated in the FY14-15 biennium budget and \$5,000,000 appropriated by Act 102 in 2014. FY15 projects provided **1:1 leverage of non-state funds**.
- The HISC is requesting **\$6,000,000 annually in general funds** in the FY16-17 biennium budget, via DLNR as the Council's administrative host. This amount will maintain momentum in current project areas and address new threats that arise.



The Cost of Inaction: Economic Damages from Invasive Species

Economic impacts from a sample of high-risk species are presented below, including estimated damages from species that are currently present in Hawai'i (miconia and little fire ant) as well as potential damages from species that have so far been kept from establishing (brown tree snake and red imported fire ant).



From left to right: potential brown tree snake annual costs (\$2.14B in infrastructure, health costs, and lost tourism, Shwiff et al 2010); estimated miconia annual costs (\$672M in lost groundwater recharge and valuation of bird species with lost habitat, Burnett 2007); potential red imported fire ant annual cost (\$200M in lost tourism, agriculture, and infrastructure damage in Hawai'i, Gutrich et al., 2007); estimated Little Fire Ant annual cost, HI County only (\$194M in costs to agriculture, nurseries, residents, other sectors, Motoki et al., 2013); estimated annual need to support state, federal, county, private invasive species programs (\$50M, LRB, 2002); annual request of the HISC in the FY16-17. Full citations available in Section II of the 2015 HISC legislative report.

HISC-funded Project Highlights, FY14-15

Research Projects

- Development of a pilot program utilizing detector dogs for finding Little Fire Ants
- Development of cost-effective biocontrol agents for widespread plant pests, including albizia, Himalayan ginger, miconia, and Christmasberry
- Research for new control methods for Little Fire Ants and Coconut Rhinoceros Beetles

Prevention Projects

- Development of <http://www.reportapest.org> as an online public reporting tool for pest sightings
- Support for the Hawai'i-Pacific Weed Risk Assessment to assess the invasiveness of nonnative plants
- Training for civil servants joining the Brown Tree Snake Rapid Response Team

Control Projects

- Control of Little Fire Ant, including support for the Hawai'i Ant Lab and the O'ahu and Maui interagency response teams
- Control of Coconut Rhinoceros Beetle on O'ahu
- Detection and control of incipient pests through support for the Invasive Species Committees (ISCs)
- Control of new vertebrate pests, including axis deer on Hawai'i Island and mongoose on Kaua'i

Outreach Projects

- Community-based outreach in each county through support for the ISCs
- Development of a series of panel discussions on invasives for local TV broadcast

The HISC is a cabinet-level, interdepartmental collaborative created by Chapter 194, HRS, comprised of the directors, chairpersons, or designees of DLNR, HDOA, DOH, DOT, DBEDT, and UH. For more information, visit <http://hisc.hawaii.gov>, or contact HISC Support Staff:

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I. Introduction

Purpose of this Report

Hawai‘i’s economy and the way of life for its residents are based in Hawai‘i’s unique environment, our ability to grow food, and the health and culture of Hawai‘i’s people. As an island chain, Hawai‘i’s environment evolved in relative isolation for 70M years, producing unique flora and fauna found nowhere else in the world. That historic isolation is starkly different from modern day Hawai‘i, which hosts a population of roughly 1.3M people, imports roughly 90% of its consumer goods, and is a global tourism destination. The introduction of non-native species, intentionally or incidental to the transport of other items, is a constant pressure on our state. Some of those non-native species are invasive, meaning that they present a clear threat to the environment, economy, or human health. Invasive species can take over our watersheds, endanger our native plants and animals, reduce our available drinking water, and introduce new diseases to our population.



Recognizing that invasive species do not fall exclusively under the mandate of any single department, the State Legislature in 2003 authorized the creation of the interagency Hawai‘i Invasive Species Council (HISC, Act 85, Session Laws of Hawai‘i 2003), and stated that “the silent invasion of Hawai‘i by alien invasive species is the single greatest threat to Hawai‘i’s economy, natural environment, and the health and lifestyle of Hawai‘i’s people and visitors.” The HISC is composed of the chairs or directors, or their designees, of five state departments as well as the University of Hawai‘i. The HISC’s purpose is to coordinate and promote invasive species prevention, control, outreach and research. Chapter 194, Hawai‘i Revised Statutes (HRS), establishes the interagency HISC, determines its composition and responsibilities (Appendix 1).

This document meets the reporting requirements of Section 194-2, HRS, to annually report to the Legislature on budgetary and other issues regarding invasive species. Though the HISC is an interagency board, Chapter 194, HRS, places the HISC within the Department of Land and Natural Resources (DLNR) for administrative purposes.

Composition of the Hawai‘i Invasive Species Council

Chapter 194, HRS, requires that the HISC be composed of the chairs, directors, or designees of the organizations listed below. In FY14 the Council was composed of:

- | | |
|------------------------------------------------------------------------------|---------------------------------------------------------------|
| • Chair, DLNR | William J. Aila, Jr. |
| • Chair, Hawai‘i Department of Agriculture (HDOA) | Russell Kokubun (7-12/2013)
Scott Enright (1/2014-Present) |
| • Director, Department of Health (DOH) | Gary Gill |
| • Director, Department of Business, Economic Development and Tourism (DBEDT) | Jesse Souki, (7-12/2013)
Leo Asuncion (1/2014-Present) |
| • Director, Department of Transportation | David Rodriguez |
| • President, University of Hawai‘i (UH) | Maria Gallo |

Additionally, non-voting participants are invited to provide advice and assistance to the HISC. In FY14, participants in the proceedings of the HISC included Sen. Mike Gabbard, Rep. Chris Lee, Sen. Clarence Nishihara, Rep. Richard Onishi, Sen. Kalani English, Rep. Derek Kawakami, Rep. James Tokioka, and Earl Campbell, USFWS.

II. Budgetary Issues Relating to Invasive Species

HISC Funding History

The invasive species problem is not easily addressed by any single agency's mandate or budget. Invasive species programs exist within various state, federal, county, and private agencies. In 2002, the Legislative Reference Bureau produced the report, "Filling the Gaps in the Fight Against Invasive Species," which estimated the cost of protecting our resources, economy, and way of life from invasive species at \$50,000,000 annually across all state, federal, county, and private sources.

In 2003, the legislature formed the Hawai'i Invasive Species Council (HISC) to provide cabinet-level direction on invasive species issues. In addition to providing coordination and policy statements, the HISC administers an interagency budget that supplements existing departmental budgets by strategically filling gaps between mandates or expanding beyond existing mandates to address new threats. In FY05, the stated goal by then Gov. Linda Lingle was for the HISC to manage an annual budget of \$5,000,000. This figure assumes that the bulk of the total need (estimated at \$50,000,000) would be covered by alternative state, county, federal, and private funding.

Interagency funding for the HISC from the general fund has varied since the inception of the HISC in FY05. The State Legislature provided the HISC with \$2,000,000 annually in its first two years of funding. In FY07, funding was directed toward Hawai'i County instead of the HISC to control coqui frogs. In FY08 the HISC was again appropriated \$2,000,000, followed by \$1,000,000 in FY09. Due to the economic downturn in 2008, legislative appropriations dropped to \$0 from FY10-13, returning in the FY14-15 biennium at \$750,000 annually. In the 2014 Legislative Session, the Legislature recognized the immediacy of the growing invasive species problem in Hawai'i by appropriating a supplemental \$5,000,000, resulting in a total FY15 budget of \$5,750,000. To maintain interagency projects supported by these funds and to address new invasive species needs that arise in 2015, the HISC recommends a FY16-17 budget of \$6,000,000 annually.

The HISC does not have a dedicated source of funds from any tax revenue or other special fund source. Because the mission of the HISC is so critical to the functioning of Hawai'i's watersheds and its environment, the DLNR has previously supplemented general fund appropriations from the Legislature with special funds from the Natural Area Reserve (NAR) Fund and/or the Legacy Land Conservation Fund to mitigate chronic underfunding of the HISC. In the 2013 legislative session, the legislature elected not to pass a bill allowing the HISC to become a designated recipient of NAR special funds.

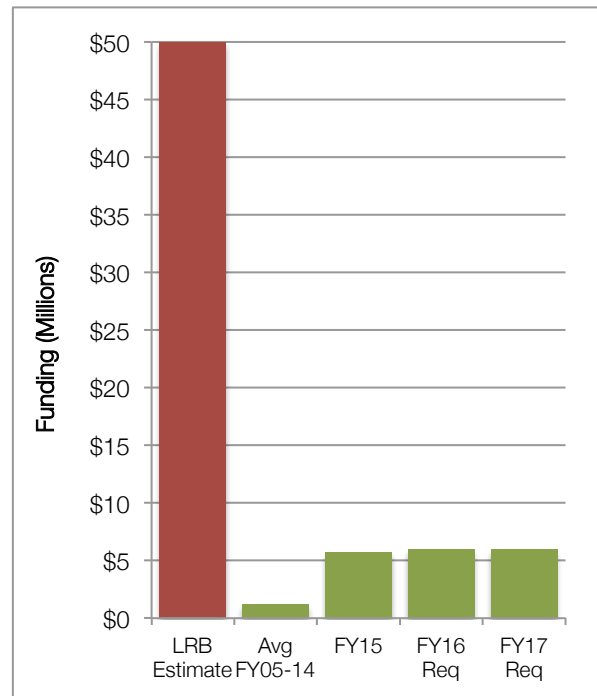


Fig. 1: Invasive species funding needs (red) vs. appropriated general funds (green). Estimated need is across all state, federal, and private funding sources.

Table 1: Total amount of funding (in millions of dollars) made available to the HISC through special and general funds, by fiscal year.

Source	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
G Fund	\$2.0	\$2.0	\$0	\$2.0	\$1.0	\$0	\$0	\$0	\$0	\$0.75	\$5.75

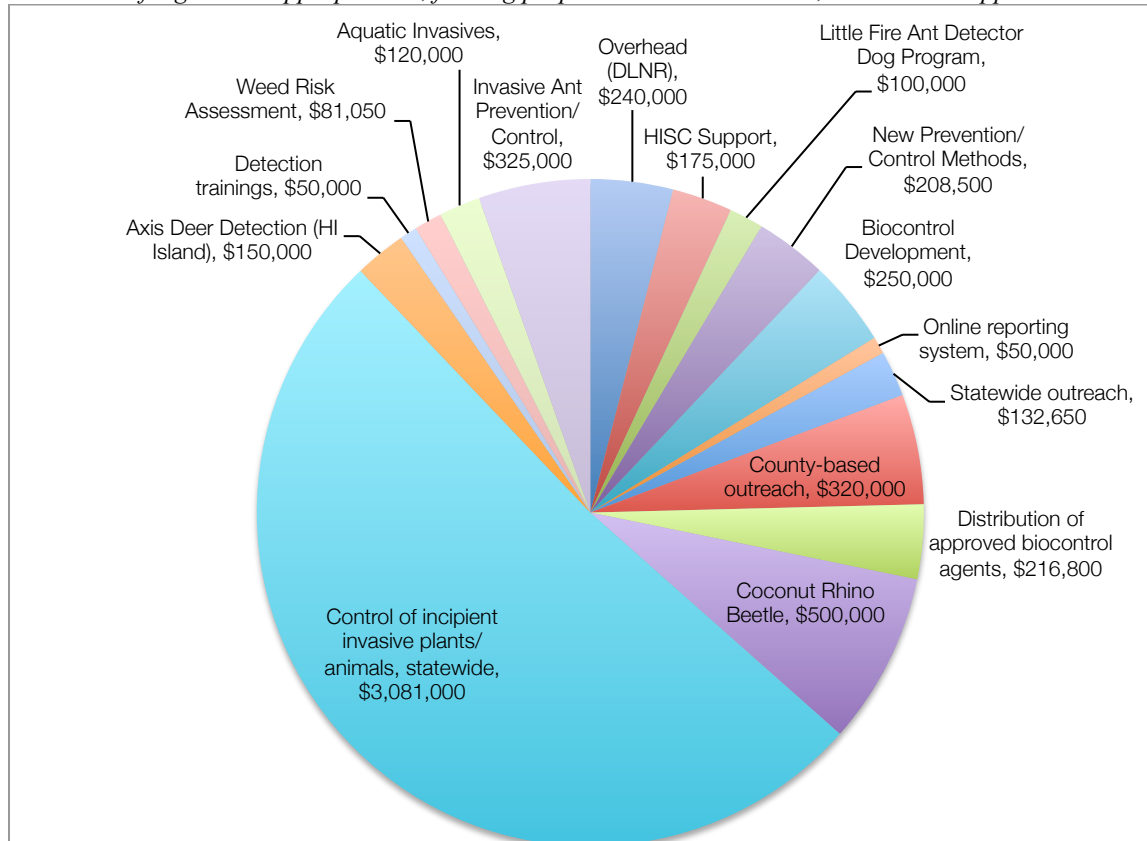
Supplemental DLNR Special Funds:

