REPORT TO THE TWENTY-EIGHTH LEGISLATURE
REGULAR SESSION OF 2016

BUDGETARY AND OTHER ISSUES REGARDING INVASIVE SPECIES

Prepared by:
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
STATE OF HAWAII

In response to:
Section 194-2, Hawaii Revised Statutes

November 2015

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HAWAII INVASIVE SPECIES COUNCIL

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


SUZANNE D. CASE
DLNR


SCOTT ENRIGHT
HDOA


KEITH KAWAOKA
DOH


LEO ASUNSCION
DBEDT


DR. MARIA GALLO
UH


DAVID RODRIGUEZ
DOT

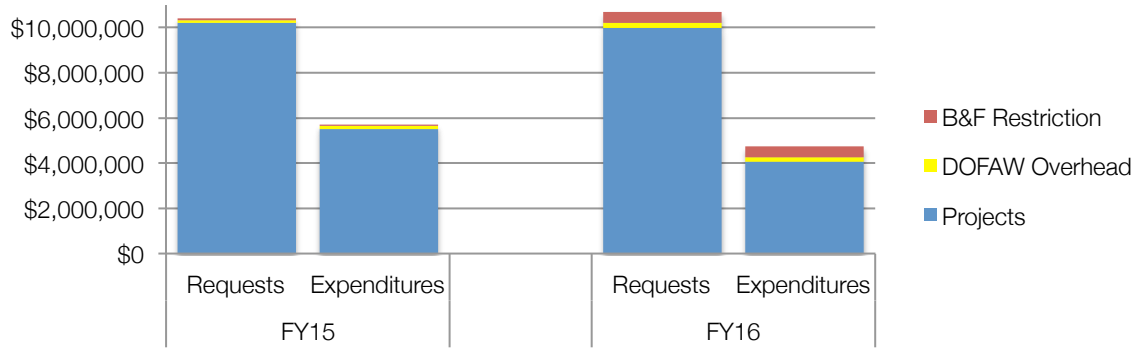
Budgetary Issues relating to Invasive Species: Funding Needs

- State agencies address invasive species issues in two ways: 1) through programs funded by individual departmental budgets, and 2) through the interagency budget for the Hawaii Invasive Species Council.
- **HISC-funded projects complement existing programs** within state agencies and are those that:
  - Fill gaps between agency mandates or existing agency programs, and/or
  - Advance our collective knowledge through research and development of new tools.

Interagency HISC funds fill gaps between and strategically advance beyond core agency programs. See reverse side for examples of HISC projects.

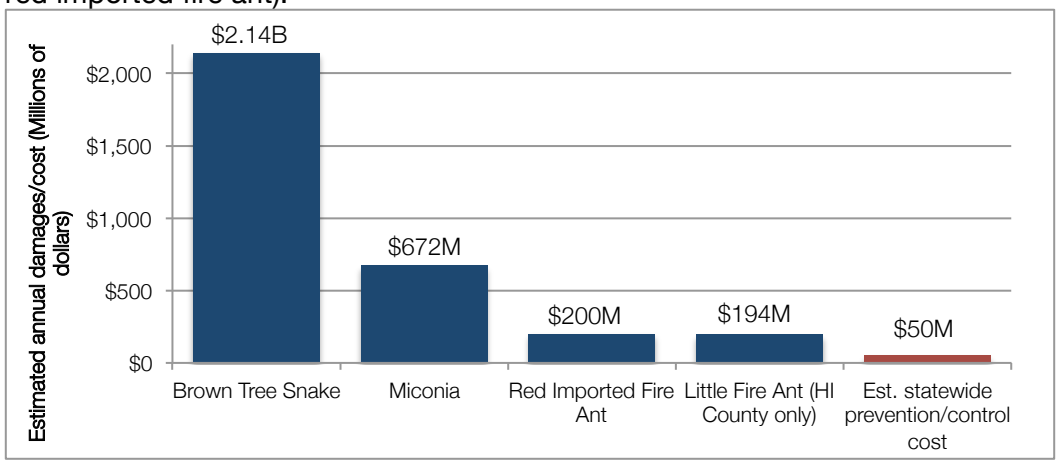
	HDOA	DLNR	DOH	HIDOT	DBEDT	UH
Core programs	• Inspection • Quarantine • Pests	• Forestry • Wildlife • Aquatics	• Disease Vectors • Env. Health	• Airports • Harbors • Highways	• Tourism • Planning	• Academic Research • Cooperative Extension
Examples of relevant funds	• *G-funds* • *Barrel Tax* • *Cargo Fee*	• *G-funds*	• *G-funds* • *Barrel Tax*	• *G-funds* • *FAA*	• *G-funds* • *TAT* • *NOAA*	• *G-funds* • *Academic grants*

- HISC funds are appropriated by the legislature. The interagency HISC is administered by DLNR and is housed within LNR 402. The legislature **provided $5.75M in FY15 and $4.75M in FY16** for HISC projects. HISC-funded projects provided 1:1 leverage of non-state funds.
- **The HISC received $10M in requests** for project funds in FY15 and again in FY16, and was able to partially fund approximately half of these requests.



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 Hawaii (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 costs ($2.14B/yr in infrastructure, health costs, lost tourism, Shwiff et al 2010); estimated miconia costs ($672M/yr in lost water recharge, bird habitat, Burnett 2007); potential red imported fire ant cost ($200M/yr in lost tourism, agriculture, and infrastructure, Gutrich et al., 2007); estimated Little Fire Ant cost, HI County only ($194M/yr in costs to agriculture, nurseries, residents, other sectors, Motoki et al., 2013); estimated additional annual need to support invasive species programs ($50M, LRB, 2002). Full citations available in Section II of the 2016 HISC legislative report.

HISC-funded Project Highlights, FY15-16

Research Projects

- Research on containment and treatment of Rapid Ohia Death (Ceratocystis wilt)
- Continued development of a pilot program utilizing detector dogs for finding Little Fire Ants
- Research for new control methods for Little Fire Ants
- Research on improving Herbicide Ballistic Technology for invasive plant control

Prevention Projects

- Development of a biosecurity plan for Kahoʻolawe
- Support for the Hawaii-Pacific Weed Risk Assessment to assess the invasiveness of nonnative plants
- Development of new ballast water and hull fouling policies for Hawaii

Control Projects

- Control of Little Fire Ant statewide via the Hawaii Ant Lab
- Control of Coconut Rhinoceros Beetle on Oʻahu
- Detection and control of new pests through support for the Invasive Species Committees (ISCs)
- Control of albizia on Hawaii Island via the Big Island Invasive Species Committee

Outreach Projects

- Community-based outreached in each county through support for the ISCs
- Development of online pest reporting systems at www.reportapest.org

The HISC is a cabinet-level, interagency board created by Chapter 194, HRS. Appointed HISC Legislative participants include:

- Senators Ronald Kouchi, Mike Gabbard, J. Kalani English, and Lorraine Inouye
- Representatives Derek Kawakami, Chris Lee, Kaniela Ing, and Richard Onishi

For more information, visit http://hisc.hawaii.gov, or contact the HISC Program Supervisor Joshua Atwood at 587-4154 or Joshua.P.Atwood@hawaii.gov

I. Introduction

Purpose of this Report

Hawaii's economy and the way of life for its residents are based in Hawaii's unique environment, our ability to grow food, and the health and culture of Hawaii's people. As an island chain, Hawaii'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 Hawaii, 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. A portion of those introduced species are what we call "invasive species."

