

CAN'T SEE THE FOREST FOR THE (ALBIZIA) TREES: AN INVASIVE SPECIES UPDATE

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FOREWORD

This Report was prepared in response to Act 126, Session Laws of Hawaii 2015, which directed the Legislative Reference Bureau to update its 2002 study, "Filling the Gaps in the Fight Against Invasive Species."

The Bureau requested information from federal, state, county, and private entities to complete this study. The Bureau extends its appreciation to the many entities that generously provided information and assistance in the preparation of this Report.

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EXECUTIVE SUMMARY

Introduction

This report was prepared by the Legislative Reference Bureau (Bureau) in response to Act 126, Session Laws of Hawaii 2015, which directed the Bureau to update its 2002 study "Filling the Gaps in the Fight Against Invasive Species." Since the writing of the 2002 report, the seriousness of the invasive species problem in Hawaii has dramatically increased and cannot be underestimated. Invasive species, both established ones and those that arrive nearly every day, represent a severe long-term threat to the health of Hawaii's residents and visitors, to the natural environment that makes Hawaii and its culture uniquely special, and to the agricultural and tourism economy that makes large-scale human habitation possible in these remote islands. If Hawaii is to retain its environmentally and ecologically unique sense of place for future generations of residents and visitors alike, then the State and its partners need a robust, comprehensive plan of action to meet this threat to its continued existence and a sustained commitment to support the execution of that plan.

The 2002 Report

In 2002, the Legislature's concern about invasive species prompted it to ask the Bureau to study "policy recommendations and funding options for a comprehensive invasive species protection and control program." According to the Bureau's 2002 report, the Coordinating Group on Alien Pest Species estimated that the cost to effectively fight invasive species in Hawaii for one year was \$50,000,000. However, only a fraction of this amount was actually being spent on invasive species programs at that time. Accordingly, the Bureau concluded that funding was the biggest and most obvious gap in the fight against invasive species and recommended the creation of a dedicated source of funding. The Bureau also recommended the establishment of an administrative/coordinator position, with sufficient staff and resources, attached to the Governor's office to coordinate the efforts of state agencies and fill the perceived power vacuum in the fight against invasive species. Instead, to provide coordination, the Legislature formally established the Hawaii Invasive Species Council (HISC), an interagency council that had been created pursuant to a 2001 Executive Order. However, since that time, HISC has had minimal staffing, modest or no funding, and, in many respects, has not fulfilled the duties assigned to it by the Legislature.

The 2015 Update

In this update to its 2002 report, the Bureau explains Hawaii's particular susceptibility to invasive species and the current scope of the invasive species problem, listing prominent invasive species in Hawaii and the threat each poses to the environment, health and safety, and the economy. The Bureau also researched the economic and other costs that invasive species pose to Hawaii. The Bureau solicited information through two surveys sent to, and follow-up communications with, federal, state, county, and private entities engaged in the fight against

invasive species. Based upon the information received, the Bureau discusses the roles played by each entity, summarizes the expenditures made by the government entities, and reports on the gaps and leaks in the present system to prevent, mitigate, or eradicate invasive species. The Bureau concludes that current prevention efforts are inadequate, and that overlapping or conflicting mandates of different agencies, inconsistencies between statutory or administrative authority, and insufficient funding, have left significant gaps and leaks remaining in Hawaii's battle against invasive species. 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.

Recommendations

The Bureau makes the following recommendations:

- (1) Hawaii should develop a comprehensive, statewide biosecurity plan to effectively prevent the introduction and control the spread of invasive species.
- (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.
- (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.
- (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.
- (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.

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Chapter 1

INTRODUCTION

Pursuant to Act 126, Session Laws of Hawaii 2015,¹ the Legislature directed the Legislative Reference Bureau (the Bureau) to update its 2002 study "Filling the Gaps in the Fight Against Invasive Species."

Definition of "Invasive Species"

On February 3, 1999, former President Bill Clinton signed Executive Order 13112, which established the National Invasive Species Council (NISC).² The Order defined "alien species," "invasive species," and "native species" as follows:

"Alien Species" means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

"Invasive Species" means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

"Native Species" means, with respect to a particular ecosystem, a species that, other than as a result of introduction, historically occurred or currently occurs in that ecosystem.³

In Hawaii, "invasive species" is defined only for purposes of the law that limits landowners' liability to those entering property to control or eradicate invasive species.⁴ The definition states:

[A]ny plant, plant pest, noxious weed, microorganism, biological control organism, or animal that can directly or indirectly injure or cause damage to the environment or to the interests of agriculture, horticulture, aquaculture, animal or public health, native species, natural resources, irrigation, or navigation.⁵

The Hawaii Invasive Species Council (HISC) defines "invasive species" as an alien non-native species that is also harmful to either the environment, economy, or human health.⁶ This definition implies a distinction between alien species and invasive species; all invasive species are alien species, but not all alien species are invasive.

Hawaii's native species are those that have arrived in Hawaii without the help of humans.⁷ They may have hitchhiked on material floating in the ocean, been blown by the wind, or flown to Hawaii.⁸ Examples of non-invasive native species are the ohia tree, koa tree, hoary bat, i'iwi, 'apapane, silversword, and o'opu.⁹

Alien species that are not invasive are those that are not native to Hawaii, but also not harmful to the ecosystem, economy, or human health. Some of these species have actually been

beneficial to Hawaii. Examples of non-invasive alien species include sugarcane, pineapple, coconut palm, plumeria, kalo, and taro.¹⁰

Invasive species may be plants, animals, or even microbes such as diseases and bacteria.¹¹ They can be introduced unintentionally, perhaps by hitchhiking in cargo, or they can be introduced intentionally, such as by importation of invasive livestock, crops, or pets.¹²

List of Top Invasive Species in Hawaii

Hawaii does not have an official designation or updated list of invasive species, although HISC is in the process of drafting and adopting administrative rules to formally define specific invasive species in Hawaii.¹³ Nevertheless, in February 2015, the Department of Land and Natural Resources (DLNR) released a top ten list of some of the most detrimental invasive species to Hawaii, as follows:

- (1) Little Fire Ant;
- (2) Coconut Rhinoceros Beetle;
- (3) Coqui Frog;
- (4) Rat;
- (5) Mongoose;
- (6) Strawberry Guava;
- (7) Miconia;
- (8) Fireweed;
- (9) Invasive Algae; and
- (10) Albizia Tree.¹⁴

The Pace of New Arrivals

Before globalization, the rate at which new invertebrates naturally colonized to Hawaii was one every twenty-five thousand to one hundred thousand years.¹⁵ Today, approximately seventeen invasive species become established in Hawaii annually.¹⁶ On average, a new insect is introduced to the Hawaiian islands as often as once per day.¹⁷

According to Daniel Rubinoff, professor of Entomology and Director of the University of Hawaii Insect Museum in the College of Tropical Agriculture and Human Resources, Hawaii is

known as the invasion capital of the world.¹⁸ Because of importation, Hawaii receives more invasive species than anywhere else.¹⁹ Further, there are more established invasive species than native ones in Hawaii for many categories of species.²⁰

The Importance of Biodiversity

Biodiversity, which invasive species threaten, is the variety of life on Earth. It plays a pivotal role in providing food and medicine. Biodiversity is necessary to maintain the balance of life because species depend on each other to survive. Humans depend on plants, animals, and other organisms for life processes that regulate the ecosystem.²¹ When biodiversity is diminished, our quality of life is also diminished.²²

More specifically, in Hawaii, native Hawaiian culture has a deep connection and strong relationship with native species and the land.²³ Hawaiian culture relies on native plants and animals directly or indirectly for traditional medicine, food, cultural expressions such as hula, and crafts such as carving, weaving, jewelry, and tool making.²⁴ Biodiversity contributes to native Hawaiians' sense of well-being because it directly affects their ties to Hawaii and the land.²⁵

Biodiversity also affects the basic functions of the environment and ecological services²⁶ that many take for granted, such as climate control, water quality, carbon storage, and soil stabilization.²⁷ Coral reefs and the biodiversity of the ocean also help to protect beaches and homes from damage caused by severe weather, such as hurricanes, and seismic events such as tsunamis.²⁸ Because of their biodiversity, "wetland habitats filter water supply, mitigate pollution, and slow storm runoff."²⁹

Biodiversity has a strong correlation to Hawaii residents' well-being and quality of life. Many Hawaii residents are physically active and participate in outdoor activities such as hiking, snorkeling, surfing, and fishing, which are all enhanced by native flora and fauna and the environment.

Why Invasive Species Threaten Hawaii

In 2001, the Legislature found 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."³⁰ Invasive species have negative effects on quality of life, safety, health, the environment, and the economy, specifically tourism and agriculture.³¹

Because of Hawaii's isolated and gentle environment, there was very limited competition among species prior to human contact. New species were not constantly introduced, so the species that became established in Hawaii either lost their natural defenses or did not develop new ones, such as tolerances to illnesses and diseases.³² Invasive species are a major threat to biodiversity because they prey on native species and cause many to go extinct. For example, of the one hundred nine known endemic Hawaiian bird species, fifty-five went extinct after

Polynesians came to Hawaii; nineteen more went extinct once Europeans arrived, with both immigrant groups bringing alien and invasive species with them.³³ Although more species may be added, thirty-three of the remaining thirty-seven extant endemic species are already listed under the U.S. Endangered Species Act.³⁴ Biodiversity is important for Hawaii's ecological services to continue to properly function: plants and animals contribute to (1) minimizing soil and sand erosion, (2) controlling floods, and (3) providing crop pollination.

Invasive species are also a threat to Hawaii's economy, causing millions of dollars in damage to private property, tourism, and agriculture. Tourism is Hawaii's dominant economic sector.³⁵ More than 175,000 jobs are supported by tourism.³⁶ Invasive species, such as little fire ants that have a powerful sting, may deter visitors. Agriculture is also severely affected by invasive species. Many countries refuse to accept exports from Hawaii due to fruit fly infestations.³⁷ Three fruit fly species that have become established in Hawaii remain a constant threat to the continental United States.³⁸ In 2004, experts estimated a loss of \$300,000,000 per year due to fruit flies that infest Hawaii produce.³⁹

Legislative Intent

The Legislature has long recognized that insects, disease-bearing vectors, snakes, harmful weeds, and other pests invading Hawaii are a major threat to the health of its residents, natural environment, and economy.⁴⁰ This concern prompted the Legislature in 2002 to request the Bureau to study "policy recommendations and funding options for a comprehensive invasive species protection and control program."⁴¹ Recognizing the urgent need to protect Hawaii, former Governor Benjamin Cayetano issued Executive Order No. 2002-03, establishing an interagency invasive species council to coordinate the fight against invasive species in Hawaii.⁴² The following year, the Legislature adopted Act 85, Session Laws of Hawaii 2003, which provided statutory authority for the Hawaii Invasive Species Council (HISC) to continue operating. Twelve years after the creation of HISC, the Legislature found that invasive species remain a major threat to the State's economy, natural environment, and health and determined that an update of the Bureau's 2002 study is necessary to assess the present scope of the problem.⁴³

Scope of the Study

The scope of this study is set out in Act 126, Session Laws of Hawaii 2015, which directs the Bureau to provide information in the following areas:

- (1) Present Scope of the Invasive Species Problem in Hawaii;
- (2) Economic and Other Costs;
- (3) Health and Safety Issues;
- (4) State, Federal, County, and Nongovernment Roles and Responsibilities;

- (5) Gaps and Leaks in Prevention and Response Systems; and
- (6) Recommendations Related to Policy, Programs, and Funding to Address Invasive Species.⁴⁴

In addition to the requested information, the Bureau has also provided a brief summary of the 2002 study and information on state agency expenditures related to invasive species and HISC.

As noted above, Act 126, Session Laws of Hawaii 2015, provided, among other things, that the Bureau, as part of its update, describe the economic and other costs that can be causally related to invasive species in the State of Hawaii. Act 126 also appropriated \$100,000 to the Bureau to contract for services to update the 2002 study, including any economic modeling or related services that may be required and exempted the contract from the purchasing requirements of chapter 103D, Hawaii Revised Statutes (HRS) (Procurement Code). We note that Act 126 required the updated study to be submitted to the Legislature no later than twenty days prior to the convening of the Regular Session of 2016.

In conducting our initial scoping of the research project required under Act 126, the Bureau met with the staff of HISC and the Coordinating Group on Alien Pest Species (CGAPS). HISC staff observed that creating a viable and accurate economic modeling tool that could be universally used across species to predict the economic costs to the State of an invasive species incursion would be difficult, if not impossible, because the impact that a species that is not known to occur in Hawaii will also be unknown.⁴⁵ As such, HISC believes that, given the uncertainty regarding so many variables, the ability to generate an accurate cost figure across multiple invasive species and organisms is unlikely.⁴⁶

In addition, HISC staff explained that the University of Hawaii Economic Research Organization (UHERO) is currently working on an invasive species economic research project for HISC that identifies a list of the top invasive species in Hawaii and calculates the cost for invasive species management and economic damages caused by the incursion.⁴⁷ However, UHERO's project does not include the creation of an economic model.⁴⁸ The project is scheduled for completion by the end of 2015, which will be too late for its inclusion in this study.⁴⁹

The Bureau contacted UHERO to ascertain its position on the viability of creating an economic model and to discuss the scope of its current invasive species project funded by HISC. Dr. Kimberly Burnett, who is leading the UHERO project, concurred with HISC staff that an economic model to predict the future economic costs of an invasive species not yet established would be very difficult, if not impossible.⁵⁰ She explained,

A model for each species should be handled independently, as they will each need to capture very different components, including things like probability of introduction/establishment/spread, rate of spread, economic damages per sector, population/spread response of species to various forms of mitigation measures, etc. There is not a one-size-fits-all possibility for expressing economic impacts across all

types of invasive species, since introduction pathways and affected sectors and ecosystems will vary across species, time, and place.⁵¹

She concluded, "[w]e do not think a universal model would be viable. Anything that general would likely not be helpful for policy or decision-making."⁵²

In response to a Bureau inquiry whether there was another component or alternative that, in UHERO's opinion, could augment the current HISC project in providing useful information to manage and eradicate invasive species in Hawaii, Dr. Burnett also explained that UHERO may be able to use an existing case study (where adequate research exists on the economic impact of a particular invasive species such as little fire ants or brown tree snakes) and outline the necessary steps and data requirements for assessing the economic impact of an invasive species. This would provide the State with the necessary steps and data to assess the economic impact for other invasive species.⁵³ However, Dr. Burnett estimated it would take "at minimum an additional 6 months -- 1 year to complete (mid-late 2016)."⁵⁴ The Bureau notes that such a report submission timetable was contemplated in H.B. 1040, H.D. 1, S.D. 1, (the substance of which was incorporated into what became Act 126, Session Laws of Hawaii 2015), which called for submission of an economic modeling report to the Legislature for the Regular Session of 2017. However, Act 126, Session Laws of Hawaii 2015, advanced that report submission timetable to the beginning of 2016.

In view of the Bureau's discussions with HISC and UHERO, it does not appear that creating an economic model would provide a viable or accurate tool to predict economic costs to the State of future invasive species. While UHERO's alternative suggestion to outline the necessary steps and data requirements for assessing the economic impact of an invasive species based on an existing case study seemed a reasonable approach, this could not be completed within the short timeframe in which the Bureau had to complete its study. Furthermore, it was unclear whether the scope of the language in Act 126 appropriating funds to the Bureau was sufficient to include such a project. Consequently, the funds appropriated to the Bureau to contract for economic modeling and other services were not expended.

Methodology of the Study

In order to gather the most current relevant information, the Bureau conducted surveys of state, federal, county, and private agencies.⁵⁵ The first round of surveys (Survey 1) requested information on fiscal expenditures to fight invasive species to determine how much money is spent addressing the problem.⁵⁶ The Bureau sent Survey 1 to thirty-six agencies, including most of the state executive branch agencies, the Office of Hawaiian Affairs, the mayors of the four counties, and certain federal agencies with offices in Hawaii and possible involvement with environmental activities, based upon their names. The surveys to the state agencies and the Office of Hawaiian Affairs asked for two types of expenditure amounts; first, the expenditure amounts, by source of funding, relating to various types of invasive species activities; and second, the expenditure amounts, also by source of funding, for up to ten invasive species for which the most expenditures were made. The surveys to the counties and the federal agencies only asked for expenditure amounts relating to various types of invasive species activities.

Twenty-five agencies responded; however, seven of these agencies responded that they do not expend funds on invasive species.⁵⁷ The Bureau tabulated the responses of only the agencies that responded with expenditure figures (eighteen responses).

The second survey (Survey 2) requested information regarding gaps and leaks in the present fight against invasive species.⁵⁸ The Bureau sent Survey 2 to fifty-three agencies. The list of Survey 2 recipients was compiled from the Bureau's 2015 Directory of State, County and Federal Officials; consultation with CGAPS; and research conducted using the National Agriculture Library of the U.S. Department of Agriculture website. Survey recipients were asked to forward the survey to the appropriate divisions or persons for response, as appropriate. The agencies were initially given approximately three weeks to complete the surveys; some requested additional time. If no response was received by the stated deadline, the Bureau followed up either by e-mail or telephone. The Bureau received forty responses to Survey 2, although some respondents did not answer every question of the survey.⁵⁹ In addition, five of these agencies responded that their work does not involve invasive species in Hawaii. Therefore, the Bureau relied on the information provided in thirty-five Survey 2 responses.

Upon receiving a response to Survey 2, the Bureau entered the information into a master spreadsheet.⁶⁰ For the sake of brevity, the Bureau did not include agencies that did not respond to the survey and agencies that responded that they did not do any work with invasive species.⁶¹ Using this spreadsheet, the Bureau synthesized the information provided by the responding agencies to report on the present gaps and leaks in the fight against invasive species.

Organization of the Report

This Report is generally organized by addressing the issues in sequence as set forth in Act 126, Session Laws of Hawaii 2015, with most issues addressed in a specific chapter. Chapter 2 summarizes the 2002 study.⁶² Chapter 3 presents information on HISC.⁶³ Chapter 4 reviews economic and other costs of invasive species to Hawaii. Chapter 5 examines the present scope of invasive species in Hawaii. Chapter 6 provides information on state, federal, county, and non-governmental roles and responsibilities related to invasive species. Chapter 7 discusses government expenditures to prevent, mitigate, or eradicate invasive species.⁶⁴ Chapter 8 examines gaps and leaks in Hawaii's present system to address invasive species. Chapter 9 provides recommendations related to policy, programs, and funding to address invasive species.

Endnotes

1. Act 126, Session Laws of Hawaii 2015, is attached as Appendix A.
2. Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 3, 1999).
3. *Id.*
4. § 520A-1, Hawaii Revised Statutes (HRS).
5. § 520A-2, HRS.

6. *Invasive Species*, HISC, <http://dlnr.hawaii.gov/hisc/info> (last visited Aug. 26, 2015).
7. *Id.*
8. *Id.*
9. *Id. and What are Invasive Species?*, CGAPS, <http://www.cgaps.org/what-are-invasive-species/> (last visited Aug. 26, 2015).
10. David K. Chee, *Unwanted: Dead or Alive How Invasive Species Could Kill Our Economy*, HAWAII BUSINESS, April 2004, at 22, available at <http://www.hawaiibusiness.com/unwanted-dead-or-alive/>, and *What are Invasive Species?*, *supra* note 9.
11. *Displaced By Invaders: State Action on Invasive Species*, NATIONAL CONFERENCE OF STATE LEGISLATURES, <http://www.ncsl.org/research/environment-and-natural-resources/displaced-by-invaders-state-action-on-invasive-species.aspx> (last visited Aug. 26, 2015).
12. *Id.*
13. *Regulations & Policy*, HISC, <http://dlnr.hawaii.gov/hisc/info/policy/> (last visited Aug. 26, 2015) and *Displaced By Invaders: State Action on Invasive Species*, *supra* note 11. See *infra* Chapter 3, notes 68-72 and accompanying text.
14. *Hawaii's Top Ten Invasive Species Highlighted During Annual Week*, HISC (Mar. 4, 2015), <http://dlnr.hawaii.gov/hisc/news/hawaiis-top-ten-invasive-species-highlighted-during-annual-week/>, and *DLNR Releases Top 10 List of Invasive Species*, KITV4 (Feb. 24, 2015, 7:04 AM), <http://www.kitv.com/news/dlnr-releases-top-ten-list-of-invasive-species/31441348>.
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16. Daniel Rubinoff, *New Butterfly Species to Hawaii*, HAWAII PUBLIC RADIO, Sept. 30, 2015, <http://hpr2.org/post/conversation-wednesday-september-30th-2015>.
17. *Id.* at 22.
18. *Id.*
19. *Id.*
20. *Id.*
21. THE NATURE CONSERVANCY, LAST STAND: THE VANISHING HAWAIIAN FOREST 5, (n.d.), available at <http://www.nature.org/media/hawaii/the-last-stand-hawaiian-forest.pdf>.
22. *Id.* at 5.
23. *Id.* at 7.
24. *Id.*
25. *Id.*
26. Ecological services are naturally occurring processes of natural resources that benefit people such as pollination, water purification, carbon storage, decomposition, and soil stabilization.

INTRODUCTION

27. Paul J. Conry, DLNR DIVISION OF FORESTRY AND WILDLIFE (DOFAW), HAWAII STATEWIDE ASSESSMENT OF FOREST CONDITIONS AND TRENDS: 2010, 156 (2010), *available at* <http://dlnr.hawaii.gov/forestry/files/2013/09/SWARS-Entire-Assessment-and-Strategy.pdf>.
28. *Id.*
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30. Senate Concurrent Resolution 45, H.D. 1 (2001).
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35. Luisa Cristini et al., UNIVERSITY OF HAWAII'S SEA GRANT COLLEGE PROGRAM, CLIMATE CHANGE AND THE VISITOR INDUSTRY 3 (2014), *available at* http://seagrant.soest.hawaii.edu/sites/default/files/publications/web-hta-climatechange-visitorindustry_0.pdf.
36. HAWAII TOURISM AUTHORITY (HTA), 2013 ANNUAL REPORT 1 (n.d.), *available at* <http://www.hawaiitourismauthority.org/default/assets/File/HTA%20AnnuRepFINAL%20WebPosting.pdf>.
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38. *Fruit Flies*, U.S. DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS), https://www.aphis.usda.gov/wps/portal/aphis/ourfocus/importexport?urlile=wcm:path:/aphis_content_library/sa_our_focus/sa_plant_health/sa_domestic_pests_and_diseases/sa_pests_and_disease/s/sa_insects/sa_fruit_flies/ct_fruit_flies_home (last modified Sept. 18, 2015).
39. David K. Chee, *supra* note 10, at 22 *and* Alan Holt, *supra* note 15, at 3.
40. Act 126, Session Laws of Hawaii 2015, is attached as Appendix A.
41. Senate Concurrent Resolution 45 H.D. 1, 2001.
42. Executive Order No. 2002-03 is attached as Appendix B.
43. Act 126, *supra* note 40.
44. *Id.*
45. Interview with HISC staff on July 16, 2015.
46. *Id.*
47. *Id.*

48. *Id.*
49. *Id.*
50. E-mail correspondence with Dr. Kimberly Burnett on July 24, 2015.
51. *Id.*
52. *Id.*
53. *Id.*
54. *Id.*
55. The surveys related to expenditures (Survey 1), with sample corresponding cover letters, are attached as Appendix C. A table of Survey 1 entities indicating whether they responded is attached as Appendix D. The survey related to gaps and leaks (Survey 2), with a sample corresponding cover letter, is attached as Appendix E. A table of Survey 2 entities indicating whether they responded is attached as Appendix F.
56. Survey 1, with sample corresponding cover letters, is attached as Appendix C.
57. A table of Survey 1 entities indicating whether they responded is attached as Appendix D. We note that the current outbreak of dengue fever on Island of Hawaii had not begun at the time we distributed the survey in August 2015 and most of the survey responses were received before the full extent of the outbreak had become clear. Although the threat posed by dengue fever was addressed in a general way by survey respondents, it was not a specific focus of either the survey or the responses.
58. Survey 2, with a sample corresponding cover letter, is attached as Appendix E.
59. We note that because each of the fifty-three recipients was asked to further forward the survey to appropriate divisions persons for response, as appropriate, multiple survey responses came from the same recipient entity. Accordingly, we have not cast the rate of response to the survey as, for example, forty out of fifty-three, because, due to multiple responses from single entities, less than forty survey recipient entities as a whole responded to the survey. A table of Survey 2 entities indicating whether they responded is attached as Appendix F.
60. The master spreadsheet of survey responses to the gaps and leaks survey is attached as Appendix G. The U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS) complete Survey 2 response is attached as Appendix H. A few entities received additional questions to Survey 2. Their responses are attached as Appendix I. A table of acronyms is attached as Appendix J.
61. A table of Survey 2 entities indicating whether they responded is attached as Appendix F.
62. Information in this chapter was not requested by Act 126, Session Laws of Hawaii 2015. However, to provide a complete understanding of the invasive species problem in Hawaii, the Bureau has included this information in the Report.
63. *See supra* note 62.
64. *See supra* note 62.

Chapter 2

SUMMARY OF 2002 STUDY

Although the Legislature did not specifically request a summary of the 2002 study, one is provided in this chapter to produce a complete update of the invasive species problem in Hawaii.

Purpose

In 2001, the Legislature found that the silent invasion of invasive species was "the single greatest threat to Hawaii's economy, natural environment[,] and the health and lifestyle of Hawaii's people and visitors."¹ The Legislature recognized the potential destructive threat that future invasive species posed to Hawaii. Senate Concurrent Resolution No. 45, H.D. 1 (2001) requested the Bureau to prepare a study "on policy recommendations and funding options for a comprehensive invasive species protection and control program for the State of Hawaii."² The Legislature was aware of federal, state, county, and private entity efforts to address the invasive species problem, but concluded that this effort was "piecemeal [and lacked] adequate rigor, comprehensiveness, and political will. . . ."³ In response to Senate Concurrent Resolution No. 45, H.D. 1 (2001), the Bureau published "Filling the Gaps in the Fight Against Invasive Species."

Scope of the Study

Senate Concurrent Resolution No. 45, H.D. 1 (2001) stated the scope of the 2002 study. It requested the Bureau to provide information in the following areas:

- (1) The scope of the invasive species problem on a global and local level;
- (2) The economic and environmental costs to Hawaii associated with invasive species;
- (3) The health and safety issues for Hawaii associated with invasive species;
- (4) Hawaii's existing programs and policies that address the invasive species problem;
- (5) Existing collaborative efforts between organizations in the public, private, and non-profit sectors and among government agencies;
- (6) Potential for future collaborative efforts between organizations in the public, private, and non-profit sectors and among government agencies;

- (7) Statutory changes the Legislature can make to improve control and prevention of invasive species;
- (8) Assessing the need for a lead state agency for the control and prevention of invasive species, and if deemed necessary, recommending the lead state agency; and
- (9) Evaluating existing funding sources and recommending potential future funding sources for a comprehensive state plan.⁴

The study focused on the more visible species that people generally encounter. Except for invasive species targeted by the Department of Health (DOH) Vector Control program, neither disease-causing organisms that live underground, minute nematode worms, fungi, protists (single-celled organisms), nor other disease-causing micro-organisms were included within the scope of the study.

Scope of the Problem

In 2001, the scope of the invasive species problem was serious and daunting. Hawaii was and continues to be uniquely susceptible to invasive species. Because of its isolated and gentle environment, there was very limited competition among species prior to human contact. New species were not constantly introduced, so the species that became established in Hawaii either lost their natural defenses or did not develop new ones.

When the original study was written, some of the most notorious invasive species that threatened Hawaii's environment, public health, and economy were brown tree snakes, Caribbean frogs, miconia plants, mosquitoes (especially if carrying Dengue fever), Formosan ground termites, fruit flies, papaya ringspot virus, biting sand flies, piranhas, rodents, and ungulates (hooved animals), such as pigs, goats, deer, and sheep.

The study identified many gaps and leaks in the then existing system to address invasive species. Specifically, two main gaps identified were:

- (1) Funding problems; and
- (2) The administration of invasive species programs.⁵

Recommendations

The initial study's primary recommendations concerned accountability and coordination for the administration of invasive species programs and sufficiency of funding.

