REPORT TO THE TWENTY-NINTH LEGISLATURE
STATE OF HAWAII
2018 REGULAR SESSION

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, Hawaii Revised Statutes

Honolulu, Hawaii
October 2017

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HAWAII INVASIVE SPECIES COUNCIL

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

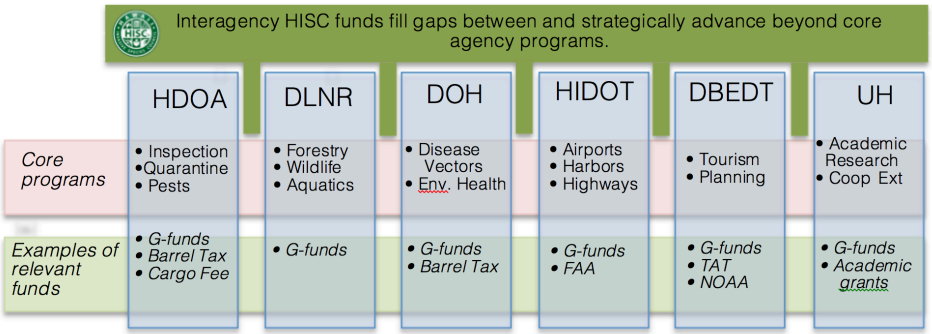
SUZANNE D. CASE, DLNR | SCOTT ENRIGHT, HDOA | KEITH KAWAOKA, DOH | LEO ASUNSCION, DBEDT | DR. KEN GRACE, UH | DAVID RODRIGUEZ, DOT

The HISC is an interagency board created by Chapter 194, HRS. Appointed HISC legislative participants include:

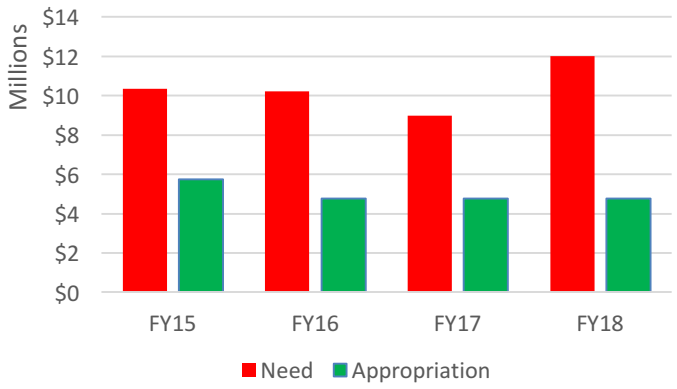
- Senators Ronald Kouchi, Mike Gabbard, J. Kalani English, and Lorraine Inouye
- Representatives Nadine Nakamura, Chris Lee, Kaniela Ing, and Nicole Lowen

BUDGETARY ISSUES RELATING TO INVASIVE SPECIES

- State agencies largely address invasive species through existing programs funded by departmental budgets. A 2015 report by the Legislative Reference Bureau found that in FY14, $19.6M (0.15% of a total $13B state budget) in state funding was provided for invasive species programs across all state agencies.
- HISC grants support interagency projects and new research that help fill the gaps between agency mandates. In 2017 the legislature provided $4.75M to the HISC for research and interagency projects, adding this amount to the base budget for the first time.

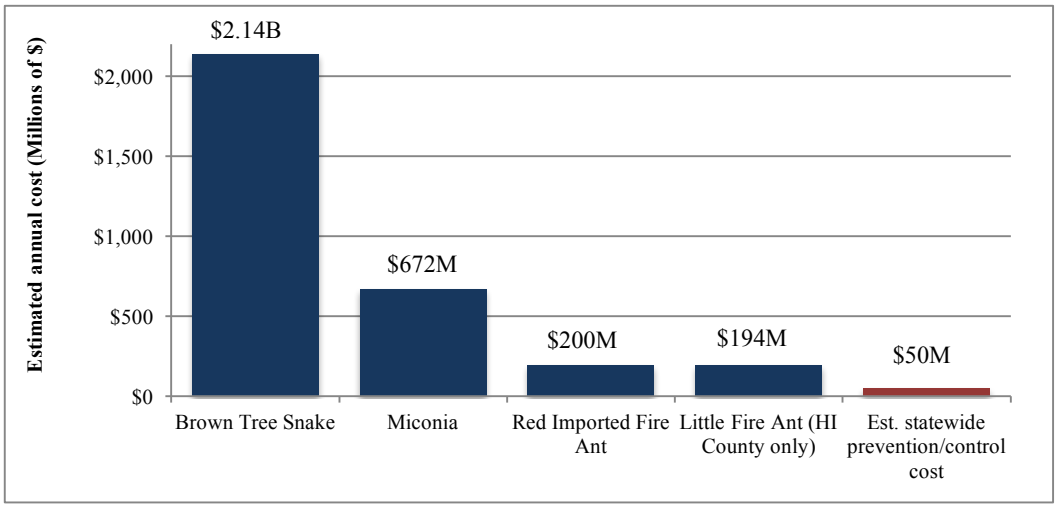


- **The HISC received a record 76 requests for research and interagency projects in FY18, totaling $12M**
- Due to lack of sufficient funds, more than half of HISC applicants received no funding. Remaining applicants received partial funding. Additional funding will be needed in FY19 to adequately support research and interagency projects.



THE COST OF INACTION: ECONOMIC DAMAGES FROM INVASIVE SPECIES

Economic impacts from a sample of invasive species below, including estimated damages from species that are already 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).



*L to R: potential brown tree snake impact ($2.14B/yr in infrastructure, health costs, lost tourism), miconia impacts ($672M/yr in lost water recharge, bird habitat); red imported fire ant cost ($200M/yr in lost tourism, agriculture); estimated Little Fire Ant cost, HI County only ($194M/yr in costs to agriculture, nurseries, residents, other sectors); estimated **additional** annual need to support invasive species programs ($50M, LRB, 2002). References available in the full 2018 legislative report available on http://hisc.hawaii.gov.*

ADVICE REGARDING INVASIVE SPECIES IN THE 2018 LEGISLATURE

Implement the Hawaii Interagency Biosecurity Plan: The Hawaii Department of Agriculture partnered with a broad range of state, county, and federal agencies as well as industry and NGO stakeholders to produce a comprehensive, coordinated approach to invasive species prevention, detection, and control. The Biosecurity Plan is a 10-year vision and roadmap of how to enhance biosecurity and includes over 100 action items. This plan includes key themes, such as:

- HDOA facilities for inspection and research, including a biocontrol lab
- Increase DLNR capacity at DAR and DOFAW for invasive species control
- Increased, stable funding for Hawaii Ant Lab and the Invasive Species Committees
- Restructure the HISC as the Hawaii Invasive Species Authority
- Fully restore the Vector Control Branch at Department of Health
- Increase HDOA capacity to allow more interisland and interstate inspections

Utilize the Recommendations of the Legislative Reference Bureau: In 2015 the Legislative Reference Bureau published a thorough report on invasive species management in Hawaii. Key recommendations from the report include:

- Develop & implement a comprehensive biosecurity plan
- Increase invasive species funding both at departments and the interagency HISC
- Restructure the HISC to provide staff and additional coordination resources
- Provide a dedicated, stable funding source for invasives & rapid response

The 2018 legislative report *Budgetary and Other Issues Regarding Invasive Species* includes further details on the Hawaii Interagency Biosecurity Plan, the use of HISC funds in FY17-18, and provides a list of invasive species bills from the previous legislative session and their fate.

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

1. Introduction

1.1 Purpose of this Report

Invasive species are non-native species whose introduction does, or is likely to, cause economic or environmental harm or harm to human health. 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, "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."

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.