Invasive species are defined in Executive Order 13112 as a non-native species "whose introduction does or is likely to cause economic or environmental harm or harm to human health." The State of Hawaii does not currently have a list of designated invasive species, instead using the above definition as guidance.

Invasive species do not fall exclusively under the mandate of any single state agency. Recognizing this, the State Legislature in 2003 authorized the creation of the interagency Hawaii Invasive Species Council (HISC, Act 85, Session Laws of Hawaii 2003), and stated that "the silent invasion of Hawaii by alien invasive species is the single greatest threat to Hawaii's economy, natural environment, and the health and lifestyle of Hawaii'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 Hawaii. The HISC's purpose is to coordinate and promote invasive species prevention, control, outreach and research. Chapter 194, Hawaii 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 Hawaii Invasive Species Council

Chapter 194, HRS, requires that the HISC be composed of the chairs, directors, or designees of the organizations listed below. In FY15 the Council was composed of:

• DLNR	Suzanne D. Case
• Hawaii Department of Agriculture (HDOA)	Scott Enright
• Department of Health (DOH)	Keith Kawaoka
• Department of Business, Economic Development and Tourism (DBEDT)	Leo Asuncion
• Department of Transportation (DOT)	David Rodriguez
• University of Hawaii (UH)	Mario Gallo & J. Kenneth Grace

Additionally, legislators and federal agency partners are invited as non-voting participants to provide advice and guidance to the HISC. Current legislative appointees include:

- Senators Ronald Kouchi, Mike Gabbard, J. Kalani English, Lorraine Inouye
- Representatives Derek Kawakami, Chris Lee, Kaniela Ing, Richard Onishi.

II. Budgetary Issues Relating to Invasive Species

HISC Funding History

The invasive species problem is not 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 that an additional $50,000,000 would be needed annually to fulfill the invasive species prevention and control goals across state, federal, and county agencies.

In 2003, the legislature formed the Hawaii 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. State agencies, including the UH system, apply for HISC funds on a competitive basis annually. Counties and local offices of federal agencies that have standing agreements with the State are also eligible.

The HISC began disbursing funds to interagency projects in FY05. Though a special fund spending authority was provided for S-314, no revenue source was provided into that fund. The legislature has appropriated general funds to the HISC in most fiscal years. To address the remaining project need, DLNR, as the administrative host of the HISC, utilized the special fund spending authority for the HISC from FY05-14 utilizing transfers from the Natural Area Reserve (NAR) fund and the Legacy Land Conservation (LLC) fund. The NARF derived revenue from the conveyance tax on property sales. No special funds were provided in FY15, and in 2016 the NAR fund was repealed.

The HISC does not have a dedicated source of funds from tax revenues and currently relies solely on legislative appropriations of general funds. In FY16, $750,000 was provided as part of the regular biennium budget. An additional $4,000,000 was provided by Senate Bill 1299, resulting in a total budget of $4.75M.

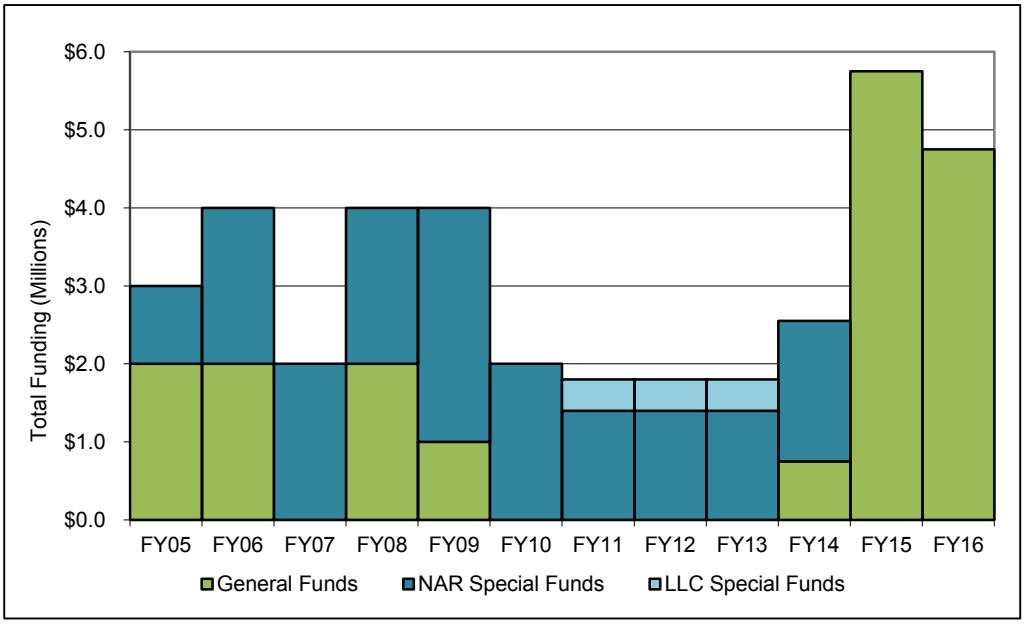


Figure 1: Total amount of funding (in millions of dollars) made available to the HISC through special and general funds, by fiscal year. Special funds refer to the Natural Area Reserve (NAR) fund and the Legacy Land Conservation (LLC) fund.

HISC FY16-17 Funding

The HISC currently receives a recurring $750,000 appropriation of general funds in the biennium budget under LNR 402 (the Native Resources and Fire Protection Program), which is located within the Division of Forestry and Wildlife at DLNR. In 2015, DLNR requested an additional $4,000,000 for the HISC via its departmental budget request, though this was removed from the final budget. A number of bills introduced by legislators requested $6,000,000 for the HISC but did not pass (see Section V of this report). Senate Bill 1299 appropriated $4,000,000 in general funds to the HISC for each year of the FY16-17 biennium, but this amount was not incorporated into the regular biennium budget and will not recur in the FY18-19 biennium budget.