After a discussion of the pros and cons of three different approaches used in other jurisdictions to administer invasive species programs, the study suggested a hybrid approach that incorporated the best to all three alternatives.⁶ Accordingly, the study recommended that the

State establish an Invasive Species Administrator/Coordinator position, to be selected by a nominating committee and attached to the Governor's office to avoid any agency rivalries.⁷ The study suggested that the Administrator/Coordinator would benefit in the performance of the position's duties from the collective wisdom and advice of an advisory organization composed of state, federal, and private organizations, such as the Coordinating Group on Alien Pest Species (CGAPS).⁸ It was intended that the Administrator/Coordinator be required to regularly consult with the heads of the primary departments involved with invasive species (Department of Agriculture (DOA), Department of Land and Natural Resources (DLNR), DOH, and Department of Transportation (DOT)) to address the authority or power vacuum that existed in the present system.⁹ Further, it was recommended that the Administrator/Coordinator designate the state agencies responsible to act as the lead agency for a specific invasive species to ensure quicker preventative responses.¹⁰ The study also suggested duties for the Administrator/Coordinator designed to address the existing gaps and leaks in the system.¹¹ These included:

- (1) Maintaining a broad overview of the invasive species problem in the State and serving as a clearinghouse for invasive species information in Hawaii;
- (2) Advising and coordinating efforts between the DOA, DLNR, DOH, and DOT on issues related to invasive species, including state, federal, international, and privately organized programs and other areas of concern;
- (3) After consulting with appropriate state agencies and the advisory committee, creating and implementing 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 creating a mission statement articulating the State's position against invasive species;
- (4) Coordinating and promoting the State's position with respect to federal issues including:
 - (a) Quarantine preemption;
 - (b) International trade agreements that ignore the invasive species problem in Hawaii;
 - (c) First class mail inspection prohibition;
 - (d) Federal responsibility for the quarantine of domestic pests arriving from the mainland;
 - (e) Coordinating efforts with federal agencies to maximize resources and reduce or eliminate system gaps and leaks, including deputizing the [U.S. Department of Agriculture] USDA's plant protection and quarantine program to enforce Hawaii's laws;

- (f) Promoting the amendment of federal laws as necessary, including the Lacey Act¹² (so that federal and state laws are consistent), and other laws to improve 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;
- (5) Identifying and recording all invasive species present in the State and designating a state department to act as the lead agency for each invasive specie identified;
 - (6) Identifying all state, federal, and other moneys expended for the purposes of the invasive species problem in the State;
 - (7) Identifying all federal and private funds available to the State to fight invasive species and advising and assisting state departments to acquire these funds;
 - (8) Advising the Governor and Legislature on budgetary and other issues regarding invasive species;
 - (9) Providing annual reports to the Legislature on budgetary and other related issues;
 - (10) Including the counties in the fight against invasive species to increase resources and funding and to address county-sponsored activities that involve invasive species;
 - (11) Reviewing state agency mandates and commercial interests that sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values;
 - (12) Reviewing the fines and penalties structure to ensure maximum deterrence to invasive species related crimes; and
 - (13) Suggesting appropriate legislation to improve the State's administration of invasive species programs.¹³

The study reported that CGAPS had estimated that the cost to effectively fight invasive species in Hawaii for one year was \$50,000,000,¹⁴ although the amount actually being spent on invasive species programs appeared far less than this.¹⁵ Accordingly, the study concluded that funding was the biggest and most obvious gap in the fight against invasive species¹⁶ and stressed the importance of both dedicated funding and prioritizing funding for prevention and inspection activities to achieve the greatest progress in the fight against invasive species.¹⁷ To that end, the study suggested various dedicated sources of funding to finance invasive species programs, such as:

- (1) Amending section 247-7, HRS, by specifying spending on invasive species as a priority in the allocation and use of conveyance tax revenues;
- (2) Amending section 261-7(e), HRS, by adding a new paragraph to require a specific percentage or amount of the airport landing fees to be disbursed for invasive species activities permissible under federal law; and
- (3) Amending section 266-2(b), HRS, by adding a new paragraph to require a specific percentage or amount of the wharfage, demurrage, or other harbor charge to be disbursed for invasive species.¹⁸

Endnotes

1. Senate Concurrent Resolution 45, H.D. 1 (2001).
2. *Id.*
3. *Id.*
4. *Id.*
5. Legislative Reference Bureau, Filling the Gaps in the Fight Against Invasive Species 66-67 (2002).
6. *Id.* at 62-65.
7. *Id.* at 67.
8. *Id.*
9. *Id.*
10. *Id.* at 68.
11. *Id.* at 69-68. These recommendations were later adopted as HISC duties in section 194-2, HRS. See also Chapter 3 for a discussion of HISC.
12. *See infra* Chapter 3, note 62 and accompanying text for a discussion on the Lacey Act.
13. Legislative Reference Bureau, *supra* note 5, at 68-69. These recommendations were later adopted as HISC duties in section 194-2, HRS. See also Chapter 3 for a discussion of HISC.
14. *Id.* at 34.
15. *Id.* at 34-35
16. *Id.* at 66.
17. *Id.* at 66-67.
18. *Id.*

Chapter 3

THE HAWAII INVASIVE SPECIES COUNCIL

Although Act 126, Session Laws of Hawaii 2015, did not request a summary of the Hawaii Invasive Species Council (HISC), the Bureau included this chapter to provide a complete update to its 2002 study.

The Creation of HISC

In 2001, the Legislature found that the "silent invasion of Hawaii by insects, disease organisms, snakes, weeds, and other pests is the single greatest threat to Hawaii's economy, natural environment[,] and the health and lifestyle of Hawaii's people and visitors."¹ Recognizing the urgent need to protect Hawaii's environment, economy, and quality of life, former Governor Benjamin Cayetano issued Executive Order No. 2002-03, establishing an interagency invasive species council.² The purpose of the council was to "foster coordinated approaches that support local initiatives for the prevention and control of invasive species, such as the coordinating group on alien pest species and the island invasive species committees."³

Act 85, Session Laws of Hawaii 2003, provided statutory authority for the Hawaii Invasive Species Council (HISC) to temporarily continue operating for the special purpose of affirming the State's objective of ridding Hawaii of invasive species and "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 [S]tate and for preventing the introduction of other invasive species that may be potentially harmful."⁴ Act 109, Session Laws of Hawaii 2006, made HISC permanent and relocated it from the Office of the Governor to the Department of Land and Natural Resources (DLNR) for administrative purposes.⁵

Membership

HISC is an interagency board consisting of directors and chairpersons, or their designees, of the following six state agencies:

- (1) DLNR;
- (2) Department of Agriculture (DOA);
- (3) Department of Health (DOH);
- (4) Department of Transportation (DOT);
- (5) Department of Business, Economic Development, and Tourism (DBEDT); and
- (6) University of Hawaii (UH).⁶

Federal agency representatives, private sector members, and members of the Legislature (four senators and four representatives) are also asked to participate on the council.⁷ HISC members are required to meet at least twice a year to discuss and assess invasive species programs.

Staff

There are three staff positions at HISC: a program supervisor; an interagency coordinator; and a planner. The program supervisor position, which is a full-time equivalent state civil service position, is the only permanent position of HISC and is administratively placed within DLNR Division of Forestry and Wildlife (DOFAW).⁸ However, the current program supervisor allocates ninety percent of his time to HISC and ten percent of his time to departmental issues.⁹ The two other positions are funded by a HISC grant as a UH Pacific Cooperative Studies Unit (PCSU) project.¹⁰ UH PCSU annually creates the project called "HISC Support" and administers the project.¹¹ The actual positions are established by the Research Corporation of the University of Hawaii (RCUH), which is the official employer of the interagency coordinator and planner.¹² They are both considered temporary positions that must be renewed each year.¹³ HISC previously had a communications coordinator position as part of the support project; however, that position was left vacant to permit funding of the planner position.¹⁴

Budget

The Legislature appropriates money from the general fund to DLNR for HISC to accomplish its purposes. HISC uses these funds to "complement existing state programs" and projects such as the Albizia Control Demonstration Project, Hawaii Ant Lab, and development of a Little Fire Ant Detector Dog Program.¹⁵ The Legislature has appropriated anywhere from \$0 during 2010-2013 to \$5,750,000 in 2015.¹⁶ A breakdown of the projects supported by the Legislature's \$5,750,000 allocated to HISC for fiscal year 2015 may be found in Appendix M.

HISC funds assist in the fight against invasive species by filling some of the gaps and leaks between agencies.¹⁷ For example, in fiscal year 2015, HISC provided money to the Plant Quarantine Branch (PQB) of DOA for a multi-agency proposal for Coconut Rhinoceros Beetle response, training, and research.¹⁸ Money from HISC is also meant to complement agency projects. For example, in fiscal year 2014, HISC provided money to the Division of Aquatic Resources (DAR) of DLNR for a ballast water and hull fouling coordinator and Japan tsunami marine debris response in Hawaii.¹⁹ HISC only receives state funds; it does not receive federal moneys, nor does it apply for federal grants.²⁰

Each April, HISC calls for project proposals relating to the fight against invasive species.²¹ HISC receives proposals from state, federal, and county agencies asking for, typically, double the total amount of money appropriated to HISC.²² Each proposal must be relevant to HISC's strategic plan by including language demonstrating how it addresses specific strategic plan goals/actions.²³

In fiscal year 2014, HISC updated its proposal review process to better reflect HISC agency involvement.²⁴ The initial proposal review process had included an evaluation committee consisting of three to four evaluators from "the conservation community at large."²⁵ HISC working groups would then meet to review proposals specific to each working group focus area and discuss the evaluation committee's scores.²⁶ The revised process no longer includes working group participation,²⁷ and alters the composition of the evaluation review committee to include six representatives, one from each member agency on the council. The committee members individually read and score each proposal. HISC staff explained that "[p]roposals are scored, in part, on how relevant they are to the strategic plan."²⁸ Evaluation committee members attend one evaluation committee meeting to discuss their scores and recommend funding amounts to HISC.²⁹ Typically, proposals are not funded for the full amount requested.³⁰

Once the HISC budget is approved, HISC staff administer the budget.³¹ DLNR DOFAW charges HISC five percent of its overall budget to handle administrative overhead items such as covering the office space used by HISC staff and fiscal accounting paperwork.³² Further, as previously explained in this chapter, staff salaries are either funded by DLNR's budget (program supervisor) or out of the newly approved budget as a HISC support project (interagency coordinator and planner).³³

This discussion only outlines funding to HISC; it does not include funds appropriated directly to departments for various invasive species programs. It should be noted that these funds are critical in the fight against invasive species and are discussed in Chapter 7 of this Report.³⁴

Duties

In addition to meeting at least two times a year to discuss and assess invasive species programs, HISC members have a number of statutory duties established under section 194-2(a), HRS. The duties are set out below with comments regarding whether HISC has fulfilled each duty, based on consultation with HISC program supervisor, Joshua Atwood, and HISC staff.

(1) Maintain a broad overview of the invasive species problem in the State

HISC addresses this mandate by holding interagency meetings, adopting resolutions, and implementing an interagency budgeting process to support invasive species projects in the State.³⁵

(2) Advise, consult, and coordinate invasive species-related efforts with and between DOA, DLNR, DOH, and DOT, as well as state, federal, international, and privately organized programs and policies

HISC has been able to fulfill part of this mandate.³⁶ According to HISC staff, HISC coordinates well with other state entities.³⁷ For example, it coordinated interagency awareness and engagement by providing "a forum for discussing mosquitoes as a vector of human disease"³⁸ However, HISC is less involved with federal, international, and privately organized programs due to its limited capacity and resources.³⁹

(3) Identify and prioritize each lead agency's organizational and resource shortfalls with respect to invasive species

HISC does not provide an annual agency analysis of organizational and resource shortfalls.⁴⁰ According to HISC staff, although an attempt was made to identify specific shortfalls in a 2015 report HISC submitted to the Legislature,⁴¹ specific budgetary and operational shortfalls were difficult to identify. The 2015 report only provided a qualitative description of programmatic needs.⁴²

(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

HISC fulfills this duty by developing strategic plans.⁴³ Beginning in 2005, HISC has periodically created strategic plans to provide a framework for HISC's efforts against invasive species, including prevention, outreach, control, and research.⁴⁴ The strategic plans focus on HISC's coordinating role, identify interagency gaps, and provide a forum for solutions.⁴⁵ The strategic plans do not contain an operational plan that details the prevention, early detection, rapid response, control, enforcement, and education regarding invasive species;⁴⁶ rather, they are meant to serve as a guiding document and a general statement of goals for HISC work.⁴⁷ Although state agencies contribute to the creation of the strategic plans, there is no state agency action included in or required by the strategic plans.⁴⁸ However, HISC works closely with state agencies to abide by the strategic plans, either by conducting HISC-funded invasive species projects or by participating in HISC working groups as explained later in this chapter.⁴⁹

HISC also recently fulfilled another aspect of this duty when it adopted its first mission statement in the 2015-2020 strategic plan.⁵⁰ HISC's mission statement is, "[t]he HISC will provide strategic policy and fiscal direction, coordination, and planning among state departments and other stakeholders to address invasive species issues in a science-based, culturally and socially conscious way."⁵¹

(5) Coordinate and promote the State's position with respect to federal issues, including:

(In general, HISC staff interpret this language to mean adopting formal policy statements. HISC has fulfilled this duty by adopting various resolutions as discussed with respect to the specific federal issues below.⁵²)

(A) Quarantine preemption;

On June 4, 2013, HISC adopted Resolution 13-1 titled, "Support for Federal Recognition of Hawaii's Unique Biosecurity Needs and Coordination Between Federal and State Inspection Agencies, Including Information Sharing Between Federal and State Inspection Staff and the Development of Joint Inspection Facilities."⁵³ This Resolution discusses federal preemption with respect to Hawaii; however, it does not specifically mention quarantining to protect Hawaii from invasive species.⁵⁴ The Resolution states that HISC "supports federal recognition of the State of Hawaii's unique biosecurity needs through measures including, but not limited to, expedited exemptions from federal preemption for State regulation in foreign or interstate commerce of high-risk pests that are not present in the State of Hawaii."⁵⁵

(B) International trade agreements that ignore the problem of invasive species in Hawaii;

HISC has not addressed this issue.⁵⁶

(C) First class mail inspection prohibition;

HISC has not addressed this issue.⁵⁷

(D) Whether quarantine of domestic pests arriving from the mainland should be provided by the federal government;

HISC has not addressed this issue.⁵⁸

(E) Coordinating efforts with federal agencies to maximize resources and reduce or eliminate system gaps and leaks, including deputizing the U.S. Department of Agriculture's plant protection and quarantine inspectors to enforce Hawaii's laws;

The same resolution that fulfills the duty to promote the State's position with respect to quarantine preemption, partly addresses this issue.⁵⁹ "Support for Federal Recognition of Hawaii's Unique Biosecurity Needs and Coordination Between Federal and State Inspection Agencies, Including Information Sharing Between Federal and State Inspection Staff and the Development of Joint Inspection Facilities" requests that the federal government recognize Hawaii's unique biosecurity needs.⁶⁰ However, it does not completely address this issue because it does not deputize the U.S. Department of Agriculture's plant protection and quarantine inspectors to enforce state law.⁶¹

(F) Promoting the amendment of federal laws as necessary, including the Lacey Act Amendments of 1981,⁶² 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

HISC has partly addressed this issue. On June 4, 2013, HISC adopted Resolution 13-3 titled, "Supporting Amendments to the List of Injurious Species Under the Lacey Act."⁶³

However, HISC has not promoted amendments related to "inspection of domestic airline passengers, baggage, and cargo."⁶⁴

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

HISC has not entirely addressed this issue because it has not produced a policy statement on this issue.⁶⁵ However, per HISC staff, HISC coordinates efforts with NISC.⁶⁶

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

HISC has not fulfilled this duty.⁶⁷ In 2003, HISC adopted three existing lists of harmful species: (1) species prohibited for import, section 71-6, Hawaii Administrative Rules (HAR), (2) noxious weeds for eradication or control, chapter 68, HAR, and (3) injurious wildlife, chapter 124, HAR.⁶⁸ At that time, the council instructed the Established Pests Working Group⁶⁹ to develop a method to update these lists, but it did not do so.⁷⁰ Additionally, HISC was advised by a deputy attorney general that, because the three lists were adopted by HISC pursuant to a simple board vote, rather than the administrative rulemaking process, HISC's exercise of its authority pursuant to section 194-5, HRS, to enter private property for the purpose of control and eradication of invasive species on the lists might not survive a legal challenge.⁷¹ In 2015, HISC "directed staff to pursue amendments to [chapter 194, HRS] that would allow for the adoption of rules that may be updated by board action, pursuant to public input requirements that would be identified by rule," to ensure that the invasive species list could be routinely updated. HISC staff have indicated that the required amendments are being proposed for consideration during the 2016 Regular Session of the Legislature.⁷²

(7) Designate the DOA, DOH, or DLNR as the lead agency for each function of invasive species control, including prevention, rapid response, eradication, enforcement, and education

This duty has been fulfilled by HISC's adoption of the 2005 Interim Strategic Plan, which designated a HISC agency member as the lead for each HISC staff-led working group.⁷³ HISC has created five informal, staff-level working groups: (1) outreach, (2) resources, (3) prevention, (4) control, and (5) research and technology.⁷⁴ Each working group has goals and has set strategies to achieve those goals.⁷⁵ The working groups were initially utilized mainly to evaluate HISC funding proposals each year.⁷⁶ However, under the 2015-2020 HISC Strategic Plan, each working group is tasked with identifying solutions to specific, non-fiscal problems identified by stakeholders.⁷⁷ The current lead agency for each working group is as follows:

DOA: Prevention working group,⁷⁸

DLNR: Control working group;⁷⁹

UH (Interim): Outreach working group,⁸⁰

UH: Research and technology working group,⁸¹ and

DBEDT: Resources working group.⁸²

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

HISC has not been able to address this mandate.⁸³ Fulfilling this duty is difficult because there is no method in place to determine specific invasive species expenditures, and none has been developed due to insufficient staff capacity.⁸⁴

(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

HISC has not assisted state departments to acquire federal and private funds.⁸⁵ Instead of relying upon HISC, departmental staff have identified and sought funds from federal and private entities on their own.⁸⁶ HISC staff cannot currently take on this task given their present limited resources.⁸⁷ Further, according to HISC staff, it appears that specific agency staff, who are topical experts on particular grant proposals, prefer the autonomy that comes with seeking federal and private funds on their own, rather than utilizing HISC as a clearinghouse.⁸⁸

(10) Advise the Governor and Legislature on budgetary and other issues regarding invasive species

Since 2004, HISC has submitted an annual report to the Legislature titled, "Budgetary and Other Issues Regarding Invasive Species." This report includes budgetary issues relating to invasive species, recommendations to the Governor and Legislature regarding invasive species, and a breakdown of projects funded from the HISC budget in specific areas such as control, outreach, prevention, and research and technology.⁸⁹ Further, since 2012, HISC has provided information and advice in the form of testimony on various bills relating to invasive species.⁹⁰ However, HISC acknowledges that the source of the testimony may be somewhat confusing to some because Joshua Atwood, HISC program supervisor, submits testimony for both DLNR and HISC.⁹¹

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

As discussed previously, this mandate is addressed by HISC's annual report to the Legislature titled, "Budgetary and Other Issues Regarding Invasive Species."⁹² A detailed accounting of individual agency expenditures or shortfalls is not included in this report because agency staff and programs may dedicate only part of their time to invasive species, making it very difficult to calculate each agency's exact expenditure for this purpose.⁹³

(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

HISC does not work closely with county governments *per se*.⁹⁴ Although HISC invites the mayors of each county to HISC meetings, this participation has been extremely limited.⁹⁵ According to HISC, Maui County mayor Alan Arakawa attended one meeting and sent a representative to another meeting.⁹⁶ Kauai County sent a county representative to one meeting.⁹⁷ Representatives of Hawaii County and the City and County of Honolulu have not attended HISC meetings, although HISC has awarded funding to both counties.⁹⁸ However, HISC works closely with county-level invasive species committees, which are organized by UH PCSU and are staffed by RCUH.⁹⁹

(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

HISC has not fulfilled this duty.¹⁰⁰ Individual agencies review their own mandates, to the extent required by applicable statutes or rules.¹⁰¹ To HISC staff knowledge, there has not been coordinated interagency discussion on this topic.¹⁰² While an interagency review of mandates might be beneficial, HISC staff expressed concern whether "current support staff are appropriately situated to initiate a multi-departmental policy review."¹⁰³

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

HISC has not fulfilled this duty.¹⁰⁴ However, HISC staff believes that this mandate is satisfactorily addressed by individual agencies internally reviewing the structure of fines and penalties for violations of laws or rules under their jurisdiction, rather than requiring interagency coordination and discussion.¹⁰⁵

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

HISC is fulfilling this duty. HISC began addressing this mandate in 2012 when it "developed language relating to the adoption of emergency rules relating to natural resources emergencies."¹⁰⁶ According to HISC staff, legislation will also be submitted during the 2016 Regular Session of the Legislature proposing amendments to chapter 194, HRS, relating to an invasive species list.¹⁰⁷ The proposal would "authorize HISC to create an invasive species list that has the effect of administrative rules, but can be updated without undertaking the entire" chapter 91, HRS, process each time a change is made.¹⁰⁸

HISC staff also noted that proposed legislation occurs at the department level because HISC does not have independent agency status.¹⁰⁹ Therefore, any legislation proposed by HISC must be submitted first to the administrator of DOFAW and then approved by the Chairperson of

DLNR before going to the Governor for approval.¹¹⁰ Likewise, HISC funding requests to the Legislature must be submitted through the DLNR legislative package.¹¹¹

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

This mandate is inaccurately expressed; DOA does not have a quantitative weed risk assessment.¹¹² Presumably, the mandate refers to the Hawaii-Pacific Weed Risk Assessment (WRA) that was developed by a UH faculty member in 2004. According to HISC staff, the WRA is both a tool, because it's a "protocol for quantifying the potential for a plant to be invasive," and a research project, because "each species that is submitted to the WRA requires a review of peer-reviewed and gray literature to generate the information required to use the WRA protocol."¹¹³ HISC staff explained that the "assessor has to answer and assign a numeric value to a series of 30 or so questions about the biological and ecological characteristics of a plant, which results in a total numeric score indicated [sic] whether the species is high risk, warrants more consideration, or is not thought to be a risk."¹¹⁴ Since 2005, HISC has funded the WRA as a research project and thus appears to be fulfilling the intent of the mandate.¹¹⁵

(17) Perform any other function necessary to effectuate the purposes of [chapter 194 HRS]¹¹⁶

Despite it not being specifically authorized by statute, HISC considers its main function to be the implementation of an interagency budget to address the gaps and leaks in the fight against invasive species.¹¹⁷ HISC staff explained that:

HISC's annual budget is utilized to support projects that fill gaps between agencies and provided [sic] research or tools that advance our ability to deal with invasive species problems. The HISC budget also provides support for the two temporary 'HISC Support' positions (Interagency Coordinator and Planner) that help effectuate the mandates described here. There is not, however, a specific mention in statute of the HISC receiving or disbursing funds on an annual basis, nor does the chapter [194, HRS] describe what staff capacity will be utilized to address these mandates.¹¹⁸

A discussion of HISC expenditures is provided in a previous section in this chapter labeled "Budget."

Endnotes

1. Senate Concurrent Resolution 45, H.D. 1 (2001).
2. Executive Order No. 2002-03 is attached as Appendix B.
3. Act 85, Session Laws of Hawaii 2003. The Bureau attempted to obtain the official Act 85, Session Laws of Hawaii 2003, from the Hawaii State Archives. However, it was not available.

In its place, attached as Appendix K, the Bureau includes S.B. 1515 S.D.1, H.D.2, C.D.1, which is the substance of Act 85, Session Laws of Hawaii, 2003.

4. *Id.*
5. Act 109, Session Laws of Hawaii 2006, is attached as Appendix L.
6. § 194-2(b), HRS.
7. § 194-2(c), HRS.
8. Interview with HISC staff on July 16, 2015.
9. *Id.*
10. E-mail correspondence with HISC staff on Dec. 8, 2015.
11. *Id.*
12. *Id.*
13. Interview with HISC staff, *supra* note 8.
14. *Id.*
15. HISC, STRATEGIC INTERAGENCY FUNDING (n.d.), *available at* <http://dlnr.hawaii.gov/hisc/files/2014/04/HISC-Legislative-Info-2015.pdf> and DLNR, BUDGETARY AND OTHER ISSUES REGARDING INVASIVE SPECIES 17, 19 (Oct. 2014), *available at* <http://dlnr.hawaii.gov/hisc/files/2013/02/Invasive-Species-Rpt-FY14-Sec-194-2.pdf>.
16. STATE OF HAWAII DLNR, REPORT TO THE TWENTY-SEVENTH LEGISLATURE REGULAR SESSION OF 2014, (Oct. 2014), *available at* <http://dlnr.hawaii.gov/hisc/files/2013/02/Invasive-Species-Rpt-FY14-Sec-194-2.pdf>.
17. STRATEGIC INTERAGENCY FUNDING, *supra* note 15.
18. BUDGETARY AND OTHER ISSUES REGARDING INVASIVE SPECIES *supra* note 15, at 18.
19. *Id.* at 15.
20. Interview with HISC staff, *supra* note 8.
21. STRATEGIC INTERAGENCY FUNDING, *supra* note 17 and telephone conversation with HISC staff on January 5, 2016.
22. Interview with HISC staff, *supra* note 8.
23. E-mail correspondence with HISC staff, *supra* note 10.
24. E-mail correspondence with HISC staff on Jan. 5, 2016.
25. *Id.*
26. *Id.* See *infra* notes 73-82 and accompanying text for a discussion of HISC working groups.
27. See *infra* note 73-82 and accompanying text for a discussion of HISC working groups.
28. E-mail correspondence with HISC staff on Dec. 16, 2015.
29. E-mail correspondence with HISC staff, *supra* note 24.
30. Interview with HISC staff, *supra* note 8.