1.2 Composition and Function 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 FY17 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 Dvpt. and Tourism (DBEDT)	Leo Asuncion
• Department of Transportation (DOT)	David Rodriguez
• University of Hawaii (UH)	Rachel Novotny & J. Kenneth Grace

Additionally, legislators and federal agency partners are invited as non-voting participants to provide advice and guidance to the HISC. FY17 legislative appointees included:

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

The HISC's function 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 2). Several key responsibilities of the HISC include:

- Advise, consult, and coordinate invasive species-related efforts with and between departments
- Identify agency resource shortfalls with respect to invasive species
- Coordinate and promote the State's position with respect to invasive species
- Advise the governor and legislature on budgetary and other issues regarding invasive species
- Suggest appropriate legislation to improve the State's administration of invasive species programs and policies.

One of the ways in which HISC coordinates efforts with and between departments is through the management of an annual interagency project budget that exists in complement to the recurring base costs of departmental invasive species programs. In each fiscal year, the legislature appropriates funding to the HISC, which in turn solicits proposals from government agencies, including the UH system, to identify and address resource, capacity, and knowledge gaps with regard to invasive species (Fig 1).

This report will detail the HISC's advice to the Governor and the legislature for 2017, summarize its efforts to coordinate and advise agencies on invasive species efforts, and summarize interagency HISC projects supported by legislative appropriations.

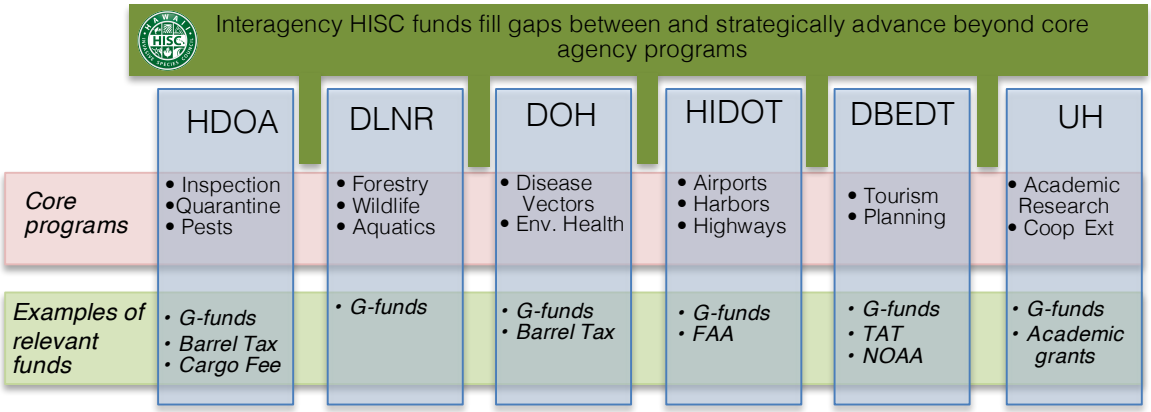


Figure 1: Depicting the relationship between core departmental programs and funds vs. interagency HISC funding

1.3 Hawaii Invasive Species Council Meetings in FY17

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

- August 17, 2016: The HISC addressed the following agenda items:
  - Reviewed and approved a FY17 budget for research and interagency projects. Approved projects are summarized in Section 2 of this report.
  - Received an overview of Mamalu Poepoe, HISC's interagency airports monitoring program, from Dr. Leyla Kaufman. Dr. Kaufman was hired by HISC as the Mamalu Poepoe Project Coordinator in August, 2016, and provided an overview of her strategy for project implementation in the program's first year. Mamalu Poepoe is funded by the Hawaii Department of Transportation and enhances monitoring for four key taxa of invasive species: invasive ants, Africanized bees, mosquitoes, and coconut rhinoceros beetle. More about Mamalu Poepoe can be found at http://dlnr.hawaii.gov/hisc/mp/.
- January 17, 2017: The HISC met to discuss the following agenda items:
  - The HISC adopted a resolution endorsing the Hawaii Interagency Biosecurity Plan (2017-2027) and committing to implementation.
  - The HISC adopted a resolution recognizing the Rapid Ohia Death Advisory Group (RODAG) as an interagency structure to prioritize needs relating to Rapid Ohia Death. This resolution supported close collaboration between the RODAG and HISC staff, particularly with regard to funding requests relating to Rapid Ohia Death.
  - HISC staff provided an overview of the Honolulu Challenge, an initiative by the International Union for the Conservation of Nature developed at the 2016 World Conservation Congress. The Honolulu Challenge calls on jurisdictions around the world to make commitments toward invasive species and biosecurity programs. HISC is a party to this challenge and is in the process of developing a commitment.
  - Lori Buchanan, Molokai Invasive Species Committee Manager, provided a presentation on the role of culture and indigenous peoples in invasive species management
  - The HISC members discussed invasive species requests pending introduction in the 2017 legislative session.

1.4 Hawaii Invasive Species Awareness Week 2017

The State of Hawaii hosted the 5th annual Hawaii Invasive Species Awareness Week (HISAW) from February 27 to March 3, 2017. HISAW is organized in coordination with the U.S. National Invasive

Species Awareness Week and regional Pacific Invasive Species Awareness efforts. HISAW seeks to promote information sharing and public engagement.

Partners across the state hosted volunteer and educational opportunities for the public to engage in invasive species control. The HISC, in partnership with members of the legislature, distributed the 2017 "HISC Awards" for people or organizations that have made substantial contributions to addressing the invasive species problem. HISC Award recipients in 2017 included:

- **Community Hero: The Pacific American Foundation** (represented by Roz Diaz) for their efforts to reduce invasive species impacts to the Waikalua Loko Ia
- **Business Leader: Serina Marchi of Seascapes Nursery** on Kauai, for her efforts to minimize the introduction and spread of invasive species through her nursery business
- **Greatest Hit: Solomon Champion** (Oahu Invasive Species Committee) for his efforts in stopping the spread of *Miconia calvescens* on Oahu
- **Hottest Pest Hotline Report: Shawn Baliaris** for his efforts relating to reporting and stopping the spread of mongoose on Kauai.
- **Hawaii Island MVP: Carolyn Dillon**, for her outstanding community efforts and her work controlling Little Fire Ants on Hawaii Island
- **Maui County MVP: Community of Haiku Hill** (represented by David DeLeon) for their efforts to control Coqui frogs on the Island of Maui
- **Oahu MVP: Sandy Webb**, for her efforts to incorporate invasive species investigations into the Youth Envisioning Sustainable Futures Program
- **Kauai MVP: Kawika Winter** (National Tropical Botanical Garden) for his efforts to protect priority watershed areas and control the spread of invasive species on the island of Kauai.

Full details on award recipients can be found on the HISC website's HISAW page.

Governor Ige prsents a proclamation for HISAW 2017 alongside HISC members Suzanne Case, Scott Enright, Keith Kawaoka, Kenneth Grace, Leo Asuncion, and David Rodriguez, legislators Senator Gabbard, Senator English, Representative Tokioka, and Representative Creagan. Recipients of 2017 HISC Awards include (front, l to r): Sandy Webb, Serina Marchi, Roz Diaz, Kawika Winter, Solomon Champion, and David DeLeon.

1.5 New Online 643pest.org Public Pest Reporting System

Over the past several years HISC has worked to develop an online complement to the current 643-PEST telephone hotline. The online service can be accessed via a website and a mobile application. Both of these services are available free of charge and allow the general public to submit invasive species observation reports. After receiving a report via the online system, trained Facilitators employed in a partnership between HISC and the UH Pacific Cooperative Studies Unit make initial contact with the

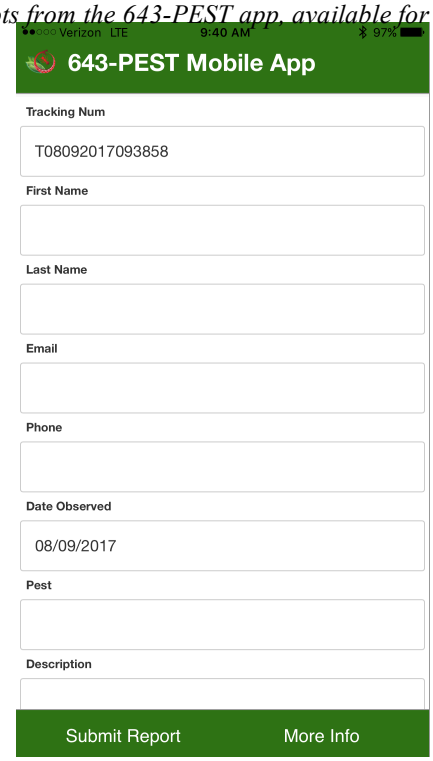
reporter and refer actionable reports the appropriate responding agency or agencies. Both the online reporting site and mobile application allow for anonymous reporting if desired, though reports do require the reporter to provide information about the species sighted. Users can also upload photos as well as use the interactive map to pinpoint the location of the sighting. On both the website and the mobile app, the map automatically updates to the location of either the mobile device's GPS or the approximate location of the user's IP address.