NAR	\$1.0	\$2.0	\$2.0	\$2.0	\$3.0	\$2.0	\$1.4	\$1.4	\$1.4	\$1.8	\$0
LLC	\$0	\$0	\$0	\$0	\$0	\$0	\$0.4	\$0.4	\$0.4	\$0	\$0
Total	\$3.0	\$4.0	\$4.0	\$4.0	\$4.0	\$2.0	\$1.8	\$1.8	\$1.8	\$2.55	\$5.75

HISC FY16-17 Request

The HISC requests \$6,000,000 in each year of the FY16-17 biennium, which will maintain project capacity and momentum built by the \$5,750,000 provided in FY15 as well as providing funds to address new threats. The final list of projects funded by the HISC in a given year, and the amount of each award, is determined via a competitive intra-governmental proposal process that allows for public participation. This process takes place after the legislative session and before the start of the Fiscal Year. While the total amount of the FY16 HISC budget will not be known until after the 2015 legislative session, a hypothetical FY16 budget is provided below, based on the percentage of FY15 HISC funding that went to each of the HISC project categories: prevention, control, outreach, and research.

Fig 2: Hypothetical FY16 HISC budget based on percentage allocations in FY15. Actual HISC budget will depend on amount of legislative appropriation, funding proposals received in FY16, and Council approval.



Agency Resources & Shortfalls Relating to Invasive Species

Departmental vs. Interagency Invasive Species Programs

State agencies undertake many invasive species projects as part of their regular departmental budgets, in addition to their participation in the interagency HISC. Continued support for the departmental programs is critical to making sure that the base infrastructure exists for invasive species prevention and control in Hawai‘i. Presented here is a summary of invasive species programs at each department that participates in the HISC, with a description of current resources and shortfalls.

Of particular note are the relevant funding sources utilized to support the various departmental efforts for invasive species detection, control, outreach, and research. Maintenance of relevant revenue sources and funds for departmental programs should be of primary importance, with interagency funding to the HISC supplementing these efforts in order to fill gaps between agencies and strategically advance Hawai‘i’s invasive species programs. Critical revenue sources and funds include:

- **The Natural Area Reserve Fund** (HRS 195-9), which receives funding from the Conveyance Tax on property sales (HRS 247-7). These funds support watershed protection and related conservation programs in forested areas, including control of invasive plants and animals, under the direction of the DLNR Division of Forestry and Wildlife.
- **The Pest Inspection, Quarantine, and Eradication Fund** (HRS 150A-4.5), which receives revenue from the Inspection, Quarantine, and Eradication Service Fee, also known as the “cargo fee.” (HRS 150A-5.3). These funds support inspection services, pest monitoring, response, eradication, and risk assessments conducted by the Hawaii Department of Agriculture.
- **The Agricultural Development and Food Security Special Fund** (HRS 141-10), which receives revenue from the Environmental Response, Energy, and Food Security tax, also known as the “barrel tax” (HRS 243-3.5). In addition to activities to increase agricultural production to move the State away from imported food and livestock feed, these funds support inspection, quarantine, diagnostic, and other critical services by the Hawaii Department of Agriculture.
- **General funds** provided to departments as part of the biennium budget, which support a wide variety of program staff and operations at each agency, as described below.

While the HISC can provide a coordinated spending plan for interagency invasive species projects, specific appropriations from the legislature to departmental programs remain a much needed source of support. For example, in the 2014 legislative session, the legislature provided specific appropriations for control of the coffee berry borer (HB 1514) and the macadamia felted coccid (HB 1931). Because these are solely agricultural pests, control is not an interagency effort and has not been addressed by the HISC. Specific appropriations from the legislature are needed for addressing new departmental concerns that do not fall under the purview of the interagency HISC, and are an appropriate tool for legislators to highlight or prioritize specific invasive species issues.

Resources and Shortfalls Within Each HISC Agency

Department of Land and Natural Resources

Agency Resources Relating to Invasive Species:

- Division of Forestry and Wildlife: DLNR DOFAW has a broad mandate to protect Hawai‘i’s natural resources and addresses invasive species through multiple programs, including:
 - Forestry Program (LNR 172): manages and develops forest resources statewide. Employs 3 Forestry Technician positions (one in each county, though the Hawai‘i County Position is a temporary position and is currently in recruitment) to remove invasive plant species on state lands.
 - Wildlife Program (LNR 402, also known as the Native Resources and Fire Protection Program): manages wildlife resources and game opportunities statewide. Employs 1 Invasive Species Coordinator, who manages the interagency HISC program and assists

- with departmental invasive species project planning and policy. Wildlife Biologists at the District Offices directly manage native and nonnative wildlife in each county.
- Native Ecosystems Protection & Management (LNR 407): manages Natural Area Reserves, watershed protection programs, and other statewide efforts to protect native ecosystems. Includes management of the Watershed Partnership Program. Staff at District Offices control invasive plants and animals in protected natural areas. Funding for watershed protection and related conservation projects is supported by the Natural Area Reserve Fund (HRS 195-9), which receives funding from the Conveyance Tax on property sales (HRS 247-7).
- Division of Aquatic Resources: Employs 1 Aquatic Invasive Species Coordinator, who oversees implementation and planning projects including the removal of invasive algae from Kāneʻohe Bay, response to Japan Tsunami Marine Debris for detection of aquatic invasive species, and the development of policies relating to ballast water and hull fouling.

Resource Shortfalls: In 2013 the DLNR requested that Forestry Technicians working on invasive species issues be converted from temporary to permanent positions. This request was not approved. The DLNR Division of Forestry and Wildlife requests funds annually from the legislature for invasive species and conservation efforts. In recent years the DLNR has requested \$11M annually (a combination of capital improvement project funds, general funds, and special funds) for its Watershed Initiative, which includes fences that exclude nonnative ungulates from priority watershed areas, as well as invasive species control within priority watersheds. The DLNR also annually requests general funds for the HISC to support interagency invasive species prevention, control, outreach, and research projects across the state, mauka to makai.

Hawaiʻi Department of Agriculture

Agency Resources Relating to Invasive Species:

- Plant Industry division
 - Plant Quarantine Branch: Prevents the introduction and spread of harmful pests and diseases into the state, as well as certifying plants for export out of the state. Information on importing plants, insects, microorganisms, and non-domestic animals to Hawaii available. Plant Quarantine Branch employs Inspectors with enforcement authority for violations of importation and possession of regulated species. Funds for staff and operations of this branch come partially from the general fund, partially from the Pest Inspection, Quarantine, and Eradication Fund (HRS 150A-4.5, which receives revenue from the Inspection, Quarantine, and Eradication Service Fee, HRS 150A-5.3) and from the Agricultural Development and Food Security Special Fund (HRS 141-10, which receives revenue from the Environmental Response, Energy, and Food Security tax, HRS 243-3.5).
 - Plant Pest Control Branch: Eradicates, contains, or controls pests of plants which could cause significant economic damage to agriculture, our environment, and quality of life. Includes the Biological Control (or Biocontrol) Section, which provides research and regulation of biocontrol agents in the State. The Plant Pest Control Branch also includes the Apiary Program, which promotes honeybee health in Hawaii, including detection and control of honeybee pests (e.g., Varroa mite, small hive beetle, Africanized bees). Funding for Plant Pest Control Branch staff and operations comes from the general fund, the Agricultural Development and Food Security Special Fund (HRS 141-10, which receives revenue from the Environmental Response, Energy, and Food Security tax, HRS 243-3.5), the Pest Inspection, Quarantine, and Eradication Fund and with additional operating funds provided by federal grants from the U.S. Department of Agriculture.
 - Pesticides Branch: Regulates the manufacture, sale, and use of pesticides in the State of Hawaii. This is a critical function for implementing pest control projects that utilize

approved pesticides, and for research on new pest control methodologies and tools. Funding for staff and operations comes from the general fund and the Pesticides Use Revolving Fund (HRS 149A-13.5).

Resource shortfalls: The Department of Agriculture highlights the need to fill existing vacancies and to expand the staff capacity of its Plant Pest Control Branch and Plant Quarantine Branch, which were heavily impacted by the 2009 Reduction-in-Force. The Department also notes that there is no emergency response funding available for new pest invasions, nor is there an expedited hiring process for emergencies. The existing process for 89-day hires requires the use of a vacant position that is actively under recruitment, and relies on the existing recruitment process. The ability to quickly hire temporary, seasonal, or emergency assistance, supported by emergency funding, would greatly increase the Department's ability to respond to new or changing threats from invasive species.

Department of Health

Agency Resources Relating to Invasive Species:

- Vector Control (HTH 610-VC): The Department of Health's primary resource relating to invasive species is the remainder of its Vector Control Branch, which manages vectors of human diseases, including invasive species such as mosquitoes and rodents. The Vector Control Branch employed 56 positions until the Reduction-of-Force in 2009, when 39 positions were discontinued. The remaining 17 positions continue to monitor for mosquito populations, but do not have the capacity for frequent surveillance or response. In 2013 the Department requested the restoration of eight Vector Control Worker positions. Four were approved. The remaining four positions were requested again in 2014, but were not approved. The current staff capacity of Vector Control is supported by approximately \$790,000 in general funds, with \$47,000 in interdepartmental transfers from Department of Transportation relating to inspections at airport facilities.
- Clean Water Branch: Reviews permits relating to the use of pesticides near water, a necessary component of many invasive species control projects.

Resource shortfalls: The Department of Health continues to seek the restoration of four additional Vector Control Worker positions to enhance detection of disease vectors at points of entry into the State and to respond to health threats. Vector Control Workers at Honolulu International Airport have recently detected a number of *Aedes aegypti* mosquitoes at Honolulu International Airport. *A. aegypti* is a vector of yellow fever, dengue fever, and chikungunya.