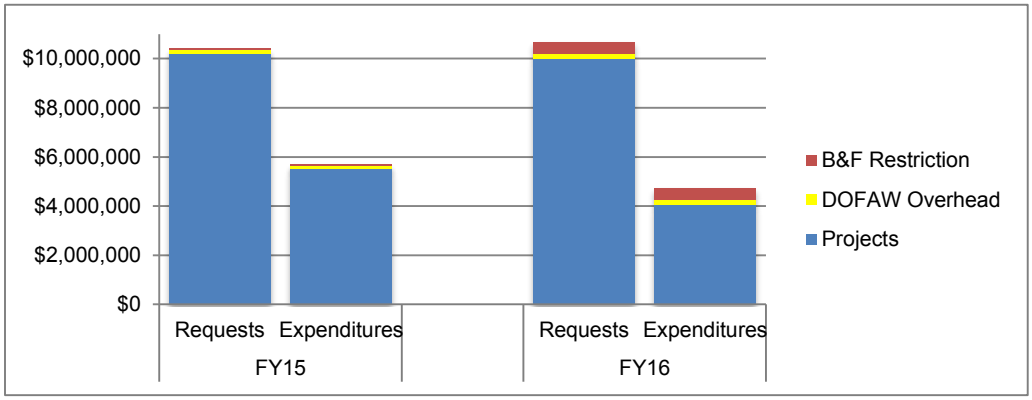


Figure 2: Project requests received by the HISC vs. actual expenditures, FY15-16.

While the amount of funding appropriated to HISC decreased from $5,750,000 in FY15 to $4,750,000 in FY16, the amount of requests for project funding remained at roughly $10,000,000 each year. About half of all applicants received project funding, though the amount provided for each project was typically 50-70% of the stated need. A list of projects receiving funding in FY16, as well as projects that applied for funding but did not receive funding due to budget shortfalls, is provided in Section III of this report. Based on the amount of applications received in FY15 and FY16, an estimated $10,000,000 is needed to support interagency projects that address gaps between agency mandates or research needs in FY17.

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 Hawaii. 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.

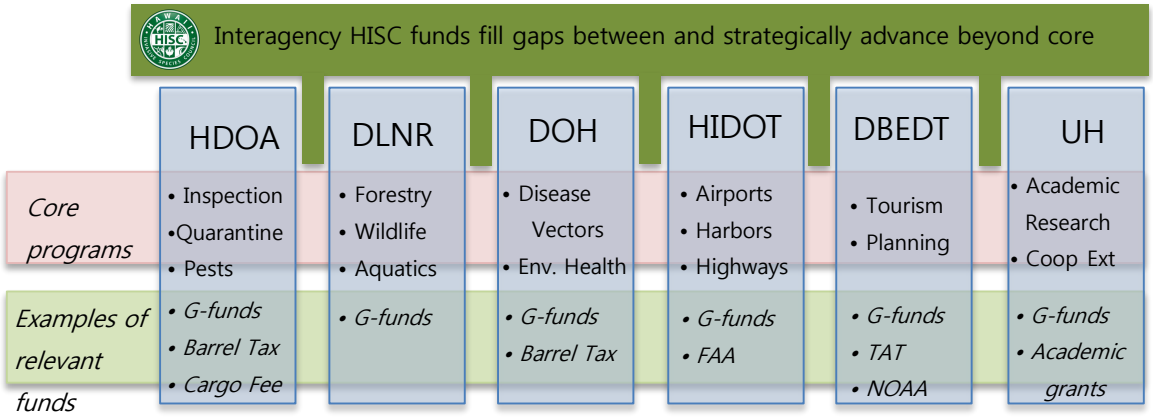


Figure 3: Depicting the relationship between core departmental programs and funds vs. interagency HISC funding.

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 Hawaii's invasive species programs. Critical revenue sources and funds include:

- **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.
- **General funds provided to the HISC** to support interagency projects that fill gaps between or expand beyond existing departmental programs.

Resources and Shortfalls Within Each HISC Agency

Department of Land and Natural Resources

DLNR Resources Relating to Invasive Species:

- Division of Forestry and Wildlife: DLNR DOFAW has a broad mandate to protect Hawaii'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 Hawaii 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. Following the repeal of the Natural Area Reserve Fund (HRS 195-9) in 2015, these programs are funded by general funds.
- Division of Aquatic Resources: Employs 1 Aquatic Invasive Species (AIS) Coordinator and 4 field team members. The AIS team plans and implements 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.

DLNR Resource Shortfalls: The Division of Aquatic Resources currently contracts their coordination of ballast water and hull fouling efforts as there is no in-house capacity to handle these duties. 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 a combination of capital improvement project funds and general

funds each year for watershed protection, including fence construction and maintenance 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.

Hawaii Department of Agriculture

HDOA 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. Plant Quarantine Branch employs Inspectors with enforcement authority for violations of importation and possession of regulated species. State 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). The Department also actively seeks and receives federal funding for these programs.
    - 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). State 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. The Department also actively seeks and receives federal funding for these programs.
    - 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. State funding for staff and operations comes from the general fund and the Pesticides Use Revolving Fund (HRS 149A-13.5). The Department also actively seeks and receives federal funding for these programs.

HDOA 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

DOH 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

positions continue to monitor for mosquito populations, but do not have the capacity for frequent surveillance or response. From 2013-15, the Department requested the restoration of eight Vector Control Worker positions. Four were approved in 2013 and the remaining four in 2015. No supervisory structure was restored for this program, however, resulting in the remaining staff being subsumed by the Sanitation Branch. 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.

DOH Resource shortfalls: The Department of Health continues to seek the restoration of Vector Control functions 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

DBEDT 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 Hawaii'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 (Cristini et al., 2012).

DBEDT 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.
- A Special Plans Planner position would 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.

Hawaii Department of Transportation

HIDOT 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 Hawaii 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.

HIDOT 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 Hawaii

UH 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 HIS. 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 Hawaii Ant Lab. These positions are not part of the University's budget request to the legislature and rely on grants for support.

UH Resource shortfalls: No shortfalls were identified for legislative action in 2016. The University of Hawaii's budgetary request to the State Legislature is administered by the Board of Regents and does not address individual units or projects within CTAHR or the College of Natural Sciences.

The Cost of Inaction: Examples of Invasive Species Costs in Hawaii

Due to a lack of consistent funding for invasive species programs, many invasive species problems in Hawaii have become worse over the past decade. Coqui frogs have spread across Hawaii Island, exist in a handful of populations on Maui, and 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 Hawaii's coconut palms. The invasive plant miconia is beyond control on Hawaii Island and is at a critical point-of-no-return on Maui and O'ahu. *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 relatively 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 Hawaii. Notable examples include:

1. **Potential economic damages of Brown Tree Snake in Hawaii: 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 Hawaii) 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 Hawaii: estimated at $672,000,000 annually.** The invasive plant miconia (*Miconia calvescens*) was introduced by a private resident on Hawaii Island in the late 1950s and has since spread to all counties in the state. This fast growing plant forms monocultures (a forest stand consisting of only one species) 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 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 Hawaii 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 Hawaii 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. Total eradication of ants from Hawaii Island is not possible. A study published by Lee et al. in 2015 found that an immediate investment of $8M over the next 2-3 years would avoid costs over the next 10 years totaling $1.2B in control and $129M in economic damages. The Hawaii 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 Hawaii 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.