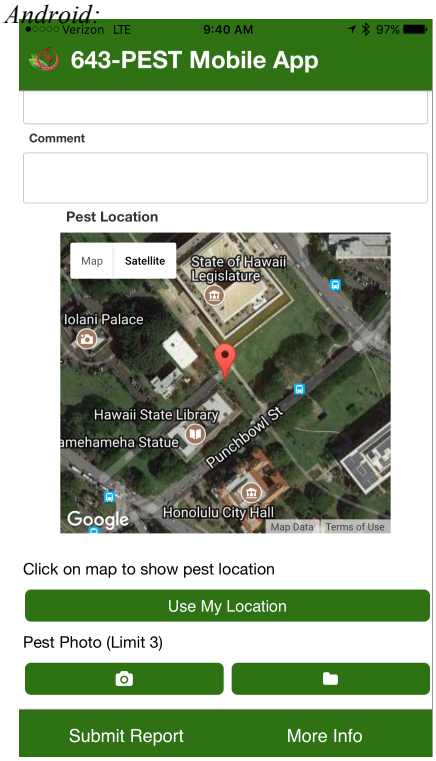
As part of the development process, a new logo was created for both the 643-PEST telephone hotline and the online system. This logo was developed using an online competitive process with reviewers from HISC, HDOA, and other partners. The new logo depicts three of Hawaii's primary target species:

REPORT INVASIVE SPECIES
643-PEST
643pest.org
CALL OR CLICK TO PROTECT HAWAII

- Brown Tree Snake – Though this species is not currently found in Hawaii, management actions are currently in place to reduce the likelihood of introduction and increase detection probability and response capacity in the event of an incursion.
- Little Fire Ant – As one of the worst invasive species in the Pacific, the little fire ant (LFA) infests large areas of Hawaii Island. Smaller populations have been detected and are currently undergoing management on Kauai, Oahu, and Maui.
- Miconia – Miconia has shown to have a detrimental effect on forest health and habitat quality. There are current management programs for this species on Kauai, Oahu, and Maui. This species also contributes to the increased likelihood of landslides, and has a seed bank that can persist for many years.

Screenshots from the 643-PEST app, available for iOS and Android:





1.6 Implementation of the Mamalu Poepoe Interagency Airports Monitoring Program

The Māmalu Poepoe project was originally conceived by representatives from multiple state agencies acting in their capacities as members of the HISC, including the directors or designees from DOT, DOH, HDOA, and UH. These agencies recognized the following areas of shared interests:

- HIDOT seeks to understand the presence and impact of invasive species at airport facilities that may be detrimental to facility operation or user experience,
- DOH seeks to improve its monitoring and research efforts regarding vectors of human diseases at airports, primarily mosquitoes,
- HDOA seeks to improve monitoring and research efforts regarding agricultural pests at airports, namely invasive ants, coconut rhinoceros beetle, and Africanized bees,
- UH seeks to improve research on invasive species distribution and economic impacts, and,
- DLNR is the administrative host of the HISC, which is mandated to provide cabinet-level coordination on invasive species issues.

A draft five-year plan for Mamalu Poepoe was created in developed by an ad-hoc working group comprised of staff from relevant agencies. The purpose of the project is to strategically address the shared interest points above by:

- Conducting a baseline assessment of invasive ants found on airport facilities in Hawaii
- Developing and implementing a monitoring plan for coconut rhinoceros beetle, invasive ants, and Africanized honeybees
- With regard to mosquitoes, examining the existing monitoring efforts of remaining Vector Control workers at DOH and assisting with improvements to monitoring protocols, data collection, and data analysis where needed
- Conducting an economic analysis of the potential impact of the four target taxa on Hawaii's economy.

In 2016, Dr. Leyla Kaufman joined HISC as the Mamalu Poepoe Project Coordinator, in partnership with the UH Pacific Cooperative Studies Unit. Over the course of FY17, Dr. Kaufman made substantial progress in implementing this novel interagency program, including:

- Coordinating with airport managers to certify additional partners with entomological or other technical expertise to survey with airport security areas
- Gathered or developed standard operating protocols for monitoring surveys for the four Mamalu Poepoe taxa (invasive ants, coconut rhinoceros beetle, mosquitoes, and Africanized honeybees)
- Developed a mosquito study plan to augment the existing DOH mosquito survey program through Vector Control, including efficacy trials of new trap types
- Organized mosquito ID training for partners with Army entomologist Mark Leong
- Conducted a survey of palms for coconut rhinoceros beetle at Honolulu International airport at October 6, 2016 due to a report of palm damaged at interisland terminal parking area
- Created tentative maps with trap locations for additional beetle traps at airports outside of Honolulu
- Organized a coconut rhinoceros beetle survey training partners at multiple agencies
- Identified sites at multiple airports to set up swarm traps for honey bee collection, traps planned to be operational at Hilo, Honolulu, Lihue, Kona and Kahului in fall of 2017.
- Worked with HDOA and the Hawaii Ant Lab to begin ant surveys at multiple airports in 2017. The Oahu HAL team conducted the first survey in spring of 2016

Future efforts of the Mamalu Poepoe program will include additional trap testing and surveying for mosquitoes, genetic testing of honeybees to test for markers of Africanized bees, and economic analyses on risks to airports and tourism associated with invasive species.

2. Budgetary Issues Relating to Invasive Species

2.1 HISC Funding History

In addition to providing interagency 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, local offices of federal agencies, and universities in other states are also eligible.

The HISC began disbursing funds to interagency projects in FY05. The legislature has appropriated general funds to the HISC in most fiscal years, with the exception of FY07 (when funds were instead directed to Hawaii County to deal with coqui frogs) and during the economic downturn from FY10-13. In years where insufficient general funds were available, DLNR, as the administrative host of the HISC, utilized the special fund spending authority for Natural Area Reserve (NAR) fund and the Legacy Land Conservation (LLC) fund. The NAR fund derived revenue from the conveyance tax on property sales. No special funds were provided in FY15, and in 2016 the legislature repealed the NAR fund.

The HISC does not have a dedicated source of funds from tax revenues and currently relies solely on legislative appropriations of general funds. From FY15 to FY17, the bulk of HISC's appropriated funds came from individual funding bills. In 2017, the legislature included the amount of $4.75M in the base operating budget, for each year of the FY18-19 biennium.