Department of Business, Economic Development, and Tourism

Agency Resources Relating to Invasive Species:

- Office of Planning, Coastal Zone Management Program (CZM), Ocean Resources Management Plan (ORMP): CZM is tasked with coordination of the ORMP - an interagency effort to effectively manage and protect marine resources. CZM hosts eight Planners who assist with planning and implementation of marine projects, including aquatic invasive species prevention and control. Of the eight Planners, one is supported by State general funds. The remaining staff is federally funded by the National Oceanographic and Atmospheric Administration (NOAA). NOAA is also providing \$60-70,000 annually over a five-year period to support implementation projects. These funds can supplement State funding for implementation projects.
- Hawaii Tourism Authority (HTA): DBEDT is the administrative host of the HTA. A report to the HTA from the University of Hawaii Center for Sustainable Coastal Tourism estimates that the 2010 market valuation for Hawai'i's natural resources, tourism infrastructure and facilities, and tourism-related businesses was approximately \$8.24B. The report identifies invasive species as a primary threat to natural resources that support Hawaii's tourism industry, and notes that one of

the impacts of changing climates will be increased likelihood for the establishment of invasive species (Cristini et al., 2012).

Resource shortfalls:

- The Office of Planning identified the need for an additional staff member to more fully engage with the Hawaii Invasive Species Council. In particular, invasive species issues can be better integrated into planning and management related to tourism. For example, staff could assist in identifying economic impacts to tourism from species invasions and coordinating efforts within the tourism industry to prevent and mitigate impacts.
- The Office of Planning is requesting three positions in the 2015 legislative session. One Special Plans Planner position is requested, which may assist with policy planning and implementation related to aquatic invasive species. One climate Planner position is requested, which may assist with identifying strategies for mitigating increased impacts from invasive species due to changing climates, as well as planning to increase ecosystem resiliency through the protection of native ecosystem composition. One transit-oriented development Planner position is requested, which will assist with environmental impact analyses related to transit stations, which may include the potential for spreading invasive species through public transportation.

Department of Transportation

Agency Resources Relating to Invasive Species:

- Highways Division: The Department of Transportation (HIDOT)'s primary program for addressing invasive species is the Highway Division's Statewide Noxious Invasive Pest Program (SNIPP). The SNIPP identifies goals, objectives, and tasks toward strategies for prevention, detection, early detection and rapid response, control and management, and restoration to aid the control of invasive pests and the conservation of native flora and fauna along DOT roadways, as well as outreach strategies for the HIDOT relating to invasive species. The SNIPP is currently managed under a 10 year strategic plan covering 2012-2022: http://hidot.hawaii.gov/highways/files/2013/02/Landscape-SNIPP_Strategic_Plan.pdf. The HIDOT has procured a consultant under a multi-year contract to provide services for the implementation of the goals and objectives that are outlined in the 10-year strategic plan.
- Airports Division: In addition to working with Hawai'i Department of Agriculture on hosting facilities for agricultural pest inspection, the Airports Division is pursuing an interagency project under the HISC to enhance pest monitoring at airport facilities. The goal for this future project, known as *Māmalu Poepoe*, is to coordinate efforts of UH researchers, Department of Health Vector Control workers and entomologists, Department of Agriculture entomologists, and Department of Land and Natural Resources biologists to develop a pilot program that examines pest presence and creates a model for enhanced pest surveillance.

Resource shortfalls: The Department of Transportation needs support for emergency response following natural disasters, as highlighted by the need to clear albizia (*Falcataria moluccana*) from highways following Hurricane Iselle in August, 2014.

University of Hawai'i

Agency Resources Relating to Invasive Species:

- College of Tropical Agriculture and Human Resources (CTAHR): CTAHR employs a number of faculty and specialists dealing with invasive species, and currently serves as the designated representative for the University on the HISC. CTAHR obtained \$22M in extramural grants in 2014. Relevant CTAHR departments include:
 - The Plant and Environmental Protection Sciences department, which employs 35 faculty including researchers in invasive insect biology, biological control, and plant pathogens.

- Natural Resources and Environmental Management, which employs 28 faculty including researchers in wildlife management and invasive weed management.
- The Cooperative Extension Service, which in 2013 was comprised of 27 agents and 35 specialists statewide, including researchers specializing in pests, diseases, and weeds.
- College of Natural Sciences:
 - The Department of Botany: In addition to hosting 16 faculty, including researchers in invasion biology and species conservation, the Department of Botany hosts the Pacific Cooperative Studies Unit (PCSU). PCSU employs approximately 300 positions working on conservation research, including the Invasive Species Committees (ISCs), the Watershed Partnerships, and the Hawai'i Ant Lab. These positions are not part of the University's budget request to the legislature and rely on grants for support.

Resource shortfalls: No shortfalls were identified for legislative action in 2015. The University of Hawai'i's budgetary request to the State Legislature is administered by the Board of Regents and does address individual units or projects within CTAHR or the College of Natural Sciences.

The Cost of Inaction: Examples of Invasive Species Costs in Hawai'i

Due to a lack of sustained funding for invasive species programs, many invasive species problems in Hawai'i have become worse over the past decade. Coqui frogs have spread across Hawai'i Island and are proving extremely difficult to eradicate on Maui. They are intercepted regularly on O'ahu in small numbers. In December 2013, Little Fire Ants, which had been found throughout the greater Hilo area and on Kaua'i for 10 years, were detected on Maui and O'ahu. A new pest, Coconut Rhinoceros Beetle, was detected on O'ahu in December 2013 and threatens to decimate Hawai'i's coconut palms. The invasive plant miconia is beyond control on Hawai'i Island and is at a critical point-of-no-return on Maui and O'ahu. In 2009 the Vector Control Branch at the Department of Health was reduced from approximately 50 individuals to under 10, drastically reducing the monitoring for vectors of human diseases such as mosquitoes. *Aedes aegypti*, a species of mosquito, has been detected at an increased frequency at Honolulu International Airport, and is a potential carrier of yellow fever, dengue fever, and chikungunya disease.

The minimal cost of supporting invasive species prevention and control should be weighed against the potentially devastating economic impact that widespread invasive species can have in Hawai'i. Notable examples include:

1. **Economic damages of Brown Tree Snake in Hawai'i: estimated at \$2,140,000,000 annually.** A 2010 study by Schwiff et al. estimated that brown tree snake (*Boiga irregularis*, not yet found in Hawai'i) impacts could cost \$2.14 billion annually in infrastructure and health costs as well as decreased tourism. This figure does not include the cost of conservation programs to mitigate the loss of native bird species.
2. **Economic damages of Miconia in Hawai'i: estimated at \$672,000,000 annually.** The invasive plant miconia (*Miconia calvescens*) was introduced by a private resident on Hawai'i Island in the late 1950s and has since spread to all counties in the state. This fast growing plant forms monocultures (a forest stand where no other plant species grow) by invading forests and shading out competitors. Miconia is a prolific producer of seeds, which are dispersed by birds and may lay dormant in soil for 15 years or more (studies are still ongoing) before germinating. A 2007 study by Burnett et al. estimated to annual damages in lost groundwater recharge and valuation of endangered bird species with habitat threatened by miconia at \$672,000,000.
3. **Economic impact of Little Fire Ant on Hawai'i Island: estimated at \$194,000,000 annually.** A 2013 study by Motoki et al. on the economics of Little Fire Ants (*Wasmannia auropunctata*) at

estimates that without management, the damages on Hawai‘i Island alone in costs to nurseries, agriculture, residents, lodging, parks, schools, and other sectors could reach \$6.8B over the next 35 years, or \$194,000,000 annually. The analysis estimated that spending \$70,000,000/yr over the next 10 years could decrease these impacts, but that total eradication of ants from Hawai‘i Island is both not probable and would be extremely expensive, potentially costing over \$1B. The Hawai‘i Ant Lab, partially funded by the HISC, is currently the primary resource for research and response to Little Fire Ant incursions, with an annual budget between \$200-250,000. This species has been on Hawai‘i Island since 1999 and has since spread to Kaua‘i (1999), Maui (multiple occurrences, most recently in 2013), and O‘ahu (2013), likely through interisland shipment of commodities. An increased distribution of fire ants, especially in areas with high population density and high tourism value, could be devastating to Hawai‘i’s economy.

4. **Economic impact of Red Imported Fire Ant: estimated at \$200,000,000 annually.** A 2007 study partially funded by the HISC estimated that the potential impact of red imported fire ant (*Solenopsis invicta*, not yet found in Hawai‘i) at roughly \$200 million annually within 10 years of introduction because of its impact on tourism, infrastructure and quality of life. (Gutrich et al., 2007).
5. **Economic loss in property value in Hawai‘i County due to of coqui frogs: estimated at \$7,600,000 annually.** A 2006 study of the economic impacts of *Eleutherodactylus coqui* in Hawai‘i by Dr. Brooks Kaiser (Gettysburg College) and Dr. Kimberly Burnett (University of Hawai‘i) highlights that, while coqui frogs present an ecological impact through the predation on native invertebrate communities, the primary economic impact from coqui is noise pollution and its subsequent impacts on human welfare and property value. The frogs, which can reach densities of 55,000/acre, produce a call between 80-90 A-weighted decibels (dBA, a modified calculation of decibels based on the response of the human ear). As noted in Kaiser & Burnett 2006, the Hawai‘i Department of Health sets the threshold for minimizing impacts to human health and welfare at only 70 dBA (HRS 324F-1). The estimated damages to property values in Hawai‘i County as of 2006 was \$7,600,000 annually. This figure has likely increased as coqui frog have continued to expand their distribution on Hawai‘i island since 2006. Should coqui frogs establish on Maui and O‘ahu, where property values are considerably higher, the annual loss in property value would drastically increase.

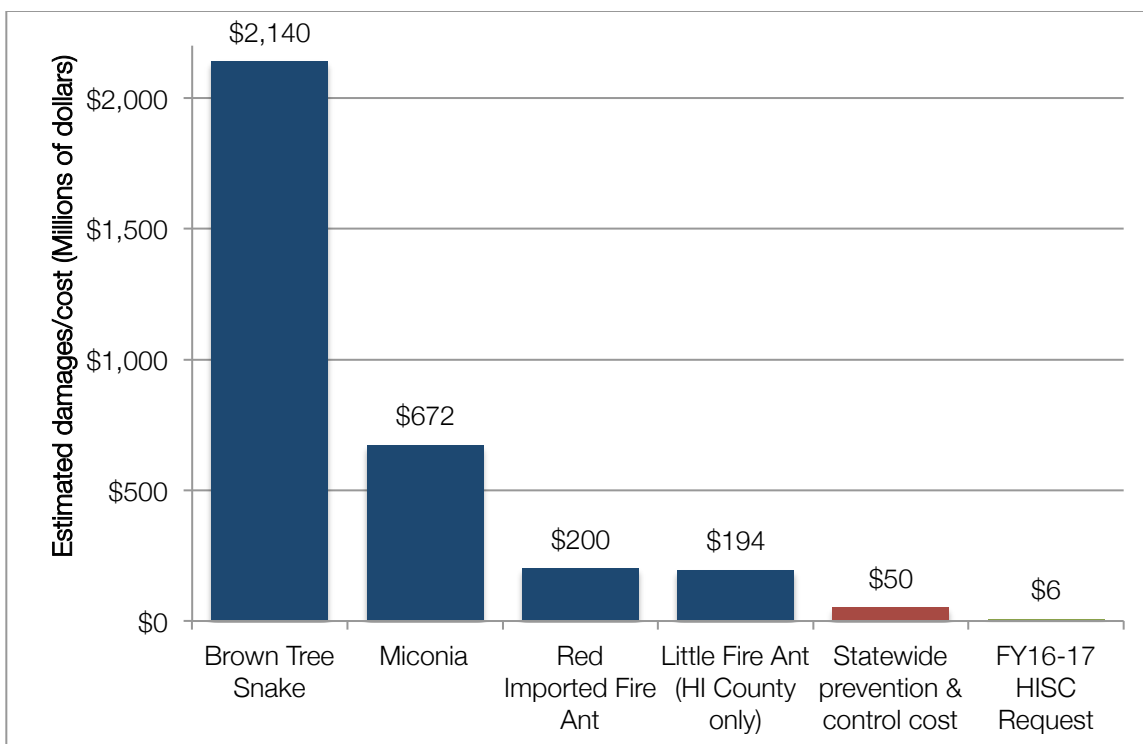


Fig. 3: Examples of estimated damages from invasive species in Hawai‘i, with estimated cost of prevention & control. From left to right: potential brown tree snake annual costs based on infrastructure, health costs, and lost tourism (\$2.14B, Shwiff et al 2010); estimated current miconia annual costs based on lost groundwater recharge and valuation of bird species with lost habitat (\$672M, Burnett 2007); potential red imported fire ant annual cost in lost tourism, agriculture, and infrastructure damage in Hawai‘i (approx. \$200M, Gutrich et al., 2007); estimated Little Fire Ant annual cost to agriculture, nurseries, residents, and other sectors in Hawai‘i County (\$194M, Motoki et al., 2013); estimated annual cost needed to adequately support invasive species prevention and control programs in Hawai‘i across all federal, state, county, and private entities (\$50M, Legislative Reference Bureau, 2002); annual request of the HISC in the FY16-17 biennium (\$6M for interagency projects).