4. **Potential 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 Hawaii) 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 Hawaii County due to of coqui frogs: estimated at $7,600,000 annually.** A 2006 study of the economic impacts of *Eleutherodactylus coqui* in Hawaii by Dr. Brooks Kaiser (Gettysburg College) and Dr. Kimberly Burnett (University of Hawaii) highlights that, while coqui frogs present an ecological impact through the predation on native invertebrate communities, the primary economic impact is on 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). For comparison, the Hawaii Department of Health sets the threshold for minimizing impacts to human health and welfare at 70 dBA (HRS 324F-1). The estimated damages to property values in Hawaii County as of 2006 was $7,600,000 annually. This figure has likely increased as coqui frogs have continued to expand their distribution on Hawaii island since 2006. Should coqui frogs establish on Maui and O‘ahu, the annual loss in property value would drastically increase.

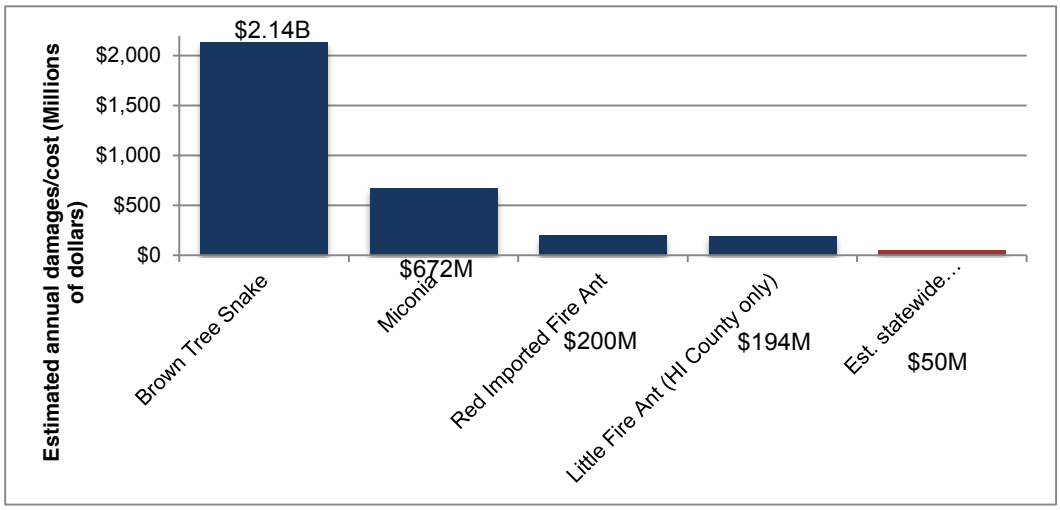


Fig 4: Examples of estimated damages from invasive species in Hawaii.

The Legislative Reference Bureau estimated in 2002 that the additional funding needed to adequately support prevention/control programs in Hawaii was $50M annually (Ikuma et al., 2002). The costs associated with invasive species far exceed the estimated cost for prevention and control programs. Investing in departmental programs (such as agricultural inspections and watershed management) and interagency projects under the HISC are an extremely cost effective strategy for Hawaii.

Literature cited

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III. HISC-Funded Projects, FY15-16

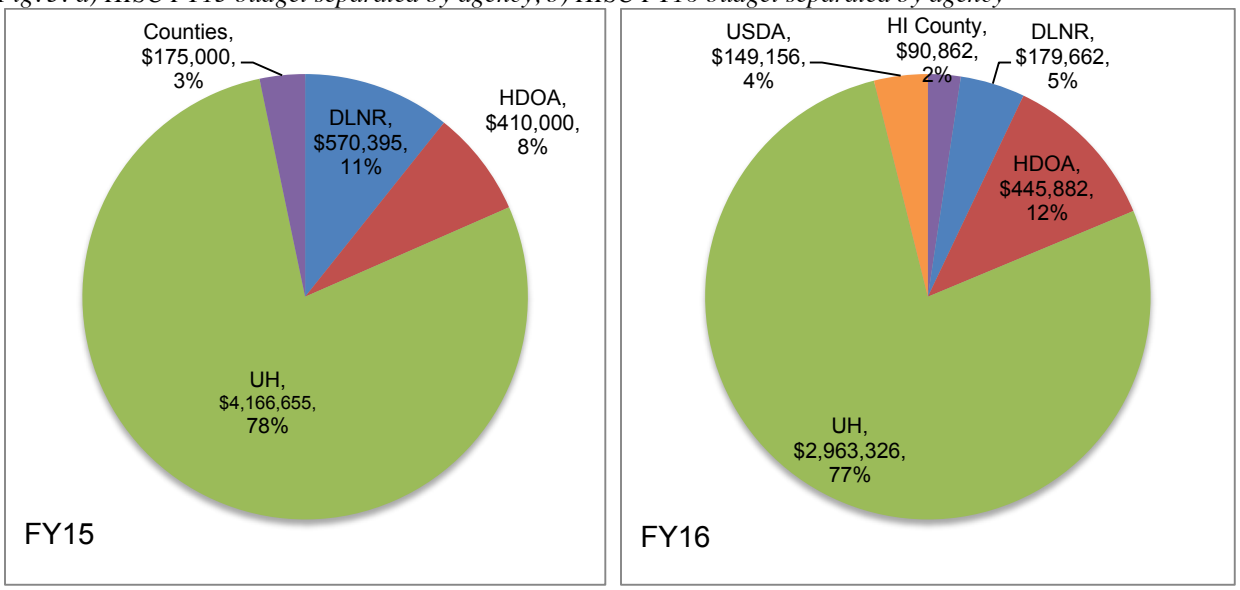
This report provides details about projects funded by the HISC in FY15 and FY16. Because the release of funding and subsequent encumbering of project funds can take up to six months, projects durations are typically based on the calendar year following the year in which funds are awarded. This report therefore includes:

- A list of projects funded by the HISC in FY15
- A summary of progress made by FY15 projects in the first six months of the 2015 calendar year
- A list of projects funded by the HISC for FY16. These projects have been approved and are anticipated to being work in Q2 or Q3 of FY16, based on the release of funds and the duration of encumbrance processes.

Summary of FY15-16 Budgets

The HISC disbursed $5.75M in FY15 and $4.75M in FY16. Each year, the HISC solicits proposals for projects from government agencies, including the UH system and county and federal partners, for strategic projects in invasive species prevention, control, research, and outreach.

Fig. 5: a) HISC FY15 budget separated by agency, b) HISC FY16 budget separated by agency



No funding requests for interagency projects beyond existing departmental efforts were received from DOT, DOH, or DBEDT in FY15-16.

Projects funded by the HISC in FY15

Full project abstracts can be found at http://dlnr.hawaii.gov/hisc/projects/fy15/. The HISC received roughly $10.4M in requests in FY15 and had $5.75M to disburse.

Table 1: Projects funded by the HISC in FY15.