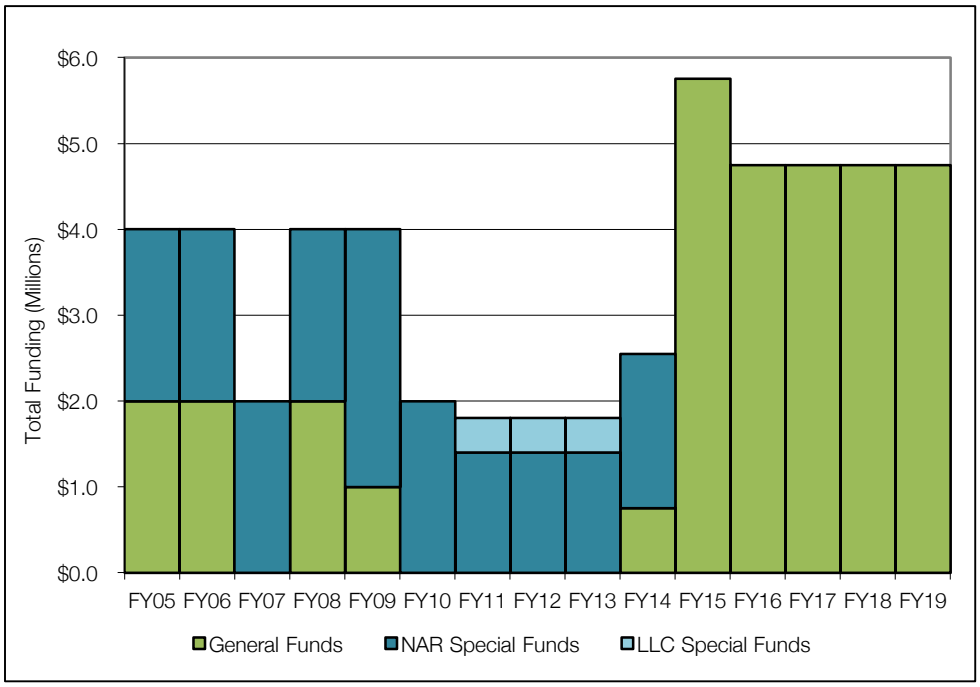


Figure 2: Total amount of funding (in millions of dollars) made available to the HISC through special and general funds, by fiscal year. Special funds refer to the Natural Area Reserve (NAR) fund and the Legacy Land Conservation (LLC) fund.

2.2 HISC FY17-18 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. A 2016 request to move the $4,000,000 provided by SB1299 to the base budget was denied. Without specific legislative action in 2017, the HISC budget for FY18 will decrease to $750,000.

While the amount of funding appropriated to HISC decreased from $5,750,000 in FY15 to $4,750,000 in FY16 and FY17, the amount of requests for project funding remained at roughly $9-10,000,000 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 FY17, as well as projects that applied for funding but did not receive funding due to budget shortfalls, is provided in Section IV of this report. Based on the amount of applications received in FY16 and FY17, an estimated $10,000,000 is needed to support interagency projects that address gaps between agency mandates or research needs in FY18.

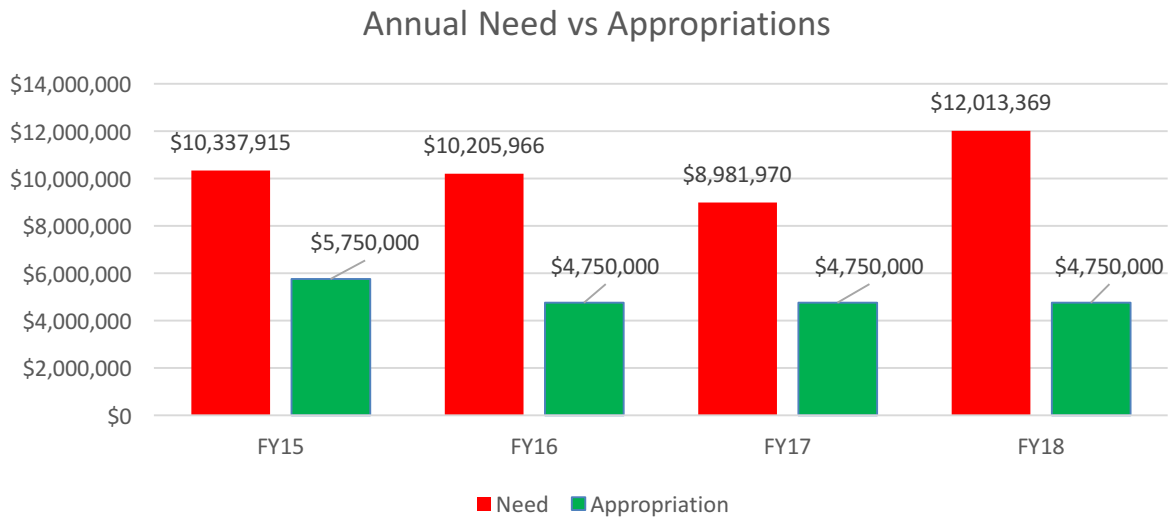


Fig 3: Amount of project requests received by HISC in FY15-18 vs the amount of available funding

2.3 Agency Resources & Shortfalls Relating to Invasive Species

In 2015, the Legislative Reference Bureau released a report, titled *Can't see the Forest for the (Albizia) Trees: An Invasive Species Update* that was commissioned as an update to the 2002 report *Filling the Gaps in the Fight Against Invasive Species.* The report details the roles, resources, and shortfalls of government agencies in great detail. The report demonstrates the following expenditures across state, county, federal, and other funding sources in Fiscal Year 2014:

Table 1: FY14 expenditures on invasive species programs, per the Legislative Reference Bureau (2015)

Expenditure Level	State Funds	County Funds	Federal Funds	Other Funds	Total
State	$19,574,521	X	$12,436,258	$10,059,994	$42,070,773
Counties	X	$70,147	X	$0	$70,147
Federal	X	X	$15,276,419	$71,571	$15,347,990
Total	$19,574,521	$70,147	$27,712,677	$10,131,565	$57,488,910

Most invasive species programs are part of their regular departmental programs, rather than reliant on the interagency "gap filling" project grants provided by HISC. Continued support for departmental programs is critical to making sure that basic infrastructure exists for invasive species prevention and control in Hawaii. Because the invasive species problem is complex and programs to deal with various portions of the invasive species problem are spread across agencies, this report provides a brief summary of biosecurity or invasive species programs at individual departments.

2.3.1 Department of Land and Natural Resources

- 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 Forestry Technicians positions 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. 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 Kaneohe 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.

2.3.2 Hawaii Department of Agriculture (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. 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.

2.3.3 Department of Health

- 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. Following an outbreak of dengue fever in 2015 and new threats from Zika virus, the legislature approved 20 positions to be restored to Vector Control Branch in 2016. This restoration will still leave DOH with fewer Vector Control positions than it had before the 2009 Reduction-in-Force.

- Clean Water Branch: Reviews permits relating to the use of pesticides near water, a necessary component of many invasive species control projects.

2.3.4 Department of Business, Economic Development, and Tourism

- 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.
- 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).

2.3.5 Hawaii Department of Transportation

- 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 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 project, known as *Māmalu Poepoe*, will 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.

2.3.6 University of Hawaii

- 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 researchers in invasive insect biology, biological control, and plant pathogens.
  - Natural Resources and Environmental Management, which employs researchers in wildlife management and invasive weed management.
  - The Cooperative Extension Service, including researchers specializing in pests, diseases, and weeds.
- College of Natural Sciences:
  - The Department of Botany: In addition to hosting 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.

2.4 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 Oahu in small numbers. In December 2013, Little Fire Ants, which had been found throughout the greater Hilo area and on Kauai for 10 years, were detected on Maui and Oahu. A new pest, Coconut Rhinoceros Beetle, was detected on Oahu 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 Oahu. *Aedes aegypti*, a species of mosquito, has been detected at an increased frequency at Honolulu International Airport, and is a potential carrier of Zika, 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 Kauai (1999), Maui (multiple occurrences, most recently in 2013), and Oahu (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 Oahu, the annual loss in property value would drastically increase.