31. Interview with HISC staff, *supra* note 8 and e-mail correspondence with HISC staff on Aug. 3, 2015.
32. E-mail correspondence with HISC staff on Dec. 9, 2015.
33. E-mail correspondence with HISC staff, *supra* note 10.
34. *See infra* Chapter 7, notes 6-12 and accompanying text for a discussion of state agency expenditures related to invasive species.
35. E-mail correspondence with HISC staff, *supra* note 31.
36. *Id.*
37. *Id.*
38. *Id.*
39. *Id.*
40. *Id.*
41. *See infra* note 89 and accompanying text.
42. E-mail correspondence with HISC staff, *supra* note 31.
43. *Id.*
44. *HISC Strategic Plans*, HISC, <http://dlnr.hawaii.gov/hisc/plans/> (last visited Oct. 14, 2015).
45. E-mail correspondence with HISC staff, *supra* note 31.
46. *Id.*
47. E-mail correspondence with HISC staff, *supra* note 28.
48. *Id.*
49. *Id.* *See supra* notes 15-19 and accompanying text for a discussion of HISC funded invasive species projects. *See also* Appendix M for a breakdown of the projects supported by the Legislatures \$5,750,000 allocated to HISC for fiscal year 2015. *See infra* notes 73-82 and accompanying text for a discussion of HISC working groups.
50. E-mail correspondence with HISC staff, *supra* note 31.
51. HISC STRATEGIC PLAN 2015-2020 1 (n.d.), *available at* http://dlnr.hawaii.gov/hisc/files/2015/06/HISC-Strategic-Plan-2015_Final.1.pdf.
52. E-mail correspondence with HISC staff, *supra* note 31. Resolutions may be found at <http://dlnr.hawaii.gov/hisc/reports/resolutions/>.
53. E-mail correspondence with HISC staff, *supra* note 31 and HISC, RESOLUTION 13-1 (June 4, 2013), *available at* <http://dlnr.hawaii.gov/hisc/files/2013/02/Reso131.pdf>.
54. RESOLUTION 13-1 *supra* note 53.
55. *Id.*
56. E-mail correspondence with HISC staff, *supra* note 31.
57. *Id.*
58. *Id.*

59. *Id.*
60. *Id.* and HISC, *supra* note 54.
61. E-mail correspondence with HISC staff, *supra* note 31.
62. The Lacey Act is a "law that prohibits import, export, transport, purchase, or sale of species when that action would violate state, federal, tribal, or foreign law." KRISTINA ALEXANDER, CONGRESSIONAL RESEARCH SERVICE, THE LACEY ACT: PROTECTING THE ENVIRONMENT BY RESTRICTING TRADE (2014) available at <https://www.fas.org/sgp/crs/misc/R42067.pdf>. The relevant Lacey Act Amendments of 1981 include combining the Lacey Act and the Black Bass Act into one statute to cover both wildlife and fish and extending species protection to certain plants. Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service, Lacey Act Amendments of 1981, U.S. FISH & WILDLIFE SERVICE, <http://www.fws.gov/laws/lawsdigest/LACEY.HTML> (last visited Dec. 4, 2015).
63. E-mail correspondence with HISC staff, *supra* note 31 and HISC, *supra* note 54.
64. E-mail correspondence with HISC staff, *supra* note 31.
65. *Id.*
66. *Id.*
67. *Id.*
68. *Id.*
69. *See infra* notes 73-82 and accompanying text for a discussion of HISC working groups.
70. E-mail correspondence with HISC staff, *supra* note 31 and Submittal from Joshua Atwood, Program Supervisor, HISC, to co-chairs and members of HISC (June 10, 2015), *available at* <http://dlnr.hawaii.gov/hisc/files/2015/04/2015-6-10-HISC-submittal-1-Admin-Rules.pdf>.
71. E-mail correspondence with HISC staff on Dec. 7, 2015 and Submittal from Joshua Atwood, *supra* note 70.
72. E-mail correspondence with HISC staff, *supra* note 35 and Submittal from Joshua Atwood, *supra* note 70.
73. E-mail correspondence with HISC staff, *supra* note 31.
74. *HISC Working Groups*, HISC, <http://dlnr.hawaii.gov/hisc/meetings/wg/> (last visited Oct. 14, 2015).
75. E-mail correspondence with HISC staff, *supra* note 31. See HISC's 2015-2020 Strategic Plan on pages 10-17 for each working group's goals and strategies to achieve those goals. HISC STRATEGIC PLAN 2015-2020, *supra* note 51, at 10-17.
76. E-mail correspondence with HISC staff, *supra* note 31. *See supra* notes 15-34 for a discussion of the HISC budget and funding of grants.
77. E-mail correspondence with HISC staff, *supra* note 31.
78. For more information, see *Prevention Working Group*, HISC, <http://dlnr.hawaii.gov/hisc/meetings/wg/prevention/> (last visited Oct. 30, 2015).
79. For more information, see *Control Working Group*, HISC, <http://dlnr.hawaii.gov/hisc/meetings/wg/control/> (last visited Oct. 30, 2015).

80. For more information, see *Outreach Working Group*, HISC, <http://dlnr.hawaii.gov/hisc/meetings/wg/outreach/> (last visited Oct. 30, 2015).
81. For more information, see *Research & Technology Working Group*, HISC, <http://dlnr.hawaii.gov/hisc/meetings/wg/research/> (last visited Oct. 30, 2015).
82. For more information, see *Resources Working Group*, HISC, <http://dlnr.hawaii.gov/hisc/meetings/wg/resources/> (last visited Oct. 30, 2015).
83. E-mail correspondence with HISC staff, *supra* note 31.
84. *Id.*
85. *Id.*
86. *Id.*
87. *Id.*
88. *Id.*
89. REPORT TO THE TWENTY-SEVENTH LEGISLATURE REGULAR SESSION OF 2014, *supra* note 16.
90. E-mail correspondence with HISC staff, *supra* note 31.
91. *Id.*
92. *Id.*
93. *Id.* and e-mail correspondence with HISC staff on Dec. 7, 2015.
94. E-mail correspondence with HISC staff, *supra* note 31.
95. *Id.*
96. *Id.*
97. *Id.*
98. *Id.*
99. E-mail correspondence with HISC staff, *supra* note 31. *See infra* Chapter 6, notes 71-86 and accompanying text for a discussion of the county-level invasive species committees.
100. E-mail correspondence with HISC staff, *supra* note 31.
101. *Id.*
102. *Id.*
103. *Id.*
104. *Id.*
105. *Id.*
106. *Id.*
107. *Id.* *See supra* notes 68-72 and accompanying text for a discussion of HISC's adoption of an invasive species list.
108. E-mail correspondence with HISC staff, *supra* note 93.
109. E-mail correspondence with HISC staff, *supra* note 31.

- 110. *Id.*
- 111. *Id.*
- 112. *Id.*
- 113. E-mail correspondence with HISC staff, *supra* note 93.
- 114. *Id.*
- 115. E-mail correspondence with HISC staff, *supra* note 31.
- 116. § 194-2(a), HRS.
- 117. E-mail correspondence with HISC staff, *supra* note 31.
- 118. *Id.* and e-mail correspondence with HISC staff, *supra* note 93.

Chapter 4

ECONOMIC AND OTHER COSTS

Act 126, Session Laws of Hawaii 2015, also directs the Bureau to update its 2002 invasive species study relating to "economic and other costs to Hawaii."¹ The following discusses costs relating to invasive species.

Calculating Economic Costs

There are various ways to calculate the threat that a potential unestablished invasive species may pose to Hawaii. According to one commentator, the total cost may be determined by adding the costs for the following:²

- (1) Preventing establishment of invasive species (such as through inspectors);
- (2) Controlling established populations (such as clearing of strawberry guava trees; tenting of private homes for termites; or fencing to keep out feral pigs);
- (3) Repairing damage caused by established invasive species (such as repairing power infrastructure following outages caused by brown tree snakes); and
- (4) Losses incurred when damages cannot be repaired (such as replanting of coconut palm trees after coconut mites have infested the trees and plant nurseries having to dispose of products infested with little fire ants that cannot be sold to consumers).³

Economy

Invasive species have an enormous impact on the economy. According to a 2004 *Hawaii Business* article, invasive species in the U.S. cost approximately \$137,000,000,000 each year.⁴ More recently, a 2013 Congressional Research Service article explained that, in the United States, potential economic costs associated with nonindigenous species are estimated at \$129,000,000,000 per year.⁵ In fiscal year 2012, the federal government spent approximately \$2,200,000,000 to fight invasive species.⁶

According to the Nature Conservancy in Hawaii, "costs associated with potential and present invaders, including the brown tree snake, [D]engue fever, miconia and the red imported fire ant, could top \$180 million a year."⁷ Specifically, if red imported fire ants were to become established, the economic impacts per year are estimated to be \$211,000,000.⁸ Further, projected expenditures over a twenty-year period after introduction of red imported fire ants to Hawaii could total up to \$2,500,000,000.⁹ If brown tree snakes, established in Guam but not yet established in Hawaii, were to become established here, the annual economic impact is estimated

to be from \$593,000,000 to \$2,140,000,000.¹⁰ As another example, Hawaii residents have been paying almost \$150,000,000 in treatment and damage repair costs each year due to Formosan subterranean termites that were introduced to the islands in the early 1800's.¹¹

Agriculture

In 2004, total costs attributable to the effect of invasive species on U.S. agriculture alone were \$72,200,000,000.¹² Also in 2004, experts estimated that the Hawaii agriculture industry was losing about \$300,000,000 per year from potential markets that exclude imports from Hawaii because of alien fruit flies that can infest Hawaii produce.¹³ Invasive species such as coqui frogs contribute to agricultural losses because nursery products are a suspected vector for the coqui frogs' introduction and spread to Hawaii. Thus nurseries must incur costs to exclude the frog from their stock and premises and to control and treat frogs that may be present.¹⁴ This has a detrimental impact on Hawaii's agricultural economy because nursery trade is one of the largest agricultural commodities in Hawaii.¹⁵ According to the National Agriculture Statistics Service, the "2014 preliminary value of Hawaii's floriculture and nursery products is estimated at \$67,200,000."¹⁶ Because it is suspected that coqui frogs are spread by nursery products, customers are increasingly demanding nursery certificates warranting that their products are free of coqui frogs.¹⁷

Tourism

Established invasive species also have the power to deter visitors and severely weaken Hawaii's \$14,800,000,000 visitor industry.¹⁸ For example, little fire ants cause harm to residents and tourists with their powerful sting.¹⁹ Brown tree snakes, if introduced and established in Hawaii, could prey on young children by biting and possibly suffocating and poisoning them.²⁰ They may also cause power outages by "climbing power lines and getting into transformers and electrical boxes."²¹ Coqui frogs, already well-established on the Island of Hawaii, have a shrill night mating call which negatively impacts both property values and tourism.²²

Invasive algae, such as *Hypnea musciformis*, rots and produces a foul odor, decreasing property values and hotel occupancy rates in affected areas.²³ Specifically, algae blooms have been estimated to decrease property values by \$9,400,000 annually and hotel and condominium income by \$10,800,000 per year.²⁴ Invasive algae caused net losses of more than \$20,000,000 per year in Maui because of the cost of removing the algae from beaches.²⁵

Environment

Another cost to consider in the fight against invasive species is the degradation of the environment. Invasive species play a major role in degrading the environment by disrupting the delicate balance needed to achieve efficient ecological services, such as water purification, soil stabilization, and climate control, because invasive species outcompete native species that contribute to this balance. For example, feral pigs and miconia have the potential to damage

watershed functions because both contribute to eroding the top layer of water retaining soil.²⁶ This becomes a cost when the watershed is damaged and other ways to obtain water must be developed. Such costs could be significant when one considers that, for example, the Ko'olau mountain watershed, Oahu's primary source of fresh water, is estimated to be valued between \$7,400,000,000 and \$14,000,000,000.²⁷

Another example of environmental costs caused by invasive species is the lost value of Hawaii's coral reefs that provide a natural barrier protecting the islands from severe weather such as hurricanes and seismic events like tsunamis.²⁸ These reefs, along with their biodiversity, contribute to effective ecosystem services and are part of a complex balance needed for the ecosystem to function properly.²⁹ In 2002, the annual value of the variety of plant and animal life found among Hawaii's coral reefs in Hawaii was estimated to be \$17,840,000 per year.³⁰

Prevention vs. Passiveness Calculation

Commentators suggest that the costs of constant prevention are actually lower than the costs of damage and control associated with an established invasive species. For example, in 1999, the California Legislature allocated \$40,000,000 over five years to eradicate red imported fire ants.³¹ In contrast, it was estimated that the ants, if established, would cost \$250,000,000 per year.³² While \$40,000,000 may seem like an exorbitant amount of money, prevention seems like a bargain when compared to the cost if the ants had become established in California.³³

Similarly, in Hawaii, the DOT had projected that maintenance costs to control invasive species such as fireweed, coqui frogs, fountain grass, and albizia trees along state roadways could reach \$4,200,000 annually.³⁴ In 2012, the DOT Highways Division launched a strategic ten-year plan to curb the introduction, spread, and negative impacts of invasive species along highways and roadways.³⁵ With the implementation of new control measures, DOT predicts as much as an eighty percent reduction in costs.³⁶

Endnotes

1. Act 126, Session Laws of Hawaii 2015, is attached as Appendix A.
2. TREY HUFFMAN, THE NATURE CONSERVANCY OF HAWAII, INVASIVE SPECIES: THE ECONOMICS OF PREVENTION, CONTROL, AND ENVIRONMENTAL IMPACT 8 (2002) *available at* <http://www.cgaps.org/wp-content/uploads/2002-The-Economics-of-Invasive-Species-TNC-Hawaii.pdf> (attributing its information to Roumasset, et al, without providing a specific citation to its source).
3. *Id.* (attributing its information to Roumasset, et al, without providing a specific citation to its source).
4. David K. Chee, Unwanted: Dead or Alive How Invasive Species Could Kill Our Economy, HAWAII BUSINESS, April 2004, at 21, *available at* <http://www.hawaiiibusiness.com/unwanted-dead-or-alive/> (attributing its information to the National Conference of State Legislators without providing a specific citation to its source).

5. M. LYNNE CORN AND RENEE JOHNSON, CONGRESSIONAL RESEARCH SERVICE, INVASIVE SPECIES: MAJOR LAWS AND THE ROLE OF SELECTED FEDERAL AGENCIES (2013) *available at* nationalaglawcenter.org/wp-content/uploads/assets/crs/R43258.pdf.
6. *Id.*
7. David K. Chee, *supra* note 4, at 21.
8. CGAPS, 2011 SILENT INVASION UPDATE (Jan. 31, 2011), *available at* <http://www.cgaps.org/wp-content/uploads/2011-Summary-of-Silent-Invasion-Public-Update.pdf> (citations omitted).
9. Priscilla Pérez Billig, Trouble in Paradise, 76 PUBLIC ROADS, Jul./Aug. 2012, <https://www.fhwa.dot.gov/publications/publicroads/12julaug/01.cfm>.
10. CGAPS, *supra* note 8 (citations omitted).
11. David K. Chee, *supra* note 4, at 21 *and* Alan Holt, THE NATURE CONSERVANCY OF HAWAII, AN ALLIANCE OF BIODIVERSITY, AGRICULTURE, HEALTH, AND BUSINESS INTERESTS FOR IMPROVED ALIEN SPECIES MANAGEMENT IN HAWAII 3 (1996), *available at* <http://www.hear.org/AlienSpeciesInHawaii/articles/norway.pdf>.
12. David K. Chee, *supra* note 4, at 21.
13. *Id.* *and* Alan Holt, *supra* note 11, at 3.
14. BROOKS KAISER AND KIMBERLY BURNETT, ECONOMIC IMPACTS OF E. COQUI FROGS IN HAWAII (2006) *available at* www.uhero.hawaii.edu/assets/burnett-IER.pdf.
15. NATIONAL AGRICULTURE STATISTICS SERVICE, 2011 FARM REVENUES UP 7 PERCENT FROM PREVIOUS YEAR (Dec. 10, 2012), *available at* http://www.nass.usda.gov/Statistics_by_State/Hawaii/Publications/Miscellaneous/hiag.pdf *and* UNITED STATES DEPARTMENT OF AGRICULTURE, HAWAII FLORICULTURE AND NURSERY PRODUCTS ANNUAL SUMMARY (Aug. 12, 2015), *available at* http://www.nass.usda.gov/Statistics_by_State/Hawaii/Publications/Flowers_and_Nursery_Products/flower.pdf.
16. NATIONAL AGRICULTURE STATISTICS SERVICE, *supra* note 15 *and* UNITED STATES DEPARTMENT OF AGRICULTURE, *supra* note 15.
17. BROOKS KAISER AND KIMBERLY BURNETT, *supra* note 14.
18. HTA, HAWAII TOURISM FACTS, http://www.hawaii-tourismauthority.org/default/assets/File/HTA_Tourism%20Facts%20as%20of%20August%202015.pdf (last visited Dec. 11, 2015).
19. TREY HUFFMAN, *supra* note 2, at 13.
20. David K. Chee, *supra* note 4, at 28 *and* DLNR, Brown Tree Snake!, <http://hawaii.gov/dlnr/consrvhi/nativenot/btsnake.html> (last visited Jan. 4, 2016) (stating that information on this page was "Adapted from the brochure, *The Brown Tree Snake. A Harmful Pest Species*. Prepared by Thomas H. Fritts National Ecology Research Center, U.S. Department of the Interior Fish & Wildlife Service.").
21. David K. Chee, *supra* note 4, at 28 *and* HISC, BROWN TREE SNAKE, <http://dlnr.hawaii.gov/hisc/info/species/brown-tree-snake/> (last visited Jan. 4, 2016).
22. David K. Chee, *supra* note 4, at 25.

23. Jennifer E. Smith et al., *Ecology of the Invasive Red Alga Gracilaria salicornia (Rhodophyta) on Oahu, Hawaii*, 58 PAC. SCI. 325, 326 and 339 (2004) (citations omitted).
24. DLNR DAR, STATE OF HAWAII AQUATIC INVASIVE SPECIES MANAGEMENT PLAN (Sept. 2003), *available at* <http://www.anstaskforce.gov/State%20Plans/More/HAWAII%20mgt%20PLAN%2003.pdf> (citations omitted).
25. Jennifer E. Smith et al., *supra* note 23, at 326 and 339 (citations omitted).
26. THE NATURE CONSERVANCY, LAST STAND: THE VANISHING HAWAIIAN FOREST 8 and 3, (n.d.), *available at* <http://www.nature.org/media/hawaii/the-last-stand-hawaiian-forest.pdf> and TREY HUFFMAN, *supra* note 2, at 13.
27. THE NATURE CONSERVANCY, LAST STAND: THE VANISHING HAWAIIAN FOREST, *supra* note 26, at 9.
28. Paul J. Conry, DLNR DOFAW, HAWAII STATEWIDE ASSESSMENT OF FOREST CONDITIONS AND TRENDS: 2010, 156 (2010), *available at* <http://dlnr.hawaii.gov/forestry/files/2013/09/SWARS-Entire-Assessment-and-Strategy.pdf>.
29. Paul J. Conry, *supra* note, at 156.
30. NOAA'S Coral Reef Conservation Program: Biodiversity, NATIONAL OCEANIC AND ATMOSPHERIC ASSOCIATION (July 13, 2015), <http://coralreef.noaa.gov/aboutcorals/values/biodiversity/> (last visited Oct. 15, 2015) (citing CESAR, HERMAN ET AL., ECONOMIC VALUATION OF THE CORAL REEFS OF HAWAII, FINAL REPORT (2002)).
31. TREY HUFFMAN, *supra* note 2, at 5 and JOHN H. KLOTZ ET AL., AN INSECT PEST OF AGRICULTURAL URBAN, AND WILDLIFE AREAS: THE RED IMPORTED FIRE ANT, 151, 153 (n.d.) *available at* http://www.ars.usda.gov/sites/fireants/publications/EPDC_151.pdf.
32. TREY HUFFMAN, *supra* note 2, at 5.
33. *Id.*
34. Priscilla Pérez Billig, *supra* note 9.
35. *Id.* See also *infra* Chapter 6, notes 58-64 for a discussion of DOT's role and responsibility regarding invasive species.
36. Priscilla Pérez Billig, *supra* note 9.

Chapter 5

THE PRESENT SCOPE OF THE INVASIVE SPECIES PROBLEM IN HAWAII

Act 126, Session Laws of Hawaii 2015, directs the Bureau to update its 2002 study relating to the "present scope of the invasive species problem in Hawaii" and "health and safety issues."¹ The following chapter covers both of these areas.

Hawaii's Susceptibility to Invasive Species

Biodiversity

In many cases, alien species are more evolved than Hawaii's native species because alien species have developed defenses while competing against other species. Species native to Hawaii have lived in relative isolation for over seventy million years.² Before globalization and human travel, it was difficult for species to make the journey to Hawaii because of its geographic isolation. Thus, native species have not had to adapt to or defend against many threats because they did not have to compete against other species for survival.³ By comparison, many species on the mainland have had the opportunity to develop defensive mechanisms, such as thorns, because they were exposed to many other competitive species.⁴ Native species do not have robust defenses, and invasive species can take advantage of this vulnerability. For example, strawberry guava trees prevent the growth of native plants because this fast growing species infests forests with dense thickets that block sunlight.⁵ Some native plants have not developed a survival defense to this scenario such as being able to grow in low light or without light.⁶ Many of Hawaii's native species have become extinct because of the introduction of certain alien species.

Hawaii is also home to many endemic species as a result of its isolation. Despite the fact that Hawaii makes up only .2% of the United States' land area, it is home to thirty-eight percent of the United States' threatened and endangered plants.⁷ About twenty-five percent of Hawaiian corals are endemic to Hawaii; similarly, about twenty-five percent of the seven thousand marine life forms supported by these coral reefs are endemic to Hawaii.⁸

As stated previously, before globalization, new invertebrates naturally colonized to Hawaii at a rate of one every fifty thousand to one hundred thousand years.⁹ Today, approximately seventeen invasive species become established in Hawaii annually.¹⁰ On average, a new insect is introduced to the Hawaiian islands as often as once per day.¹¹

The Environment

Invasive species have a direct impact on Hawaii's world renowned beaches, forests, and overall environment. The environment successfully operates as a balanced network of animals, plants, and other organisms dependent upon each other for stabilization and survival. Ecosystem services such as decomposition, flood control, climate regulation, and soil stabilization all rely on this balanced network of native plants and animals to function.¹²

Famous Hawaii beaches and coastlines are protected by coral reefs. Coral reefs provide natural harbors and protect the islands.¹³ These reefs are significantly threatened with degradation by invasive algae and seaweed that suffocate coral, thereby diminishing protection from storms and tsunamis and causing beach erosion.¹⁴ Coral reefs are also home to nearly seven thousand marine life forms that rely on them to live, breed, grow, and feed.¹⁵ Both residents and tourists value coral reefs, especially when participating in reef activities such as surfing, fishing, diving, and snorkeling.

Hawaii's forests and watershed functions are drastically threatened by invasive species such as miconia, whose shallow root systems render the island more susceptible to erosion and landslides.¹⁶ Forests are Hawaii's best protection against drought and flooding because of their ability to balance the watershed, which is uniquely able to capture and retain water.¹⁷ When a forest is degraded, the soil layers that retain water are wasted away, leaving only layers of much less permeable clay beneath.¹⁸ The loss of the water-retaining soil layer permits water to runoff into streams.¹⁹ During storms, the runoff flows onto beaches and coastlines because the water is not retained in the soil layer. Only plants with shallow root systems, such as many invasive species, can survive with little soil above the less permeable clay layer.²⁰ This increase in storm water runoff also has the potential to further smother coral reefs because of the dirt and debris carried with it into surrounding marine waters.²¹

Native wetland habitats also provide ecosystem services such as filtering the water supply, slowing storm runoff, and mitigating pollution.²² Invasive species dramatically reduce the biodiversity that is needed to perform these ecosystem services. For example, mongooses and rodents decimate native wetland bird populations by preying on native ground nesting birds and eggs.²³

Health and Safety

Invasive species not only threaten the environment and negatively impact the economy, they are also a threat to human health and safety. Illnesses such as Dengue fever, currently spreading on the Island of Hawaii,²⁴ and West Nile virus are transmitted by invasive mosquitoes that are ongoing threats to the health and safety of humans in Hawaii.

One of the most notable and recent events threatening human health and safety was the devastation in Puna caused by falling albizia trees during tropical storm Iselle in 2014.²⁵ Authorities attributed ninety percent of the structural damage from tropical storm Iselle to albizia

trees.²⁶ Not only do the tree trunks fall, their branches also snap and fall on houses and power lines and block roads.²⁷

The Scope of the Problem

The scope of the invasive species problem in Hawaii is overwhelming. It is an ongoing problem because new species are constantly arriving in Hawaii. The following is a brief description of some of the most notorious invasive species threatening Hawaii today, organized by environmental issues, health and safety issues, and economic issues:

Invasive Animals

Axis Deer

Environment: As hooved animals, axis deer, similar to feral pigs,²⁸ trample and feed on native vegetation. Also similar to feral pigs and other hooved ungulates, axis deer greatly contribute to erosion by destroying Hawaiian forests, particularly on Lanai and Molokai.²⁹ Additionally, they use their antlers to girdle and kill native trees.³⁰

Health and Safety: Axis deer threaten public health because they are a carrier of many diseases, such as leptospirosis, and because they can transmit bovine tuberculosis.³¹ Further, deer-vehicle collisions, which have occurred on Maui, may cause property damage and even death.³²

Economy: The deer compete with cattle for forage grass, forcing cattle operators to spend money on supplemental feed.³³ They also eat other agricultural plants such as pineapple plants and wine grape vines that were cultivated for economic purposes.³⁴ Axis deer roam through golf properties, damaging trees, eating turf, and making divots in the greens, causing thousands of dollars in damages.³⁵

Brown Tree Snake

Environment: Brown tree snakes, established in Guam, but not yet established in Hawaii, eat lizards, birds, and mammal prey. The snakes affect biodiversity because they have caused the extinction of ten out of the thirteen native birds in Guam, which has permanently altered its ecosystem.³⁶ If brown tree snakes were to become established in Hawaii, their diet would likely disrupt the balance of species here, thus permanently affecting Hawaii's native ecosystem.

Health and Safety: Brown tree snakes cause snakebite injuries to humans and animals and power outages by "climbing power lines and getting into transformers and electrical boxes."³⁷ Snakebites are projected to occur at a frequency of 82.5 bites per one hundred thousand Hawaii residents.³⁸

Economy: A 2010 study determined the potential impact of brown tree snakes on Hawaii's tourism sector by surveying incoming tourists on whether and how they would alter their vacation in Hawaii if brown tree snakes were to become established in Hawaii. The authors created a mathematical representation of Hawaii's economy and used the survey data to determine the effect of decreased visitor days, using Guam as a benchmark and making plausible estimates of any unknown quantities.³⁹ According to the study, annual estimated tourism revenue losses were projected at approximately \$138,000,000 to \$1,380,000,000.⁴⁰ Additionally, brown tree snakes feed on chickens and eggs, which could hurt the local chicken egg market in Hawaii.⁴¹ They also eat insectivores that reduce plant pest populations, thereby potentially damaging the agriculture industry.⁴² Further, projected costs for snakebites range from \$191,520 to \$303,040.⁴³ These snakes may also cause frequent power outages, with additional costs for maintenance, repairs, and lost revenues. Total potential damages to Hawaii if brown tree snakes were to become established are estimated to be between \$593,000,000 and \$2,140,000,000.⁴⁴

Coconut Mite

Environment: Coconut mites are the first invasive species discovered on Molokai, but are also now found on Maui and Oahu. They scar and create deep cracks in coconut palm trees, which cause immature coconuts to drop to the ground.⁴⁵

Economy: These mites are considered one of the worst arthropod pests of coconut palm trees, a staple of Hawaii's picturesque environment.⁴⁶ Loss of coconut palm trees may have a detrimental impact on tourism in Hawaii.

Coconut Rhinoceros Beetle

Environment: Coconut rhinoceros beetles damage coconut palm trees by boring into the center of the crown and feeding on the sap.⁴⁷ The beetles also cut through new leaves causing frond damage.⁴⁸ As the developing palm leaves unfold, fronds show v-shaped cuts and the midribs of the palms have visible holes.⁴⁹

Economy: These beetles cause disruptions to farming because they feed on commercial crops such as bananas, sugar cane, papayas, pineapples, taro, and date palms.⁵⁰ They detrimentally impact Hawaii's tourism industry because they also feed on coconut palm trees, which are important to the scenic beauty that attracts visitors to the islands.

Coffee Berry Borer

Economy: Coffee berry borers are insects that live, feed, and reproduce in coffee berries, severely damaging the quality and quantity of coffee production.⁵¹ Their presence is most notable on the Island of Hawaii because of its coffee industry; it is home to nearly ten thousand acres of land planted with coffee.⁵² In 2012, coffee farmers in Hawaii produced more than \$54,000,000 worth of coffee.⁵³ In 2013, coffee berry borer infestation rates reached up to eighty

percent on Hawaii coffee farms.⁵⁴ Additionally, according to U.S. Representative Tulsi Gabbard, the coffee berry borer has caused total losses of up to \$9,000,000 for the period from 2011-2013.⁵⁵

Coqui Frog

Environment: Coqui frogs threaten wildlife due to their sheer density and diet; the frogs eat many insects that native birds consume.⁵⁶

Health and Safety: The males of this invasive species emit a two-note loud pitched call that sounds like "ko" and "kee."⁵⁷ The coqui calling is similar to the volume level of a garbage disposal, lawnmower, or vacuum cleaner. Coqui frogs emit calls as loud as ninety decibels.⁵⁸ For reference, the Department of Health (DOH) State Community Noise Control Code defines maximum sound levels at seventy decibels.⁵⁹ The Occupational Safety and Health Administration requires employers to make workplace ear protection available when employees are exposed to "an 8-hour time weighted average of 85 decibels or greater."⁶⁰

Economy: Coqui frogs negatively impact Hawaii's economy, especially in the areas of agriculture, tourism, and real estate. Coqui frogs contribute to agricultural losses because nursery products are a suspected vector for the coqui frogs' introduction and spread to Hawaii. Thus, nurseries must incur costs to exclude the frog from their stock and premises and to control and treat frog infestations that may be present.⁶¹ This has a detrimental impact on Hawaii's agricultural economy because nursery trade is one of the largest agricultural commodities in Hawaii.⁶² Because it is suspected that coqui frogs are spread by nursery products, customers are increasingly demanding nursery certificates warranting that their products are free of coqui frogs.⁶³ Coqui frogs negatively impact real estate and tourism because they have a shrill night mating call, which deters visitors and potential property owners.⁶⁴

Feral Pig

Environment: Feral pigs root and run throughout Hawaii's forests, destroying native vegetation.⁶⁵ They trample through every watershed in the State, degrading the water supply and accelerating soil erosion.⁶⁶ Feral pigs also feed on nesting ground birds, harming Hawaii's native bird species.