Dept	Entity	Project Title	Grant
HISC	HISC	HISC Program Support (Planner and Interagency Coordinator)	$226,700
DLNR	DOFAW	Overhead (3.5%)	$201,250
		Control	
Other	HI County	County of Hawaii 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 *Angiopteris evecta* 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 (*Hedychium gardnerianum*) control in Wailau Valley	$85,345
UH	ISC- OISC	Oʻahu 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 Koʻolau Range, Oʻahu	$50,000
UH	ISC- BIISC	Invasive Species Detection & Control on the Island of Hawaii 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	Oʻahu 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 Kauaʻi County 2015	$45,000
UH	ISC- BIISC	Hawaiʻi Island Invasive Species Education and Outreach 2015	$50,000
UH	HBIN	Core Funding for the Hawaiʻi 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 Hawaii- Pacific Weed Risk Assessment FY15	$77,192
DLNR	DLNR DAR	Minimizing the introduction and spread of aquatic invasive species in Hawaii	$80,000
UH	ISC- BIISC	Earlier detection of invasive pests on Hawaii 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
UH	Ant Lab	Hawaii 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 (*Miconia calvescens* DC) management projects through advancements in Herbicide Ballistic Technology (HBT)	$65,000
DLNR	DOFAW	Biocontrol of invasive Rubus species and Kahili ginger in Hawaii.	$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, Hawaii	$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
		FY15 Total	**$5,750,000**

Summary of Project Achievements Supported by FY15 HISC Funds

FY15 funds were released and encumbered for various HISC-funded projects by December 2014. Project timelines are generally based on the calendar year 2015, hence the data reported below is for the first two quarters of the 2015 calendar year, comprised of the months of January through June. Because the island-based Invasive Species Committees also received funding in FY14 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 ISCs are reported together in Table 2 with reporting period July 2014-June 2015, while summary statistics for other HISC-funded projects in FY15 are presented separately in Table 3 with reporting period January-June 2015.

Island-based Invasive Species Committees

For the reporting period July 2014-June 2015, 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 Hawaii 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. Lists of target species for each ISC can be found at http://hawaiiinvasivespecies.org.

Table 2: Summary detection and control data for the Invasive Species Committees, July 2014- June 2015.

Island	Acres Surveyed	Mature Plants Controlled	Immature Plants Controlled	Work Hours	Volunteer Hours
Kauaʻi (KISC)	1,832	2,350	4,282	4,884	584
Oʻahu (OISC)	11,271	308	4,174	8,888	50
Molokaʻi (MoMISC)	15,749	4,607	5,464	1,093	197
Maui (MISC)	44,533	1,726	30,283	8,248	1,068
Hawaii Island (BIISC)	9,274	47,420	6,584	11,882	1,166
Total	82,658	56,411	50,787	34,995	3,065

Other Projects in FY15

Below are summary statistics for January-June 2015 for projects supported by HISC funding. Note that several projects funded in FY15 by the HISC do not provide quarterly quantitative updates due to the nature of the project. For example, the FY15 award to the DLNR Division of Aquatic Resources to develop hull fouling regulations 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/fy15/.

Table 3: HISC-funded project data (other than Invasive Species Committees) for January-July 2015.

Project	Metric	Q1 (Jan-Mar)	Q2 (Apr-Jun)	Total
Hawaii-Pacific Weed Risk Assessment (PI: Charles Chimera, UH)	Number of assessments completed	27	32	59
	Number of pageviews at hpwra.org	1163	1547	2710

Hawaii Ant Lab (PI: Dr. Cas Vanderwoude, UH)	Number of calls answered at HAL	160	195	355
	littlefireants.com web traffic # site visits	64	50	114
	Number of attendees at training sessions	551	502	1053
Research on herbicide ballistic technology for the control of *Miconia calvescens* (PI: Dr. James Leary, UH)	Number of hectares surveyed	3227	71.6	3298.6
	Targets controlled	1269	76	1345
	Flight time hours	45.3	2.9	48.2
	Average dose rate (g acid equivalent)	22.09	4.83	26.92
	Average projectiles per target	110	24.2	134.2
	Treatment footprint (ha)	258.3	12.8	271.1
	Average herbicide use rate (grams ae/ha)	70.7	28.7	99.4
Koʻolau Mountain Goat Control (PI: Mary Ikagawa, UH)	Number of animals removed	54	29	83

Projects Funded by the HISC in FY16

The State Legislature provided $4,750,000 in FY16 for the HISC to support projects. The HISC approved a spending plan for FY16 on July 29, 2015. Encumbrance for these projects is underway, with anticipated start dates of Q2 or Q3 FY16. Full project abstracts are available at http://dlnr.hawaii.gov/hisc/projects/fy16/. The HISC received $10M in requests for FY16 and had $4.75M to disburse. The Department of Budget and Finance imposed a 10% restriction on expenditures in FY16, and the DLNR Division of Forestry and Wildlife increased their overhead cost for hosting the interagency HISC from 3.5% in FY15 to 5% in FY16. HISC Support program costs totaled $183,294. The amount remaining for competitive project funding was $3,877,956. Due to broad need across many different projects and species, most applicants received a partial award based on their evaluation score, the scalability of their project, and their ability to seek additional funds.

Table 4: Proposals received and grants provided by the HISC in FY16.

Dept	Entity	Abbreviated Title	Request	Grant
DB&F		10% Restriction, per EM 15-01	$475,000	$475,000
DLNR	DOFAW	5% Overhead	$213,750	$213,750
HISC	Support	Support program	$183,294	$183,294
Control				
DLNR	DAR	Aquatics Expansion	$9,450	$8,586
DLNR	DOFAW	Kauaʻi Avian Predators	$69,207	$0
DLNR	DOFAW	Kauaʻi Eucalyptus Removal	$173,690	$0
DLNR	DOFAW	Kauai Guava Biocontrol Release	$50,000	$0
DLNR	DOFAW	Lehua Rodent Control	$261,900	$0
DLNR	DOFAW	Maui African Tulip Control	$40,075	$0
DLNR	DOFAW	Maui Guava Biocontrol Release	$71,800	$0
DLNR	DOFAW	Molokaʻi Ginger Eradication	$45,100	$31,802
DLNR	DOFAW	Oʻahu Guava Biocontrol Release	$68,285	$46,989
DLNR	DOFAW	Oʻahu NARS Weed Control	$30,000	$15,015
HDOA	PPC	Support for Rhino Beetle Response	$1,150,947	$445,882
HI County	DRD	HI County LFA Control near Parks	$225,000	$90,862
UH	HAL	Ant Lab Core Support	$281,259	$177,181