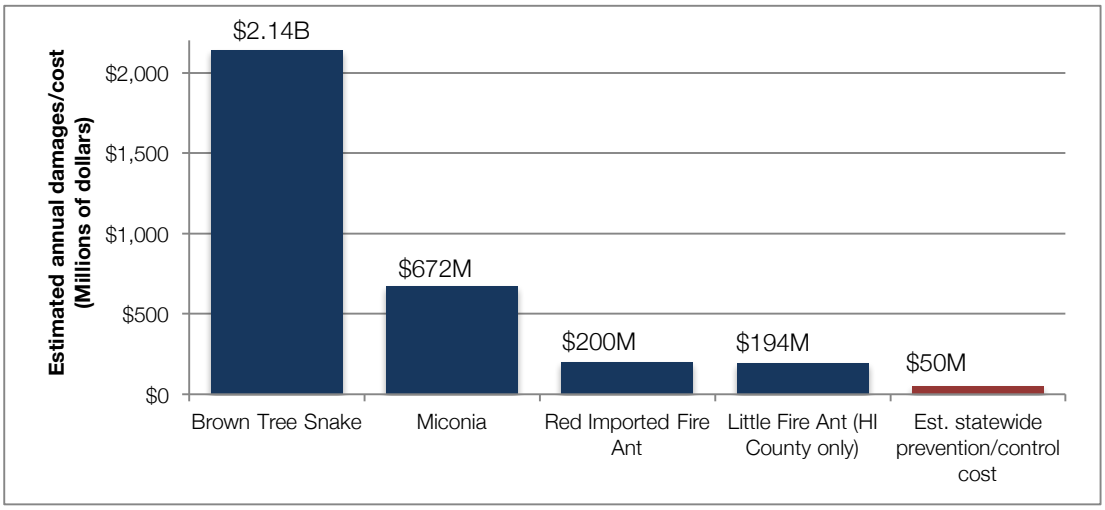


Fig 4: Examples of estimated damages from invasive species in Hawaii.

The Hawaii Interagency Biosecurity Plan estimates that an additional $37M needs to be spent annually on invasive species programs in Hawaii in order to adequately mitigate invasive species impacts. The damages 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.

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3. 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.

3.1 FY17 Resolutions of the Hawaii Invasive Species Council

The HISC adopted three resolutions in FY17:

- Resolution 17-1: Endorsing The Hawaii Interagency Biosecurity Plan And Committing To Implementation
- Resolution 17-2: Supporting Evaluation And Implementation Of Technologies For Landscape-Scale Control Of Mosquitoes, With A Focus On Mitigating Both Human And Wildlife Health Risks
- Resolution 17-3: Recognizing The Rapid Ohia Death Advisory Group As The Lead Entity For The Rapid Ohia Death Response And Supporting Close Collaboration Between The Hawaii Invasive Species Council And The Rapid Ohia Death Advisory Group At All Levels

All HISC resolutions are available at http://dlnr.hawaii.gov/hisc/reports/resolutions/.

3. 2 Advice Regarding Invasive Species in the 2017 Legislative Session

3.2.1 Implement the Hawaii Interagency Biosecurity Plan

While the administration package for the 2018 legislative session was still in development at the time of publication for this report, the 2018 session will be an opportunity to help implement the Hawaii Interagency Biosecurity Plan, a 10-year vision (2017-2027) for strategically enhancing biosecurity measures across various agencies. The plan describes roughly 150 coordinated action items for agencies and partners to enhance invasive species prevention, detection, and control. These action items are organized around 10 key themes, highlighted below and in the Executive Summary for the HIBP, located at http://dlnr.hawaii.gov/hisc/plans/hibp/.

- **Offshore compliance:** Agreements with other jurisdictions to adopt preshipping inspection and control policies
- **E-manifest and intelligence gathering**: New technology to track what is coming in, what is high risk, and what is low-risk (for faster release)
- **Inspection facilities**: Well-lit, secure areas for efficient inspections, refrigerated areas for produce
- **Inspection of nonagricultural items**: Provide HDOA the authority and staff to inspect high-risk nonagricultural items

- **Emergency response capacity**: Interagency plans, protocols, and funding in place for timely and effective response to new pest incursions
- **Better coordination and participation by industries**: Expansion of the Hawaii Invasive Species Council into the Invasive Species Authority to provide industry a seat at the table and better interagency coordination to monitor, detect, and control invasive species
- **Renewed focus on human health**: A fully restored DOH Vector Control Branch to detect vectors of dengue, Zika, and more
- **Enhanced control of established pests**: Adequate field staff at HDOA, DLNR, DOH, and UH to control established invasive species, improved laboratories to support effective biocontrol
- **Minimized interisland spread**: Increased staff and inspections for interisland goods, support to local farms and nurseries through certification programs and import substitution programs
- **Engaged and supportive community**: Targeted outreach to different stakeholder groups to increase awareness of and engagement in biosecurity programs

3.2.2 Utilize the recommendations of the 2015 Legislative Reference Bureau study on invasive species

The 2015 report, titled *Can't see the Forest for the (Albizia) Trees: An Invasive Species Update* was commissioned as an update to the 2002 *report Filling the Gaps in the Fight Against Invasive Species*. The 2015 report documents the current state of invasive species management in Hawaii, and details the reasons why, 13 years after the original report, substantial gaps in Hawaii's invasive species programs still exist. These include:

1. The absence of a comprehensive biosecurity plan or a coordinated multiagency plan or strategy to clearly address agencies' authority and responsibility;
2. Inadequate funding and staffing to fully address invasive species efforts;
3. Insufficient inspection efforts to fully prevent invasive species from entering, moving within, and becoming established in Hawaii;
4. A lack of effective public education and outreach;
5. Inconsistent, incomplete, and overlapping laws, rules, and agency mandates; and
6. An often ineffective invasive species entity, HISC, the potential of which remains unrealized.

The Legislative Reference Bureau's recommendations for addressing these gaps include:

1. **Hawaii should develop a comprehensive, statewide biosecurity plan** to effectively prevent the introduction and control the spread of invasive species. (*Note: the comprehensive Hawaii Interagency Biosecurity Plan was completed in 2017)*
2. The Legislature should take the action necessary to effect the statutory and regulatory changes proposed in a comprehensive, statewide biosecurity plan, and to provide sufficient funding and support for its development and full implementation, **ensuring that moneys thereafter are allocated and expended according to the biosecurity plan**. (*Note: specific legislative requests associated with the Hawaii Interagency Biosecurity Plan will be submitted for the 2018 legislative session.*)
3. The Legislature should give consideration to **amending the organizational structure of HISC** to provide clearer authority to direct interagency coordination and provide resources and support for priority actions necessary in the fight against invasive species. (*Note: A proposal to restructure HISC as an attached agency called the Hawaii Invasive Species Authority was introduced in 2017 but failed to pass.*)
4. The Legislature should **provide sufficient funding and resources** needed to increase capacity of agencies to engage in preventive actions throughout the State.
5. With respect to funding for inspection and other efforts necessary to prevent or control invasive species in the State, the Legislature may wish to revisit a Bureau 2002 recommendation to **provide a stable, dedicated means of funding for invasive species operations, including rapid response actions**. (*Note: a proposal for an invasive species emergency response fund was introduced by Representative Nicole Lowen in 2016 and 2017. The measure did not pass.)*

6. In consultation with the Governor concerning state priorities and needs, the State's congressional delegation should **prioritize action on issues that lay exclusively within federal jurisdiction** regarding the protection of Hawaii from invasive species that may arrive either from the United States mainland or from foreign nations.
7. The Legislature may wish to consider pursuing the University of Hawaii Economic Research Organization's suggestion to use an existing case study of the economic impact of a particular invasive species to **determine the necessary steps and data requirement for assessing the impact of future invasive species**.

3.3 Invasive Species in the 2017 Legislative Session

The 2017 legislative session included 40 bills relating to invasive species. Most of these bills provided appropriations for existing management programs or policy changes intended to improve the efficiency of invasive species management. Of these 40 bills, only five passed. Of the 35 bills that failed to pass the 2017 session, eight bills failed due to lack of being scheduled for a subject matter committee hearing. Sixteen bills were passed by subject matter committees but died due to lack of being scheduled by either Finance or Ways and Means. Eleven bills were heard and deferred by subject matter committees, including six bills that made it to conference committees.