Health and Safety: Wallows created by feral pigs provide mosquito breeding sites, which facilitates the spread of diseases such as West Nile virus and Dengue fever.⁶⁷

Economy: Watersheds and forests contribute to Hawaii's picturesque environment and help attract tourists. However, as explained in the Feral Pig Environment section, feral pigs degrade the water supply by trampling watershed vegetation.⁶⁸ This could potentially have a substantial effect on the State's economy, given that the value of the Ko'olau mountains watershed, Oahu's primary source of fresh water, is estimated to range from \$7,400,000,000 to \$14,000,000,000.⁶⁹

Formosan Ground Termite

Environment: Formosan ground termites devour live trees and woody plants, harming Hawaii's forests and ecosystems.⁷⁰

Economy: These pests also attack homes and other structures quickly and efficiently, with little external evidence or warning to homeowners.⁷¹ In 2004, it was estimated that private homeowners spent approximately \$150,000,000 for treatment and repair costs each year.⁷²

Freshwater Aquatic Invaders

Environment: Freshwater aquatic invaders alter Hawaii's ecosystems by damaging resources because they introduce new competitive and predatory interactions to Hawaii's freshwater streams and communities.⁷³ Examples of these invaders include butterfly peacock bass, Hong Kong catfish, and Tahitian prawns.⁷⁴ Aquatic invaders also change the freshwater feeding structure as they, at times, become a top-level predator and make native species a part of their diet.⁷⁵

Little Fire Ant

Environment: Infestations of little fire ants have resulted in widespread destruction of wild honeybee hives in Hawaii.⁷⁶

Health and Safety: This invasive species sting humans,⁷⁷ resulting in reactions that may include severe pain and raised welts that itch for a week.⁷⁸ The ants have also been known to repeatedly sting pets in their eyes, causing them to go blind.⁷⁹

Economy: Customers at plant nurseries are reluctant to buy products for fear of these ants.⁸⁰ As a result, some nurseries have reportedly gone out of business because of the high cost of treating infested products.⁸¹

Mongoose

Environment: Mongooses typically eat insects, small vertebrates (such as mice or rats), eggs and hatchlings, and reptiles.⁸² Although it has been difficult to determine whether they are the sole cause of extinction of many of Hawaii's former native ground nesting birds, mongooses threaten many of Hawaii's endangered birds because they prey on the eggs and hatchlings in ground nests.⁸³ Because of mongooses' diet, some worry that mongooses pose a major challenge to reestablishing ground nesting bird species to their historic levels and threaten already reduced vertebrate populations.⁸⁴

Mosquito

There are six biting species of mosquitoes in Hawaii, all of them invasive.⁸⁵

Environment: Mosquitoes are a vector for sicknesses and diseases, such as West Nile virus, Dengue fever, avian malaria, and heartworm in dogs.⁸⁶ Mosquitoes' ability to transmit disease and illness is especially devastating to Hawaii's native species because, as previously discussed in this chapter,⁸⁷ native species have not developed as many defenses, such as tolerance to illnesses and diseases, compared to species on the mainland.⁸⁸

Health and Safety: The West Nile virus carried by mosquitoes has killed birds, horses, and people.⁸⁹ The Centers for Disease Control estimates that the nationwide cost of the summer 2003 West Nile virus outbreak was \$139,000,000.⁹⁰ Although, as of 2014, no cases of West Nile virus have been reported in Hawaii, the State is particularly susceptible to the virus due to Hawaii's lack of cold weather.⁹¹ Cold weather suppresses the virus because its vectors cannot withstand low temperatures.⁹² Mosquitoes are also a carrier of Dengue fever, which is currently spreading on the Island of Hawaii.⁹³ As of January 8, 2016, there have been two hundred thirty-three confirmed cases of Dengue fever there, including twenty-two afflicting visitors to Hawaii.⁹⁴

Dengue outbreaks have occurred periodically in Hawaii since 1903, when an Oahu epidemic infected thirty thousand people, thirteen years after the arrival of *aedes aegypti* (yellow fever mosquito) and three years after the arrival of *aedes albopictus* (Asian tiger mosquito).⁹⁵ While more prevalent in the islands, *Aedes albopictus* is a less efficient vector of viral diseases such as dengue because it feeds on blood -- human or animal -- only once before laying its eggs.⁹⁶ In contrast, *Aedes aegypti* feeds on multiple blood sources, typically human, before it lays its eggs, thereby increasing the likelihood of transmitting the virus from one person to another.⁹⁷ It is also an aggressive feeder, approaching humans from behind without notice and biting them on the elbows and ankles.⁹⁸ Moreover, *aedes aegypti* eggs can survive drying for six or months, can be easily spread during that time, and hatch as larvae when next flooded with rainwater.⁹⁹

While the current dengue outbreak has been limited to the Island of Hawaii, a 2001 outbreak infected one hundred twenty-two people on Kauai, Maui, and Oahu, ninety-two of them in the rural Hana area.¹⁰⁰ In 2011, multiple cases were reported on Oahu, but all of these outbreaks were tied principally to *aedes albopictus*.¹⁰¹ However, the following year, *aedes egypti* was trapped at the Honolulu International Airport, the first time it had been reported on Oahu since the 1940's.¹⁰² During the current outbreak of dengue, *aedes egypti* have been seen in large numbers for the first time.¹⁰³ As then-Deputy Director of Health, Gary Gill, observed in 2012, "[a] single population of *aegypti* could easily spread dengue throughout the [S]tate. A dengue-carrier mosquito would be a concern for people who come here, as much as for people who live here."¹⁰⁴

The appearance of dengue fever and *aedes egypti* is relatively rare in Hawaii, but the simultaneous appearance of the two is cause for special concern. *Aedes egypti* is the principal carrier of dengue in areas where the virus is endemic.¹⁰⁵ If it is living and breeding at Honolulu's

airport, or if it is being regularly reintroduced there after carriage in the cabin or cargo hold of aircraft traveling from infested areas, it can infect travelers arriving from and departing for global destinations.¹⁰⁶ The 2001 outbreak in Hawaii is believed to have originated with a person arriving from French Polynesia during a Dengue outbreak there.¹⁰⁷ That same route may also have been followed in a recent outbreak of a related virus, Zika, first discovered in Africa in the mid-twentieth century but largely confined there and to Asia until the first cases were found in the South Pacific in 2007.¹⁰⁸ Zika has now been acquired in ten countries in the Americas, meaning the person infected was bitten in that country, rather than during travel elsewhere.¹⁰⁹ There also have been cases diagnosed in the United States in those traveling from affected countries.¹¹⁰

On the heels of a major Zika outbreak in French Polynesia -- nineteen thousand suspected cases -- in 2013, the virus arrived in Brazil in 2014, perhaps carried by World Cup competitors from Africa or by a group of paddlers from French Polynesia arriving for a canoe race weeks later.¹¹¹ Already reeling from a widespread outbreak of Dengue,¹¹² Brazil confronted a new problem: an exponential increase in the number of babies born with microcephaly, or abnormally small heads and brains.¹¹³ In 2015, 2,782 cases of microcephaly were reported in Brazil, a large proportion occurring in those regions of the country most affected by the virus, compared to only one hundred forty-seven in 2014 and one hundred sixty-seven in 2013.¹¹⁴ Traces of Zika were found in the amniotic fluid of affected newborns, thereby establishing a link, if not a causal connection, between the two.¹¹⁵ There has also been a recent increase in cases of microcephaly in French Polynesia corresponding to Zika outbreaks there.¹¹⁶ Moreover, on January 15, 2016, DOH announced that a child born with microcephaly on Oahu had tested positive for the Zika virus.¹¹⁷ The mother was living in Brazil in May 2015 and the newborn is believed to have acquired the infection while *in utero*.¹¹⁸ While no cases of Zika have been acquired in Hawaii to date, six cases of Zika have been identified in Hawaii since 2014 in people who acquired the infection in another country.¹¹⁹ A simultaneous appearance by Zika and a widespread population of *aedes aegypti* could have devastating implications for the health and safety of Hawaii residents and visitors.

Economy: It has been predicted that the West Nile virus could negatively affect the economy because tourists may refrain from traveling to Hawaii for fear of contracting the virus.¹²⁰ Although the current Dengue fever outbreak has been reported to have a low impact on tourism,¹²¹ as the outbreak continues, it may cause a more substantial impact because of visitors who are deterred from future Hawaii trips. Of perhaps even greater concern is the impact that the arrival of Zika and the establishment of a widespread population of *aedes aegypti* could have on tourism. Presently, the Brazilian government is not officially warning women there not to get pregnant.¹²² However, the Centers for Disease Control is urging pregnant women to avoid travel to Latin America and Caribbean countries with Zika outbreaks and warning all travelers to take extra precautions to avoid mosquito bites when travelling in countries where Zika is established.¹²³ These precautions include using repellent day and night, covering exposed skin with long sleeves and pants, staying in indoor air conditioned areas, or keeping windows and doors screened or closed, and using mosquito nets.¹²⁴

If the prospect of contracting a fetus-damaging illness is not enough to give pause to many travelers, the notion that the recommended steps to avoid mosquito bites also prevents

enjoyment of the quintessential Hawaii experience -- fun in the sun, surf, and sand -- may be enough for travelers to conclude that they should just stay home, or go elsewhere.

Rat

Environment: Rats impact native Hawaiian forests because they change the ecosystem by feeding on native snails and bird eggs, native plant fruit and seeds, and native insects.¹²⁵ By doing so, they effectively thwart regeneration of Hawaii's native species.¹²⁶ Additionally, rats eat, disperse, and destroy seeds of native and non-native plants, which may further alter forest ecosystem balance.¹²⁷

Health and Safety: Rats are a vector for disease such as rat lungworm disease, which causes people headaches, nausea, and vomiting.¹²⁸ Severe effects of rat lungworm disease include meningitis and neurologic dysfunction.¹²⁹

Red Imported Fire Ant

Health and Safety: If they become established in Hawaii, red imported fire ants (RIFAs) could affect both visitors and residents because they bite humans and pets, similar to the injuries caused by little fire ants.¹³⁰ They also have the potential to be as damaging to homeowners as termites¹³¹ because colonies build mounds and nests near buildings and homes and then infest these structures while foraging for food.¹³² They also infest electrical equipment, causing power outages.¹³³

Economy: RIFAs may hinder the agricultural economy because producers and nurseries will have to spend money treating fields and nurseries to control infestations and because RIFAs eat developing produce, roots, and seeds, which will reduce profit.¹³⁴ There have been many economic impact studies of RIFAs. The species has cost Americans \$5,000,000,000 to \$6,000,000,000 per year.¹³⁵ The Nature Conservancy estimates that the potential economic impact to Hawaii is \$15,500,000 to \$46,100,000.¹³⁶ A study examining the potential economic impact of introduction and spread of RIFAs in Hawaii projected that, with minimal governmental intervention, the total cost to Hawaii's economy from a full invasion would be \$211,000,000 per year.¹³⁷ Further, the potential value of foregone outdoor activity opportunities, such as picnicking, sunbathing, and gardening, to households and tourists is projected to be \$134,000,000 per year.¹³⁸ Additionally, expenditures of \$77,000,000 per year are projected for necessary actions such as prevention, control, and eradication.¹³⁹

Invasive Plants

Albizia Tree

Environment: Albizia trees are the world's fastest growing tree species (they can average 2.5 centimeter increase in height per day).¹⁴⁰ They change Hawaii forests because they alter soil

chemistry by dramatically increasing nitrogen and phosphorous outputs.¹⁴¹ This change allows other weeds and invasive species, such as strawberry guava trees, to invade while suppressing or, at times, eliminating native species such as the 'ohi'a lehua.

Health and Safety: Albizia trees quickly reach heights close to thirty-five meters despite their weak wood that breaks easily during storms or with age.¹⁴² Fallen albizia trees contribute to road closures, flooding, electrical outages, and property damage.¹⁴³ One example of these dangers occurred on April 16, 2010, when a twenty-five to thirty meter tall tree fell across a residential street in Puna on the Island of Hawaii.¹⁴⁴ It destroyed power lines and fences. The tree landed in a neighbor's backyard where children usually play.¹⁴⁵ More recently, toppling albizia trees caused widespread damage in Puna during tropical storm Iselle, creating power outages and blocking roadways.¹⁴⁶

Economy: Removal of these trees is also expensive; in 2009 DOT spent \$1,000,000 to remove one thousand five hundred albizia trees growing along one mile of road.¹⁴⁷

Banana Poka

Environment: Banana poka plants are invasive vines that smother Hawaiian forests.¹⁴⁸ They have covered over seventy thousand acres of forest in Hawaii, harming native plants and animal habitats.¹⁴⁹

Economy: Banana poka plants suffocate koa forests in particular. Koa trees support many of Hawaii's native species and also support Hawaii's economy by providing lumber for furnishings.¹⁵⁰

Marine Algae

Since the mid 1950's there have been at least nineteen types of macroalgae introduced to Hawaii.¹⁵¹ At least five of these nineteen species are invasive and have become established in Hawaii.¹⁵² The five main species of alien invasive algae are: smothering seaweed, gorilla ogo, leather mudweed, hook weed, and prickly seaweed.¹⁵³

Environment: These species outcompete native algae, taking over and using natural resources for themselves.¹⁵⁴ Some also invade, smother, and kill coral reefs, which provide both a home and a hiding place to an array of aquatic life and a natural barrier and defense against severe weather.¹⁵⁵ Reefs collapse when corals die. Without the natural protection provided by reefs, severe weather may be more likely to cause sand erosion and property damage, and pose a danger to residents and visitors.¹⁵⁶ One species of macroalgae, gorilla ogo, covers the south shore of Oahu. In 2004, this species occupied an estimated eleven percent to sixty percent of the bottom floor, changing the bottom habitat of other aquatic species.¹⁵⁷ It can now be found in "Kaneohe bay and from Maunalua bay to Pearl Harbor."¹⁵⁸

Economy: In 2002, the annual value of biodiversity on Hawaiian reefs was estimated to be \$17,840,000 per year.¹⁵⁹ Coral reef biodiversity is important to Hawaii's economy because revenue from tourist activities such as snorkeling, diving, and fishing depends upon an array of different and plentiful aquatic species, many of which make their homes in coral reefs. Also, some algae, such as hook weed and gorilla ogo, wash up on beaches and rot, resulting in an unappealing odor.¹⁶⁰ Because of this, Maui County annually spends hundreds of thousands of dollars to clear its shorelines.¹⁶¹ In 2002, one economic valuation determined that Maui lost \$20,000,000 per year from problems associated with these particular marine algae.¹⁶²

Miconia

Environment: Miconia's threat to Hawaii is primarily in the areas of biodiversity and the watershed.¹⁶³ Miconia plants are aggressive growers, often referred to as "the green cancer." Their leaves shade out all undergrowth. Miconia also damage watersheds, the area of land that collects rain water, because their shallow root system does not retain the layer of soil above the layer of non-permeable clay.¹⁶⁴ If the soil layer is diminished, less water is retained and more runs off during and after a storm. Loss of watersheds cause erosion, landslides, and smothering of reefs because streams carry dirt and debris directly to the ocean coastal areas.¹⁶⁵

Economy: The potential economic loss to Oahu from loss of groundwater recharge from miconia may reach \$137,000,000 per year because researchers project miconia to cause a loss of forty-one million gallons of water per day.¹⁶⁶ Moreover, considering both damages to the entire State of loss of groundwater recharge and decrease of surface water quality from increased sedimentation attributable to miconia's shallow root system, total damages may range from \$273,900,000 to \$484,400,000, with an estimated average of \$377,400,000 per year.¹⁶⁷

Strawberry Guava Tree

Environment: Strawberry guava trees are fast growing trees that infest and overrun native forests.¹⁶⁸ They form dense thickets and replace all other native watershed plants, which eventually ends up reducing surface and drinking water by diverting it to the atmosphere.¹⁶⁹ In Hawaii, there are approximately five hundred thousand acres of forests moderately infested with strawberry guava trees.¹⁷⁰ A forest infested with strawberry guava trees reduces the amount of water entering the watershed by thirty to fifty percent.¹⁷¹ This means that forests dominated by strawberry guava trees will lead to widespread reduction in the water available to recharge aquifers and streams for drinking and agriculture.¹⁷²

Pathways to Paradise

Invasive species travel to Hawaii by many means. The following table is a breakdown of the 2014 average numbers of flights and passengers and the amount of cargo and parcels that may purposely or inadvertently carry invasive species to Hawaii.¹⁷³

Description	Daily	Annual
Flights	2,000	790,000
Air Passengers	25,000	9,000,000
Air Cargo (tons)	550	200,000
Air Parcel (tons)	120	45,000
Cruise Passengers	520	190,000
Harbor Cargo (tons)	21,000	7,500,000

Endnotes

1. Act 126, Session Laws of Hawaii 2015, is attached as Appendix A.
2. *Invasive Species*, HISC, <http://dlnr.hawaii.gov/hisc/info> (last visited Aug. 26, 2015) (Found under the heading "Invasive Species as a Problem in Hawaii").
3. *Id.* (Found under the heading "Invasive Species as a Problem in Hawaii").
4. *Id.* (Found under the heading "Invasive Species as a Problem in Hawaii").
5. Press Release, CGAPS, Draft EA Posting on Strawberry Guava Impacts (June 23, 2010), *available at* <http://www.cgaps.org/wp-content/uploads/pdfs/Press-Release-Strawberry-Guava-Impacts-062310.pdf>.
6. *Id.*
7. Alan Holt, THE NATURE CONSERVANCY OF HAWAII, AN ALLIANCE OF BIODIVERSITY, AGRICULTURE, HEALTH, AND BUSINESS INTERESTS FOR IMPROVED ALIEN SPECIES MANAGEMENT IN HAWAII 3 (1996), *available at* <http://www.hear.org/AlienSpeciesInHawaii/articles/norway.pdf>.
8. THE NATURE CONSERVANCY, THE LIVING REEF 7, (n.d.), *available at* <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/hawaii/howwework/tlr-lo-spreads.pdf>.
9. Alan Holt, *supra* note 7, at 3.
10. Daniel Rubinoff, *New Butterfly Species to Hawaii*, HAWAII PUBLIC RADIO, Sept. 30, 2015, <http://hpr2.org/post/conversation-wednesday-september-30th-2015>.
11. David K. Chee, *Unwanted: Dead or Alive How Invasive Species Could Kill Our Economy*, HAWAII BUSINESS, April 2004, at 22, *available at* <http://www.hawaiibusiness.com/unwanted-dead-or-alive/>.
12. *Ecosystem Services*, NATIONAL WILDLIFE FEDERATION, <https://www.nwf.org/Wildlife/Wildlife-Conservation/Ecosystem-Services.aspx> (last visited Oct. 14, 2015).
13. THE NATURE CONSERVANCY, THE LIVING REEF, *supra* note 8, at 4.
14. *Id.* at 3 and 7.
15. *Id.* at 2.
16. THE NATURE CONSERVANCY, LAST STAND: THE VANISHING HAWAIIAN FOREST 8, (n.d.), *available at* <http://www.nature.org/media/hawaii/the-last-stand-hawaiian-forest.pdf>.
17. *Id.* at 3.

18. *Id.*
19. *Id.*
20. *Id.*
21. *Id.*
22. *Ecosystem Services*, NATIONAL WILDLIFE FEDERATION, *supra* note 12.
23. *See infra* notes 82-84 and 125-126 and accompanying text.
24. *See infra* Chapter 5, notes 93-107 and accompanying text for a discussion of Hawaii's Dengue fever outbreak.
25. The Nature Conservancy, *The Albizia Problem*, 39 MEMBERSHIP NEWSL.8,8 (Spring 2015), <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/hawaii/publications/2015-hawaii-spring-newsletter.pdf>.
26. *Id.*
27. *Id.*
28. *See infra* notes 65-69 and accompanying text for a discussion of feral pigs.
29. THE NATURE CONSERVANCY, LAST STAND: THE VANISHING HAWAIIAN FOREST, *supra* note 16, at 8.
30. *Id.* and CGAPS, *AXIS DEER IN HAWAII* (May 25, 2011), available at <http://www.cgaps.org/wp-content/uploads/2011-Axis-Deer-Issue-Summary-052511.pdf>.
31. CGAPS, *AXIS DEER IN HAWAII*, *supra* note 30.
32. *Id.*
33. *Id.*
34. *Id.*
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Chapter 6

STATE, FEDERAL, COUNTY, AND NON-GOVERNMENT ROLES AND RESPONSIBILITIES

Act 126, Session Laws of Hawaii 2015, also directs the Bureau to update its 2002 invasive species study with regard to "state, federal, county, and non-government roles and responsibilities."¹ The Bureau used Survey 2, relating to invasive species system gaps and leaks, to obtain this information.² The complete survey and a spreadsheet of responses are included as Appendices X and X, respectively. The Bureau sent Survey 2 to fifty-three agencies. The Bureau received forty responses to Survey 2, although some respondents did not answer every question of the survey.³ In addition, five of these agencies responded that their work does not involve invasive species in Hawaii. Therefore, the Bureau relied on the information provided in thirty-five Survey 2 responses. Survey 2 asked the agencies to respond to the following three prompts:

- (1) Please briefly describe your agency's current role and responsibility concerning invasive species.
- (2) Does your agency focus on a specific invasive species or on a specific area, such as control, research, eradication, or prevention, with respect to invasive species? If so, what species or area?
- (3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.

The entities responding to the Bureau's survey are identified below, with a brief description of their roles, responsibilities, and specific programs dedicated to invasive species, based on the information they provided.⁴

State Entities

Department of Agriculture

Plant Industry Division, Plant Quarantine Branch

The Plant Industry Division, Plant Quarantine Branch's (PQB) mission is "to prevent the introduction, spread and establishment of pests, which includes harmful insects, plants, plant disease, and illegal animals."⁵ PQB focuses on "the prevention of invasive species that are not established or of limited distribution in Hawaii."⁶ "PQB's programs include the import and intrastate programs (inspection, permitting, certification, quarantine, treatment, compliance); export (certification, compliance); detection and survey (sampling, diagnostics, monitoring); enforcement; rapid response (BTS [brown tree snake] interdiction, coqui [frog], LFA [little fire ant], CRB [coconut rhinoceros beetle]); and education and outreach."⁷

Plant Industry Division, Plant Pest Control Branch

The Plant Industry Division, Plant Pest Control Branch (PPC) is "responsible for limiting plant pest populations that are detrimental to agriculture by using chemical, mechanical, biological, and integrated pest management methods for control or eradication."⁸ Some of these plant pests are invasive to Hawaii. PPC branch's work relating to targeting pests for control or eradication "includes researching and studying the invasive and beneficial organisms, rearing and liberating parasitoids, and chemical or mechanical control."⁹ PPC conducts biological control projects for a variety of species such as strawberry guava trees, hala scale, and macadamia felted coccids.¹⁰ It also conducts chemical/mechanical control projects for species such as little fire ants, coqui frogs, and banana bunchytop virus.¹¹ Lastly, PPC has a Rapid Response Program, which is a "[j]oint program with HDOA [Hawaii Department of Agriculture] Plant Quarantine Branch and UH [University of Hawaii] to address the Coconut Rhinoceros Beetle."¹²

Plant Industry Division, Pesticides Branch

The Plant Industry Division, Pesticides Branch undertakes a variety of efforts related to invasive species, such as, "[p]esticide licensing, [s]pecial local need registrations, [and s]ection 18¹³ emergency exemptions."¹⁴ Other agencies can use plant pest control tools and mechanisms provided by the Registration & Technical Review Unit of the Pesticides Branch to help with control and management of invasive species.¹⁵

Animal Industry Division, Animal Quarantine Branch

The role and responsibility concerning invasive species of the Animal Quarantine Branch (AQB), Animal Industry Division is "[t]o protect animal and public health by preventing the introduction of rabies and animal diseases in imported cats and dogs through import regulation, quarantine, and monitoring of animal entries for alien pests and diseases."¹⁶ AQB minimizes the "possibility of rabies virus entering and establishing itself in the State as well as external parasites such as ticks not established in Hawaii, and diseases associated with these vectors."¹⁷

Animal Industry Division, Animal Disease Control Branch

The role and responsibility of the Animal Disease Control Branch (ADC), Animal Industry Division is to "[p]revent, control, and eradicate infectious diseases and external parasites of livestock, poultry, and aquaculture."¹⁸ The branch also "[i]nspects all animals entering the [S]tate."¹⁹

Department of Business, Economic Development, and Tourism

Office of Planning

The Office of Planning (OP) is designated by the Department of Business, Economic Development and Tourism (DBEDT) as DBEDT's voting member of the Hawaii Invasive Species Council (HISC).²⁰ OP also operates the Coastal Zone Management Program that includes the Hawaii Ocean Resources Management Plan, which is "a framework for the management of ocean and coastal resources in Hawaii."²¹ The Hawaii Ocean Resources Management Plan also includes aquatic invasive species measures managed by the Department of Land and Natural Resources Division of Aquatic Resources (DLNR DAR).²²

Hawaii Tourism Authority

The Hawaii Tourism Authority (HTA) has funded invasive species eradication, control, and research through its environmental initiative, "which focuses on preserving Hawai'i's natural resources."²³ It does not focus on a specific invasive species or area.²⁴ HTA has historically funded invasive species projects through the operation of the Community Natural Resources Program, which is an annual request for proposals "offered to projects and programs that help to preserve Hawai'i's unique environment."²⁵

Department of Land and Natural Resources

Division of Forestry and Wildlife

The Division of Forestry and Wildlife (DOFAW) "is responsible for managing the State's natural resources, including native plants and animals. As invasive species are a primary threat to those resources, DOFAW mitigates invasive species impacts where they threaten native plants and animals."²⁶ DOFAW focuses "on any invasive species that threatens native species." The two primary foci of DOFAW are:

- (1) Prevention, via the construction of fences to exclude invasive animals from high-value natural [resource] areas; and
- (2) Control, via the removal or dispatch or [sic] invasive plants and animals from DOFAW-managed lands.²⁷

DOFAW has four relevant programs related to invasive species.²⁸ They are as follows:

- (1) Forestry Program: Forestry technicians, known as "invasive species technicians," control invasive species in DOFAW-managed lands and forest reserves;

- (2) Protection Program: A forest health protection coordinator specializes in plant diseases, in addition to invasive fungi and invertebrates, to identify research gaps, coordinate among partners to obtain funds, and serve as a point of contact for the U.S. Forest Service;
- (3) Native Ecosystems Protection and Management Program (Natural Area Reserves Program): This program focuses on controlling invasive species "in high value reserves and watershed areas through fencing, weed control, and animal removal"; and
- (4) Wildlife Program: This program focuses on control efforts to "protect native wildlife, such as rodent control or removal of invasive vertebrates in high-value areas." The HISC program supervisor position,²⁹ the position responsible for managing the HISC, is also included as a civil service position as part of the wildlife program.³⁰

Hawaii Invasive Species Council³¹

HISC is administratively attached to DLNR and "is responsible for cabinet-level direction on invasive species direction, coordination, and planning among state departments, federal agencies, and international and local initiatives."³² It is composed of state department heads of DLNR, the Department of Agriculture (DOA), the Department of Transportation (DOT), the Department of Health (DOH), DBEDT, and UH to provide a united voice on "matters of invasive species policy."³³ HISC also "administers an interagency budget to support projects that fill gaps between agency mandates or advance research and tools for invasive species prevention and control."³⁴ The council "addresses prevention, control, outreach, research, and resources available for invasive species work."³⁵ HISC uses five informal working groups on areas such as prevention, control, public outreach, research and technology, and resources, "to facilitate discussions and actions among agency staff and other stakeholders."³⁶

Division of Aquatic Resources

DLNR Division of Aquatic Resources (DAR) operates an Aquatic Invasive Species Program (AIS). According to the State of Hawaii, Aquatic Invasive Species Management Plan (2003), the program's goal is "to minimize the harmful ecological, economic, and human health impacts of AIS through the prevention and management of their introduction, expansion, and dispersal into, within, and from Hawai'i."³⁷