The potential costs of failing to protect Hawai‘i from new introductions like the brown tree snake or red imported fire ant and the costs of failing to control species already present in Hawai‘i far exceed the estimated cost for prevent and control programs. Investing in departmental programs such as agricultural inspections and watershed management and interdepartmental projects under the HISC are an extremely cost effective strategy for Hawai‘i.

Literature cited

- Burnett, K; Kaiser, B; Roumasset, JA. 2007. Economic lessons from control efforts for an invasive species: *Miconia calvescens* in Hawai‘i. *Journal of Forest Economics* (2007), vol. 13, 151-167.
- Cristini, L; Cox, LJ; Konan, DE; Eversole, D. 2012. *Climate Change and the Visitor Industry: People, Place, Culture, and the Hawai‘i Experience*. University of Hawai‘i Sea Grant College Program, Center for Sustainable Coastal Tourism, University of Hawai‘i.
- Gutrich, JJ et al. 2007. Potential economic impact of introduction and spread of the red imported fire ant, *Solenopsis invicta*, in Hawai‘i, *Environ. Sci. Policy*, doi:10.1016/j.envsci.2007.03.007
- Ikuma, EK.; Sugano, D; Mardfin, JK. 2002. *Filling the gaps in the fight against invasive species*. Legislative Reference Bureau, Honolulu HI.

Motoki, M; Lee, DJ; Vanderwoude, C; Nakamoto, ST; Leung, PS. 2013. *A bioeconomic model of Little Fire Ant (Wasmannia auropunctata) in Hawai'i*. Technical Report No. 186. Pacific Cooperative Studies Unit, University of Hawai'i, Honolulu, Hawai'i. p 89 .

Shwiff, SA; Gebhardt, K; Kirkpatrick, KN; Shwiff, SS. 2010. *Potential Economic Damage From Introduction of Brown Tree Snakes, Boiga Irregularis (Reptilia: Colubridae), to The Islands Of Hawai'i*. USDA National Wildlife Research Center - Staff Publications. Paper 967.

III. HISC-Funded Projects, FY14-15

This report provides details about projects funded by the HISC in FY14 and FY15. Because the release of funding and subsequent encumbering of project funds can take up to six months, projects durations are typically based on the calendar year following the year in which funds are awarded. This report therefore includes:

- A list of projects funded by the HISC in FY14
- A summary of progress made by FY14 projects in the first six months of the 2014 calendar year
- A list of projects funded by the HISC for FY15. These projects have been approved, but work had not yet begun at the time of writing due to FY15 funds not yet being released.

Summary of FY14-15 Budgets

The HISC disbursed \$2.55M in FY14 (comprised of \$750,000 in general funds and \$1.8M in special funds) and \$5.75M in FY15 (general funds only). Each year, the HISC solicits proposals for projects from government agencies, including the UH system, for strategic projects in invasive species prevention, control, research, and outreach.

Fig. 4: HISC FY14-15 funded projects, separated by a) category and b) geographic location. FY14 funds are in light green, FY15 funds are in dark green.

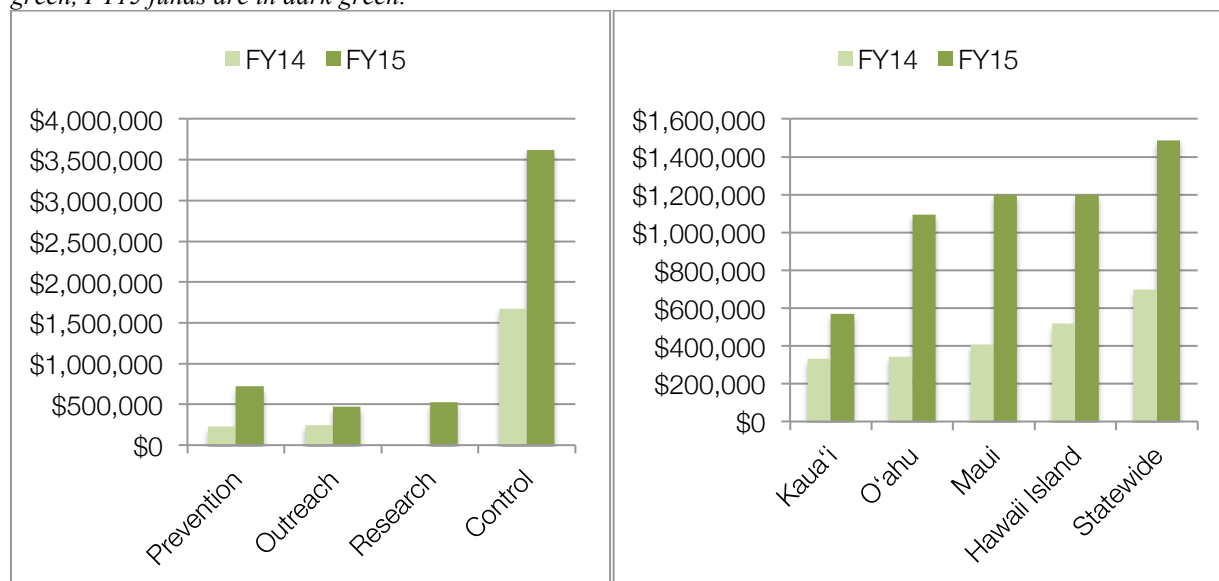
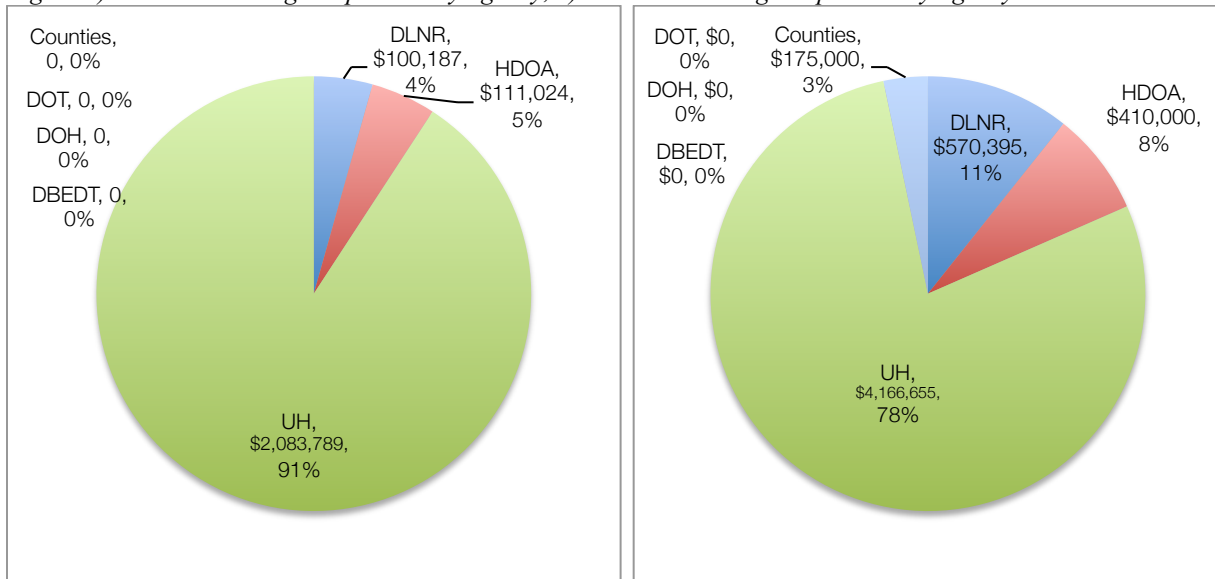


Fig. 5: a) HISC FY14 budget separated by agency, b) HISC FY15 budget separated by agency



No funding requests for interagency projects beyond existing departmental efforts were received from DOT, DOH, or DBEDT in FY14-15, and no proposals were received from counties in FY14.

Projects funded by the HISC in FY14

Full project abstracts can be found at <http://dlnr.hawaii.gov/hisc/projects/fy14/>. The HISC received over \$4.5M in requests in FY14 and had \$2.55M to disburse.

Table 2: Projects funded by the HISC in FY14.

Org	Project Title	Grant
DLNR DOFAW	Overhead (3% DOFAW, 7% fiscal)	\$255,000
HISC	HISC Support	\$152,104
Planning		
HDOA PPC	Statewide harmonization of invasive ant detection and response	\$4,972
DLNR DOFAW	Development of naio thrips early detection and rapid response plans for the islands of Kauai, Maui and Molokai	\$6,215
Prevention		
UH WRA	Continued Support for the Hawai'i-Pacific Weed Risk Assessment Program FY14	\$70,700
UH HAL	Hawai'i Ant Lab Core Funding	\$55,802
DLNR DAR	Ballast Water & Hull Fouling Coordinator and Japan tsunami marine debris response in Hawai'i	\$73,972
DLNR DOFAW	Surveillance of Myrtaceae Rust Strains in Hawai'i	\$15,000
Outreach		
CGAPS	Core support for CGAPS Project/Outreach Coordinator	\$20,000
UH OISC	O'ahu Island Public Outreach and Education	\$38,000
UH KISC	Public Outreach and Education in Kaua'i County 2014	\$39,663
UH MISC	Public Outreach & Education in Maui County	\$63,922
UH BIISC	Hawai'i Island Invasive Species Education and Outreach FY2014	\$43,495
UH HBIN	Core Funding for the Hawai'i Biodiversity Information Network: Supporting Invasive Species Outreach Efforts and Critical Web and Data Services	\$40,000
Control		

UH OISC	O'ahu Island Invasive Species Detection & Control	\$300,000
UH MISC	Detection and Control of Invasive Species in Maui County	\$280,000
UH HAL	Eradication of Little Fire Ants - Kauai	\$17,420
UH KISC	Kaua'i Invasive Species Detection 2014	\$230,000
UH BIISC	Invasive Species Detection & Control on the Island of Hawai'i: FY14	\$308,900
UH HAL	Hawai'i Ant Lab Core Funding	\$65,257
UH BIISC	Big Island Invasive Deer Project	\$129,526
HDOA PPC	Biological Control Tech	\$49,352
HDOA PPC	Site Feasibility and Design Assessment for New Biological Control Containment Facilities	\$56,700
UH ORS	Targeting High-Priority Miconia Patch Populations with an Accelerated Intervention Schedule utilizing Herbicide Ballistic Technology (HBT)	\$87,000
DLNR DAR	Use of the native sea urchin, <i>Tripneustes gratilla</i> , as a biocontrol agent against alien invasive seaweed	\$5,000
UH KISC	Kaua'i Invasive Species Mongoose Detection 2014	\$45,000
UH MDWG	Axis Deer Management: Maui Island	\$62,000
UH BIISC	Stakeholder-led control of invasive albizia on Hawai'i Island: A Demonstration Project	\$35,000
	Total	\$2,550,000

Summary of Project Achievements Supported by FY14 HISC Funds

FY14 funds were released and encumbered for various HISC-funded projects by December 2014. Project timelines are generally based on the calendar year 2014, hence the data reported below is for the first two quarters of the 2014 calendar year, comprised of the months of January through June. Because the island-based Invasive Species Committees also received funding in FY13 and comprise a large portion of the HISC FY14 budget and collect similar data in each county, data for detection and control projects under the ISC are reported together in Table 3 with reporting period July 2013-June 2014, while summary statistics for other HISC-funded projects in FY14 are presented separately in Table 4 with reporting period January-June 2014.