The five measures that passed included:

- HB655, appropriating $75,000 for the study and control of rose-ringed parakeets on Kauai
- HB606, authorizing counties to access private property for the control of invasive species
- HB186, extending the sunset date on the coffee berry borer subsidy program
- HB1325, providing funds for biosecurity programs at HDOA
- SR26, requesting a study on the impacts to agriculture of invasive and endangered species.

The budget bill included the following items relating to invasive species:

- $4.75M for the HISC
- $1.5M for the agricultural loan program
- Six staff for the Department of Health's Vector Control Branch
- $1.6M for rat lungworm disease mitigation and research
- $1.5M for rapid ohia death mitigation and research.

The 35 measures that did not pass encompassed a wide variety of efforts relating to invasive species, including:

- Restructuring the HISC as the Hawaii Invasive Species Authority, an attached agency with dedicated staff and additional board seats to engage industry and other nongovernmental experts
- Creation of an invasive species emergency response fund
- Tax credits to landowners who remove invasive albizia trees
- Funds to hire additional invasive species technicians for the Maui branch of the DLNR Division of Forestry and Wildlife
- Appropriation of funds to the Hawaii Ant Lab
- Appropriation of funds to the University of Hawaii at Hilo's College of Pharmacy for rat lungworm research and education

A full list of invasive species bills proposed in the 2017 legislative session, along with testimony positions by HISC or DLNR and the ultimate fate of those bills, is presented in Appendix 1.

3.4 Review of Relevant Administrative Rules

During the reporting period, a temporary administrative rule prohibiting the movement of ohia products from Hawaii Island was made permanent. This rule is designed to limit the movement of the fungus causing rapid ohia death.

4. HISC-Funded Projects, FY17-18

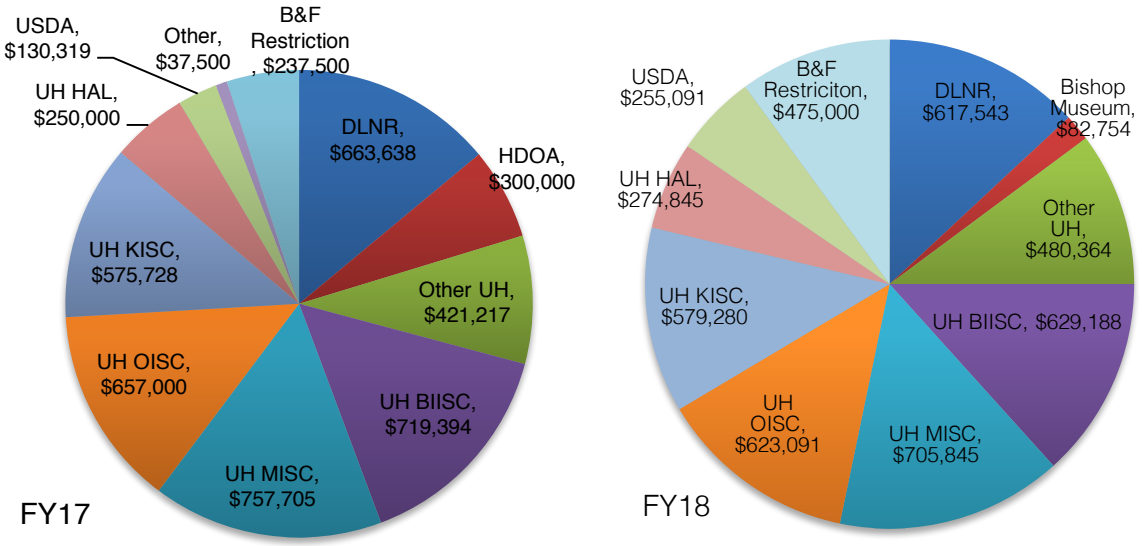
This report provides details about projects funded by the HISC in FY17 and FY18. Because the release of funding and subsequent encumbering of project funds can take up to six months, projects durations are typically based on the calendar year following the year in which funds are awarded. This report therefore includes:

- A list of projects funded by the HISC in FY17 (typically implemented for the duration of calendar year 2017)
- A list of projects funded by the HISC for FY18 (typically implemented for the duration of calendar year 2018).

4.1 Summary of FY17-18 Grants

The HISC was appropriated $4.75M in each year of the FY17-18 biennium. 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 FY17 budget separated by agency, b) HISC FY18 budget separated by agency



4.2 Projects Funded by the HISC in FY17

The HISC received roughly $9M in requests in FY16 and had $4.75M to disburse. Full project abstracts can be found at http://dlnr.hawaii.gov/hisc/projects/fy17/, as will final reports once projects are complete.

Table 2: Projects funded by the HISC in FY17

Dept	Div	Abbreviated Project Title	Final award
Dept B&F		5% Restriction	$237,500
DLNR	DOFAW	6% DOFAW Overhead	$270,750
HISC	Support	HISC Support	$257,186
DLNR	DAR	Ballast Water and Hull Fouling Program	$91,000
DLNR	DOFAW	Kohala Rapid Ohia Death Surveys	$44,701

HDOA	PI	Coconut Rhinoceros Beetle Response	$300,000
Iowa	Plant Path	Rapid Ohia Death Genetics	$37,500.00
UH	COP	Rat Lungworm Outreach	$65,635
UH	CTAHR	Development of Herbicide Ballistic Technology Platform for Unmanned Aerial Vehicles	$71,843
UH	CTAHR	Kauai Surveys for Toxoplasmosis, Salmonella, and Rat Lungworm Disease	$23,615
UH	CTAHR	Maui County Mosquito Surveys	$40,908
UH	WO	Albizia Statewide Planning	$50,000
UH	BIISC	Big Island Rapid Response	$270,000
UH	BIISC	Big Island Early Detection	$198,122
UH	BIISC	Big Island Outreach	$151,271
UH	BIISC	Big Island Albizia Control	$100,000
UH	CGAPS	CGAPS Core Program Support	$57,000
UH	HAL	Hawaii Ant Lab	$250,000
UH	KISC	Kauai Detection & Control	$499,223
UH	KISC	Kauai Outreach	$76,504
UH	LHWRP	Haleakala Bocconia HBT Research	$20,214
UH	MISC	Maui Detection & Control	$500,860
UH	MISC	Increased Control of Coqui in Maliko Gulch	$178,635
UH	MISC	Maui Outreach	$57,277
UH	MISC	Maui Control of Miconia Core	$20,931
UH	OISC	Oahu Detection & Control	$562,000
UH	OISC	Oahu Outreach	$80,000
UH	OISC	Oahu Cane Ti Control	$15,000
UH	WRA	Weed Risk Assessment Program	$92,000
USDA	USFS	Albizia Biocontrol Research	$80,000
USDA	USFS	Melastome Biocontrol Research	$30,318
USDA	USFS	Ginger Biocontrol Research	$20,000
		TOTAL	$4,750,000

4.3 Projects Funded by the HISC in FY18

The State Legislature provided $4,750,000 in FY17 for the HISC to support projects. The HISC approved a spending plan for FY18 on August 24, 2017. Encumbrance for these projects is underway, with anticipated start dates of Q2 or Q3 FY18. Full project abstracts are available at http://dlnr.hawaii.gov/hisc/projects/fy17/.

The HISC received a record $12M in requests for FY18 and had $4.75M to disburse. The Department of Budget and Finance imposed a 10% restriction on expenditures in FY17, and the DLNR Division of Forestry and Wildlife required an administrative overhead of 6%. HISC Support program costs totaled $272,447, which provides two temporary support staff and part-time technician and web programmer costs associated with the development of HISC's online pest reporting system. The amount remaining for competitive project funding was $3,746,053. Applicants received awards based on their interagency evaluation score, the scalability of their project, and their ability to seek additional funds.

Table 3: Proposals received and grants provided by the HISC in FY17.