DAR's role in the fight against invasive species includes (1) control and eradication, primarily with invasive algae, (2) research relating to subjects such as reef ecosystems and biofouling, and (3) prevention through community outreach and education.³⁸ AIS focus areas include many invasive species areas ranging from controlling and managing invasive algae in Kaneohe Bay, rapid response, prevention, early detection, and policy development.³⁹ DAR also has a number of other programs.⁴⁰ For example, the Ballast Water and Hull Fouling Program

focuses on "policy development to prevent the introduction of invasive species through biofouling and ballast water."⁴¹ Other examples are the Estuaries Program and the Streams Program, which monitor invasive species in estuaries and streams, respectively.⁴²

Department of Health

Environmental Health Services Division, Vector Control Branch

"The primary responsibility of the Vector Control Program within the Department of Health, Environmental Health Services Division (EHSD) is to suppress outbreaks of vector-borne diseases and to prevent the establishment of new vector species in Hawaii."⁴³ Mosquitoes are the primary vector under surveillance because of their potential to transmit human diseases such as Dengue fever.⁴⁴ If "a new species of mosquito is discovered and is a known vector (not all mosquitoes transmit human diseases)[,] then the Vector Control staff will aggressively treat the area with pesticides and other chemicals to ensure the new species of mosquito is eradicated."⁴⁵ If an invasive vector, other than mosquitoes, were detected, then the response level of the EHSD may be limited because staff are allocated to mosquitoes.⁴⁶

"Due to the reduction-in-force in 2009, the Vector Control Branch was left with a very limited statewide staff with vector surveillance capabilities reduced to small areas around the major airports."⁴⁷ However, DOH EHSD "received an additional four vector positions in 2015. These four positions will be established and filled in 2016."⁴⁸ The positions will focus on disease vectors that may impact health at ports of entry.⁴⁹

Environmental Planning Office

The Environmental Planning Office (EPO) "assists with education, coordination and communication across" DOH and with other departments.⁵⁰ For example, it prepares one-page handouts on specific human health threatening vectors.⁵¹ It also participates on a HISC working group.⁵²

Environmental Management Division, Clean Water Branch

The Clean Water Branch (CWB) of the Environmental Management Division does not have direct involvement with invasive species.⁵³ However, "CWB may get involved if an invasive species causes adverse water quality impacts to a State surface water. For example: algal bloom from excessive nutrients."⁵⁴ The "CWB Monitoring Section may post signs and work with other agencies if an invasive species is adversely impacting the water quality of a State surface water."⁵⁵ Also, CWB administers Hawaii's water quality standards that protect human health and aquatic life.⁵⁶ Sometimes this may involve invasive species.⁵⁷

Department of Transportation

The Department of Transportation (DOT) operates the Statewide Noxious Invasive Pest Program (SNIPP).⁵⁸ SNIPP is DOT's "commitment to mitigate the introduction, spread[,] and impact of invasive species. SNIPP's multi-faceted approach includes prevention, early detection and rapid response, restoration, and collaboration."⁵⁹ Included in the program is "a ten[-]year strategic plan to mitigate the introduction, spread[,] and impact of invasive species within the state highways right-of-way."⁶⁰ For example, invasive plants are controlled and managed by replacing them with native Hawaiian species.⁶¹ DOT is also required to take control actions on species found on federal and state noxious weed lists.⁶² DOT explained, "[o]f these, Albizia (Falcataria moluccana) has been the greatest threat to the safety of our highways and we continue to prioritize its control and eradication along essential corridors of our highway system."⁶³ In addition to SNIPP, DOT is a participant with DOH, UH, DOA, and DLNR in a cooperative project to "increase pest monitoring at Hawaii airports."⁶⁴

University of Hawaii

College of Tropical Agriculture and Human Resources

The University of Hawaii College of Tropical Agriculture and Human Resources (UH CTAHR) focuses on invasive species management research of and instruction on invasive species that impact agriculture, human health, and the environment, "specifically insects, plant pathogens, and weeds to some extent."⁶⁵ UH CTAHR's explanation of projects related to invasive species is as follows:

- Insect pests: we have projects addressing major agricultural pests such as coffee berry borer; macadamia felted coccid; fruit flies; insect vectors of plant pathogens; environmental pests: Erythrina (Wiliwili) gall wasp; naiao thrips; coconut rhinoceros beetle; [and] urban pests: termites and ants. Research is also conducted on the impacts of invasive species on natural ecosystems, particularly biological control of weeds.
- Plant pathogens: [o]ur projects typically address agricultural pests including plant viruses, fungi[,] and bacteria. We have some projects addressing environmental pests, such as ohia rust.
- Pesticide registration: we have a program that addresses the registration of pesticides for minor use.⁶⁶

College of Natural Sciences, Pacific Cooperative Studies Unit

The Pacific Cooperative Studies Unit (PCSU) of UH's College of Natural Sciences addresses "invasive species issues at the landscape level or when rapid responses are necessary," by cooperatively operating with state and federal entities, private organizations, and private landowners.⁶⁷ PCSU conducts policy work, applied research, and hands-on actions related to

invasive species.⁶⁸ Although its emphasis is on natural ecosystems, PCSU also works on agricultural and health issues related to invasive species.⁶⁹ PCSU does not focus on a specific type of species, but rather "operate[s] against a wide range of invasive species as needed."⁷⁰

PCSU also conducts a variety of projects that affect different invasive species.⁷¹ For example, it administers each county-level invasive species committee, including the Big Island Invasive Species Committee (BIISC)⁷² and the Maui Invasive Species Committee (MISC), and other projects such as CGAPS and the Ko'olau mountain watershed partnership.⁷³ HISC provides grants to PCSU to fund and administer some of these projects, such as CGAPS.⁷⁴

Maui Invasive Species Committee. Maui Invasive Species Committee's (MISC) role in the fight against invasive species includes detecting and controlling invasive species throughout Maui County.⁷⁵ MISC focuses on a number of invasive species areas including control, research, eradication, outreach, education, and prevention for more than thirty "priority" invasive species.⁷⁶ There are "25 field staff focused on [a] detection and control program" and two full-time employees that perform outreach and education.⁷⁷ MISC's work also includes advocating and policy work statewide.⁷⁸

Oahu Invasive Species Committee. The Oahu Invasive Species Committee (OISC) "is a partnership whose mission is to eradicate incipient invasive species from Oahu and stop established species from spreading."⁷⁹ The partnership focuses on species that are starting to "become naturalized but that have characteristics that make them ecosystem-changers once they invade. The idea is to eradicate these species before they become chronic problems for land-managers."⁸⁰ OISC takes part in "[e]arly detection, eradication, control, and outreach."⁸¹ Its main species priorities are: "Miconia calvescens, Chromolaena odorata [siam weed], Himalayan blackberry, Fountain grass, Tibouchina herbacea [cane glory bush], Tibouchina urvilleana [glory bush], Little Fire Ant, [and] Coqui frog."⁸²

Kauai Invasive Species Committee. The Kauai Invasive Species Committee (KISC) works closely with state and federal natural resource agencies and DOA to assist in invasive species management gap filling.⁸³ KISC focuses on research, prevention, control, and eradication of invasive species.⁸⁴ It conducts a mongoose response program and public outreach and education.⁸⁵ Additionally, KISC has an early detection botanist and an early detection/rapid response crew.⁸⁶

Coordinating Group on Alien Pest Species. The Coordinating Group on Alien Pest Species (CGAPS) "is a voluntary partnership of federal and state agencies and non-governmental organizations whose goal is to protect Hawai'i from invasive species that impact the economy, environment, agriculture, and public health. CGAPS works to close the gaps in Hawaii's terrestrial and aquatic invasive species prevention and response systems through greater coordination, planning, and management. CGAPS has a small, paid staff that coordinates the partnership and collaborative projects, and conducts outreach on invasive species issues and solutions."⁸⁷ To achieve its goal, CGAPS holds quarterly public meetings with many state, federal, and non-governmental agency representatives.⁸⁸ CGAPS focuses on "overarching goals,

needs, and hot topic issues/species policy needs" relating to invasive species.⁸⁹ For example, recognizing a need to provide access to information, in 2012, CGAPS launched the Plant Pono website project.⁹⁰ This website project is "the portal for the Hawai'i-Pacific Weed Risk Assessment service and database, which provides a 'background check' on plant species with an assessment of whether they are a 'high risk' for becoming invasive in Hawai'i, or a 'low risk'."⁹¹

**University of Hawaii Hilo; College of Agriculture, Forestry,
and Natural Resource Management; and College of Arts and
Sciences, Biology Department**

The University of Hawaii at Hilo (UHH) manages approximately twelve thousand acres of state land, including land on Maunakea, on-campus buildings, and off-campus facilities for research.⁹² UHH's role and responsibility concerning invasive species centers around invasive species management on those lands and the "research, education and service UHH staff engages in relating to the field."⁹³ UHH does not have a "system wide invasive species management strategy."⁹⁴ Many look to UHH for invasive species management information, and UHH develops policies "favoring invasive species risk mitigation and facilitating resource allocation needed to be competitive in this advanced scientific and policy field."⁹⁵ UHH does not focus on a specific invasive species or aspect of invasive species.⁹⁶ However, it conducts research programs on invasive species control, eradication, and prevention, and it also must manage and control invasive species on land described above.⁹⁷ For example, the Maunakea Invasive Species Management Plan includes procedures applicable to mountain uses such as "early detection surveys, monitoring, control, rapid response, and other typical biosecurity procedures[,] which the University requires of University permittees and encourages State entities to follow."⁹⁸

Federal Entities

U.S. Department of Agriculture

Animal and Plant Health Inspection Service

The mission of the Animal and Plant Health Inspection Service (APHIS) is to "protect the health and value of American agriculture and natural resources."⁹⁹ One facet of this includes the "protection of public health and safety as well as natural resources that are vulnerable to invasive pests and pathogens."¹⁰⁰ APHIS has many invasive species programs and services including (1) wildlife services, which are associated with brown tree snakes, among others, (2) veterinary services, addressing animals diseases such as avian influenza outbreaks, and (3) the Plant Protection and Quarantine Program (PPQ), which "safeguards agriculture and natural resources from risks associated with the entry, establishment, or spread of pests and noxious weeds."¹⁰¹

PPQ has many projects dedicated to the fight against invasive species.¹⁰² For example, PPQ performs invasive species risk assessments for international trade activities and develops safeguards and instruction manuals to assist officials in applying regulations relating to commodities and inspections to protect against invasive species.¹⁰³ The instruction manual was useful when chrysanthemum white rust, a pest of national concern, was identified in a Hawaii

nursery.¹⁰⁴ Steps taken to achieve successful eradication included stopping sales of the plant, removing remaining plants, and surveying for more of the pests.¹⁰⁵ Another example is the PPQ Cooperative Agricultural Pest Survey, which is a program that "helps fund State cooperators to survey and report for high-risk pests" that are of interest to the U.S. and the individual states to provide for early detection and prevent spread of significant damage.¹⁰⁶

Natural Resource Conservation Service

The National Resource Conservation Service (NRCS) is an agency whose "mission is to provide resources to farmers, ranchers, non-industrial private forest managers[,] and other landowners/operators to aid them with conservation of the lands" by helping their clients "address natural resource concerns/problems."¹⁰⁷ Once NRCS is invited to a client's property, it assesses the client's objectives and conducts a property inventory and evaluation, which includes checking for invasive species.¹⁰⁸ A conservation plan is then developed.¹⁰⁹ NRCS has jurisdiction over invasive plants, but not over invasive animals and insects.¹¹⁰ Thus, it focuses its programs on the control, eradication, and prevention of invasive plant species.¹¹¹ Some examples include (1) its Conservation Stewardship Program, which provides financial assistance to address invasive species, (2) Conservation Innovation Grants, which may be awarded for new and novel invasive species control projects, and (3) Emergency Watershed Protection, which provides moneys that can be awarded if the President declares an emergency to address invasive species.¹¹²

Agricultural Research Service, Pacific West Area

The Agricultural Research Service (ARS) "conducts research to develop methods for the detection, mitigation, control, quarantine treatment, biology and behavior of invasive pest species, primarily insects but also some plant pathogens." In Hawaii, ARS focuses on fruit flies, but also on other pests that are harmful to Hawaii's agriculture. "For example, ARS developed the areawide fruit fly control program in Hawaii, provided scientific assistance that identified the cause of the Rapid Ohi'a Death, and is in the process of developing an areawide coffee berry borer control program." ARS takes a variety of actions relating to invasive species in Hawaii, including developing "irradiation treatments for high-impact invasive species" and characterizing and managing invasive plant viruses.

U.S. Department of Commerce

National Oceanic Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office

The National Marine Fisheries Service (NMFS) is federally mandated to manage marine resources.¹¹³ The mandate covers both federal marine areas and federal actions. Invasive species specific work is "driven by grants" or laws such as "the Endangered Species Act or the Magnuson-Stevens Fishery Conservation and Management Act."¹¹⁴ There are three main areas at NMFS related to invasive species, each of which provides technical input to coordinate with Hawaii on biosecurity.¹¹⁵

- The Habitat Conservation Division participates in marine natural resource technical support, reviews federal permits, including permits required for the Army Corps of Engineers to update existing building structures, and conducts essential fish habitat consultation on "federal actions impacting marine public trust resources."¹¹⁶
- The Protected Resources Division focuses on marine Endangered Species Act and Marine Mammal Protection Act compliance, for example, by review of federal permits to examine the impact a new structure will have on the habitat and surrounding resources.¹¹⁷ The Division also consults on federal actions that impact marine resources to determine whether they are in compliance with federal requirements such as the Endangered Species Act.¹¹⁸
- The Monuments Program, specifically in Hawaii, focuses on "the effective sustainable management of natural and cultural resources," which includes a focus on managing invasive species.¹¹⁹ The program "coordinates the development of management plans, scientific exploration[,] and research programs within the Marine National Monuments in the Pacific Islands Region," which includes the Papahānaumokuākea Marine National Monument, comprising the Hawaiian Islands National Wildlife Refuge and the the Northwestern Hawaiian Islands Marine Refuge.¹²⁰

U.S. Department of Defense

Department of Navy, U.S. Pacific Fleet

The Department of Navy, U.S. Pacific Fleet (NAVY), implements "invasive species projects which are contained in the Joint Base Pearl Harbor-Hickam (JBPHH) and Pacific Missile Range Facility (PMRF) Integrated Natural Resources Management Plans (INRMPs)."¹²¹

Across the bases, NAVY focuses on biosecurity and monitoring.¹²² NAVY also conducts control efforts such as focusing "on invasive species that affect protected species and habitat. These efforts are primarily in natural areas (forests, wetlands, etc[.]). The installations' facilities departments focus on control of urban invasives, and the medical department focuses on invasives that are potential vectors of human disease."¹²³ Both JBPHH and PMRF operate a natural resources program and an INRMP "that outlines projects and programs funding for natural resources conservation, including prevention and control of invasive species."¹²⁴ Invasive species projects include "biosecurity plans, invasive plant control (e.g. mangrove, long thorn kiawe, pickleweed, christmasberry, etc.), predator control (feral cats, mongoose, rats), ungulate control (trapping, shooting, fencing), and coconut rhinoceros beetle control (monitoring/trapping, breeding site mitigation, green waste quarantining)."¹²⁵

U.S. Marine Corps, Marine Forces Pacific, Marine Corps Base Hawaii

The U.S. Marine Corps, Marine Forces Pacific, Marine Corps Base Hawaii (MCBH), detects, monitors, and controls invasive species to prevent their introduction and establishment.¹²⁶ MCBH attempts "to minimize their ecological impacts in a cost-effective and

environmentally-sound manner subject to the availability of appropriations, and within budgetary limits; [and] promote public education on invasive species and the means to address them."¹²⁷

The MCBH Environmental Department "focuses both on specific invasive plant and animal species to control their spread and degradation of resources, as well as attempt to eradicate incipient populations when discovered."¹²⁸ It performs species control of "pluche spp, Christmasberry (*Schinus terebinthifolia*), kiawe (*Prosopis pallida*), Seagrape (*Coccoloba uvifera*), red mangrove (*Rhizophora mangle*), Fountain grass (*Pennisetum setaceum*), California grass (*Brachiaria mutica*), Devil weed (*Chromolaena odorata*), Golden crownbeard (*Verbesina encelioides*), mongoose (*Herpestes javanicus*), cats (*felis catus*), feral pigs (*Sus scrofa*), Yellow crazy ants (*Anoplolepis gracilipes*), [and] Coconut Rhinoceros beetle (*Oryctes rhinoceros*)."¹²⁹ The Natural Resources Section of the MCBH Environmental Department is responsible for managing fish and wildlife, watersheds, wetlands, coastal and marine resources, grounds maintenance, and landscape, "conducting outreach, and providing technical oversight for outdoor recreation that impact the natural resources."¹³⁰

U.S. Department of the Interior

National Park Service, Pacific Islands Office

The National Park Service's (NPS) mission is to "[c]onserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations. . . . Invasive species are the most significant threat to native ecosystems and are strategically controlled within the national park."¹³¹

NPS focuses on controlling, eradicating, and preventing invasive species within national parks.¹³² It also works with private neighboring land owners to prevent and control invasive species that may then enter the parks.¹³³ NPS staff participate in advisory roles in multi-agency groups such as the county specific invasive species committees.¹³⁴ Common invasive species that NPS deals with include "pigs, mouflon sheep, goats, feral cattle, small mammals, coqui, incipient insect populations, and over 100 species of plants."¹³⁵ NPS conducts many programs relating to invasive species.¹³⁶ For example, the recovery programs for the nene, uau, and hawksbill turtle protect nests of these species by locally controlling small mammals that may prey on eggs.¹³⁷ NPS also has educational programs, and in addition to enforcing laws and regulations, park law enforcement staff may educate visitors about natural resources.¹³⁸

Pacific Islands Water Science Center, Geological Survey

The Pacific Islands Water Science Center (PIWSC), Geological Survey "is a science organization focused on water resources."¹³⁹ There is no focus on a specific invasive species, but PIWSC does propose studies and research related to invasive species.¹⁴⁰ For example, it has "proposed studies to evaluate water use characteristics of native and invasive species."¹⁴¹

Pacific Islands Fish and Wildlife Office

The Pacific Islands Fish and Wildlife Office (FWO) has the primary responsibility for "the conservation of the nation's fish, wildlife, and plants."¹⁴² FWO is very concerned about the impact that invasive species may have on these resources.¹⁴³ The agency focuses on invasive species areas such as "prevention, control, detection and monitoring, and outreach."¹⁴⁴ FWO has many programs related to invasive species, such as the Aquatic Nuisance Species Program, which "leads the nation on aquatic invasive species and brown treesnake [sic] outreach through various public awareness campaigns."¹⁴⁵ Another example is the National Wildlife Refuge System. The system "addresses invasive species issues on its 545 Refuges, which encompass approximately 96 million acres of wildlife habitat."¹⁴⁶

U.S. Department of Homeland Security

U.S. Customs and Border Protection

U.S. Customs and Border Protection (CPB) enforces U.S. Department of Agriculture regulations "regarding plant material and commodities."¹⁴⁷ The agency focuses on all areas of fighting invasive species; it is not specific to a particular type of invasive species.¹⁴⁸ CPB collaborates with other federal agencies and DOA, and some of this collaboration may involve invasive species.¹⁴⁹

U.S. Department of Transportation

Federal Highway Administration

The Federal Highway Administration (FHA) complies with Executive Order 13112, "which calls on Executive Branch agencies to work to prevent and control the introduction and spread of invasive species."¹⁵⁰ The FHA explained that, pursuant to Executive Order 13112,

Federal agencies cannot authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless all reasonable measures to minimize risk of harm have been analyzed and considered. Complying with the E.O. means that Federal-aid and Federal Lands Highway Program funds cannot be used for construction, revegetation, or landscaping activities that purposely include the use of known invasive plant species.¹⁵¹

In Hawaii, FHA oversees recipients of federal highway funds, mainly DOT and the respective county highway departments to ensure they comply with federal requirements.¹⁵²

County Entities¹⁵³

City and County of Honolulu

The Office of Economic Development of the City and County of Honolulu's role regarding invasive species includes:

- Coordinating with federal and state agencies in detecting, monitoring, delineating, and/or controlling invasive species;
- Disseminating information on invasive species; and
- Training city employees to identify, detect, and/or control invasive species.¹⁵⁴

It "focuses primarily on detecting, controlling, or eradicating invasive species if found in city properties, including parks, golf courses, botanical gardens & others."¹⁵⁵

County of Maui

The Office of Economic Development of the County of Maui "houses grants to" and partners with MISC.¹⁵⁶ It is the "[p]rimary liaison between [the] public and other agencies, including MISC and watershed partnerships."¹⁵⁷

County of Kauai

The Office of Economic Development of the County of Kauai "feels its kuleana is to support the Kauai Invasive Species Committee."¹⁵⁸ It contributes to KISC "with community and financial support in the form of an annual grant."¹⁵⁹ The County of Kauai has contributed \$50,000 each year for the last five years for KISC to perform invasive species actions, including prevention, control, eradication, and research of invasive species.¹⁶⁰

Other Entities

Hawaii Agricultural Research Center

"Historically, Hawaii Agriculture Research Center [(HARC)] (previously Hawaiian Sugar Planters' Assoc.) provided the first line of defense statewide for the sugarcane industry for surveying, identification and control of invasive species of microorganisms and insect pests."¹⁶¹ More recently, it has focused on other crops besides sugarcane.¹⁶² It also collaborates with UH, DOA, APHIS, and other entities "to prevent the transport of pests and diseases."¹⁶³

Hawaiian Humane Society

The Hawaiian Humane Society is an amnesty location for illegal animals, which may be an invasive species.¹⁶⁴ Their amnesty program is a drop off point to "allow people to surrender illegal animals/pets with no penalty."¹⁶⁵ Once an animal is surrendered, DOA PQB is contacted to pick up the animal.¹⁶⁶

Hawaii Conservation Alliance

The Hawaii Conservation Alliance (HCA) is a twenty-six member alliance with participants from federal and state government, non-profit organizations, and academia.¹⁶⁷ Among other things, HCA focuses on biosecurity.¹⁶⁸ "The HCA Biosecurity Sub-committee has the goal of providing a framework for biosecurity and lines of defense to prevent invasive species introductions to the Hawaiian Archipelago."¹⁶⁹ HCA supports its members' endeavors, which "could be a range of activities including control, research, eradication, or prevention."¹⁷⁰ There are various invasive species projects provided by HCA, such as the Hawaii Conservation Conference, which gathers people to discuss Hawaii ecosystems, and operation of conservationconnections.org, which is a website to connect those involved in invasive species conservation work and management initiatives.¹⁷¹

Endnotes

1. Act 126, Session Laws of Hawaii 2015, is attached as Appendix A.
2. See *supra* Chapter 1, notes 55-61 and accompanying text for a discussion of the Bureau's efforts to gather information.
3. A table of Survey 2 entities indicating whether they responded is attached as Appendix F.
4. A list of pertinent state and federal laws, rules, and regulations relied upon by these agencies is attached as Appendix N.
5. See Survey 2, Part I, Question 1, specifically, the response of DOA PQB.
6. See Survey 2, Part I, Question 2, specifically, the response of DOA PQB.
7. See Survey 2, Part I, Question 3, specifically, the response of DOA PQB.
8. See Survey 2, Part I, Question 1, specifically, the response of DOA PPC.
9. See Survey 2, Part I, Question 2, specifically, the response of DOA PPC.
10. *Id.*
11. *Id.*
12. *Id.*
13. *Pesticide Emergency Exemptions*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, <http://www.epa.gov/pesticide-registration/pesticide-emergency-exemptions> (last visited Jan 8., 2016) (stating "Section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) authorizes the EPA to allow an unregistered use of a pesticide for a limited time if we determine that an emergency condition exists. The regulations governing Section 18 of FIFRA (found at Title 40 of the Code of Federal Regulations, part 166), define the term "Emergency Condition" as an urgent, non-routine situation that requires the use of a pesticide(s).").
14. See Survey 2, Part I, Question 3, specifically, the response of DOA Pesticides Branch.
15. See Survey 2, Part I, Question 1, specifically, the response of DOA Pesticides Branch.
16. See Survey 2, Part I, Question 1, specifically, the response of DOA AQB.

17. See Survey 2, Part I, Question 3, specifically, the response of DOA AQB.
18. See Survey 2, Part I, Question 1, specifically, the response of DOA ADC.
19. See Survey 2, Part I, Question 3, specifically, the response of DOA ADC.
20. See Survey 2, Part I, Question 1, specifically, the response of DBEDT OP.
21. See Survey 2, Part I, Question 3, specifically, the response of DBEDT OP.
22. See Survey 2, Part I, Question 3, specifically, the response of DBEDT OP.
23. See Survey 2, Part I, Question 1, specifically, the response of DBEDT HTA.
24. See Survey 2, Part I, Question 2, specifically, the response of DBEDT HTA.
25. See Survey 2, Part I, Question 3, specifically, the response of DBEDT HTA.
26. See Survey 2, Part I, Question 1, specifically, the response of DLNR DOFAW.
27. See Survey 2, Part I, Question 2, specifically, the response of DLNR DOFAW.
28. See Survey 2, Part I, Question 3, specifically, the response of DLNR DOFAW.
29. See *supra* Chapter 3, notes 8-14 and accompanying text for a discussion of HISC staff.
30. See Survey 2, Part I, Question 3, specifically, the response of DLNR DOFAW and e-mail correspondence with HISC staff on Dec. 15, 2015.
31. See Chapter 3 for a discussion on HISC.
32. See Survey 2, Part I, Question 1, specifically, the response of HISC.
33. *Id.*
34. *Id.*
35. See Survey 2, Part I, Question 2, specifically, the response of HISC.
36. See Survey 2, Part I, Question 3, specifically, the response of HISC. See also Chapter 3 "Duties" section for a discussion of HISC working groups.
37. See Survey 2, Part I, Question 1, specifically, the response of DLNR DAR; DLNR DAR, STATE OF HAWAII AQUATIC INVASIVE SPECIES MANAGEMENT PLAN (Sept. 2003), 3, available at <http://www.anstaskforce.gov/State%20Plans/More/HAWAII%20mgt%20PLAN%202003.pdf>.
38. See Survey 2, Part I, Question 2, specifically, the response of DLNR DAR.
39. See Survey 2, Part I, Question 1, specifically, the response of DLNR DAR.
40. See Survey 2, Part I, Question 3, specifically, the response of DLNR DAR.
41. See Survey 2, Part I, Question 3, specifically, the response of DLNR DAR (stating "Biofouling is the number one vector for the introduction of non-native species to Hawaii.").
42. See Survey 2, Part I, Question 3, specifically, the response of DLNR DAR.
43. See Survey 2, Part I, Question 1, specifically, the response of DOH EHSD.
44. *Id.* See *supra* Chapter 5, notes 85-124 and accompanying text.
45. See Survey 2, Part I, Question 1, specifically, the response of DOH EHSD.
46. See Survey 2, Part I, Question 2, specifically, the response of DOH EHSD.