Island-based Invasive Species Committees

For the reporting period July 2013-June 2014, the island-based Invasive Species Committees, supported in part by HISC funding, reported the achievements below. The ISCs are committees organized under the University of Hawai'i and are collaborations of state, federal, county, and private stakeholders on each island. Each ISC has a list of target species for its geographic area of concern and conducts early detection and rapid response activities for those species. Summary statistics provided detail number of target plants controlled, but the ISCs also assist other agencies with survey and control of animal species, such as Little Fire Ant, Coconut Rhinoceros Beetle, coqui frogs, and other pests. Lists of target species for each ISC can be found at <http://hawaiiinvasivespecies.org>.

Table 3: Summary detection and control data for the Invasive Species Committees, July 2013- June 2014.

Island	Acres Surveyed	Mature Plants Controlled	Immature Plants Controlled	Work Hours	Volunteer Hours
Kaua'i	6855	7691	10255	7302	1160
O'ahu	10198	375	2042	5429	325
Maui	34824	1754	31396	10274	1384
Moloka'i	2970	1010	1122	173	82
Hawai'i Island	31539	49974	4773	7135	3380
Total	86386	60804	49588	30313	6331

Other Projects in FY14

Below are summary statistics for January-June 2014 for projects supported by HISC funding. Note that several projects funded in FY14 by the HISC do not provide quarterly quantitative updates due to the nature of the project. For example, the FY14 award to the Hawai'i Department of Agriculture to conduct a feasibility assessment for the development of new biocontrol facilities will produce a narrative final report at the termination of the project, but will not produce quarterly updates. For more information on the projects listed below, visit <http://dlnr.hawaii.gov/hisc/projects/fy14/>.

Table 4: HISC-funded project data (other than Invasive Species Committees) for January-July 2014.

Project	Metric	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Total
Albizia Control Demonstration Project (Big Island Invasive Species Committee)	Number of "hazard" albizia controlled	486	58*	544
	Number of "non-hazard" albizia controlled	6886	1804	8690
	Number of attendees at training sessions	42	14	56
Hawai'i-Pacific Weed Risk Assessment	Number of assessments completed	22	23	45
	Number of pageviews at hpwra.org	1204	1450	2654
Hawai'i Ant Lab	Number of calls answered at HAL	232	213	445
	Number of site visits to littlefireants.com	4682	4916	9598
	Number of attendees at training sessions	265	78	343
Herbicide Ballistic Technology: Improving efficient of Miconia Control (Dr. James Leary, UH)	Number of acres surveyed	2030	5041	7071
	Number of plants controlled	1368	1420	2788
	Average dose rate (g acid equivalent)	3.7	5.2	n/a
	Average projectiles per target	18.5	26.1	n/a

*These albizia were growing along the road to Hilo Medical Center. This work was done in partnership with HELCO

Projects Funded by the HISC in FY15

The State Legislature provided \$5,750,000 in FY15 for the HISC to support projects. Though FY15 funds had not been released for spending at the time of writing (September 2014), the HISC approved a spending plan for FY15 on June 26, 2014, which will be implemented upon the release of funds. Full project abstracts are available at <http://dlnr.hawaii.gov/hisc/projects/fy15/>. The HISC received \$10.4M in requests in FY15 and had \$5.75M to disburse.

Table 5: Projects funded by the HISC in FY15.

Dept	Entity	Project Title	Grant
HISC	HISC	HISC Planner and Interagency Coordinator	\$226,700
DLNR	DOFAW	Overhead (3.5%)	\$201,250
		Control	
Other	HI County	County of Hawai'i Little Fire Ant Control Program	\$175,000
DLNR	DLNR DAR	KUPU internship with Kaneohe Bay Reef Restoration Project	\$27,000

DLNR	DOFAW	Oahu Release of Strawberry Guava Biological Control Agent	\$40,000
DLNR	DOFAW	Control of Invasive Incipient Plants in Oahu Natural Area Reserves	\$30,000
UH	WP-KMWP	Control of <i>Angiopteris evecta</i> at Poamoho Forest Reserve	\$35,975
UH	WP-EMWP	Invasive Species Mitigation in the East Maui Watershed: Biocontrol	\$10,000
UH	MDWG	Axis Deer Management on Maui	\$50,000
DLNR	DOFAW	Big-headed Ant Eradication on Kure Atoll	\$37,545
UH	ISC-OISC	Tibouchina herbacea Detection & Control HISC Established Pests Working Group	\$75,000
DLNR	DOFAW	Molokai Forest Reserve – Kahili ginger (<i>Hedychium gardnerianum</i>) control in Wailau Valley	\$85,345
UH	ISC-OISC	O‘ahu Island Invasive Species Detection & Control	\$700,000
UH	ISC-KISC	Invasive Species Detection, Response, and Control 2015	\$475,000
UH	ISC-KISC	Kauai Mongoose Detection & Response 2015	\$50,000
UH	WP-KMWP	Eradication of wild sheep and feral goats from the Ko‘olau Range, O‘ahu	\$50,000
UH	ISC-BIISC	Invasive Species Detection & Control on the Island of Hawai‘i 2015	\$650,000
UH	WP-TMA	Control of an Incipient Plant, Photinia davidiana, on Windward Mauna Kea	\$30,000
HDOA	HDOA PQB	Multi-agency Proposal for Coconut Rhinoceros Beetle Response, Training and Research	\$400,000
UH	ISC-MISC	Invasive Species Detection & Control in Maui County	\$700,000
		Outreach	
UH	CGAPS	Core support for CGAPS Project/Outreach Coordinator	\$50,000
DLNR	DLNR DAR	Supplies in Support of Aquatic Invasive Species Outreach Efforts	\$4,000
UH	ISC-MISC	Invasive Species Outreach & Education in Maui County	\$125,000
UH	ISC-OISC	O‘ahu Island Public Outreach and Education	\$100,000
UH	LCC	Line in the Sand: Stopping Invasive Species	\$14,094
UH	ISC-KISC	Public Outreach & Education in Kaua‘i County 2015	\$45,000
UH	ISC-BIISC	Hawai‘i Island Invasive Species Education and Outreach 2015	\$50,000
UH	HBIN	Core Funding for the Hawai‘i Biodiversity Information Network: Supporting Online Invasive Species Reporting	\$64,000
UH	HAL	Community Based eradication of LFA	\$18,217
		Prevention	
DLNR	DOFAW	Brown Tree Snake Rapid Response Training	\$20,505
HDOA	HDOA PPC	All Eyes on Varroa: Trained volunteers assist in preventing the spread of Varroa mite	\$10,000
UH	HPWRA	Continued Support of the Hawai‘i-Pacific Weed Risk Assessment FY15	\$77,192
DLNR	DLNR DAR	Minimizing the introduction and spread of aquatic invasive species in Hawai‘i	\$80,000
UH	ISC-BIISC	Earlier detection of invasive pests on Hawai‘i Island: Expanding a successful nursery survey program and continuing roadside surveys.	\$125,000
UH	ISC-BIISC	Big Island Axis Deer Early Detection and Rapid Response Program	\$150,000

Ch. III: HISC-Funded Projects, FY14-15
Projects Funded by the HISC in FY15

UH	Ant Lab	Hawai'i Ant Lab Core Funding	\$239,177
		Research	
DLNR	DOFAW	Refining the Reporting System for HISC funded projects	\$20,000
UH	UH Research	Quantifying outcomes of miconia (<i>Miconia calvescens</i> DC) management projects through advancements in Herbicide Ballistic Technology (HBT)	\$65,000
DLNR	DOFAW	Biocontrol of invasive Rubus species and Kahili ginger in Hawai'i.	\$80,000
DLNR	DOFAW	Exploring Biocontrol of Albizia	\$100,000
UH	ISC-BIISC	Developing a comprehensive mapping and management approach for Australian Tree Fern at the island and watershed scale; a multi-agency proposal.	\$30,000
DLNR	DOFAW	Technical support of miconia biocontrol research in Volcano, Hawai'i	\$46,000
UH	HAL	Development of an LFA Detector Dog Program	\$158,000
UH	HAL	Applied Research for Control of Little Fire Ants	\$30,000
		Total	\$5,750,000

IV. Council Actions in Fiscal Year 2014



HISC members and participants meet to review and approve the FY15 HISC budget, June 26, 2014.

HISC Meetings in FY14

All HISC meeting agendas and minutes are available at <http://dlnr.hawaii.gov/hisc/meetings/>.

- July 1, 2013: The HISC met to approve a budget for FY14 and to sign three resolutions regarding federal-state invasive species issues (detailed below under *Hawai‘i Biosecurity Resolutions Package*)
- December 18, 2013: The HISC met to review the development of several interagency initiatives coordinated by HISC support staff, including:
 - *Māmalu Poepoe*, an interagency plan for increasing monitoring efforts for invasive species at airports in Hawai‘i
 - Report-a-Pest, an online public reporting tool developed with funding from the HISC, which could potentially be integrated as an interagency complement to the statewide pest hotline, 643-PEST
 - The HISC Strategic Plan, 2014-19, being developed over the course of calendar year 2014 in order to prioritize action Council actions in the next five years.
- June 26, 2014: The HISC met to approve a budget for FY15 based on the \$5.75M appropriation provided by the Hawai‘i State Legislature.

Hawai‘i Biosecurity Resolutions Package

In March 2014, Governor Neil Abercrombie signed the *Hawai‘i Biosecurity Resolutions Package*, consisting of four resolutions adopted by the HISC regarding federal invasive species issues that impact our state. The full package can be found at <http://dlnr.hawaii.gov/hisc/reports/resolutions/>. The resolutions include:

- Resolution 13-1: Support for federal recognition of Hawai‘i’s unique biosecurity needs and coordination between federal and state inspection agencies, including information sharing between federal and state inspection staff and the development of joint inspection facilities
- Resolution 13-2: Supporting the reauthorization of the Brown Tree Snake Control and Eradication Act of 2004
- Resolution 13-3: Supporting amendments to the list of injurious species under the Lacey Act.
- Resolution 12-1: Supporting the Micronesian Biosecurity Plan Review and Implementation, and Requesting the Inclusion of Hawai‘i as a Potential Recipient of Invasive Species.

The resolutions package was sent to the directors of the White House Council on Environmental Quality, US Department of Agriculture, US Department of Interior, US Department of Defense, US Department of Transportation, the National Invasive Species Committee, the Western Governor’s Association, the

Micronesian Regional Invasive Species Council, Senators Brian Schatz and Mazie Hirono, and Representatives Tulsi Gabbard and Colleen Hanabusa.