Division	Abbreviated Project Title	Request	Final Award
State of HI	10% Expenditure Restriction	$475,000	$475,000
DLNR	6% Overhead	$256,500	$256,500
HISC	HISC Support Program	$272,447	$272,447
Bishop Museum	Statewide Early Detection Botany Capacity	$98,000	$24,339
Bishop Museum	Distribution of Snails and Rat Lungworm Disease	$178,299	$58,415
UH CTAHR	Herbicide Ballistic Technology developments	$265,394	$87,622
UH CTAHR	Spittlebug Detection and Control	$174,461	$50,000
UH CTAHR	CRB Control Method Research	$257,093	$100,000
UH CTAHR	Hydrogel Ant Bait Research	$100,448	$45,305
UH CTAHR	CRB Biocontrol and Chemical Control Research	$42,907	$17,771
UH Geography & Env Sci	Unmanned Aerial System Program Development	$223,795	$43,811
UH PCSU	Statewide Plant Prioritization Tool	$57,825	$31,961
UH PCSU	West Maui HBT for Albizia and Mules Foot Fern	$30,204	$3,894
UH PCSU - DAR	Ballast Water and Biofouling	$159,790	$88,596
UH PCSU BIISC	BIISC Early Detection	$303,685	$243,395
UH PCSU BIISC	BIISC Outreach	$197,233	$116,830
UH PCSU BIISC	BIISC Plant Control	$301,831	$195,945
UH PCSU BIISC	BIISC ROD Team	$232,910	$73,018
UH PCSU CGAPS	Coordinating Group on Alien Pest Species	$104,594	$27,000
UH PCSU HAL	Hawaii And Lab Development of Organic Treaments	$29,020	$14,845
UH PCSU HAL	Hawaii Ant Lab Core Program	$297,160	$260,000
UH PCSU KISC	KISC Outreach Program	$149,073	$48,679
UH PCSU KISC	KISC Core Program	$1,036,105	$530,601
UH PCSU MISC	MISC Core Program	$981,460	$569,544
UH PCSU MISC	MISC Expansion of Little Fire Ant Response	$321,136	$48,679

UH PCSU MISC	MISC Outreach Program	$118,508	$87,622
UH PCSU OISC	OISC Core Program	$797,569	$550,072
UH PCSU OISC	OISC Outreach Program	$92,766	$73,018
UH PCSU WRA	Weed Risk Assessment	$106,381	$100,000
USDA NWRC	Research on Alternative Hosts of Rat Lungworm Disease	$146,269	$38,943
USDA NWRC	Development of a Mongoose Control Method	$77,550	$32,204
USFS Biocontrol	Albizia Biocontrol	$211,100	$115,000
USFS Biocontrol	Melastome Biocontrol	$64,610	$30,000
USFS IPIF	Rapid Ohia Death Monitoring	$157,500	$38,943
	Total		$4,750,000

Abbreviations

Departments: DLNR= Department of Land and Natural Resources; HDOA= Hawaii Department of Agriculture; UH= University of Hawaii; USDA= US Department of Agriculture; USFS= US Forest Service; USGS= US Geological Survey;

Divisions: PCSU= Pacific Cooperative Studies Unit; MISC= Maui Invasive Species Committee; BIISC= Big Island Invasive Species Committee; OISC= Oahu Invasive Species Committee; WRA= Weed Risk Assessment; HAL= Hawaii Ant Lab; CGAPS= Coordinating Group on Alien Pest Species; KISC= Kauai Invasive Species Committee; CTAHR= College of Tropical Agriculture and Human Resources; KMWP= Koolau Mountain Watershed Partnership; LHWRP= Leeward Haleakalā Watershed Restoration Partnership; USFS= US Forest Service; DAR= Division of Aquatic Resources; COP= College of Pharmacy; CTAHR= College of Tropical Agriculture and Human Resources; IPIF= Institute for Pacific Islands Forestry; NWRC= National Wildlife Research Center; ARS= Agricultural Research Service

Projects: HBT= Herbicide Ballistic Technology; LFA= Little Fire Ant; ROD= Rapid Ohia Death ; UAS= Unmanned Aerial System.

Appendix 1: Invasive Species Bills in the 2017 Legislative Session, with Positions of HISC and/or DLNR

The 2017 legislative session had 40 bills relating to invasive species, though 35 did not pass. 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 was the support staff for HISC. When HISC was able to provide separate testimony from DLNR, the positions of the two agencies were similar.

Table 4: Invasive species and biosecurity bills in 2017, with the position of HISC and/or DLNR. Bills that passed are shaded green.

Bill No	Title	Description	Introducers	Position
HB1004	RELATING TO RAPID OHIA DEATH.	Appropriates moneys for implementation of the Rapid Ohia Death Strategic Response Plan.	CREAGAN, CULLEN, EVANS, et al.	Support
HB1005	RELATING TO BIOSECURITY.	Appropriate moneys to DOA to enhance the biosecurity program by funding invasive incipient species management programs.	CREAGAN, EVANS, GATES, et al.	Support
HB1006	RELATING TO INVASIVE SPECIES.	Appropriates funds to the Hawaii ant lab for personnel and equipment to support mitigation of the little fire ant.	CREAGAN, DECOITE, EVANS, et al.	Support
HB1013	RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION.	Restructures the Hawaii Invasive Species Council as the Hawaii Invasive Species Authority, administratively attached to the Department of Agriculture, to coordinate implementation of the Hawaii Interagency Biosecurity Plan and to improve coordination of the State's invasive species prevention, early detection, rapid response, control, enforcement, and outreach programs. Appropriates funds to implement the Authority and relevant interagency invasive species projects. Effective 7/1/2017.	SOUKI	Support
HB122	RELATING TO FERAL CATS.	Appropriates funds to the Department of Health to enable it to contract with eligible non-profit or charitable organizations, private entities, or public entities to trap, neuter or spay, and release feral cats to the location where they were originally trapped.	MIZUNO	NA, did not receive hearing
HB1247	RELATING TO RAPID OHIA DEATH.	Appropriates funds for research on prevention and mitigation of Rapid Ohia Death.	LOWEN, CREAGAN, EVANS, et al.	Support

HB1301	RELATING TO INVASIVE SPECIES.	Provides that a person or entity that is determined by the Hawaii Invasive Species Council to have introduced an invasive species into the State is financially liable (strict liability) for the eradication of the invasive species. (HB1301 HD1)	DECOITE, KEOHOKALOLE, LOPRESTI, et al.	Comments
HB1325	RELATING TO BIOSECURITY.	Requires the DOA to establish parameters and construction requirements for biosecurity facilities that provide for and ensure the safety of agricultural and food commodities. Makes appropriations for the biosecurity program, including projects for import replacements of high risk crops.	YAMASHITA, CHOY, DECOITE, et al.	Support
HB1339	RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION.	Restructures the Hawaii Invasive Species Council as the Hawaii Invasive Species Authority to coordinate implementation of the Hawaii Interagency Biosecurity Plan and related duties. Appropriates funds.	CREAGAN, EVANS, GATES, et al.	Support
HB1359	RELATING TO INVASIVE SPECIES.	Allows each county to enact and enforce ordinances necessary to prevent, investigate, control, or eradicate invasive species on any public or private premises within the limits of the county.	SOUKI, MCKELVEY	Comments
HB172	RELATING TO PRIVATE PROPERTY.	Authorizes a property owner or agent to enter adjacent property under certain conditions to eradicate albizia trees before they become hazardous. Provides defense to criminal prosecution.	SAN BUENAVENTURA, BELATTI, KEOHOKALOLE, et al.	Support w comments
HB186	RELATING TO COFFEE BERRY BORER BEETLE.	Extends the sunset date for the Coffee Berry Borer Pesticide Subsidy Program until June 30, 2021, for the purchase of pesticides containing Beauveria bassiana to combat the coffee berry borer. Provides that no single coffee grower shall receive more than $6,000 per year in subsidies between June 30, 2018 and July 1, 2021. Appropriates funds. (HB186 HD1)	LOWEN, CREAGAN, EVANS, et al.	Support
HB20	RELATING TO TAXATION.	Provides a temporary, nonrefundable tax credit to owners of real property for albizia tree trimming or removal performed under certain conditions. Applies to tax years beginning after December 31, 2017, but shall not be available for tax years beginning after December 31, 2019.	CHOY	NA, did not receive hearing