47. See Survey 2, Part I, Question 1, specifically, the response of DOH EHSD.
48. *Vector & Disease Control*, DEPARTMENT OF HEALTH ENVIRONMENTAL HEALTH, <http://health.hawaii.gov/epo/strategic/disease/> (last visited Nov. 3, 2015).
49. *Vector & Disease Control*, DEPARTMENT OF HEALTH ENVIRONMENTAL HEALTH, <http://health.hawaii.gov/epo/strategic/disease/> (last visited Nov. 3, 2015).
50. See Survey 2, Part I, Question 1, specifically, the response of DOH EHSD.
51. See Survey 2, Part I, Question 3, specifically, the response of DOH EHSD.
52. See Survey 2, Part I, Question 2, specifically, the response of DOH EHSD.
53. See Survey 2, Part I, Question 1, specifically, the response of DOH CWB.
54. *Id.*
55. See Survey 2, Part I, Question 3, specifically, the response of DOH CWB.
56. See Survey 2, Part I, Question 1, specifically, the response of DOH CWB.
57. *Id.*
58. See Survey 2, Part I, Question 1, specifically, the response of DOT.
59. *Id.*
60. See Survey 2, Part I, Question 3, specifically, the response of DOT.
61. See Survey 2, Part I, Question 1, specifically, the response of DOT.
62. See Survey 2, Part I, Question 2, specifically, the response of DOT.
63. *Id.*
64. See Survey 2, Part I, Question 3, specifically, the response of DOT.
65. See Survey 2, Part I, Question 1, specifically, the response of UH CTAHR.
66. See Survey 2, Part I, Question 3, specifically, the response of UH CTAHR.
67. See Survey 2, Part I, Question 1, specifically, the response of UH PCSU.
68. *Id.*
69. See Survey 2, Part I, Question 2, specifically, the response of UH PCSU.
70. *Id.*
71. See Survey 2, Part I, Question 3, specifically, the response of UH PCSU.
72. Information on BIISC is not included in the following discussion of PCSU projects because it did not respond to the Bureau's Survey 2. See Appendix F for a table of Survey 2 entities indicating whether they responded to Survey 2.
73. See Survey 2, Part I, Question 3, specifically, the response of UH PCSU. UH PCSU provided an excel spreadsheet of their projects along with the species impacted by those projects. The spreadsheet is attached as Appendix O.
74. E-mail correspondence with HISC staff on Jan. 6, 2016.
75. See Survey 2, Part I, Question 1, specifically, the response of MISC.

76. See Survey 2, Part I, Question 2, specifically, the response of MISC.
77. See Survey 2, Part I, Question 3, specifically, the response of MISC.
78. *Id.*
79. See Survey 2, Part I, Question 1, specifically, the response of OISC.
80. *Id.*
81. See Survey 2, Part I, Question 2, specifically, the response of OISC.
82. *Id.*
83. See Survey 2, Part I, Question 1, specifically, the response of KISC.
84. See Survey 2, Part I, Question 2, specifically, the response of KISC.
85. See Survey 2, Part I, Question 3, specifically, the response of KISC.
86. *Id.*
87. *CGAPS*, WHAT IS CGAPS?, <http://www.cgaps.org/what-is-cgaps/> (last visited Dec. 11, 2015).
88. Survey 2, Part I, Question 1, specifically, the response of CGAPS; *CGAPS*, WHAT IS CGAPS?, <http://www.cgaps.org/what-is-cgaps/> (last visited Dec. 11, 2015).
89. Survey 2, Part I, Question 2, specifically, the response of CGAPS.
90. *CGAPS*, WHAT WE DO, <http://www.cgaps.org/what-we-do/> (last visited Dec. 11, 2015).
91. *Id.*
92. See Survey 2, Part I, Question 1, specifically, the response of UHH.
93. *Id.*
94. *Id.*
95. *Id.*
96. See Survey 2, Part I, Question 2, specifically, the response of UHH.
97. *Id.*
98. See Survey 2, Part I, Question 3, specifically, the response of UHH.
99. See Survey 2, Part I, Question 1, specifically, the response of APHIS.
100. *About APHIS*, UNITED STATES DEPARTMENT OF AGRICULTURE, <https://www.aphis.usda.gov/wps/portal/banner/aboutaphis> (last visited Nov. 4, 2015).
101. See Survey 2, Part I, Question 1, specifically, the response of APHIS.
102. See Survey 2, Part I, Questions 1-3, specifically, the response of APHIS.
103. See Survey 2, Part I, Question 1, specifically, the response of APHIS.
104. See Survey 2, Part I, Questions 1 and 2, specifically, the response of APHIS.
105. See Survey 2, Part I, Question 2, specifically, the response of APHIS.
106. See Survey 2, Part I, Questions 2 and 3, specifically, the response of APHIS.
107. See Survey 2, Part I, Question 1, specifically, the response of NRCS.

108. *Id.*
109. *Id.*
110. *Id.*
111. See Survey 2, Part I, Question 2, specifically, the response of NRCS.
112. See Survey 2, Part I, Question 3, specifically, the response of NRCS.
113. See Survey 2, Part I, Question 1, specifically, the response of the NMFS.
114. See Survey 2, Part I, Question 2, specifically, the response of NMFS.
115. See Survey 2, Part I, Question 3, specifically, the response of NMFS.
116. See Survey 2, Part I, Question 3, specifically, the response of NMFS *and* telephone conversation with a representative of NMFS on Jan. 5, 2016.
117. See Survey 2, Part I, Question 3, specifically, the response of NMFS *and* telephone conversation with a representative of NMFS on Jan. 5, 2016.
118. See Survey 2, Part I, Question 3, specifically, the response of NMFS.
119. *Id.*
120. *NOAA Fisheries, Pacific Islands Regional Office, MARINE NATIONAL MONUMENT PROGRAM*, http://www.fpir.noaa.gov/MNM/mnm_papahanaumokuakea.html (last visited Dec. 11, 2015).
121. See Survey 2, Part I, Question 1, specifically, the response of NAVY.
122. See Survey 2, Part I, Question 2, specifically, the response of NAVY.
123. *Id.*
124. See Survey 2, Part I, Question 3, specifically, the response of NAVY.
125. *Id.*
126. See Survey 2, Part I, Question 1, specifically, the response of MCBH.
127. *Id.*
128. See Survey 2, Part I, Question 2, specifically, the response of MCBH.
129. *Id.*
130. See Survey 2, Part I, Question 3, specifically, the response of MCBH.
131. See Survey 2, Part I, Question 1, specifically, the response of NPS.
132. See Survey 2, Part I, Question 2, specifically, the response of NPS.
133. *Id.*
134. See Survey 2, Part I, Question 1, specifically, the response of NPS.
135. See Survey 2, Part I, Question 2, specifically, the response of NPS.
136. See Survey 2, Part I, Question 3, specifically, the response of NPS.
137. *Id.*
138. *Id.*

139. See Survey 2, Part I, Question 2, specifically, the response of PIWSC.
140. See Survey 2, Part I, Questions 1 and 2, specifically, the response of PIWSC.
141. See Survey 2, Part I, Question 1, specifically, the response of PIWSC.
142. See Survey 2, Part 1, Question 1, specifically, the response of FWO.
143. *Id.*
144. See Survey 2, Part 1, Question 2, specifically, the response of FWO.
145. See Survey 2, Part 1, Question 3, specifically, the response of FWO.
146. *Id.*
147. See Survey 2, Part I, Question 1, specifically, the response of CPB.
148. *Id.*
149. See Survey 2, Part I, Question 3, specifically, the response of CPB.
150. *Federal Highway Administration Guidance on Invasive Species*, U.S. DEPARTMENT OF TRANSPORTATION https://www.environment.fhwa.dot.gov/ecosystems/vegmgmt_inv_guid.asp (last visited Nov. 13, 2015).
151. *Id.*
152. See Survey 2, Part I, Question 1, specifically, the response of Federal Highway Administration.
153. The County of Hawaii did not respond to the Bureau's Survey 2. However, it may have a similar role and responsibility to the other counties in the State regarding invasive species.
154. See Survey 2, Part I, Question 1, specifically, the response of the City and County of Honolulu.
155. See Survey 2, Part I, Question 2, specifically, the response of the City and County of Honolulu.
156. See Survey 2, Part I, Questions 1 and 2, specifically, the response of the County of Maui.
157. See Survey 2, Part I, Question 3, specifically, the response of the County of Maui.
158. See Survey 2, Part I, Question 1, specifically, the response of the County of Kauai.
159. *Id.*
160. See Survey 2, Part I, Questions 1 and 2, specifically, the response of the County of Kauai.
161. See Survey 2, Part I, Question 1, specifically, the response of HARC.
162. *Id.*
163. *Id.*
164. See Survey 2, Part I, Question 1, specifically, the response of the Hawaiian Humane Society.
165. *Id.*
166. *Id.*
167. See Survey 2, Part I, Question 1, specifically, the response of HCA.
168. *Id.*
169. See Survey 2, Part I, Question 3, specifically, the response of HCA.

- 170. See Survey 2, Part I, Question 2, specifically, the response of HCA.
- 171. See Survey 2, Part I, Question 3, specifically, the response of HCA.

Chapter 7

GOVERNMENT EXPENDITURES

Among the economic and other costs to Hawaii relating to the fight against invasive species are governmental costs; specifically, the expenditures made by the state, county, and federal levels of government in Hawaii to prevent, mitigate, or eradicate invasive species. The Bureau surveyed state, county, and federal agencies concerning their expenditures in fiscal year 2013-2014 relating to invasive species in Hawaii. The Bureau modeled its survey upon an earlier survey of spending on invasive species by selected states, including Hawaii, which was conducted by the United States Government Accounting Office.¹

Specifically, one set of surveys was sent to fourteen of the eighteen state executive branch departments and the Office of Hawaiian Affairs (OHA).² Responses were received from twelve of the departments and OHA, for an eighty-seven per cent response rate.³ A second set of surveys was sent to the mayors of the four counties. Responses were received from two of the counties, for a fifty per cent response rate.⁴ Finally, a third set of surveys was sent to seventeen federal agencies that have offices located in the State. Responses were received from ten agencies, for a fifty-nine per cent response rate. In sum, surveys were sent to a total of thirty-six federal, state, and county agencies. Responses were received from twenty-five of them, for an overall response rate of sixty-nine per cent. (See Appendix C for the state, county, and federal versions of "Survey 1," with corresponding sample cover letters.)

State, County, and Federal Expenditures

Based upon agency responses to the surveys that were received in time for inclusion in this report, it appears that, in fiscal year 2013-2014, the state, county, and federal levels of government expended a total of at least \$57,488,910 in state, county, federal, and other funds to combat invasive species in Hawaii. The break down between the government level expending the funds and the source of funds is shown in Table 1 below.⁵ "Other funds" were generally identified by respondents as private funds, special funds, or trust funds. As shown in the Table, the State expended the bulk of all funds, but federal funds accounted for almost half of total expenditures.

**Table 1. State, County, and Federal Expenditures
by Levels of Government and Sources of Funding in Fiscal Year 2014**

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

The state, county, and federal levels of government expended the \$57,488,910 for invasive species activities related to prevention, detection, control, monitoring, restoration, research and development, education, outreach, partnerships, and cooperative activities, and other activities. "Other" activities were generally identified by respondents as maintenance, "non-target impacts", overhead, activities relating to the Hawaii Invasive Species Council (HISC) or other committees, activities that included an invasive species component, administrative expenses, equipment, and allowances. The bulk of expenditures were for prevention and control. See Table 2 below:

Table 2. State, County, and Federal Expenditures by Activities and Sources of Funding in Fiscal Year 2014

Activities	State Funds	County Funds	Federal Funds	Other Funds	Total
Prevention	\$3,896,183	\$5,000	\$3,427,914	\$5,751,100	\$13,080,197
Detection	\$3,150,985	\$10,000	\$1,172,026	\$1,392,322	\$5,725,333
Control	\$7,882,931	\$10,000	\$8,057,502	\$1,536,151	\$17,486,584
Monitoring	\$667,036	\$10,000	\$3,048,780	\$75,347	\$3,801,163
Restoration	\$915,134	\$0	\$4,822,070	\$412,928	\$6,150,132
Research & Dev.	\$1,045,085	\$10,000	\$4,621,756	\$171,853	\$5,848,694
Education et al	\$1,361,261	\$25,000	\$795,318	\$290,581	\$2,472,160
Other	\$655,906	\$147	\$1,767,311	\$501,283	\$2,924,647
Total	\$19,574,521	\$70,147	\$27,712,677	\$10,131,565	\$57,488,910

State Expenditures

At the state level of government, the executive departments and OHA reported that, in fiscal year 2013-2014, they expended a total of at least \$42,070,773 in state, federal, and other funds to combat invasive species in the State. The bulk of expenditures were made by the Department of Agriculture (DOA) and the University of Hawaii (UH).

Expenditures were also reported by the Department of Business, Economic Development, and Tourism (DBEDT), the Department of Defense (DOD), the Department of Education (DOE), the Department of Health (DOH), the Department of Land and Natural Resources (DLNR), the Department of Transportation (DOT), and OHA. See Table 3 below:

Table 3. State Expenditures by Department and Sources of Funding in Fiscal Year 2014

Depts.	State Funds	Federal Funds	Other Funds	Total
DOA	\$5,850,000	\$672,420	\$6,950,000	\$13,472,420
DBEDT	\$0	\$1,500	\$0	\$1,500
DOD	\$2,952	\$670,031	\$0	\$672,983
DOE	\$71,586	\$0	\$0	\$71,586

Depts.	State Funds	Federal Funds	Other Funds	Total
DOH	\$1,000	\$0	\$0	\$1,000
DLNR	\$3,761,180	\$617,100	\$330,000	\$4,708,280
DOT	\$2,060,389	\$1,648,311	\$0	\$3,708,700
UH	\$7,827,414	\$8,826,896	\$2,279,811	\$18,934,121
OHA	\$0	\$0	\$500,183	\$500,183
Total	\$19,574,521	\$12,436,258	\$10,059,994	\$42,070,773

Table 4 below breaks down the state expenditures by sources of funding spent on specific activities. The highest expenditures by the executive departments and OHA were for invasive species activities related to prevention and control, followed more distantly by detection and research and development. See Table 4 below:

Table 4. State Expenditures by Activities and Sources of Funding in Fiscal Year 2014

Activities	State Funds	Federal Funds	Other Funds	Total
Prevention	\$3,896,183	\$356,765	\$5,750,000	\$10,002,948
Detection	\$3,150,985	\$925,232	\$1,391,222	\$5,467,439
Control	\$7,882,931	\$2,060,309	\$1,474,494	\$11,417,734
Monitoring	\$667,036	\$2,316,668	\$74,247	\$3,057,951
Restoration	\$915,134	\$883,844	\$409,614	\$2,208,592
Research & Dev.	\$1,045,085	\$3,895,032	\$170,753	\$5,110,870
Education et al	\$1,361,261	\$348,597	\$289,481	\$1,999,339
Other	\$655,906	\$1,649,811	\$500,183	\$2,805,900
Total	\$19,574,521	\$12,436,258	\$10,059,994	\$42,070,773

With respect to expenditures by specific department for specific invasive species activities and sources of funding used, the survey responses revealed the following:

- (1) For prevention activities, the bulk of expenditures were made by DOA. The expenditures were largely funded by other funds, which the department reported as special fund cargo fees;
- (2) For detection activities, the bulk of expenditures were made by DOA and UH. DOA's expenditures were largely funded by other funds, which the department reported as special fund cargo fees. UH's expenditures were largely funded by state funds;
- (3) For control activities, the bulk of expenditures were made by UH. The expenditures were largely funded by state funds;
- (4) For monitoring activities, the bulk of expenditures were made by UH. The expenditures were largely funded by federal funds;

GOVERNMENT EXPENDITURES

- (5) For restoration activities, the bulk of expenditures were made by UH. The expenditures were largely funded by state funds and federal funds;
- (6) For research and development activities, bulk of expenditures were made by UH. The expenditures were largely funded by federal funds;
- (7) For education, outreach, partnerships, and cooperative activities, the bulk of expenditures were made by UH. The expenditures were largely funded by state funds; and
- (8) For other activities, the bulk of expenditures were made by DOT. The department reported the other activities as being "allowances."⁶ The expenditures were largely funded by federal funds.

See Table 5 below:

**Table 5. State Expenditures by Activities, Departments,
and Sources of Funding in Fiscal Year 2014**

Activities	State Funds	Federal Funds	Other Funds	Total
Prevention				
DOA	\$3,400,000	\$262,420	\$5,750,000	\$9,412,420
DOD	\$738	\$39,559	\$0	\$40,297
DLNR	\$302,846	\$25,000	\$0	\$327,846
DOT	\$119,031	\$0	\$0	\$119,031
UH	\$73,568	\$29,786	\$0	\$103,354
Subtotal	\$3,896,183	\$356,765	\$5,750,000	\$10,002,948
Detection				
DOA	\$400,000	\$410,000	\$1,000,000	\$1,810,000
DOD	\$738	\$17,358	\$0	\$18,096
DLNR	\$264,271	\$12,000	\$0	\$276,271
DOT	\$746,984	\$0	\$0	\$746,984
UH	\$1,738,992	\$485,874	\$391,222	\$2,616,088
Subtotal	\$3,150,985	\$925,232	\$1,391,222	\$5,467,439
Control				
DOA	\$1,100,000	\$0	\$0	\$1,100,000
DOD	\$738	\$383,235	\$0	\$383,973
DLNR	\$2,048,764	\$405,914	\$30,000	\$2,484,678
DOT	\$633,987	\$0	\$0	\$633,987
UH	\$4,099,442	\$1,271,160	\$1,444,494	\$6,815,096
Subtotal	\$7,882,931	\$2,060,309	\$1,474,494	\$11,417,734
Monitoring				
DOA	\$400,000	\$0	\$0	\$400,000
DOD	\$738	\$17,938	\$0	\$18,676
DLNR	\$85,798	\$54,186	\$50,000	\$189,984

Activities	State Funds	Federal Funds	Other Funds	Total
UH	\$180,500	\$2,244,544	\$24,247	\$2,449,291
Subtotal	\$667,036	\$2,316,668	\$74,247	\$3,057,951
Restoration				
DOD	\$0	\$131,677	\$0	\$131,677
DLNR	\$208,319	\$100,000	\$250,000	\$558,319
DOT	\$191,925	\$0	\$0	\$191,925
UH	\$514,890	\$652,167	\$159,614	\$1,326,671
Subtotal	\$915,134	\$883,844	\$409,614	\$2,208,592
Research & Dev.				
DOA	\$550,000	\$0	\$0	\$550,000
DOD	\$0	\$58,354	\$0	\$58,354
DLNR	\$63,793	\$10,000	\$0	\$73,793
UH	\$431,292	\$3,826,678	\$170,753	\$4,428,723
Subtotal	\$1,045,085	\$3,895,032	\$170,753	\$5,110,870
Education et al				
DOA	\$0	\$0	\$200,000	\$200,000
DOD	\$0	\$21,910	\$0	\$21,910
DLNR	\$300,285	\$10,000	\$0	\$310,285
DOH	\$1,000	\$0	\$0	\$1,000
DOT	\$277,103	\$0	\$0	\$277,103
UH	\$782,873	\$316,687	\$89,481	\$1,189,041
Subtotal	\$1,361,261	\$348,597	\$289,481	\$1,999,339
Other				
DLNR	\$487,104	\$0	\$0	\$487,104
DOT	\$91,359	\$1,648,311	\$0	\$1,739,670
DBEDT	\$0	\$1,500	\$0	\$1,500
UH	\$5,857	\$0	\$0	\$5,857
DOE	\$71,586	\$0	\$0	\$71,586
OHA	\$0	\$0	\$500,183	\$500,183
Subtotal	\$655,906	\$1,649,811	\$500,183	\$2,805,900
Total	\$19,574,521	\$12,436,258	\$10,059,994	\$42,070,773

At UH, the bulk of the University's total expenditures were made by the Pacific Cooperative Studies Unit (PCSU) within the Department of Botany at UH Manoa. Specifically, PCSU expended \$15,138,570 out of UH's \$18,934,121 in total expenditures. Most of the remaining expenditures at UH were made by the College of Tropical Agriculture and Human Resources at UH Manoa, in particular, the college's Department of Plant and Environmental Protection Sciences.

The survey results also indicated that some of the total executive branch expenditures in fiscal year 2013-2014 could be tied to certain types or groups of invasive species. The largest of these expenditures were for feral ungulates (including pigs, goats, and Axis deer), the coffee

berry borer, miconia calvescens, and small predatory animals (such as rodents, feral cats, mongoose, and barn owls). See Table 6 below, which sets forth expenditures for specific types or groups of invasive species in descending order of expenditure amounts.⁷

**Table 6. State Expenditures for Specific Invasive Species
in Fiscal Year 2014**

Rank	Invasive Species	State Funds	Federal Funds	Other Funds	Total
1	Feral Ungulates: inc. pigs, goats, and Axis deer	\$3,416,382	\$1,107,551	\$712,968	\$5,236,901
2	Coffee Berry Borer	\$640,682	\$1,863,811	\$0	\$2,504,493
3	Miconia Calvescens	\$1,634,409	\$557,902	\$44,607	\$2,236,918
4	Small Predatory Animals: rodents, feral cats, mongoose, barn owl, etc.	\$563,971	\$1,183,970	\$105,630	\$1,853,571
5	Little Fire Ant	\$383,447	\$88,532	\$0	\$471,979
6	Bactrocera Fruit Fly	\$0	\$266,560	\$0	\$266,560
7	Brown Tree Snake	\$0	\$262,420	\$0	\$262,420
8	Gall Wasps and Lobate Lac Scales	\$77,293	\$138,900	\$0	\$216,193
9	Fireweed	\$0	\$176,500	\$0	\$176,500
10	Albizia	\$0	\$116,255	\$0	\$116,255
11	Strawberry Guava	\$0	\$100,497	\$0	\$100,497
12	Vectors of Tomato Viruses (thrips, whitefly)	\$0	\$100,000	\$0	\$100,000
13	Invasive Aquatic Species	\$73,568	\$24,286	\$0	\$97,854
14	Coqui Frog	\$97,000	\$0	\$0	\$97,000
15	Macadamia Felted Coccid	\$0	\$0	\$95,000	\$95,000
16	Ohia Rust	\$37,000	\$39,540	\$0	\$76,540
17	Candidatus Liberibacter Asiaticus & Amerianus	\$0	\$55,428	\$0	\$55,428
18	Kiawe	\$0	\$50,000	\$0	\$50,000
19	Mealybugs, Scales, Thrips, Ants, Aphids, & Other Quarantine Pests in Floral Exports	\$50,000	\$0	\$0	\$50,000
20	Himalayan Ginger	\$50,000	\$0	\$0	\$50,000
21	Nettle Caterpillar	\$0	\$50,000	\$0	\$50,000
22	Downy Mildew on Corn	\$44,480	\$0	\$0	\$44,480
23	Stemphylium on Basil	\$40,000	\$0	\$0	\$40,000
24	Naio Thrips	\$20,000	\$20,000	\$0	\$40,000
25	Myrtle Rust	\$20,000	\$15,000	\$0	\$35,000
26	Long-thorn Kiawe	\$0	\$22,284	\$0	\$22,284
27	Systemic Palm Pathogens	\$0	\$20,844	\$0	\$20,844
28	Powdery Mildew on Native Hawaiian Mint	\$20,181	\$0	\$0	\$20,181
29	Basil Downy Mildew Pathogen	\$0	\$0	\$20,000	\$20,000
30	Systemic Sweet Potato Pathogens	\$0	\$18,501	\$0	\$18,501
31	Coconut Rhinoceros Beetle	\$18,000	\$200	\$0	\$18,200

Rank	Invasive Species	State Funds	Federal Funds	Other Funds	Total
32	Melon Aphid	\$0	\$16,000	\$0	\$16,000
33	African Tulip	\$15,000	\$0	\$0	\$15,000
34	Fire Ant	\$10,293	\$0	\$0	\$10,293
35	Australian Tree Fern	\$10,000	\$0	\$0	\$10,000
36	Mulesfoot Fern	\$10,000	\$0	\$0	\$10,000
37	Ulex Europaeus	\$8,280	\$0	\$0	\$8,280
38	Sphagnum Moss	\$5,857	\$0	\$0	\$5,857
39	Invasive Tilapia	\$0	\$0	\$3,313	\$3,313
40	Invasive Algae	\$0	\$0	\$3,000	\$3,000
41	Rover Ant	\$0	\$400	\$0	\$400
	Miscellaneous	\$7,142,395	\$1,125,417	\$8,245,293	\$16,513,105
	Total	\$14,388,238	\$7,420,798	\$9,229,811	\$31,038,847

The bulk of expenditures relating to feral ungulates, the coffee berry borer, miconia calvenscens, and small predatory animals were made by UH, whose expenditures for feral ungulates and miconia calvenscens were funded largely by state funds while its expenditures for the coffee berry borer and small predatory animals were funded largely by federal funds. See Table 7 below:

**Table 7. Largest State Expenditures for Specific Invasive Species
by Department and Sources of Funding in Fiscal Year 2014**

Invasive Species	State Funds	Federal Funds	Other Funds	Total
(1) Feral Ungulates				
DLNR	\$110,000	\$0	\$0	\$110,000
DOD	\$0	\$15,010	\$0	\$15,010
UH	\$3,306,382	\$1,092,541	\$712,968	\$5,111,891
Sum	\$3,416,382	\$1,107,551	\$712,968	\$5,236,901
(2) Coffee Berry Borer				
DOA	\$550,000	\$0	\$0	\$550,000
UH	\$90,682	\$1,863,811	\$0	\$1,954,493
Sum	\$640,682	\$1,863,811	\$0	\$2,504,493
(3) Miconia Calvenscens				
DOD	\$0	\$107,902	\$0	\$107,902
DLNR	\$0	\$300,000	\$0	\$300,000
UH	\$1,634,409	\$150,000	\$44,607	\$1,829,016
Sum	\$1,634,409	\$557,902	\$44,607	\$2,236,918
(4) Small Predatory Animals				
DOD	\$2,952	\$87,038	\$0	\$89,990
UH	\$561,019	\$1,096,932	\$105,630	\$1,763,581
Sum	\$563,971	\$1,183,970	\$105,630	\$1,853,571

Finally, the Bureau has attempted to compare the survey information on what the State spends on invasive species with the expenditure information presented in the Bureau's 2002 report. The executive branch alone in fiscal year 2013-2014 expended a total of \$41,570,590 to fight invasive species,⁸ and that figure constituted about 0.35 per cent of the executive branch total budget of \$11,819,318,188 for that fiscal year.⁹ In comparison, the executive branch in fiscal year 1998-1999 expended a total of \$10,449,500 to fight invasive species,¹⁰ and that figure constituted about 0.18 per cent of the executive branch total budget of \$5,730,944,043 for that fiscal year.¹¹ Accordingly, with regard to the percentage of the total budget that is used to fight invasive species, that percentage increased about 1.9 times from fiscal year 1998-1999 to fiscal year 2013-2014.

Also, for comparison of expenditures for certain invasive species, the largest expenditures out of *state* funds in fiscal year 2013-2014 were for feral ungulates, *miconia calvescens*, the coffee berry borer, and small predatory animals. Likewise, in fiscal year 1998-1999, the largest expenditures out of state funds were made for feral ungulates, *miconia calvescens*, and banana bunchy top disease.¹²

County Expenditures

At the county level of government, the counties reported that in fiscal year 2013-2014, they expended a total of at least \$70,147 in county and other funds to combat invasive species in their respective counties. Expenditures were reported by the offices of economic development of the City and County of Honolulu and the County of Kauai. See Table 8 below:

Table 8. County Expenditures by County and Sources of Funding

Counties	County Funds	Other Funds	Total
C&C of Honolulu	\$20,147	\$0	\$20,147
County of Kauai	\$50,000	\$0	\$50,000
Total	\$70,147	\$0	\$70,147

The largest expenditure of the \$70,147 was for invasive species activities relating to education, outreach, partnerships, and cooperative activities. See Table 9 below:

Table 9. County Expenditures by Activities and Sources of Funding

Activities	County Funds	Other Funds	Total
Prevention	\$5,000	\$0	\$5,000
Detection	\$10,000	\$0	\$10,000
Control	\$10,000	\$0	\$10,000
Monitoring	\$10,000	\$0	\$10,000
Restoration	\$0	\$0	\$0
Research & Dev.	\$10,000	\$0	\$10,000
Education et al	\$25,000	\$0	\$25,000
Other	\$147	\$0	\$147
Total	\$70,147	\$0	\$70,147

Federal Expenditures

At the federal level of government, federal agencies in Hawaii reported that in fiscal year 2013-2014, they expended a total of at least \$15,347,990 in federal and other funds to combat invasive species in Hawaii. Expenditures were reported by certain federal divisions as follows:

- (1) The United States Department of Agriculture (USDA):
 - (a) The Agricultural Research Service;
 - (b) Farm Service Agency; and
 - (c) The Natural Resources Conservation Service;
- (2) The United States Department of Defense (USDOD):
 - (a) United States Army Garrison Hawaii; and
 - (b) United States Marine Corps Forces, Pacific;¹³ and
- (3) The United States Department of the Interior (USDOI):
 - (a) United States Fish & Wildlife Service; and
 - (b) The National Park Service, Hawaii Volcanoes National Park (HAVO).