Hawai'i Invasive Species Awareness Week

In 2014 the HISC hosted the second annual Hawai'i Invasive Species Awareness Week (HISAW), to showcase the unique needs of Hawai'i in regard to invasive species and to invite the public to volunteer and get involved. The week's events and awards were coordinated in partnership with HISC member agencies, the Coordinating Group on Alien Pest Species (CGAPS), county-based Invasive Species Committees, Hawai'i Conservation Alliance, Hawai'i Biodiversity Information Network, and The Nature Conservancy (TNC).



Gov. Abercrombie presents a proclamation for Hawai'i Invasive Species Awareness Week 2014 to members of the HISC. L to r: David Rodriguez (DOT), William J. Aila, Jr. (DLNR), Scott Enright (HDOA), Gov. Abercrombie, Dr. Ken Grace (UH), Gary Gill (DOH).

Governor Neil Abercrombie provided an official proclamation for the second annual HISAW and addressed an audience at a HISAW kickoff ceremony at the Hawai'i State Capitol on March 3 regarding the importance of protecting our valuable natural resources, economy, and way of life. The Governor's remarks were followed by a presentation of awards from the HISC to members of the community who had exhibited exemplary commitment to the fight against invasive species. The kickoff ceremony was televised by 'Olelo

and made available online.

2014 HISC Awards

Members of the State Legislature joined the kickoff ceremony on March 3 to present awards from the HISC to members of the community. Awards were categorized as follows:

- **Greatest Hit of 2013:** Masako Cordray, a filmmaker on Maui, detected little fire ants in a hapuu log she purchased in December 2013, leading to the discovery of little fire ant populations on both Maui and O'ahu. Award presented by Senator J. Kalani English.
- **Community Hero 2014:** Perry Barker, a volunteer in removing invasive plants from Honouliuli Preserve on West O'ahu. Award presented by Senator Mike Gabbard.
- **Hottest Hotline Report to 643-PEST:** Grant Merrit, a resident of Mānoa Valley on O'ahu, has volunteered his time to detecting and reporting giant day geckos to the Hawai'i Department of Agriculture. Award presented by Senator Mike Gabbard.
- **Business Leader 2014:** Ulupalakua Ranch, Maui, has committed to protecting native flora and fauna on ranch property and was actively engaged in the distribution of the *Secusio* moth, a biocontrol agent for invasive fireweed developed by the Hawai'i Department of Agriculture.
- **County MVPs, 2014**, selected by the island-based Invasive Species Committees:
 - **Kauai MVP:** Katie Cassel of the Kōke'e Resource Conservation Program, who has coordinated 27,000 volunteers and the removal 10 million individual plants during her time on Kaua'i. Award presented by Representatives Derek Kawakami, James Tokioka, and Dee Morikawa.

- **Oahu MVP:** Jane Beachy, Oahu Army Natural Resource Program, is responsible for the Army's continued control and monitoring efforts to prevent the spread of Devil weed on O'ahu. Award presented by Representative Chris Lee.
- **Maui County MVP:** Chevalier Levasa, US Department of Agriculture, is the only agricultural specialist on the island of Moloka'i, and has worked tirelessly to prevent new invasive species from arriving on the island. Award presented by Senator J. Kalani English.
- **Hawai'i County MVP:** Zendo Kern and the Hawai'i County Council introduced and unanimously approved an ordinance to allow the county to enter occupied private property to remove hazard trees and other unsafe flora, after adequate notice has been given to property owners. This ordinance provides a critical tool for dealing with invasive plants such as albizia. Award presented by Senator Russell Ruderman.



2014 HISC award winners pose with a giant Little Fire Ant at the 2014 HISAW kickoff event at the State Capitol.

A number of volunteer and educational opportunities around the state were coordinated with HISAW 2014, including:

- Removal of invasive weeds along the Kaluapuhi Trail in Kōke'e, Kaua'i
- Paintballs and Digital Mapping Talk Story, Kealia Pond National Wildlife Refuge, Maui
- Removing invasive species at Lyon Arboretum, O'ahu
- Removing weeds on the offshore islet of Mokuauia, O'ahu
- Removing weeds in the Ko'olau Mountains, O'ahu
- Mauna Kea forest restoration, Hawai'i Island

V. Advice to the Governor and Legislature Regarding Invasive Species



Governor Abercrombie, joined by key legislators and cabinet members involved in invasive species policy and management, signs HB1716, appropriating \$5M for invasive species prevention, control, outreach, and research as approved by the HISC.

Chapter 194, HRS, requires the HISC to advise the Governor and the legislature on issues regarding invasive species. The HISC fulfills this mandate by adopting resolutions, drafting legislation, submitting testimony during the legislative session, and by providing other relevant advice in this annual report.

FY14 Resolutions of the Hawai‘i Invasive Species Council

The HISC did not adopt new resolutions in FY14, though three resolutions approved in FY13 were officially signed and included in the Governor’s *Hawai‘i Biosecurity Resolutions Package*, which was sent to the Council on Environmental Quality at the White House, federal agency heads, and Hawai‘i’s congressional delegates. Copies of these resolutions are available at <http://hisc.hawaii.gov>.

- Resolution 13-1: Support for federal recognition of Hawai‘i’s unique biosecurity needs and coordination between federal and state inspection agencies, including information sharing between federal and state inspection staff and the development of joint inspection facilities
- Resolution 13-2: Supporting the reauthorization of the Brown Tree Snake Control and Eradication Act of 2004
- Resolution 13-3: Supporting amendments to the list of injurious species under the Lacey Act.

Testimony Provided During the 2014 Legislative Session

The 2014 legislative session had a large number of bills relating to invasive species. This is the second year that the HISC has submitted testimony to the legislature, but due to staff limitations, interagency testimony from the HISC was submitted on HB1716/SB2343, which proposed an appropriation of \$5M to the HISC, and on HB1700, the biennium budget proposal, which included:

- Funding for an interagency invasive species project budget disbursed by the HISC
- The restoration of four Vector Control worker positions at the Department of Health
- The creation of two Planner positions at the Office of Planning, Dept of Business, Economic Development, and Tourism.

The Legislature appropriated \$5M for the HISC, but did not approve the Vector Control or Planner positions described in HB1700.

DLNR, the administrative host of the HISC, provided testimony on a broader range of invasive species bills during session, as listed below.

Table 6: Invasive species bills and resolutions in the 2014 legislative session.

Status	Bill	Introducers	Title/Summary	DLNR Position
Passed	HB1716 SB2343	Joint priority package, introduced by Gabbard & C. Lee	MAKING AN APPROPRIATION FOR INVASIVE SPECIES PREVENTION, CONTROL, OUTREACH, RESEARCH, AND PLANNING.	Support
Passed	HB1514	LOWEN, HANOHANO, ONISHI, Evans, Nakashima, Tsuji	RELATING TO AGRICULTURE: Establishes a Pesticide Subsidy Program (cont.)	Support
Passed	HR28 HCR47	Wooley	REQUESTING THE HAWAII DEPARTMENT OF AGRICULTURE AND UNITED STATES DEPARTMENT OF AGRICULTURE TO TAKE ADMINISTRATIVE ACTIONS TO PROTECT OHIA AND OTHER MYRTACEAE FAMILY PLANTS FROM THE DESTRUCTIVE RUST FUNGUS, PUCCINIA PSIDII.	Support
Passed	SR79 SCR143	SOLOMON, BAKER, GALUTERIA, Dela Cruz, Nishihara, Shimabukuro, Taniguchi, Wakai	URGING THE FEDERAL GOVERNMENT TO ADOPT FEDERAL POLICY TO PROHIBIT THE INTRODUCTION OF INVASIVE SPECIES, AND TO MANAGE AND PREVENT THE UNCONTROLLED PROLIFERATION OF INVASIVE SPECIES.	Comments
Passed	SCR69 SR34	ENGLISH, BAKER, CHUN OAKLAND, GABBARD, IGE, KIDANI, SOLOMON, & others	ENDORSING AND SUPPORTING THE ALOHA+ CHALLENGE.	Support
Passed	HCR104 HR77	C. LEE, BROWER, EVANS, ICHIYAMA, KOBAYASHI, LOWEN, NAKASHIMA, WOOLEY	ENDORSING AND SUPPORTING THE ALOHA+ CHALLENGE.	Support
Did not pass	HB1769 SB2941	RUDERMAN, CHUN OAKLAND, Ige, Ihara, Keith- Agaran, Shimabukuro, HANOHANO, NAKASHIMA	MAKING AN APPROPRIATION TO MANAGE ALBIZIA TREES ON THE ISLAND OF HAWAII.	Support
Did not pass	SB2920	KAHELE, CHUN OAKLAND, GABBARD, GALUTERIA, IGE, KEITH-AGARAN, NISHIHARA, RUDERMAN, SOLOMON, Espero, Slom, Taniguchi	Relating to Invasive Species: Establishes and appropriates funds for a little fire ant pilot project, canine detection team pilot project, and public awareness and education campaign to address the little fire ant threat in Hawai'i.	Support
Did not pass	HB2426	LUKE, BELATTI, BROWER, CREAGAN, ICHYAMA, ING, LOWEN, MORIKAWA, NISHIMOTO, ONISHI, TAKUMI, TOKIOKA, WOODSON, Fukumoto, Kobayashi	Relating to Biosecurity: Authorizes the issuance of general obligation bonds and appropriates funds for Fiscal Year 2014-2015 for the planning, design, and construction of biosecurity facilities at harbors and airports throughout the State.	Support
Did not pass	HB1932	WOOLEY, BELATTI, BROWER, HASHEM, MCKELVEY, MIZUNO, ONISHI	Relating to Biosecurity: Authorizes the DOA to establish or participate in private-public partnerships to enhance the biosecurity program and quarantine inspection process. Appropriates funds for FY 2014-2015 for the DOA's biosecurity program.	Support
Did not pass	HR61 HCR86	Wooley	REQUESTING THE HAWAII INVASIVE SPECIES COUNCIL TO PROVIDE OPPORTUNITIES FOR VARIOUS STAKEHOLDERS TO PROVIDE INPUT REGARDING THE CONTROL OF INVASIVE ALBIZIA TREES.	Support
Did not pass	SB2347	GREEN (Introduced by request of another party), Chun Oakland, Ruderman, Shimabukuro	RELATING TO INVASIVE SPECIES: Makes regulated articles subject to pest inspection, treatment, and destruction. Prohibits transportation of designated pests or diseased or infested articles. Prohibits possession, harboring, transportation, rearing, breeding, distribution, or release of pests except as allowed by permit. Allows designation of quarantine areas and establishment of compliance agreements for transportation of certain articles. Establishes penalties for violations.	Support, with comments. Department deferred to HDOA on practicality of implementation.