UH	HBIN	Online Info Services Core	$67,982	$50,045
UH	ISC-BIISC	Albizia Control	$259,795	$142,653
UH	ISC-BIISC	Big Island and Maui Axis Deer	$150,000	$86,041
UH	ISC-BIISC	BIISC Control	$688,313	$361,602
UH	ISC-BIISC	BIISC Early Detection	$221,221	$103,082
UH	ISC-KISC	KISC Detection & Control	$415,000	$282,808
UH	ISC-KISC	KISC Mongoose	$55,000	$24,987
UH	ISC-KISC	Kōkeʻe Weed Control	$40,000	$21,649
UH	ISC-MISC	MISC Detection & Control	$800,558	$504,339
UH	ISC-OISC	Oʻahu Tibouchina	$103,627	$28,431
UH	ISC-OISC	OISC Detection & Control	$1,009,243	$528,506
UH	MDWG	Maui Axis Deer *(later combined with BIISC deer proposal)*	$69,416	$0
UH	WP-KMWP	Koʻolau Goat Eradication	$37,875	$34,414
UH	WP-KMWP	Oʻahu Angiopteris Control	$47,885	$0
UH	WP-WMMWP	West Maui Albizia Control	$60,999	$0
UH	WP-WMMWP	West Maui Fern Control	$68,253	$29,931
Outreach				
DLNR	DAR	Aquatics Outreach	$7,000	$3,625
UH	CGAPS	CGAPS Core Program	$101,500	$47,000
UH	COP	Rat Lungworm Outreach Curriculum	$512,064	$0
UH	ISC-BIISC	Big Island Outreach	$107,510	$61,646
UH	ISC-KISC	Kauaʻi Outreach	$64,000	$58,152
UH	ISC-MISC	Maui Nui Outreach	$99,338	$73,598
UH	ISC-OISC	Oʻahu Outreach	$148,158	$86,050
UH	WP-WMWP	LFA Outreach to Mililani Schools	$15,000	$4,543
Prevention				
BISH	BISH	Import Regulation Updates	$26,297	$0
DLNR	DAR	Ballast Water & Hull Fouling	$73,645	$73,645
DLNR	KIRC	Kahoʻolawe Biosecurity Plan	$77,387	$49,066
UH	HAL	Oʻahu LFA- Additional Staff	$96,044	$0
UH	HPWRA	Weed Risk Assessment	$78,688	$78,688
Research				
BISH	BISH	Invasive Mollusk Surveys	$99,678	$0
DLNR	DOFAW	HISC Data System Cont Development	$20,000	$0
UH	COP	Rat Lungworm Research	$107,039	$0
UH	CTAHR	Aerial Albizia Tech Development	$85,800	$0
UH	CTAHR	Game Mammal Economic Study	$27,089	$0
UH	CTAHR	General Economic Model	$169,740	$0
UH	CTAHR	Lobate Lac Scale Study	$48,520	$0
UH	CTAHR	Miconia Ballistic Control Research	$187,210	$117,212
UH	CTAHR	Naio Thrips Research	$33,000	$8,920

UH	HAL	LFA Research	$79,456	$51,848
UH	HIMB	Urchin Reproduction	$83,761	$0
UH	ISC-KISC	Mongoose Trap Research	$33,000	$0
UH	SDAV	UAV Capacity Development	$189,651	$0
USDA	PBARC	LFA Chemical Ecology Study	$177,982	$0
USDA	USFS	Rapid ʻOhiʻa Death Research	$197,572	$99,000
USDA	USFS	Cont. Albizia Biocontrol Research	$92,020	$0
USDA	USFS	Cont. Melastome Biocontrol	$85,430	$50,156
USDA	USFS	Cont. Rubus Biocontrol	$113,463	$0
		FY16 TOTAL	**$10,680,966**	**$4,750,000**

Abbreviations
Departments: BISH= Bishop Museum; UH= University of Hawaii; USDA= US Dept of Agriculture; HDOA= Hawaii Dept of Agriculture
Entities: MISC= Maui Invasive Species Committee; BIISC= Big Island Invasive Species Committee; OISC= Oʻahu Invasive Species Committee; PPC= Plant Pest Control Branch; KIRC= Kahoʻolawe Island Reserve Commission; HPWRA= Hawaii-Pacific Weed Risk Assessment; WMMWP= West Maui Mountains Watershed Partnership; HAL= Hawaii Ant Lab; DOFAW= Division of Forestry and Wildlife; HBIN= Hawaii Biodiversity Information Network; CGAPS= Coordinating Group on Alien Pest Species; KISC= Kauaʻi Invasive Species Committee; CTAHR= College of Tropical Agriculture and Human Resources; KMWP= Koʻolau Mountains Watershed Partnership; USFS= US Forest Service; DAR= Division of Aquatic Resources; DRD= Dept of Research & Development; PBARC= Pacific Basin Agriculture Research Center; COP= College of Pharmacy; SDAV= Spatial Data Analysis & Visualization Lab; MDWG= Maui Deer Working Group; HIMB= Hawaii Institute for Marine Biology

IV. Council Actions in Fiscal Year 2015

HISC members and meeting participants at a public meeting in October 2014.

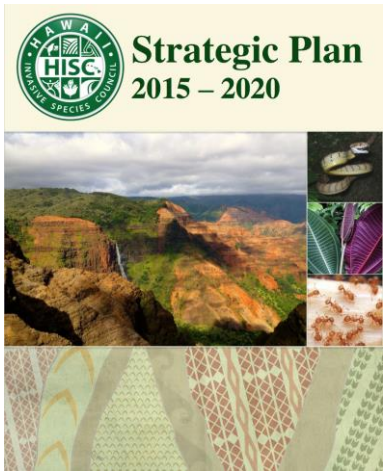
HISC Meetings in FY15

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

- October 28, 2014: The HISC met to share updates on a number of projects including the response to Coconut Rhinoceros Beetle and Little Fire Ant, and support projects including online reporting initiatives and airports monitoring. The HISC also adopted two resolutions:
    - Resolution 14-1: Endorsing the Overarching Goals and Jurisdictional Recommendations of the Regional Biosecurity Plan for Micronesia and Hawaii
    - Resolution 14-2: Requesting a Legislative Reference Bureau Study to Update the 2002 Report Titled "Filling the Gaps in the Fight Against Invasive Species."

  The full text of both resolutions is available at http://dlnr.hawaii.gov/hisc/reports/resolutions/.
- June 10, 2015: The HISC met to welcome new Council members under Governor Ige's administration and to provide staff with direction on how to approach the promulgation of administrative rules to be associated with the HISC's statute. The HISC also voted to adopt the new Hawaii Invasive Species Council Strategic Plan 2015-2020.

Hawaii Invasive Species Council Strategic Plan 2015-2020



Over the course of 2014 HISC Support Staff convened stakeholders and members of the public in a series of meetings to develop a new HISC strategic plan. The previous HISC strategic plan expired in 2013. An initial planning kickoff in January 2014 was developed as a joint planning session with the Coordinating Group on Alien Pest Species (CGAPS), a partner organization that also underwent a strategic plan renewal process in 2014. At this kickoff event, participants elected to revive the staff-level Working Group structure employed under the previous strategic plan and to create strategic goals and measures within individual working groups focused on prevention, control, outreach, research, and resources. Subsequent planning meetings throughout 2014 focused on each of these content areas, with additional input provided on connecting the invasive species issue to climate change and Hawaiian culture. The completed goals and strategies were reviewed by the HISC at their October 28, 2014 meeting. The final plan was adopted on June 10, 2015, and can be found at the HISC website: http://dlnr.hawaii.gov/hisc/plans/.