HB228	RELATING TO INVASIVE PLANTS.	Simplifies the listing process for the designation of plants on the restricted plants list and the noxious weeds list by using the Hawaii Pacific Weed Risk Assessment to prevent the importation, sale, and uncontrolled spread of invasive species. (HB228 HD1)	EVANS	Support w comments
HB29	RELATING TO TAXATION.	Establishes an income tax credit for taxpayers who remove albizia trees from their real property.	CHOY	Support
HB454	RELATING TO INVASIVE SPECIES.	Authorizes departments that are members of the invasive species council to require landowners with land that contains invasive species to control or eradicate the invasive species if the landowner does not permit the department to enter the land. Imposes fines for noncompliance.	DECOITE, BELATTI, CREAGAN, et al.	Support
HB474	RELATING TO RAT LUNGWORM DISEASE.	Appropriates funds to the University of Hawaii at Hilo, the department of health, department of land and natural resources, and department of agriculture for programs, studies, and activities related to rat lungworm disease.	TODD, BELATTI, CACHOLA, et al.	Support
HB481	RELATING TO INVASIVE SPECIES.	Requires the Department of Agriculture to establish a pilot pesticide treatment coupon project and a little fire ant site map for the county of Hawaii. Requires report to the Legislature on project implementation. Appropriates funds.	ONISHI, BROWER, CHOY, et al.	Support
HB606	RELATING TO COUNTY ACCESS TO PRIVATE PROPERTY.	Authorizes the counties to enter private property to control or eradicate invasive species and pests. (HB606 HD1)	LOWEN	Support
HB655	RELATING TO THE ROSE-RINGED PARAKEET.	Appropriates funds to the department of land and natural resources to assist with and provide supplemental funds to 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.	NAKAMURA, CREAGAN, CULLEN, et al.	Support
HB904	RELATING TO INVASIVE SPECIES.	Establishes the invasive species rapid response special fund within DLNR. Establishes procedures for emergency declarations and expenditures. Appropriates moneys. (HD1)	LOWEN, CREAGAN, DECOITE, et al.	Support

SB1091	RELATING TO BIOSECURITY.	Appropriate moneys to DOA to enhance the biosecurity program by funding invasive incipient species management programs.	GABBARD, ENGLISH, HARIMOTO, et al.	Support
SB1239	RELATING TO RAPID OHIA DEATH.	Appropriates funds for research on prevention and mitigation of Rapid Ohia Death.	K. RHOADS	Support
SB1262	RELATING TO WILDLIFE.	Establishes the cat and wildlife task force to make recommendations regarding the humane reduction of free-roaming cat populations and their impacts on wildlife.	GABBARD, ESPERO, GREEN, et al.	Comments
SB229	RELATING TO VECTOR CONTROL.	Appropriates moneys for twelve permanent full-time equivalent positions in the vector control branch of the department of health.	GABBARD, NISHIHARA, K. RHOADS, et al.	Support
SB272	RELATING TO RAT LUNGWORM DISEASE.	Appropriates funds to the University of Hawaii at Hilo, the department of health, department of land and natural resources, and department of agriculture for programs, studies, and activities related to rat lungworm disease.	K. KAHELE, BAKER, GREEN, et al.	Support
SB353	RELATING TO AGRICULTURE.	Authorizes the issuance of GO bonds for plans of a biological control containment facility on Oahu.	GABBARD, ENGLISH, KEITH-AGARAN, et al.	Support
SB409	RELATING TO INVASIVE SPECIES.	Allows each county to enact and enforce ordinances necessary to prevent, investigate, control, or eradicate invasive species on any public or private premises within the limits of the county.	KEITH-AGARAN, BAKER, ENGLISH, et al.	NA, did not receive hearing
SB558	RELATING TO INVASIVE SPECIES.	Appropriates funds to the department of land and natural resources' division of forestry and wildlife, Maui branch, for invasive species technician positions in east Maui to address invasive plants and animals.	ENGLISH, S. Chang, Gabbard, et al.	Support
SB636	RELATING TO INVASIVE SPECIES.	Establishes the invasive species rapid response special fund within DLNR. Establishes procedures for emergency declarations and expenditures. Appropriates moneys.	K. RHOADS	Support
SB637	RELATING TO COUNTY ACCESS TO PRIVATE PROPERTY.	Authorizes the counties to enter private property to control or eradicate invasive species and pests.	K. RHOADS	Support

SB656	RELATING TO INVASIVE SPECIES.	Requires the Department of Agriculture to establish a pilot pesticide treatment coupon project and a little fire ant site map for the county of Hawaii. Requires report to the Legislature on project implementation. Appropriates funds.	INOUYE, GREEN, KIDANI, et al.	NA, did not receive hearing
SB772	RELATING TO THE ROSE-RINGED PARAKEET.	Appropriates funds to the department of land and natural resources to assist with and provide supplemental funds to 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.	GABBARD, K. RHOADS, Nishihara, Riviere	Support
SB776	RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION.	Restructures the Hawaii invasive species council as the Hawaii invasive species authority, administratively attached to the department of agriculture, to coordinate implementation of the Hawaii interagency biosecurity plan and to improve coordination of the State's invasive species prevention, early detection, rapid response, control, enforcement, and outreach programs. Appropriates funds to implement the authority and relevant interagency invasive species projects.	GABBARD, KEITH-AGARAN, RUDERMAN, et al.	Support
SB815	RELATING TO REAL ESTATE DISCLOSURE.	Requires disclosure of albizia trees in a disclosure statement as part of the sale or transfer of real estate assets.	RUDERMAN, GABBARD, Ihara, et al.	NA, did not receive hearing
SB843	RELATING TO PRIVATE PROPERTY.	Authorizes a property owner or agent to enter adjacent property under certain conditions to eradicate albizia trees before they become hazardous. Provides defense to criminal prosecution.	RUDERMAN, Riviere	NA, did not receive hearing
SB879	RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION.	Restructures the Hawaii Invasive Species Council as the Hawaii Invasive Species Authority, administratively attached to the Department of Agriculture, to coordinate implementation of the Hawaii Interagency Biosecurity Plan and to improve coordination of the State's invasive species prevention, early detection, rapid response, control, enforcement, and outreach programs. Appropriates funds to implement the Authority and relevant interagency invasive species projects. Effective 7/1/2017.	KOUCHI	NA, did not receive hearing

SCR160	REQUESTING THAT THE UNIVERSITY OF HAWAI'I PROVIDE INFORMATION TO THE LEGISLATURE ON POSSIBLE TECHNIQUES TO ELIMINATE MOSQUITOS FROM HAWAII.	RIVIERE, K. RHOADS, S. Chang, et al.	Support
SCR69	REQUESTING THE DEPARTMENT OF AGRICULTURE AND DEPARTMENT OF LAND AND NATURAL RESOURCES TO IDENTIFY ECONOMIC, ENVIRONMENTAL, AND REGULATORY CONSEQUENCES OF CROP DEGRADATION CAUSED BY INVASIVE AND ENDANGERED SPECIES IN HAWAII.	GABBARD, S. Chang, Espero, et al.	Comments and concerns
SR26	REQUESTING THE DEPARTMENT OF AGRICULTURE AND DEPARTMENT OF LAND AND NATURAL RESOURCES TO IDENTIFY ECONOMIC, ENVIRONMENTAL, AND REGULATORY CONSEQUENCES OF CROP DEGRADATION CAUSED BY INVASIVE AND ENDANGERED SPECIES IN HAWAII.	GABBARD, S. Chang, K. Kahele, et al.	Comments and concerns

Appendix 2: Chapter 194, Hawaii 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].