*V. Advice to the Governor and Legislature Regarding Invasive Species
Testimony Provided During the 2014 Legislative Session*

Did not pass	HB1994	WOOLEY	RELATING TO CIVIL LIABILITY FOR THE INTRASTATE TRANSPORT OF INVASIVE SPECIES: Establishes an affirmative responsibility on the consignor of any landscape material or products, agricultural goods, construction materials, equipment, vehicles, soil, or sand to prevent the movement of invasive species in Hawai'i. Appropriates funds to the department of agriculture to enforce restrictions on intrastate movement of invasive species. (cont.)	Support task force. Department deferred to HDOA on statutory amendments.
Did not pass	HB2431	ICHIYAMA, AQUINO, AWANA, BELATTI, BROWER, CREAGAN, CULLEN, HASHEM, ING, ITO, JORDAN, & others	RELATING TO THE LITTLE FIRE ANT: Appropriates funds to the Hawai'i invasive species council for the creation of a statewide public awareness campaign on the little fire ant.	Support
Did not pass	SB109	GAULETARIA	RELATING TO INVASIVE SPECIES: Appropriates funds to support the development and implementation of additional tools and education and outreach, to stop the spread and establishment of little fire ants.	Support
Did not pass	SB2458	NISHIHARA, DELA CRUZ, KOUCHI, English, L. Thielen, Wakai	RELATING TO BIOSECURITY: Appropriates funds for FY 2014-2015 for the department of agriculture's biosecurity program	Support
Did not pass	HB1904	EVANS, HANO HANO, LOWEN, NAKASHIMA, TSUJI, Onishi	RELATING TO INVASIVE SPECIES: Appropriates funds for FY 2014-2015 to the Hawai'i invasive species council for education regarding, and the prevention and eradication of, invasive species on the island of Hawai'i.	Support
Did not pass	HB2469	TSUJI, EVANS, ITO, LOWEN, NAKASHIMA, YAMASHITA, Choy	RELATING TO INVASIVE SPECIES: Establishes and appropriates funds for a little fire ant pilot project, canine detection team pilot project, and a public awareness and education campaign to address the little fire ant threat in Hawai'i. Makes appropriations.	Support
Not heard	HCR161 HR121	ONISHI, AWANA, BROWER, CHOY, EVANS, MATSUMOTO, TSUJI	SUPPORTING FEDERAL RECOGNITION OF HAWAII'S UNIQUE BIOSECURITY NEEDS AND COORDINATION BETWEEN FEDERAL AND STATE INSPECTION AGENCIES, INCLUDING INFORMATION SHARING BETWEEN FEDERAL AND STATE INSPECTION STAFF AND THE DEVELOPMENT OF INSPECTION FACILITIES.	Bill was not heard
Not heard	SB2275	RUDERMAN, GREEN, English, Espero, Galuteria, Keith-Agaran, Solomon, Taniguchi	RELATING TO INVASIVE SPECIES: Makes an appropriation of \$1,000,000 to the Hawai'i invasive species council for the control and eradication of coqui frogs.	Bill was not heard
Not heard	SB2290	NISHIHARA, Dela Cruz, English, Kouchi, Wakai	RELATING TO AGRICULTURE: Provides a grant to the coffee berry borer task force for the control of the coffee berry borer and for the containment of any damage caused by the coffee berry borer.	Bill was not heard
Not heard	SB2607	HEE	RELATING TO CIVIL LIABILITY FOR THE INTRASTATE TRANSPORT OF INVASIVE SPECIES: Establishes an affirmative responsibility on the consignor of any landscape material or products, agricultural goods, construction materials, equipment, vehicles, soil, or sand to prevent the movement of invasive species in Hawai'i. Appropriates funds to the department of agriculture to enforce restrictions on intrastate movement of invasive species. (cont)	Bill was not heard
Not heard	SB2753 HB2123	ENGLISH, BAKER, CHUN OAKLAND, ESPERO, IGE, KEITH-AGARAN, KIDANI, TOKUDA, MORIKAWA, KAWAKAMI	MAKING AN APPROPRIATION FOR INVASIVE SPECIES CONTROL: Makes an appropriation for invasive species response and control, and outreach and education related to invasive species.	Bill was not heard
Not heard	HB2616	WARD, MATSUMOTO, Wooley	RELATING TO INVASIVE SPECIES: Establishes a dog training program within the Department of Agriculture to assist the Department and the public with training dogs for detection of alien species and farm security.	Bill was not heard

Not heard	HB2628	WOOLEY, EVANS, C. LEE	RELATING TO INVASIVE SPECIES: Establishes an affirmative responsibility on the consignor of any landscape material or products, agricultural goods, construction materials, equipment, vehicles, soil, or sand to prevent the importation of invasive species into Hawai‘i. Appropriates funds to the department of agriculture to enforce restrictions on the importation of invasive species.	Bill was not heard
Not heard	HB2571	TOKIOKA, AQUINO, AWANA, CARROLL, CHOY, CULLEN, ICHIYAMA, ITO, & others	MAKING AN APPROPRIATION FOR INVASIVE SPECIES CONTROL.	Bill was not heard
Not heard	HB1513	LOWEN, HANOHANO, Evans, Nakashima, Tsuji	RELATING TO INVASIVE SPECIES: Requires nursery stock to be treated for the eradication of pests before the sale or transport of the nursery stock from one island to another island within the State or intransland. (cont.)	Bill was not heard

Overview of the Invasive Species Problem in Hawai‘i

Per HRS 194-2, the HISC maintains a broad overview of the invasive species problem in Hawai‘i. The silent invasion of Hawai‘i by insects, disease organisms, snakes, weeds, and other pests is the single greatest threat to Hawai‘i’s economy, natural environment and to the health and lifestyle of Hawai‘i’s people. Pests already cause millions of dollars in crop losses, the extinction of native species, the destruction of native forests, and the spread of disease, but many more harmful pests threaten to invade Hawai‘i and wreak further damage.

Plants: More than 10,000 flowering plants have been introduced into Hawai‘i from the temperate or tropical zones of every major continent and about 1,215 have established wild populations in Hawai‘i, roughly equivalent to the number of native vascular plant species in Hawai‘i. New species continue to be introduced by plant collectors, gardeners and the nursery industry. Formerly cultivated species are “jumping the fence” and establishing self-sustaining populations. Only a subset of the nonnative species introduced to Hawai‘i are considered “invasive,” as they pose a significant threat to human health, the environment, and natural or cultural resources.

Animals: At least 19 alien mammals are established in the wild. A few feral species have far reaching impacts in natural areas altering forest composition and structure; damaging and consuming rare species that occur only in Hawai‘i. Many act as vectors of diseases that affect people and domestic animals. Rats, mongoose, feral goats, sheep, deer, pigs, and cats impact native ecosystems and bring threatened species closer to extinction. Other terrestrial vertebrate species, including birds (55 species), reptiles (24 species) and amphibians (six species), are established in Hawai‘i in surprising numbers; they impact natural area values and the economy. In 2011 axis deer (*Axis axis*) were discovered on Hawai‘i Island, following an illegal introduction in 2009 that resulted in the federal conviction of a rancher on Hawai‘i Island and a helicopter pilot who arranged for the axis deer to be transported from a ranch on Maui in exchange for mouflon sheep. Four deer were transported, but one died in transport. A rapid response team was funded by DLNR and the HISC in 2011 under the Big Island Invasive Species Committee, resulting in the dispatch of four axis deer from Hawai‘i Island from 2012-3. No deer sightings have been confirmed since May 2013, but surveillance is ongoing and reports continue to be received from the public.

Arthropods: A number of serious arthropod pests have been documented in Hawai‘i in the past 15 years. To prevent further introductions, more needs to be done to manage pathways, including building inspection and treatment infrastructure into Hawai‘i’s ports, inspections and treatment of at risk goods, and research into risk abatement strategies. Invasive arthropods documented as new to Hawai‘i from 2003-2013 include:

- Pickleworm – 2003
- Cardin’s Whitefly – 2003
- Papaya Mealybug – 2004
- Whitefly Parasitoid – 2007
- Thrips, *Dichromothrips smithi* – 2007
- Scarabaeid Beetle, *Cyclocephala*

- *Aedes japonicus* (Type of Mosquito) – 2004
- Large Orange Sulfur – 2004
- Glassy-Winged Sharpshooter – 2004
- Macadamia Felted Coccid – 2005
- *Thrips Parvispinus* – 2006
- Asian Citrus Psyllid – 2006
- Varroa Mite – 2007
- *pasadenae* – 2007
- Scarabaeid Beetle, *Temnorhynchus retusus* – 2007
- Asian horntail wasp - 2009
- Myoporum thrips – 2009
- Lobate lac scale- 2012
- Coconut Rhinoceros Beetle- 2013

Coqui Frog

The Puerto Rican tree frog, *Eleutherodactylus coqui*, has the potential to change native forest ecosystems. Population densities in some areas of Hawai‘i have been recorded to be as high as three times the density found in Puerto Rico. Their nightly mating choruses can reach levels as high as 73 db, which is comparable to moderate to heavy vehicle traffic. Economic effects on the Big Island, stemming from their nightly choruses, have been felt through declining property values and a reduction of plant sales from nurseries.

Hawai‘i Island: By far, the worst coqui frog problem is on the Big Island. The main goal on the Big Island is to keep pristine natural areas free of the frogs, and to help the community control frogs around residential areas. With so much land on the Big Island infested (see map), the efforts to control frogs are only practical in a limited number of sites. Coqui frogs infested 60,000 acres on the Big Island in 2009.

Maui: The Maui Invasive Species Committee (MISC) has successfully eradicated a number of isolated, satellite populations of coqui, though a handful remain across the island. MISC work on the coqui frog now focuses on a large population in Māliko Gultch, a long, steep-sided gultch on the Island’s north shore.

O‘ahu: Coqui frog reports on O‘ahu came from a variety of locations around in island in FY13. HDOA and the O‘ahu Invasive Species Committee (OISC) collaborate to respond to coqui frogs as quickly as possible. The reduction in staffing at both HDOA and OISC in recent years has limited the number of staff available to respond to coqui reports.

Kaua‘i: In addition to periodic reports of new arrivals of coqui frogs, Kaua‘i had an established population of coqui in Lawai. Following a strategic eradication effort, the Kaua‘i Invasive Species Committee declared Kaua‘i “coqui free” in FY12 upon the one-year anniversary of the last reported coqui call on Kaua‘i.

Mitigation of Disease Vectors Requires Restoration of DOH Vector Control Branch

Budget cuts at DOH have resulted in a sharp reduction in the staff and capabilities of the Vector Control Branch, meaning that many diseases and disease vectors are not being sufficiently monitored. Where Honolulu International Airport used to host approximately 100 mosquito traps, the number of traps in 2012 was roughly four. The remaining traps at Honolulu International Airport are the only routine mosquito surveillance conducted on O‘ahu. The Department of Health detected the *Aedes aegypti* mosquito at the Honolulu International Airport in March of 2012. This mosquito has the ability to spread dengue and yellow fevers. In 2011, six cases of dengue fever were investigated by DOH. In 2014, the DOH detected over 60 individuals of *A. aegypti* at Honolulu International Airport through monitoring with ovitraps.

In the 2013 and 2014 legislative sessions, DOH sought funding to restore eight Vector Control positions of the roughly 40 positions that were lost during the recent recession. Four positions were approved by the state legislature in 2013; the remaining four positions were not approved in 2014. Proper restoration of the Vector Control Branch at DOH should remain a priority for the state legislature.

Biocontrol

Biocontrol is one of the least understood tools for the control of invasive weeds and other pests yet it can be one of the most successful means of controlling widespread invasive species throughout its range. Myths and misconceptions that have been nearly impossible to dispel (for example, mongoose were not introduced to Hawai‘i as part of a government sponsored biocontrol program, despite the common misconception that mongoose represent an early attempt at biocontrol) offset the very successful track record of biological control in Hawai‘i dating back to the reign of King David Kalākaua. Modern biocontrol agents are carefully screened to ensure that agents are highly likely to only attack a target invasive species and will not have secondary negative impacts to other species. A successful biological control program reduces or, in some cases, removes the need for conventional methods of control for an invasive species. It is targeted to a particular species or group of closely related species (usually plants or invertebrates) and, once established, the agents continue to provide benefits with no external inputs. The comprehensive testing systems now available allow us to select agents that are highly specific to the targeted invasive species.