See Table 10 below:

**Table 10. Federal Government Expenditures
by Agency and Sources of Funding**

Federal Agencies	Federal Funds	Other Funds	Total
USDA: Agricultural Research Service	\$2,189,000	\$0	\$2,189,000
USDA: Farm Service Agency	\$570,315	\$0	\$570,315
USDA: Natural Resources Conservation Service	\$4,000,000	\$0	\$4,000,000
USDOD: US Army Garrison Hawaii	\$5,118,964	\$0	\$5,118,964
USDOD: US Marine Corps Forces, Pacific	\$140,000	\$8,800	\$148,800
USDOI: National Park Service: HAVO	\$1,615,984	\$62,771	\$1,678,755
USDOI: US Fish & Wildlife Service	\$1,642,156	\$0	\$1,642,156
Total	\$15,276,419	\$71,571	\$15,347,990

The federal agencies expended the bulk of the \$15,347,990 for invasive species activities relating to prevention, control, and restoration. See Table 11 below:

**Table 11. Federal Government Expenditures
by Activities and Sources of Funding**

Activities	Federal Funds	Other Funds	Total
Prevention	\$3,071,149	\$1,100	\$3,072,249
Detection	\$246,794	\$1,100	\$247,894
Control	\$5,997,193	\$61,657	\$6,058,850
Monitoring	\$732,112	\$1,100	\$733,212
Restoration	\$3,938,226	\$3,314	\$3,941,540
Research & Dev.	\$726,724	\$1,100	\$727,824
Education et al	\$446,721	\$1,100	\$447,821
Other	\$117,500	\$1,100	\$118,600
Total	\$15,276,419	\$71,571	\$15,347,990

Endnotes

1. *"Invasive Species: Federal and Selected State Funding to Address Harmful, Nonnative Species,"* Appendix VI, August 2000, the United States General Accounting Office (GAO).
2. Surveys were not sent to four of the executive branch departments, specifically, the Department of Budget and Finance, the Department of Human Resources Development, the Department of Labor and Industrial Relations, and the Department of Taxation. OHA is a "separate entity independent of the executive branch." Section 10-4, Hawaii Revised Statutes.
3. See Appendix D for a table of Survey 1 entities indicating whether they responded.
4. See Appendix D for a table of Survey 1 entities indicating whether they responded.
5. An "X" through a cell in the table indicates that the source of funding pertaining to that cell is inapplicable to that level of government. Assumptions implicit in drafting the survey were that county funds are not a source of funding for State expenditures and that neither State nor county funds are a source of funding for federal expenditures. Furthermore, in order to minimize or avoid double-counting in the reporting of expenditures, the counties were asked to report only expenditures made out of county funds and other funds while the federal agencies were asked to report only expenditures made out of federal and other funds.

As a further disclaimer, the Bureau notes that in the surveys, the government agencies were not asked to exclude expenditures whose source of funding was either an inter-departmental transfer of funds (i.e., the transfer of funds from one department to another department at the same level of government) or an intra-departmental transfer of funds (i.e., the transfer of funds from one division within a department to another division within the same department). Accordingly, the survey results do not preclude the possibility that both the transferor and the transferee of funds might report the same funds as an expenditure.
6. DOT did not respond to the Bureau's follow-up request for clarification of the term "allowances."
7. The "miscellaneous" category in Table 6 consolidates two separate categories that were used in

the survey, specifically, "all other species" and "expenditures that cannot be broken down into specific invasive species." We note that the total expenditures reported for the specific types of invasive species are less than the total expenditures reported for invasive species activities. The reason appears to be that some respondents were not able to provide expenditure figures for any specific types of invasive species.

8. This figure is less than the total state expenditures of \$42,070,773 shown in Table 3 because it does not include OHA expenditures. *See supra* note 3 and accompanying text. OHA has a budget that is separate from that of the executive branch. *See* section 10-14.5, Hawaii Revised Statutes.
9. 2013 Budget Worksheet for H.B. No. 200 H.D. 1, S.D. 1, C.D. 1. *Cf.*, Act 134, Regular Session of 2013.
10. The total expenditure amount of \$10,449,500 is calculated from the figures reported by the executive departments for the GAO survey of expenditures for invasive species activities in fiscal year 1998-1999. Excerpts of the responses are collected under Appendix E in the Bureau's 2002 invasive species report, *"Filling the Gaps in the Fight Against Invasive Species."* Responses to the GAO survey were submitted by DOA, DOH, DLNR, and DOT. The calculation of the total expenditure amount is set forth in Table 7A below:

Table 7A. State Expenditures by Department and Source of Funding in Fiscal Year 1999

Departments	State Funds	Federal Funds	Other Funds	Total
DOA Animal Industry	\$350,000	\$0	\$0	\$350,000
DOA Plant Industry	\$6,270,300	\$562,000	\$570,000	\$7,402,300
DOH Vector Control	\$245,000	\$0	\$0	\$245,000
DLNR Forestry & Wildlife	\$1,500,000	\$260,000	\$210,000	\$1,970,000
DOT	\$482,200	\$0	\$0	\$482,200
Total	\$8,847,500	\$822,000	\$780,000	\$10,449,500

We note that in the 2002 invasive species report, at page 35, the state funds total is erroneously given as \$8,497,500, which is a sum that omits the Animal Industry Division expenditure figure of \$350,000. Further, the total of federal funds and other funds is also erroneously given in the report as \$1,413,000, which is not the proper sum of its parts: specifically, \$260,000 + \$210,000 + \$562,000 + \$570,000, actually adds up to \$1,602,000. Thus the total amount of state, federal, and other funds is \$10,449,500.

In Table 7A above, the figures for DOA Plant Industry Division were reported by the division itself. The figures that were reported separately by two of the division's branches, the Plant Quarantine Branch and the Plant Pest Control Branch, have been excluded from the tabulation in order to avoid the possibility of double-counting. Instead, the two branch's figures are set forth separately in Table 7B below:

Table 7B. Expenditures of the Plant Quarantine Branch and the Plant Pest Control Branch in Fiscal Year 1999

DOA Plant Industry	State Funds	Federal Funds	Other Funds	Total
DOA Plant Pest Control	\$1,610,000	\$7,000	\$20,000	\$1,637,000
DOA Plant Quarantine	\$2,073,100	\$295,000	\$340,000	\$2,708,100
Total	\$3,683,100	\$302,000	\$360,000	\$4,345,100

11. 1998 Executive Supplemental Operating Budget Worksheets for H.B. No. 2500 H.D. 1, S.D. 1, C.D. 1. *Cf.*, Act 116, Session Laws of Hawaii 1998.
12. The expenditures are calculated from the figures reported by the executive departments for the GAO survey, as set forth in Table 7C below:

**Table 7C. Largest Expenditures by Department of State Funds
for Targeted Invasive Species in Fiscal Year 1999**

Departments	Miconia	Feral Ungulates	Banana Bunchy Top Disease	Fire Tree	Ivy Gourd	Brown Tree Snake	Little Fire Ant	Fire Weed	Terrestrial Arthropods
DOA Animal Industry									
DOA Plant Industry	\$50,000		\$350,000	\$100,000	\$100,000	\$78,700			
DOH Vector Control									
DLNR Forestry & Wildlife	\$380,000	\$600,000							
DOT						\$38,000			\$115,000
Total State Funds	\$430,000	\$600,000	\$350,000	\$100,000	\$100,000	\$116,700	\$0	\$0	\$115,000

In Table 7C above, the figures for DOA Plant Industry Division were reported by the division itself. The figures that were reported separately by two of the division's branches, the Plant Quarantine Branch and the Plant Pest Control Branch, have been excluded from the tabulation in order to avoid the possibility of double counting. Instead, figures for the two branches are set forth separately in Table 7D below:

**Table 7D. Expenditures of State Funds for
Targeted Invasive Species by the Plant Quarantine Branch
and the Plant Pest Control Branch in Fiscal Year 1999**

DOA Plant Industry	Miconia	Feral Ungulates	Banana Bunchy Top Disease	Fire Tree	Ivy Gourd	Brown Tree Snake	Little Fire Ant	Fire Weed	Terrestrial Arthropods
DOA Plant Pest Control	\$50,000		\$350,000		\$100,000		\$50,000	\$100,000	
DOA Plant Quarantine						\$78,700			
Total State Funds	\$50,000	\$0	\$350,000	\$0	\$100,000	\$78,700	\$50,000	\$100,000	\$0

13. In its survey response, the Marine Corps Base Hawaii provided only the total expenditure figures of \$140,000 in federal funds and \$8,800 in other funds for the eight listed invasive species activities. For tabulation purposes, the Bureau apportioned the total figures as \$17,500 in federal funds and \$1,100 in other funds for each of the eight activities.

Chapter 8

GAPS AND LEAKS IN THE PRESENT SYSTEM

Act 126, Session Laws of Hawaii 2015, directed the Bureau to update its study on invasive species to describe specific "gaps and leaks in prevention and response systems."¹ The Bureau obtained this information by sending a two-part survey (hereafter Survey 2) to fifty-three state, federal, county, and private agencies.² The Bureau received forty responses to Survey 2, although some respondents did not answer every question of the survey. In addition, five of these agencies responded that their work does not involve invasive species in Hawaii. Therefore, the Bureau relied on the information provided in thirty-five Survey 2 responses.³

Part I of Survey 2 asked the following prompts:

- (1) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.
- (2) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.
- (3) What changes would you suggest to improve the effectiveness of the Hawaii Invasive Species Council in the fight against invasive species?
- (4) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawaii's efforts in the fight against invasive species?

The Bureau found that, although progress has been made to address the invasive species problem, it is far from solved. There are still gaps and leaks that exist in the State's present approach to invasive species. Agency responses to the four prompts listed above, organized by topic, are provided in the Present Gaps and Leaks section.

Additionally, to provide a complete update, Part II of Survey 2 included the gaps and leaks that were identified in the 2002 study and specifically asked agencies whether these issues remain or have been resolved. Based on the survey results, it appears that a number of survey respondents believe many of the gaps and leaks identified in the 2002 study persist today. The 2002 Study Issues section presents each issue identified in the 2002 study, accompanied by a discussion of whether it persists or has been resolved.

Present Gaps and Leaks

Biosecurity

Nearly all respondents agreed that preventing the introduction or establishment of an invasive species is a more effective strategy than control and management and is far less

expensive than managing, controlling, and eradicating invasive species once they are established.⁴ Effective precaution strategies include border control, early detection, rapid response, and mitigation strategies such as vaccinations, emergency quarantines, and active surveillance.⁵

However, many respondents maintained that current prevention efforts are inadequate, especially for inspections of imports to prevent invasive species.⁶ More specifically, intrastate inspection efforts, the facilities needed to conduct them, and the staffing level of Department of Agriculture (DOA) interisland inspectors are currently insufficient to prevent invasive species from entering and spreading throughout the State.⁷

A number of agencies suggested that Hawaii needs a comprehensive biosecurity plan or called for a coordinated multiagency plan or strategy to clearly address agency's authority and responsibility across pre-border, border, and post-border activities to resolve the existing leaks and gaps in the current system.⁸ For example, U.S. Department of Agriculture's National Resource Conservation Service (NRCS) suggested, in part, that "a long term strategy and full funding to combat" invasive species should be a "'highest priority' initiative from Governor Ige."⁹ More specifically, the Coordinating Group on Alien Pest Species (CGAPS) recommended:

A biosecurity plan that lays out all the major needs and a timeline for completing [them], and a way to prioritize beyond political terms. At the top would be inspection facilities at major ports and a requirement for compliance, stable/adequate funding for agencies/NGOs for rapid response/monitoring and control, and Federal recognition of Hawaii to enable Federal action on state pests.¹⁰

In response to actions that could improve Hawaii's present system of addressing invasive species, the U.S. Department of the Interior Fish and Wildlife Office (FWO) stated:

In addition to legislative authorities and related rules and regulations, there is a pressing need to ensure that adequate resources and capabilities are in place to ensure a sound biosecurity program is established in Hawaii. The state needs the ability to implement a pre-border component that prevents invasive species before reaching Hawaii. This can be accomplished through cooperative agreements and other phytosanitary requirements with producers at the port of departure or origin are met prior to arrival. In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff, inspection facilities to quarantine, safeguard, treat and dispose of infested articles, and to conduct a comprehensive surveillance program to detect new invasive species incursions and have the ability to eradicate and control them before they become established in Hawaii. Lastly, a post-border program is also needed to maintain the control and management of established invasive species to prevent their further spread within the state.¹¹

It appears that the State presently lacks a robust biosecurity¹² plan for Hawaii, despite the fact that DOA is charged with establishing a broad biosecurity program¹³ with the following objectives:

- (1) Establishing a multi-dimensional system to prevent the entry into the State and interisland movement of pests and prohibited or restricted organisms without a permit; and
- (2) Responding effectively to eradicate, control, reduce, and suppress incipient pest populations and established pests and seize and dispose of prohibited or restricted organisms without a permit.¹⁴

Under Hawaii law, "pest" has a definition similar to what arguably one may think of as invasive species: "any animal, insect, disease agent or other organism in any stage of development that is detrimental or potentially harmful to agriculture, or horticulture, or animal or public health, or natural resources including native biota or has an adverse effect on the environment as determined by the board."¹⁵ Further, the program calls for DOA to work in coordination with other government agencies and entities to establish pre-entry, port-of-entry, and post-entry measures and to educate the public on the threat of pests to the State's environment and economy.¹⁶

Based on the survey responses, at the least, it seems that some agencies are unaware of the existence of the DOA's biosecurity program or consider its operations too narrow or otherwise insufficient to be effective as a solution to the widespread threat of invasive species to the State.¹⁷ This seems evident since many agencies expressed the need for the development of a biosecurity plan or a more robust biosecurity program.¹⁸ A number of respondents seemed to express concern that DOA's focus and responsibility is limited to threats to agriculture,¹⁹ despite the apparent intent that its biosecurity program be broader than an agricultural focus. Further, several respondents observed that there seems to be an inherent conflict between DOA's mission to "promote" agriculture on the one hand and to "protect" agriculture on the other, which leads to gaps in the system.²⁰

In support of the need for a comprehensive, coordinated multiagency strategy, respondents pointed to the often overlapping or conflicting mandates of different agencies, or the lack of clarity as to the scope of their authority, and the resulting significant gaps between agency mandates.²¹ For example, the Hawaii Invasive Species Council (HISC) explained that, "the related but sometimes overlapping mandates for invasive species prevention or control at different agencies, as well as the significant gap between agency mandates for detection and control of incipient plants or animals across both state and private lands," was a primary issue in the current invasive species system.²² Respondents provided several examples of this problem.

One example involves the lack of regulation of the nursery trade. A number of respondents pointed out that plants and planting materials are a significant pathway for invasive species; however, the nursery trade is not regulated or required to follow best practices with regard to invasive species.²³ In one such response, the University of Hawaii Hilo (UHH) explained that the nursery trade is not required to follow best management practices for invasive pests: "80% of invasive species arrive from horticultural sources, but plant nurseries only abide by pest plant species bans voluntarily, as it is not a regulatory rule, by and large."²⁴ According to a DOA nursery specialist, while there is a nursery certification program for nurseries that *export products* from Hawaii to the mainland,²⁵ nurseries that transport products within and between the

islands, but not to the continental United States, are not required to participate in the nursery certification program.²⁶ Another DOA representative further explained that any plant material arriving from the United States mainland or internationally and any propagated plant material (plants for the purpose of growing) transported between the islands by ship or plane are inspected upon arrival to Hawaii.²⁷ However, nursery products are frequently transported by first class mail and cannot be inspected by DOA without first obtaining a search warrant.²⁸ A few respondents even advocated for laws that "[p]rohibit the sale of known invasive plant species"²⁹ and restricting "trade and sale of invasive plants in Hawaii."³⁰ The U.S. Marine Corps, Marine Corps Base Hawaii (MCBH) explained that it would be useful to establish state and federal authority to "prohibit nurseries from growing known invasive detrimental plants and confiscate those found, regardless of economic impact to the commercial grower."³¹

Another example of inconsistency or gaps in state laws or agency mandates concerns exotic pets or injurious wildlife.³² For example, in discussing changes needed to laws or rules to improve an agency's ability to effectively combat invasive species, Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW) noted that "only . . . the release of introduced wildlife [is prohibited], and only . . . the release, export, and transport to new locations of injurious wildlife [is prohibited]. The public can still possess injurious wildlife, and they can be freely sold at pet stores."³³ To promote consistent state policy, DOFAW suggested that Hawaii "should explore prohibiting or otherwise regulating the sale and possession of injurious wildlife."³⁴

A number of respondents indicated that the lack of a comprehensive invasive species list constitutes a significant gap in the effort to address invasive species.³⁵ As discussed in Chapter 3, in an attempt to comply with the mandate of section 194-2(a)(6), HRS, that HISC "identify and record all invasive species in the State," HISC adopted three existing lists in 2003 that had been established by other agencies.³⁶ Specifically, DOA adopted rules establishing a list of animal species prohibited for import, section 71-6, Hawaii Administrative Rules (HAR), and noxious weeds for eradication or control, chapter 68, HAR, and DLNR adopted rules regarding injurious wildlife, chapter 124, HAR.³⁷ However, it is not clear that each of these lists comprise only invasive species or that all of the species considered invasive in Hawaii are found on those lists when taken as a whole. This may be because adoption of these lists is driven by the mission of the respective agencies in general, and not necessarily the prevention, control, management, and eradication of invasive species in particular. As a result, agencies may not be taking consistent actions on invasive species because a species possibly considered invasive may be on one or more agencies' lists, but not on others'. It is difficult for agencies to take consistent action on invasive species because there is no single invasive species list.³⁸ Further, the National Park Service (NPS) maintained that adding invasive species to existing state lists such as the Hawaii State Noxious Weed list is difficult, indicating "political and economic forces may, at times, be a barrier to the management of invasive species."³⁹ HISC observed that administrative rules need to be adopted to designate invasive species for Hawaii.⁴⁰ It seems clear that any comprehensive strategy or plan to protect the State from invasive species needs to include, as components, a comprehensive list of invasive species and the authority across all involved agencies to take the action necessary to prevent entry of those species and to respond effectively to any that gain entry.

Respondents raised a number of other issues that should be addressed in a comprehensive biosecurity plan, including insufficient inspection capability in general, ineffective inter-island inspection and control in particular, and insufficient funding and other resources. These are addressed in more detail below.

Funding

Many respondents noted that adequate funding is necessary to successfully address the invasive species problem.⁴¹ Specifically mentioned were the need for both dedicated funding to address the long term fight against invasive species and emergency funding to handle rapid response to species outbreaks.⁴² It was also noted that some projects that have a large impact are not consistently funded, such as the county invasive species committees, which work statewide performing early detection, rapid response, control, and prevention.⁴³ They depend on grants to continue the "on the ground" fight against invasive species. Dedicated funding would make it possible to retain long-term employees, attract talent, and provide project stability, thereby making protection from invasive species more reliable.⁴⁴ With dedicated funding, an operational budget could reliably cover expenses including employees, equipment, utilities, and leases.⁴⁵ Funding is also needed to support rapid response to invasive species incursions.⁴⁶ One respondent noted that it is difficult to obtain necessary money quickly enough once an emergency is underway.⁴⁷ It was suggested that an emergency rainy day fund should be established for rapid response to invasive species outbreaks, including controlling mosquitoes that transmit illnesses, such as Dengue fever, to residents and visitors.⁴⁸ Further, in view of the limited funds available for invasive species efforts, two agencies suggested that a system of targeted prioritization and risk management analysis may compensate for limited resources.⁴⁹

While additional funding is needed for all aspects of the State's efforts to prevent and control invasive species, respondents especially noted that funding for more staffing is needed in the fight against invasive species.⁵⁰ Staffing levels are insufficient in the wide range of state agencies with jurisdiction over some part of this issue, particularly with respect to state agricultural inspectors. Respondents specifically reported that the following staff positions are needed:

- New positions within DOA for border inspections.⁵¹
- New positions within the DOA Plant Quarantine Branch (PQB) and Plant Pest Control Branch (PPC) for the biological control program to conduct more research "in beneficial parasitoids and pathogens."⁵² Further, because of environmental concerns regarding the use of pesticides, manual laborers are needed to manage invasive species;⁵³
- New positions within the Department of Health (DOH) for the vector control program to control vectors that are invasive, specifically mosquitoes that carry illnesses such as Dengue fever;⁵⁴
- New positions within the University of Hawaii (UH) to assist with compliance management regarding the use of biological and chemical control agents;⁵⁵

- New positions within HISC, for planning, coordination, and data collection;⁵⁶ and
- Temporary rapid response positions that can be filled quickly during an invasive species emergency.⁵⁷

In addition to these positions, it should be recognized that any new invasive species program or project, such as the implementation of a biosecurity plan, will require an allocation of staff.⁵⁸

A number of survey respondents also noted that additional funding is needed for new or improved facilities,⁵⁹ especially for inspection and quarantine facilities.⁶⁰ Respondents also specifically reported that improvements to or development of the following facilities are needed:

- Updated inspection facility for arriving animals on Oahu and the Island of Hawaii;⁶¹
- Air conditioned facilities to inspect produce;⁶²
- Improved quarantine facilities on Oahu;⁶³
- Development of a biocontrol research facility;⁶⁴ and
- Development of a commodities inspection facility at incoming travel ports (airports and harbors).⁶⁵

Inspection

There was strong consensus among respondents that current inspections are inadequate⁶⁶ and that more robust prevention efforts are needed to keep invasive species from entering and becoming established in Hawaii.⁶⁷ This requires a strengthening of agencies' capabilities to perform the amount of inspections needed to prevent the introduction of invasive species.⁶⁸ As noted previously, a number of respondents indicated that insufficient staff and inspection facilities affect the capability of agencies to adequately inspect for invasive species.⁶⁹ Several respondents indicated that a limited number of DOA inspectors has led to a lack of general enforcement of inspection and quarantine laws.⁷⁰ At least four entities commented that a canine detection program would improve the capability of the inspection system.⁷¹ Respondents raised concerns with inadequate inspections of both interisland and foreign importation: interisland to prevent the spread of established invasive species and foreign to prevent the introduction of invasive species not yet established in Hawaii.⁷²

Also, some entities noted that current inspection systems do not adequately address the different pathways for introduction of invasive species, such as cargo, passengers, and mail.⁷³ The University of Hawaii Pacific Cooperative Studies Unit (UH PCSU) explained that biological specimens, plants, and any objects that can carry invasive species should be subject to inspection.⁷⁴ To efficiently prioritize prevention of invasive species introductions through different pathways, UHH suggested developing a risk assessment:⁷⁵

A well-vetted and informed risk assessment should be revamped to better intercept invasive species in the likely pathways of introduction to the State. For example, current studies ([conducted by] HDOA staff) indicate vegetative propagative plants (not

agriculture consumable products), and building materials need much greater inspections and stronger rules of prohibited items to mitigate the risks of those invasive species pathways.⁷⁶

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) noted that there appears to be disagreement, under state law, as to whether the state DOA can inspect only agricultural commodities, or whether it can inspect other commodities that pose agricultural risk, such as lumber, which could have "hitch hiking" pests.⁷⁷ Suggesting that this further compounds the issue of inadequate consideration in the current system of the different pathways by which invasive species are introduced, APHIS urged resolution of this issue and offered, as an example, the broad language concerning what may be inspected under the federal rules.⁷⁸

Public Education and Outreach

A number of respondents indicated that a public education and outreach program is an important element that should be incorporated into an overall strategy to combat invasive species in the State.⁷⁹ Some respondents noted that the public does not fully appreciate the scope of the invasive species problem.⁸⁰ One respondent indicated that many of Hawaii's residents are disconnected from the threat invasive species pose to Hawaii's environment and residents' quality of life.⁸¹ These respondents agreed that public outreach and education is needed to raise awareness of the risk that invasive species pose to Hawaii.⁸² Specifically, the public needs to be educated on what agencies are doing to combat invasive species and how to assist in the fight against invasive species by, for example, reporting sightings of invasive species.⁸³ Without the public's interest and support, there appears to be no motivation or commitment on the part of industry and government officials to fashion comprehensive solutions to the invasive species problem.⁸⁴

Respondents recommended a number of measures to increase public awareness. One option is to conduct periodic, targeted public information campaigns motivating people to care about the invasive species problem, generally, specific problems, in particular, and to act accordingly.⁸⁵ Topics could include invasive species impacts on the economy, natural resources, and health and welfare, as well as actions like eradication, control, and prevention.⁸⁶ Additionally, residents should be made aware of actions every person should take on their own private property to help manage invasive species.⁸⁷ One survey respondent suggested improving educational exhibits at airports and providing an increased number of informational videos on arriving airliners.⁸⁸ It was also suggested that the Department of Education could include invasive species in its curriculum so that children learn about invasive species at a young age.⁸⁹

Laws/Rules

As noted previously, the survey responses indicate that many gaps, overlaps, and inconsistencies in the present laws and rules relating to invasive species need to be addressed.⁹⁰

A primary concern is that state lists contain pests of concern that are different from those found on federal lists because Hawaii is uniquely susceptible to a wide range of invasive species. This presents a significant gap in the current inspection system because federal inspections typically do not focus on invasive species if they are not on the federal lists, even though they are a threat to Hawaii.⁹¹ HISC commented on the federal and state scope of inspections, explaining that, in practice, federal entities usually focus on foreign commerce, while DOA inspectors focus on domestic commerce from the mainland.⁹² HISC continued,

The priority need for Hawaii is for federal inspectors to be able to inspect for and act on pests of concern for Hawaii in foreign commerce, which state inspectors cannot inspect. With regard to domestic commerce, there would be no benefit to having the federal government assume the duties of domestic commerce inspection unless the federal government is able to inspect for and act on pests of concern for Hawaii.⁹³

While acknowledging that the U.S. Customs and Border Protection (CBP) and the U.S. Department of Agriculture (USDA) perform inspections well, CGAPS noted that it would "be better" if these agencies "could also focus on Hawaii priorities" for invasive species that uniquely pose a threat to the State.⁹⁴ DOA PPC observed that federal entities will take action on pests of state concern in certain circumstances, noting that mechanisms exist for the State to petition USDA to act on pests of concern to Hawaii.⁹⁵ However, the Oahu Invasive Species Committee (OISC) opined that: "[i]f a state wants to restrict imports of something from other states because they might have invasive species on it, they need to get permission from APHIS and it seems to be rarely given."⁹⁶

APHIS explained that the federal entities have a process that could lessen future instances of this issue. APHIS suggested that state-interested agencies should be actively involved in extending the federal NAPPRA (Not Authorized Pending Pest Risk Analysis) lists for invasive plants particular to Hawaii⁹⁷ by commenting and providing research "to improve regulations before they become rules."⁹⁸ APHIS further observed that the USDA recently addressed ways in which the states could take steps to harmonize their laws, rules, and regulations, and efforts to enforce them with those of the federal government. For example:

Federal control was not funded for the many state concerns. States were taking the equivalent of official control but needed to be recognized federally. APHIS designed the FRSMPP program to give federal recognition to state control/quarantine programs so that PPQ/CBP could take action on pests for commodities as destined to states granted official control recognition.