Hawaii Invasive Species Awareness Week

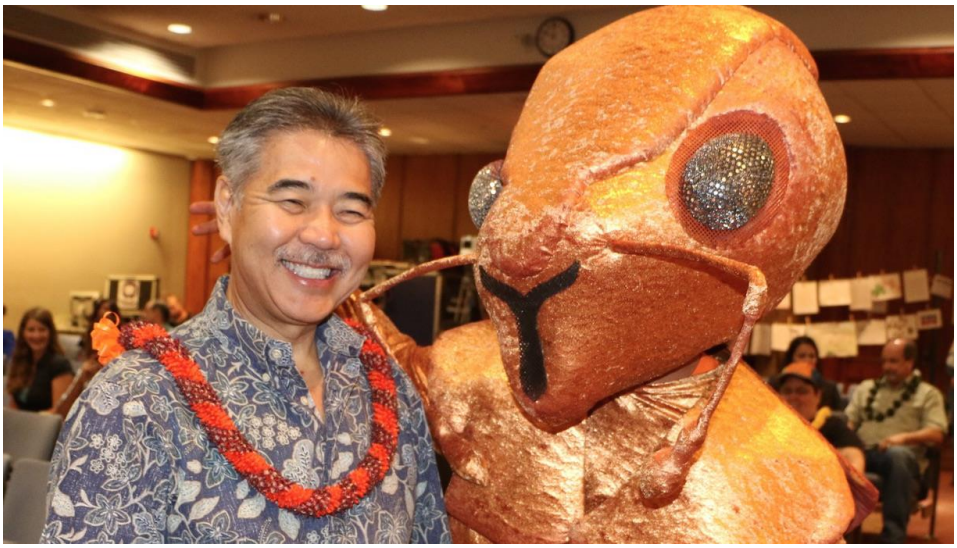
In 2015 the HISC hosted the third annual Hawaii Invasive Species Awareness Week (HISAW), to showcase the unique needs of Hawaii in regard to invasive species and to invite the public to volunteer and get involved. The week's events and awards were coordinated in partnership with HISC member agencies, the Coordinating Group on Alien Pest Species (CGAPS), county-based Invasive Species Committees, and The Nature Conservancy (TNC).

Gov. Ige presents a proclamation for Hawaii Invasive Species Awareness Week 2015 to HISC members J Kenneth Grace (UH) and Scott Enright (HDOA).

Governor David Ige provided an official proclamation for the second annual HISAW and addressed an audience at a HISAW ceremony at the Hawaii State Capitol on March 2 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 ceremony was televised by 'Olelo and made available online.

HISAW award winners with HISC co-chair Scott Enright, program supervisor Joshua Atwood, and a giant Little Fire Ant. L to R: Dr. Atwood (HISC), George Ka'anana (Hawaiian Airlines, Business Leader 2015), Chair Enright, Michael Fry and Michelle Clark (USFWS, Kaua'i MVP 2015), Stuart Stein (CRB Response Team O'ahu MVP 2015), Rich Wlosinski (HELCO, Big Island MVP 2015), Tom LeFevre and Lorra Naholowa'a (Carmel Partners & Island Top Soil, Greatest Hit 2015), Marshall Loope (Maui HDOA Plant Quarantine, Maui Nui MVP 2015), Charlotte Yamane (Community Hero 2015), Laurie Loomis (Community Hero Honorable Mention), Robert Curtiss and Lt. Col. Kurt Muller (CRB Response Team). Little Fire Ant costume provided by the O'ahu Invasive Species Committee.

V. Advice to the Governor and Legislature Regarding Invasive Species



Governor Ige joined by a giant Little Fire Ant at the closing ceremony for Hawaii Invasive Species Awareness Week 2015 at the State Capitol.

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

FY15 Resolutions of the Hawaii Invasive Species Council

The HISC did not adopted two new resolutions in FY15:

- Resolution 14-1: Endorsing the Overarching Goals and Jurisdictional Recommendations of the Regional Biosecurity Plan for Micronesia and Hawaii
- Resolution 14-2: Requesting a Legislative Reference Bureau Study to Update the 2002 Report Titled "Filling the Gaps in the Fight Against Invasive Species."

Full text of both resolutions is available at http://dlnr.hawaii.gov/hisc/reports/resolutions/.

Testimony Provided During the 2014 Legislative Session

The 2015 legislative session had a large number of bills relating to invasive species. Testimony on invasive species bills was provided by HISC as well as DLNR (the administrative host of the HISC). The "Position" in the table below generally denotes the position of DLNR, which was able to draft testimony for a larger number of bills than were the support staff for HISC. When HISC was able to provide separate testimony from DLNR, the positions of the two agencies were the same.

Table 5: Position of HISC and/or DLNR on invasive species bills and resolutions in the 2015 legislative session.

Status	Bill#	Introducers	Title/Summary	Position
Passed	HB1471	LUKE	RELATING TO THE FUNDING OF GOVERNMENT PROGRAMS. Provides $100,000 for Legislative Reference Bureay to update their 2002 study on invasive species	Support
Passed	HB482	LOWEN	RELATING TO AGRICULTURE. Creates coffee berry borer program at HDOA	Support
Passed	HB500	SOUKI	RELATING TO THE STATE BUDGET. Includes four Vector Control Workers (DOH), one Transit-Oriented Planner Position (DBEDT), $1.5M for roadside albizia control (DOT), $750,000 for HISC.	Support, originally included an additional $4M for HISC