In Hawai‘i, two principles of biocontrol are followed: classical biocontrol and augmentative biocontrol. Classical biocontrol involves the identification use of natural enemies (either insects or diseases) within the native range of a pest for release into the environment the pest has established itself in. This process either requires exploration or collaboration. At the present time, foreign exploration is limited to one exploratory entomologist in the State of Hawai‘i. The HISC has funded exploratory projects conducted by HDOA and UH. The second form of biocontrol, augmentative biocontrol, involves the collection and release of biological control agents already established but of limited distribution. HDOA conducts projects such as this for newly established pests with natural enemies that are already established. One recent and successful augmentation project is the biocontrol of the papaya mealybug, a severe pest of papaya and plumeria in Hawai‘i. In 2010, HDOA released a tiny parasitic wasp, *Aroplectrus dimerus*, as a biocontrol agent for the invasive stinging nettle caterpillar (*Darna pallivitta*).



Nettle caterpillar, *Darna pallivitta*

Review of Relevant Administrative Rules

In Fiscal Year 2014, there were no administrative rule reviews relevant to invasive species at HDOA, DOT, DOH, DBEDT, or UH. The DLNR is current reviewing Hawai‘i Administrative Rules Chapter 124, which includes the regulation of introduced wildlife and injurious wildlife. Proposed amendments were discussed at public hearings in March and April 2013, and staff at the Division of Forestry and Wildlife are preparing responses to public comments in preparation for approval by the Board of Land and Natural Resources. The proposed amendments would prohibit the release of introduced wildlife and would expand the list of injurious wildlife, for which it is prohibited to release such species into the wild, transport them to islands or locations within the State where they are not already established, or export species or parts thereof from the State.

Appendix 1: Chapter 194, Hawai‘i Revised Statutes: INVASIVE SPECIES COUNCIL

Section

- 194-1 Definitions
- 194-2 Establishment of council; duties
- 194-3 Lead agencies; accountability
- 194-4 Relation of chapter to other laws
- 194-5 Entry; private property
- 194-6 Entry; public property
- 194-7 Rules

Cross References

- Coqui frog; designation as pest, see §141-3.
- Landowners liability for access to control invasive species, see chapter 520A.
- Noxious weed control, see chapter 152.
- Plant, animal, and microorganism, etc., imports, see chapter 150A.

[§194-1 Definitions.] As used in this [chapter], unless the context requires otherwise:

“Council” means the [invasive species council].

“Department” means any entity that is a member of the [invasive species council] established under section [194-2(a)]. [L 2003, c 85, §2; am L 2004, c 10, §16; am L 2006, c 109, §2].

[§194-2 Establishment of council; duties.] (a) There is established the invasive species council for the special purpose of providing policy level direction, coordination, and planning among state departments, federal agencies, and international and local initiatives for the control and eradication of harmful invasive species infestations throughout the State and for preventing the introduction of other invasive species that may be potentially harmful. The council shall:

- (1) Maintain a broad overview of the invasive species problem in the State;
- (2) Advise, consult, and coordinate invasive species-related efforts with and between the departments of agriculture, land and natural resources, health, and transportation, as well as state, federal, international, and privately organized programs and policies;
- (3) Identify and prioritize each lead agency's organizational and resource shortfalls with respect to invasive species;
- (4) After consulting with appropriate state agencies, create and implement a plan that includes the prevention, early detection, rapid response, control, enforcement, and education of the public with respect to invasive species, as well as fashion a mission statement articulating the State's position against invasive species; provided that the appropriate state agencies shall collaborate with the counties and communities to develop and implement a systematic approach to reduce and control coqui frog infestations on public lands that are near or adjacent to communities, and shall provide annual reports on the progress made in achieving this objective;
- (5) Coordinate and promote the State's position with respect to federal issues, including:
 - (A) Quarantine preemption;
 - (B) International trade agreements that ignore the problem of invasive species in Hawaii;
 - (C) First class mail inspection prohibition;
 - (D) Whether quarantine of domestic pests arriving from the mainland should be provided by the federal government;
 - (E) Coordinating efforts with federal agencies to maximize resources and reduce or eliminate system gaps and leaks, including deputizing the United States Department of Agriculture's plant protection and quarantine inspectors to enforce Hawaii's laws;

(F) Promoting the amendment of federal laws as necessary, including the Lacey Act Amendments of 1981, Title 16 United States Code sections 3371-3378; Public Law 97-79, and laws related to inspection of domestic airline passengers, baggage, and cargo; and

(G) Coordinating efforts and issues with the federal Invasive Species Council and its National Invasive Species Management Plan;

(6) Identify and record all invasive species present in the State;

(7) Designate the department of agriculture, health, or land and natural resources as the lead agency for each function of invasive species control, including prevention, rapid response, eradication, enforcement, and education;

(8) Identify all state, federal, and other moneys expended for the purposes of the invasive species problem in the State;

(9) Identify all federal and private funds available to the State to fight invasive species and advise and assist state departments to acquire these funds;

(10) Advise the governor and legislature on budgetary and other issues regarding invasive species;

(11) Provide annual reports on budgetary and other related issues to the legislature twenty days prior to each regular session;

(12) Include and coordinate with the counties in the fight against invasive species to increase resources and funding and to address county-sponsored activities that involve invasive species;

(13) Review state agency mandates and commercial interests that sometimes call for the maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values;

(14) Review the structure of fines and penalties to ensure maximum deterrence for invasive species-related crimes;

(15) Suggest appropriate legislation to improve the State's administration of invasive species programs and policies;

(16) Incorporate and expand upon the department of agriculture's weed risk assessment protocol to the extent appropriate for the council's invasive species control and eradication efforts; and

(17) Perform any other function necessary to effectuate the purposes of this chapter.

(b) The council shall be placed within the department of land and natural resources for administrative purposes only and shall be composed of:

(1) The president of the University of Hawaii, or the president's designated representative;

(2) The director, or the director's designated representative, of each of the following departments:

(A) Business, economic development, and tourism;

(B) Health; and

(C) Transportation; and

(3) The chairperson, or the chairperson's designated representative, of each of the following departments:

(A) Agriculture; and

(B) Land and natural resources.

(c) Representatives of federal agencies, the legislature, and members of the private sector shall be asked to participate or consulted for advice and assistance. Representatives of the legislature shall consist of eight members, as follows:

(1) Four senators, one from each county, to be selected by the senate president; and

(2) Four representatives, one from each county, to be selected by the speaker of the house of representatives.

(d) The council shall meet no less than twice annually to discuss and assess progress and recommend changes to the invasive species programs based on results of current risk assessments, performance standards, and other relevant data. Notwithstanding any law to the contrary:

(1) A simple majority of voting members of the council shall constitute a quorum to do business; and

(2) Any action taken by the council shall be by a simple majority of the voting members.

(e) The council shall submit a report of its activities to the governor and legislature annually. [L 2003, c 85, §3; am L 2004, c 10, §16; am L 2006, c 109, §§1, 2; am L 2008, c 160, §1]

[§194-3 Lead agencies; accountability.] A state department that is designated as a lead agency under section [194-2(a) (7)], with respect to a particular function of invasive species control, shall have sole administrative responsibility and accountability for that designated function of invasive species control. The lead agency shall:

(1) Coordinate all efforts between other departments and federal and private agencies to control or eradicate the designated invasive species;

(2) Prepare a biennial multi-departmental budget proposal for the legislature forty days before the convening of the regular session of the legislature in each odd-numbered year, showing the budget requirements of each of the lead agency's assigned invasive species function that includes the budget requirements of all departments that it leads for that species, as well as other federal and private funding for that invasive species;

(3) Prepare and distribute an annual progress report forty days prior to the convening of each regular session of the legislature to the governor and the legislature that includes the status of each assigned function; and

(4) Any other function of a lead agency necessary to effectuate the purposes of this [chapter]. [L 2003, c 85, §4; am L 2004, c 10, §16; am L 2006, c 109, §2]

(C) Transportation; and

(3) The chairperson, or the chairperson's designated representative, of each of the following departments:

(A) Agriculture; and

(B) Land and Natural Resources.

(c) Representatives of federal agencies, the legislature, and members of the private sector shall be asked to participate or consulted for advice and assistance. Representatives of the legislature shall consist of eight members, as follows:

(1) Four senators, one from each county, to be selected by the Senate president; and

(2) Four representatives, one from each county, to be selected by the speaker of the House of Representatives.

(d) The Council shall meet no less than twice annually to discuss and assess progress and recommend changes to the invasive species programs based on results of current risk assessments, performance standards, and other relevant data. Notwithstanding any law to the contrary:

(1) A simple majority of voting members of the council shall constitute a quorum to do business; and

(2) Any action taken by the council shall be by a simple majority of the voting members.

(e) The Council shall submit a report of its activities to the governor and legislature annually. [L 2003, c 85, §3; am L 2004, c 10, §16; am L 2006, c 109, §§1, 2]

[§194-4 Relation of chapter to other laws.] Notwithstanding any other law to the contrary, and in addition to any other authority provided by law that is not inconsistent with the purposes of this [chapter], a department is authorized to examine, control, and eradicate all instances of invasive species identified by the Council for control or eradication and found on any public or private premises or in any aircraft or vessel landed or docked in waters of the State. [L 2003, c 85, §5; am L 2004, c 10, §16; am L 2006, c 109, §2]

[§194-5 Entry; private property.] (a) Whenever any invasive species identified by the Council for control or eradication is found on private property, a department may enter such premises to control or eradicate the invasive species after reasonable notice is given to the owner of the property and, if entry is refused, pursuant to the court order in subsection (d).

(b) If applicable, a duplicate of the notice so given shall be left with one or more of the tenants or occupants of the premises. If the premises are unoccupied, notice shall be mailed to the last known place

of residence of the owner, if residing in the state. If the owner resides out of the state or cannot be expeditiously provided with notice, notice left at the house or posted on the premises shall be sufficient.

(c) The department may instead cause notice to be given, and order the owner to control or eradicate the invasive species, if such species was intentionally and knowingly established by the owner on the owner's property and not naturally dispersed from neighboring properties, at the owner's expense within such reasonable time as the department may deem proper, pursuant to the notice requirements of this section.

(d) If the owner thus notified fails to comply with the order of the department, or its agent, within the time specified by the department, or if entry is refused after notice is given pursuant to subsection (a) and, if applicable subsection (b), the department or its agent may apply to the district court of the circuit in which the property is situated for a warrant, directed to any police officer of the circuit, commanding the police officer to take sufficient aid and to assist the department member or its agent in gaining entry onto the premises, and executing measures to control or eradicate the invasive species.

(e) The department may recover by appropriate proceedings the expenses incurred by its order from any owner who, after proper notice, has failed to comply with the department's order.

(f) In no case shall the department or any officer or agent thereof be liable for costs in any action or proceeding that may be commenced pursuant to this [chapter]. [L 2003, c 85, §6; am L 2004, c 10, §16; am L 2006, c 109, §2].

[§194-6 Entry; public property.] (a) Whenever any invasive species is found on state or county property or on a public highway, street, lane, alley, or other public place controlled by the state or county, notice shall be given by the department or its agent, as the case may be, to the person officially in charge thereof, and the person shall be reasonably notified and ordered by the department to control or eradicate the invasive species.

(b) In case of a failure to comply with the order, the mode of procedure shall be the same as provided in case of private persons in section [194-5]. [L 2003, c 85, §7; am L 2004, c 10, §16; am L 2006, c 109, §2]

[§194-7 Rules.] The invasive species council may adopt rules pursuant to chapter 91, to effectuate this [chapter]. [L 2003, c 85, §8; am L 2004, c 10, §16; am L 2006, c 109, §2].