Passed	SB1299	TOKUDA	RELATING TO DISPOSITION OF TAX REVENUES. Provides $4M for HISC, $7.5M for natural areas & watersheds, $3.4M for wildlife; repealed conveyance tax disposition and associated special funds	Comments, with support for appropriations
Passed	SB359	GABBARD et al	RELATING TO THE ENVIRONMENTAL RESPONSE, ENERGY, AND FOOD SECURITY TAX. Amends tax to address fossil fuel distributors.	Support
SB died, HB not heard	HB528, SB591	EVANS et al; RUDERMAN et al	RELATING TO THE ENVIRONMENT. Makes an appropriation to the Hawaii invasive species council for the coordinated management of albizia trees on Hawaii island and throughout the State.	Support
SB died, HB not heard	SB1059, HB890	KIM, SOUKI	RELATING TO INVASIVE SPECIES. Reduces the movement of invasive pests between islands by: Authorizing inspection and treatment of regulated goods moving between islands and intraisland, prohibiting transportation of infested material between islands and intraisland, authorizing the department to designate quarantine areas, as needed, to isolate infested areas, and authorizing a compliance agreement program to insure that qualifying agricultural businesses in quarantine areas can transport their commodities with minimal risk of pest or disease spread.	Support
SB died, HB not heard	SB1062, HB893	SOUKI, KIM	BIOSECURITY PROGRAM; OBJECTIVES; GENERAL ACTIONS; AND PROGRAM CHARGES. Improve the effectiveness of Hawaii biosecurity program by establishing the program as a function of the whole Department of Agriculture.	Support
Not heard	SB97	GABBARD et al	Appropriates funds to the department of land and natural resources for watershed management; invasive species council projects; fire, natural disaster, and emergency response; and forest and outdoor recreation improvement	Support
Died	HB1040	ONISHI et al	RELATING TO INVASIVE SPECIES. Appropriates moneys to the HISC to contract UHERO to establish an economic model formula to establish impact and cost of mitigating invasive species in the State. Directs LRB to update its 2002 study to reflect costs and impact of mitigation efforts.	Comments on development of model
Died	HB1050	TSUJI et al	RELATING TO INTERISLAND MOVEMENT OF INVASIVE SPECIES. Mandates the Department of Agriculture and the Hawaii Invasive Species Council to perform specified tasks to address the interisland spread of invasive species. Requires annual reports. Appropriations.	Comments regarding capacity of HISC to take on mandate as described
Died	HB1101	KEOHOKALOLE et al	RELATING TO INVASIVE SPECIES. Requires LRB to update the economic and environmental costs component of its 2002 study on invasive species. Makes an appropriation.	Support
Died	HB1138	SAY et al	RELATING TO ALBIZIA TREES. Makes an appropriation from the pest inspection, quarantine, and eradication fund to DOA for the removal of albizia trees on public and private land.	Oppose based on dispositions of special fund
Died	HB1403	ONISHI et al	RELATING TO INVASIVE SPECIES. Mandates the Department of Agriculture to establish a little fire ant Pesticide Treatment Coupon Pilot Project and site map. Requires the Department to submit reports to the	Comments regarding implementation

			Legislature prior to the 2016 and 2017 Regular Sessions.	
Died	HB437	YAMANE et al	MAKING APPROPRIATIONS FOR THE NATURAL RESOURCE GOALS OF THE ALOHA+ CHALLENGE. Appropriates funds for the natural resource goals of the Aloha+ Challenge.	Support
Died	HB871	TSUJI et al	RELATING TO BIOSECURITY. Establishes requirements for access and distribution of DOA's Plant Quarantine Branch information. Requires DOA to establish or participate in private-public partnerships to enhance the biosecurity program and quarantine inspection process. Appropriates funds for specified projects.	Support ability for HDOA to enter into private-public partnerships for biosecurity functions
Died	HB989	SAY	RELATING TO INVASIVE SPECIES. Amends the land conservation fund uses to allow for albizia tree removal. Makes an appropriation to DLNR for the removal of albizia trees on both public and private land.	Oppose based on dispositions of special fund
Died	HCR76	ONISHI et al	REQUESTING THE AUDITOR TO CONDUCT A FINANCIAL AND MANAGEMENT AUDIT OF THE HAWAII INVASIVE SPECIES COUNCIL.	Comments
Died	SB1046	GABBARD et al	RELATING TO INVASIVE SPECIES. Appropriates moneys to DLNR and DOA for addressing issues relating to invasive species. Requires LRB to update the economic and environmental costs component of its 2002 study on invasive species.	Support
Died	SB312	RUDERMAN et al	Appropriates general funds and funds from the pest inspection, quarantine, and eradication fund to the department of agriculture for its biosecurity programs.	Support
Died	SB544	THIELEN	RELATING TO NATURAL RESOURCES. Authorizes appropriations for watershed management; invasive species prevention, control, outreach, research, and planning; equipment for fire, natural disaster, and emergency response; and forest and outdoor recreation improvements.	Support
Not heard	HB1155	SAN BUENAVENTURA et al	RELATING TO ALBIZIA TREES. Makes an appropriation from the conservation and resources enforcement special fund to DLNR for the removal of albizia trees on public and private land.	Oppose based on dispositions of special fund
Not heard	HB1348	OSHIRO, SAN BUENAVENTURA	RELATING TO ALBIZIA TREES. Makes an appropriation from the environmental response revolving fund to DOH for the removal of albizia trees on public and private land.	Oppose based on dispositions of special fund
Not heard	HB1456	KEOHOKALOLE et al	MAKING APPROPRIATIONS FOR INVASIVE SPECIES PREVENTION, CONTROL, OUTREACH, RESEARCH, ASSESSMENT, AND PLANNING. Appropriates $6M to HISC.	Support
Not heard	HB250	CHOY	RELATING TO INVASIVE SPECIES. Establishes and appropriates moneys 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 Hawaii.	Support
Not heard	HB772	KAWAKAMI et al	RELATING TO THE ROSE-RINGED PARAKEET. Appropriates funds to the state Department of Agriculture to assist and fund the National Wildlife Research Center to research the negative impacts of the rose-ringed parakeet on Kauai and develop and implement a control plan to reduce the negative impacts.	Support

Not heard	SB1043	TANIGUCHI	RELATING TO INVASIVE SPECIES. Establishes and appropriates moneys for a little fire ant, coconut rhinoceros beetle, and coqui frog pilot project, canine scent detection teams pilot project, and a public awareness and education campaign to address the little fire ant, coconut rhinoceros beetle, and coqui frog threat in Hawaii.	Support
Not heard	SB285	GABBARD, KIM	RELATING TO THE ENVIRONMENTAL RESPONSE, ENERGY, AND FOOD SECURITY TAX. Amends amounts of the environmental response, energy, and food security tax that shall be deposited into the environmental response revolving fund, energy security special fund, and agricultural development and food security special fund	Support
Not heard	SB330	TANIGUCHI/ CHOY	Appropriates moneys to DLNR to eradicate molucca albizia trees.	Support
Not heard	SB491	CHUN OAKLAND	RELATING TO THE ENVIRONMENT. Appropriates funds to study the risks, characteristics, uses, and effects of the molucca albizia tree on surrounding environments, and alternatives for the reforestation of these areas with native flora. Requires report by the department of land and natural resources to the legislature.	Support

Review of Relevant Administrative Rules
In FY15, the DLNR updated Hawaii Administrative Rules Chapter 124, which includes the regulation of introduced wildlife and injurious wildlife. The amended rules now prohibit the release of introduced wildlife and have expanded 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. Full text of the rules can be found at http://dlnr.hawaii.gov.

At the June 10 meeting of the HISC, the Council directed staff to develop proposed legislation for the 2016 legislative session that would provide the HISC with the ability to develop, pursuant to HRS 91, a process for developing and maintaining a list of designated invasive species. This action will allow the HISC to meet its mandate to identify and record invasive species in the state, per HRS 194-2(a)(6).

Appendix 1: Chapter 194, Hawaii Revised Statutes: INVASIVE SPECIES COUNCIL

Section

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].