Additionally, special needs requests have always been possible, but the procedures were not well presented until a few years ago. Now for federal regulations for domestic interstate movement, (mostly the 7 CFR 301's) there is [a] procedure for states to petition APHIS to take more restrictive action than the federal regulation.⁹⁹

Similarly, FWO pointed out that:

It is the [S]tate's responsibility to convey to the responsible federal agency that there is a special need to provide for an exemption from a particular federal preemption to further protect Hawaii from pests that may not yet be established within the state. This request

would include the best available scientific information and literature that would accurately describe the risk to Hawaii should a certain commodity that may be infested with a pest already established within the continental United States enter the state, and allow for the proper disposition at the state level. This may include additional quarantine and safeguard requirements, treatment standards, or exclusion authority.¹⁰⁰

In addition, respondents indicated that gaps are the result of "inadequate regulations"¹⁰¹ or the "laws are not strong enough."¹⁰² Some other specific gaps and leaks are noted as follows:

- The University of Hawaii's College of Tropical Agriculture and Human Resources (UH CTAHR) explained that, to improve prevention efforts, "[c]ertain high risk, non-essential products should be banned from importation - like fresh flowers originating from high risk areas"¹⁰³
- There are no federal rules in place to require hull husbandry¹⁰⁴ on certain types of ships entering Hawaii waters that may be carrying invasive species.¹⁰⁵
- At times, state regulations limit the "ability to work quickly and independently."¹⁰⁶ Reducing the bureaucratic burden would also assist invasive species committees that perform rapid response and "on the ground" control and management work.¹⁰⁷
- As previously discussed, there is ambiguity, under state law, whether DOA may inspect only agricultural commodities or also other items posing an agricultural risk.¹⁰⁸ As explained by CGAPS: DOA "has a narrow focus on inspection of 'ag[ricultural] commodities' and they are also charged with promoting/protecting local ag[riculture] industry."¹⁰⁹
- Agencies need clarity on who has responsibility for invasive species prevention and control.¹¹⁰ This lack of clarity leads to overlaps and gaps between agency mandates, which hinders agencies' effectiveness in preventing and controlling invasive species.¹¹¹ DLNR DOFAW explained that the existence of "a stable entity responsible for early detection and rapid response for incipient species . . ." is lacking and noted that duties, programs, and data are spread across different agencies.¹¹²

Miscellaneous

State, federal, county, and private agencies noted various other gaps and leaks related to invasive species that do not fall neatly into the foregoing categories. They are as follows:

- Air shipments of mail by the U.S. Postal Service and other freight forwarders (e.g. FedEx and UPS) are inadequately labeled, identified, and presented for inspection.¹¹³ Further, one respondent commented that federal laws should require "disclosure of agriculture materials and animals shipped interstate," identified by a specific label for Hawaii, and prohibit shipping of invasive species to Hawaii from the mainland.¹¹⁴

- The fight against invasive species focuses on species known to harm Hawaii. However, a pro-active attitude is needed to also stop pests known to be invasive outside of Hawaii but where research is lacking on their impact on Hawaii.¹¹⁵
- Agencies sometimes have difficulties accessing private property for the prevention, control, and eradication of invasive species.¹¹⁶ Section 194-5, HRS, authorizes any department member of HISC to enter private property after reasonable notice is provided to control or eradicate any invasive species identified by HISC.¹¹⁷ However, as explained in Chapter 3,¹¹⁸ there appears to be some question whether HISC's exercise of its authority pursuant to section 194-5, HRS, would survive a legal challenge because of HISC's failure to follow the administrative rulemaking process in adopting invasive species lists.¹¹⁹ In response to the problem of access, the Maui Invasive Species Committee (MISC) suggested requiring landowners to either control designated invasive species on their property themselves or pay a fine if they do not allow access to their property for free control of the invasive species.¹²⁰ As an aside, OISC noted that its ability to perform invasive species control on *state lands* managed by state agencies is hindered because of the time it takes to obtain a permit.¹²¹ Another concern involves accessing unoccupied property. OISC recommended allowing access to unoccupied private land to control invasive species without permission, or after sending a certified letter to the address on file with the tax office.

Further, even if access is granted by the appropriate authority, some entities may not have complete access to perform control work because some crews on public and private land have been subjected to harassment. For example, OISC described "a guy that regularly threatens the field crew with machetes and a gun and so we've stopped going there."¹²² Enacting a law to protect field crews from harassment when controlling, managing, or eradicating invasive species may be useful.¹²³

HISC

Another gap in the fight against invasive species appears to be the lack of resources, particularly funding and staffing, for HISC, which in some cases, may have resulted in HISC's failure to perform certain duties mandated in chapter 194, HRS.¹²⁴ As noted previously in Chapter 3, among these duties are: identifying and prioritizing each lead agency's organizational and resource shortfalls with respect to invasive species; identifying and recording all invasive species present in Hawaii; and reviewing state agency mandates and commercial interests that may seek to perpetuate invasive species, for example sport hunting for feral pigs.¹²⁵ HISC is also unable to perform a number of responsibilities relating to federal issues, for example: identifying all state, federal, and other money expended for invasive species in Hawaii; identifying all federal and private funds available to the State to fight invasive species and advising and assisting state departments to acquire these funds; and addressing certain federal issues that impact the State's ability to effectively fight invasive species.¹²⁶ In lieu of some of these duties, HISC has primarily operated as a "pass through" entity that allocates money appropriated by the Legislature for the fight against invasive species. According to HISC staff, HISC is distributing

interagency funds to combat the leaks and gaps in the system, which is not explicitly authorized by chapter 194, HRS.¹²⁷

A number of survey respondents indicated that HISC's inability to fulfill its mandate is a function of inadequate resources,¹²⁸ and most recommended additional funding and staffing for HISC.¹²⁹ As explained in Chapter 3,¹³⁰ HISC currently has only one permanent full-time staff position.¹³¹ The two other staff positions are temporary and funded on an annual basis by HISC as a UH PCSU project, which must be renewed each year.¹³²

In addition to noting the need for more resources for HISC, a few respondents also noted that a HISC liaison position should be designated for each member agency and be filled by a person with specialized education, training, or experience in invasive species to be the point of contact responsible for answering HISC requests specific to each member agency, such as providing HISC with requested invasive species expenditures or agency shortfalls related to invasive species.¹³³ For example, DOH Environmental Health Services Division (EHSD) explained that additional staff within DOH would "enable full participation" in HISC.¹³⁴ The Department of Business, Economic Development, and Tourism's Office of Planning (DBEDT OP) noted, "a dedicated staff person that can represent [the member] agency specifically in invasive species may lend to more consistent outcomes."¹³⁵

A few respondents observed that HISC funding could be used more effectively, suggesting that HISC should reevaluate how it reallocates funds to other agencies and entities that have been appropriated to it by the Legislature.¹³⁶ For example, DOA PPC suggested that HISC provide "core funding in lieu of funding programs that address new issues or old issues in new, innovative ways."¹³⁷ UH CTAHR suggested that HISC change how it reallocates its project funding and instead focus on projects "with clear demonstrable products," which can be achieved by requiring that funding recipients "publish papers in peer-reviewed journals."¹³⁸

Finally, it should be noted that a number of respondents were positive in their comments about HISC.¹³⁹

2002 Study Issues Revisited

The Bureau also surveyed state, federal, county, and private entities on the leaks and gaps that were identified in the Bureau's 2002 study to get a clear picture of which of these issues are considered to have been resolved and which persist. A breakdown of each issue, followed by an update, is provided below:

Funding Related Issues

- **"The present system lacks proper funding to provide adequate inspection and control efforts at almost every phase of the present system including pests in vessel ballast water and hull encrustations and microalgae growth on local beaches."**

All of the agencies that responded to this question (ten respondents)¹⁴⁰ agreed that this issue persists today.¹⁴¹ Further, twenty-two respondents indicated insufficient funding continues to hinder the State's present efforts to prevent and control invasive species.¹⁴² In addition, fifteen out of twenty-eight respondents raised inadequate inspection for invasive species as a primary leak or gap in Hawaii's system to address invasive species.¹⁴³

CGAPS agreed that the present system lacks dedicated funding for adequate inspection and control efforts, providing the example of the illegal pet trade market, specifically, an instance where persons smuggled in octocoral (an invasive species to Hawaii) and planted it in Kaneohe Bay for later sale in pet stores.¹⁴⁴

Relating to the specific examples identified in the 2002 survey statement, DLNR DOFAW and HISC explained that the current system lacks dedicated funding for regulation of ballast water and inspection of hull fouling, both of which are funded by HISC as year-to-year research projects.¹⁴⁵ Federal and state laws require ballast water management actions to prevent pests from being introduced through ballast water, including a reporting requirement to DLNR Division of Aquatic Resources (DAR).¹⁴⁶ CGAPS explained that the DLNR DAR only has a temporary grant-funded position to coordinate its ballast water and hull fouling program, the Ballast and Hull Fouling Coordinator: "However, with one staff person, all that can be done is a check over of the self-reporting form."¹⁴⁷ CGAPS concluded that there are not enough resources, such as funding and staff, to adequately verify participants' protocols or test ballast water.¹⁴⁸

CGAPS, discussing the efforts to control macroalgae, stated that "the majority of macroalgae affecting nearshore systems were introduced intentionally as aquaculture species."¹⁴⁹ Aquaculture, which is the farming of aquatic plants and animals, generally falls under DOA's jurisdiction.¹⁵⁰ CGAPS explained, "DAR has little or no authority to manage aquaculture facilities for biosecurity purposes. DAR does have a team (permanent, civil service) to work on some of the worst alien algae infestations in Kaneohe Bay, but not enough to work on multiple species on multiple islands"¹⁵¹

- **"A large proportion of the total passenger, cargo, and other traffic entering Hawaii is currently uninspected, including materials known to be significant sources of new invasive species."**

Twenty-five of the twenty-eight survey responders generally agreed that this issue persists for most areas.¹⁵² Several respondents noted that one factor contributing to this issue is the passenger inspection system, which relies on voluntary completion of declaration forms and providing amnesty bins.¹⁵³ Many respondents also raised the fact that DOA is too understaffed to conduct adequate inspections.¹⁵⁴ A few agencies recommended a system of targeted prioritization and risk management analysis to compensate for limited resources and achieve efficient inspections.¹⁵⁵

- **"The interisland spread of invasive species is a major, largely unregulated problem."**

Nineteen out of twenty-five agencies that responded to this question generally agreed that this issue persists; however, many of the comments focused on the inadequacy of the inspection process, the staffing or other capacity, existing regulations, or enforcement of those regulations.¹⁵⁶ Some respondents specifically acknowledged that, although there are regulations in place, there are not enough DOA inspection staff and funding for proper enforcement and outreach.¹⁵⁷

- **"Federal reimbursement is not fully utilized for state funds generally, and specifically for 'interline'¹⁵⁸ funding to subsidize the protection of the U.S. mainland from pests in Hawaii."**

There was no clear consensus on this issue.¹⁵⁹ Because federal funding is provided to protect the mainland from Hawaii pests, seven responders suggested that funding should also be spent protecting Hawaii from mainland and foreign pests.¹⁶⁰

- **"Present laws and penalties for illegal introductions are inadequately enforced."**

Eleven out of twenty-four respondents to this question agreed that there is inadequate enforcement of present laws and penalties for illegal introductions.¹⁶¹ Two additional agencies mentioned the need for enforcement elsewhere in Survey 2.¹⁶² Five entities indicated that limited resources, such as insufficient staffing and personnel, resulted in inadequate enforcement.¹⁶³ However, UHH explained that specific enforcement "of quarantine pest interceptions at the state border [is] due to taxonomic delays in identification and lag-time of new pest establishment."¹⁶⁴ DBEDT OP noted that laws and penalties are unclear in instances when agencies handle negligent, accidental, and intentional introductions.¹⁶⁵

A few respondents suggested that importers should be held more accountable for introducing invasive species. UH CTAHR recommended that "[t]he costs for control should be borne by the importers, this would naturally increase the cost of high risk items to a level which is more reflective of what they actually cost when a pest is introduced."¹⁶⁶ Other respondents recommended developing stronger penalties for those who introduce or spread invasive species or who are "responsible for shipping infested cargo."¹⁶⁷

- **"Funding for vertebrate-control research needs to be increased because current levels are insufficient to cover more than a couple, out of the wide range of pests in Hawaii."**

Fifteen out of twenty-three respondents agreed that this issue still remains.¹⁶⁸ However, five respondents emphasized that funding needs to be targeted and prioritized to be effective and achieve results.¹⁶⁹ For example, UH PCSU stated, "[b]etter techniques applied according to

scientific principles would be much more efficient and thus much cheaper in the long run. We need to understand the pests and their weaknesses and we need to avoid thinking we can just import solutions from elsewhere."¹⁷⁰

- **"DOH's revised Port-of-Entry Program needs to be fully funded to provide adequate rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance and other alien vector activities at ports-of-entry."**

The Port-of-Entry Program refers to DOH's Vector Control Program, "which is concerned with preventing epidemics of vector-borne diseases¹⁷¹ and the establishment of new vector species in Hawaii."¹⁷² Part of the Vector Control Program's focus is preventing disease vectors at ports-of-entry, such as harbors and airports.¹⁷³ Fourteen of the eighteen entities that responded to this question agreed that this issue still persists.¹⁷⁴ Three entities expressed concerns about being able to prevent the mosquito species that carries malaria.¹⁷⁵ Although this issue may have been addressed previously with adequate resources, it has arisen again due to a 2009 reduction in staff.¹⁷⁶ However, in 2015, the Legislature provided funding for four additional vector positions.¹⁷⁷ All four positions will focus on disease vectors at ports of entry.¹⁷⁸ Interestingly, DOH EHSD, Vector Control Program, stated, "there is sufficient funding for the items [such as rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance, etc.] listed above."¹⁷⁹ However, it noted that if the program is extended to additional surveillance beyond ports-of-entry, there may be a funding shortfall.¹⁸⁰

State Administration Issues

- **"Response to new infestations is frequently delayed by jurisdictional, organizational, or procedural problems, allowing pests to become established and, in some cases, spread beyond control."**

Despite many respondents citing the coconut rhinoceros beetle response as a success, twenty out of twenty-six of the respondents agreed that this issue remains unresolved.¹⁸¹ Three entities suggested developing a standardized response plan/procedure to prevent invasive species establishment.¹⁸² Several entities indicated that developing a rapid response plan in order to prevent the spread of new invasive species would be beneficial.¹⁸³ APHIS recommended developing an emergency action notification to respond to emergency pest situations similar to the federal emergency action notification.¹⁸⁴ APHIS also suggested that the notification could operate as a tool for quarantine staff "to stop the sale of and isolate plants that may be exposed to plants infected or infested with a new pest."¹⁸⁵ This may quickly stop the spread of a newly discovered pest.

- **"Jurisdictional problems also reflect the absence of a single authority solely responsible for fighting invasive species that can represent the State regarding federal issues and concerns."**

Although six out of twenty-three respondents disagreed with this statement, eleven respondents believed this statement is still true today.¹⁸⁶ Further, while the responses were mostly in favor of a single authority approach, eleven respondents suggested that this was not the only, or best, approach to be considered.¹⁸⁷ For example, DBEDT OP stated that, "coordination can always be better in order to more efficiently utilize funding to address projects." It continued, "[p]rogress is better seen when partnering with agencies" ¹⁸⁸

Other entities, such as the National Marine Fisheries Service (NMFS), observed that giving a single authority responsibility for the invasive species issue is not likely to happen because the issue spans many sectors of government.¹⁸⁹

- **"Better involvement of county governments is needed in the island invasive species committees and in the prevention of the spread of invasive plants through state and county sponsored nurseries."**

Thirteen out of twenty-one respondents agreed that this issue continues today.¹⁹⁰ Four agencies explained that the answer depended on the specific county because their participation varies.¹⁹¹ For example, MISC explained that "Maui [C]ounty is very involved and supportive, way more than other counties in terms of funding and support."¹⁹² Generally, however, many welcomed more county government involvement.¹⁹³ DBEDT OP explained that "It is always beneficial to include county agencies in the discussions since they are often more 'on the ground.'"¹⁹⁴

- **"A lack of agreement exists between state departments on the goals of preserving the agricultural base versus the natural resources of the State."**

Responses on this statement varied. Twenty-three entities responded: seven in the affirmative; five in the negative; and eleven provided information but did not give a clear affirmative or negative response.¹⁹⁵ A few respondents indicated that, yes, this is still a problem, observing that tension exists between authorities with different missions.¹⁹⁶ For example, according to DLNR DOFAW, "Agricultural pests that may infest natural areas come primarily from the nursery trade. There does seem to be a challenge in requiring nurseries to treat their stock prior to shipping, and a reluctance to place a burden on this sector by instituting requirements."¹⁹⁷ Another example of different department mandates and goals came from the County of Kauai, which remarked, "[i]n working with U.S. Fish & Wildlife on Kaua'i, their protection of an "endangered species" (Nene) is actually an invasive species for the taro farmers where the Nene have development [sic] an appetite [sic] for taro and cause hundreds of thousands of dollars each year for taro farmers. I feel that Kaua'i is punished by controlling its mongoose population and designated as the place to grow endangered bird populations."¹⁹⁸ UH CTAHR provided another example, specifically, "the lack of protection from pests like Ohia Rust is caused by the priority some agencies have for commerce."¹⁹⁹ Although NMFS did not provide specific examples, it suggested developing a process for resolving these agency conflicts, noting that, "[i]n most cases there are ways to achieve both the business targets with the desired natural resource outcomes."²⁰⁰

CGAPS observed that this was not a major issue today, but it may change as state agency chairs change.²⁰¹ HISC explained that these missions were not necessarily conflicting,²⁰² "[f]or example, support for local agricultural development decreases reliance on imported goods, which in turn lowers the risk for introduction of invasive species that may damage natural resources. Careful consideration of the types of crops grown and increasing biosecurity measures to prevent the establishment of agricultural pests should allow these two goals to be supported in tandem."²⁰³

- **"Agency mandates and commercial interests sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources or other values."**

Twenty out of twenty-five respondents agreed that this issue persists today.²⁰⁴ For example, FWO explained that DLNR DOFAW:

[P]rogram areas cover (1) watershed protection; (2) native resources protection, including unique ecosystems and endangered species of plants and wildlife; (3) outdoor recreation; and (4) commercial forestry. They are also responsible for the issuance of hunting permits. As a result of these mandates, there is a definite conflict between watershed, native ecosystem and cultural resource protection, and game management for outdoor recreation as it relates to subsistence or sport hunting.²⁰⁵

Three responses pointed to feral ungulates as examples of invasive species maintained for purposes of hunting.²⁰⁶ As another example, HISC and DLNR DOFAW also stated that some pets freely sold in pet stores may qualify as invasive species.²⁰⁷ UHH raised another potential conflict: that community values and traditional cultural practices may conflict with solving the invasive species problem in Hawaii if the community values and traditional cultural practices are inexorably linked to sport hunting or aesthetic resources.²⁰⁸

- **"State lacks an invasive species mission statement and state agencies should be mandated not to promote the introduction or spread of invasive species."**

There was no clear consensus on this statement. Twenty-six entities responded to this prompt: ten agreed that the state lacks a mission statement; ten disagreed; two did not provide a clear affirmative or negative response; thirteen agreed that state agencies should be mandated; four disagreed; three did not provide a clear affirmative or negative response but provided information.²⁰⁹ Eight entities either explained that HISC itself serves as a mission statement or that HISC has developed an invasive species mission statement.²¹⁰ Four other entities that responded to the survey did not know whether the State had a mission statement.²¹¹

In addition, two respondents indicated that the above referenced mandate is not necessary.²¹² Explaining that an additional mandate would probably not be effective, DBEDT OP stated that "[a]gencies do not need additional laws for compliance, they need resources to be able to manage the problem."²¹³

Federal Administration Issues

- **"International trade agreements and other federal programs do not protect Hawaii from the full range of pests. Hawaii's fight against invasive species is hampered by federal laws (quarantine preemption problem) that do not recognize the dangers of pests already on the mainland but not in Hawaii, and international trade agreements that do not take into account the issues related to foreign pests."**

Twenty out of twenty-three respondents agreed that this issue persists today; two disagreed; and one did not provide a clear affirmative or negative response but provided information.²¹⁴ There is disharmony between state and federal laws because the national pest lists and state harmful species lists are inconsistent.²¹⁵ For example, UHH explained that national pest lists such as the National Noxious Weed List do not appropriately consider Hawaii and its unique circumstances.²¹⁶ Two entities also raised another consideration that, in addition to focusing on preventing harmful pests, the State should consider the risks and take action on incidental pests such as organisms hitch hiking on commodities such as lumber.²¹⁷ While FWO acknowledged that this issue remains a problem "to a certain extent," it also pointed out that:

It is the State's responsibility to convey to the responsible federal agency that there is a special need to provide for an exemption from a particular federal preemption to further protect Hawaii from pests that may not yet be established within the [S]tate. This request would include the best available scientific information and literature that would accurately describe the risk to Hawaii should a certain commodity that may be infested with a pest already established within the continental United States enter the [S]tate and allow for the proper disposition at the state level. This may include additional quarantine and safeguard requirements, treatment standards, or exclusion authority.²¹⁸

Additionally, APHIS suggested that federal preemption may not be fully understood. APHIS noted that federal regulations "cover only a few interstate quarantines pertinent to Hawai'i, generally found in the 7 CFR 301's. This means federal officers have the authority to do address a very small part of the pest risks in domestic trade. The areas not covered by the 7 CFR 301's give Hawai'i and other states the opportunity to well-regulate interstate commerce under well-constructed state authority."²¹⁹ Respondents also identified other opportunities for Hawaii to take action. APHIS observed that, "Hawai'i can comment, [and] provide research, to improve regulations before they become rules. For example, what are the species of concern, how are the species not mitigated in the pest management document. Are the species of concern plant pests? If not, does state action for non-plant pests even fall under pre-emption?"²²⁰ Further, while acknowledging that quarantine of domestic pests arriving to Hawaii from the mainland should be conducted by the federal government, DOA PPC explained that, "mechanisms currently exist for Hawaii to petition, a on [sic] pest basis, for USDA to act upon pests of concern through Federally Recognized State Managed Phytosanitary (FRSMP) program. FRSMP has been used by Florida on the Bagrađa bug. USDA now regulates Bagrađa for Florida despite Bagrađa bugs's status as a non-actionable, non-reportable pest" and concluded that the "State must be more proactive."²²¹ Finally, APHIS suggested, in response to a question asking about

changing laws to assist with the fight against invasive species, that Hawaii become actively involved in extending the federal Not Authorized Pending Pest Risk Analysis (NAPPRA) list for plants invasive to Hawaii.²²²

- **"Domestic first-class mail is a pathway for invasive species into Hawaii and is federally protected from inspection."**

Out of nineteen entities that responded to this survey question, fourteen respondents agreed that this problem still persists to some extent, and five respondents did not provide a clear affirmative or negative response, but provided information.²²³ Three entities observed that this problem may not be a "major" problem today.²²⁴ At least one entity commented that a lack of labeling contributed to this problem.²²⁵ Four different entities noted that other shipping and mail pathways, such as freight forwarders and ecommerce, are also problems.²²⁶ For example, DOA PPC indicated, "it is known that first-class mail poses a significant pathway for invasive species movement, especially plants that can be highly invasive. This problem is being proliferated through ecommerce sites. However, first-class mail should not be solely targeted as all parcel services pose similar risks (i.e. FedEx, UPS, DHL)."²²⁷ Yet, according to APHIS, states can enact legislation to facilitate inspection of mail in conjunction with federal authorities, as California apparently has done.²²⁸ According to UH CTAHR, "[m]ost of the damaging invasive species that arrive are hidden in permitted commercial imports. There is no reasonable reason to permit the importation of soil, or plants IN soil from outside of the state. This is incredibly risky and is virtually certain to lead to the invasion of serious pests like Fire Ant."²²⁹ APHIS, the City and County of Honolulu, and CGAPS suggested instituting a canine detection program as a potential remedy for this pathway.²³⁰ DOA Animal Disease Control Branch (ADC) provided a positive example of the federal government preventing domestic first class mail from being a conduit for invasive species to Hawaii: when the West Nile virus was moving towards Hawaii, "USPS [U.S. Postal Service] discontinued transporting high risk poultry and birds to Hawaii."²³¹

- **"Quarantine of domestic pests arriving from the mainland should be provided by the federal government, as is the present practice that protects the mainland from pests originating in Hawaii."**

Although two respondents disagreed and seven respondents did not provide a clear affirmative or negative response but provided information, fifteen respondents to this prompt generally agreed that this issue continues today.²³² DOA Animal Quarantine Branch (AQB) noted that "federal priorities [relating to pests of concern] may not mirror state priorities."²³³ Six entities explained that Hawaii would not benefit from this unless federal authorities working in Hawaii not only focused on pests of federal concern, but also on pests specifically posing a concern to Hawaii.²³⁴ For example, HISC noted that:

The priority need for Hawaii is for federal inspectors to be able to inspect for and act on pests of concern for Hawaii in foreign commerce, which state inspectors cannot inspect. With regard to domestic commerce, there would be no benefit to having the federal government assume the duties of domestic commerce inspection unless the federal government is able to inspect for and act on pests of concern for Hawaii.²³⁵

DOA PPC suggested that this issue could be addressed using federal mechanisms already in place for Hawaii to petition USDA to act upon pests of concern through the Federally Recognized State Managed Phytosanitary program.²³⁶ DOA PPC explained that this process was previously used by Florida on the bagrada bug,²³⁷ and USDA "now regulates Bagrada [bugs] for Florida despite Bagrada bugs's [sic] status as a non-actionable, non-reportable pest," which means it was not a pest of federal concern, only of state concern.²³⁸

- **"Lack of coordination between federal agencies, especially between the U.S. Fish and Wildlife Service and the Department of Defense and the National Park Service."**

There was no clear consensus as to whether this issue persists today. Twenty-two entities responded: seven agreed; five disagreed; and ten did not provide a clear affirmative or negative response but provided information.²³⁹ FWO explained that it "does not believe there is a lack of coordination between our agency, DoD [Department of Defense,] and NPS."²⁴⁰ According to MCBH, an entity of the Department of Defense, it "has not had an issue with lack of coordination with any of the agencies identified."²⁴¹ NPS noted that "[w]hile there is limited interaction between federal agencies, coordination on combating invasive species is not a prime goal."²⁴² Both DBEDT OP and UH PCSU observed that the three federal agencies coordinated well in some aspects, such as through the county-level invasive species committees, watershed partnerships,²⁴³ and by sometimes providing money for a different agency's project implementation or providing matching service, materials, or helicopter time.²⁴⁴ They further noted that there is room for coordination improvement at the program level²⁴⁵ and perhaps at the planning level.²⁴⁶ FWO explained that coordination takes place through the Hawaii Conservation Alliance (HCA), on-going "federal regulatory review with the Service [Fish and Wildlife Office] [which] is required for many types of actions," and, as UH PCSU explained, through watershed partnerships and county-level invasive species committees.²⁴⁷

- **"The federal Lacey Act²⁴⁸ should be amended to include possession of prohibited alien wildlife that is consistent with the State's injurious wildlife list to improve state-federal coordination in enforcing smuggling and black market violations involving injurious alien species."**

Out of nineteen respondents, one disagreed, three provided information but did not provide a clear affirmative or negative response, and fifteen agreed that amendments to the federal Lacey Act still need to be made.²⁴⁹ However, the comments of some respondents indicate that there is not always clear consensus on exactly what wildlife should be included in the Lacey Act because of the different mandates and missions of various agencies.²⁵⁰ For example, DOA PQB noted that some of the State's injurious wildlife such as turtles, frogs, and birds are allowed to be imported into Hawaii by a PQB permit for "individual possession and pet trade" because some animals considered as injurious wildlife by DLNR are considered a conditional risk by DOA due to their different missions and priorities.²⁵¹ NPS explained that "lack of agreement results in confusion and enforcement difficulty."²⁵²

CGAPS provided information explaining that the Lacey Act can be used to enforce state wildlife laws; however, there are various hurdles for a federal agency to enforce state wildlife laws under the Lacey Act, such as limited federal staff for inspection and prosecution of cases and meeting qualifications such as whether the situation has a sufficient nexus to a federal concern and whether the case will be likely to achieve a positive verdict.²⁵³

- **"The duties of the USDA in quarantines should be integrated with the Department of Interior on the interdiction of invasive species for international airline arrivals."**

Although this was the stated issue in our 2002 study, our survey question was different because, after the 2002 study, USDA's quarantine mission was blended with the quarantine mission of the U.S. Department of Homeland Security. In the survey, we asked: "In your opinion, has the blending of the quarantine mission of the U.S. Department of Agriculture with the Department of Homeland Security resulted in the enhanced interdiction of invasive species for international airline arrivals?"²⁵⁴

There was not a strong majority of agreement or disagreement on this issue; out of fifteen respondents, six entities agreed, seven disagreed, and three did not provide a clear affirmative or negative response but provided information.²⁵⁵ Of the four federal entities that commented on this issue, they all expressed support for this integration.²⁵⁶ For example, CBP explained, "the use of technology, information exchange, systems, and force multiplier of additional inspectors monitoring international movement has been beneficial."²⁵⁷ APHIS provided another example by noting that agricultural officers and non-agricultural officers are now educated on pest risk, providing more inspection opportunities.²⁵⁸

- **"Federal policy is needed to inspect domestic airline passengers, baggage and cargo for invasive species."**

Twenty-five entities responded to this prompt: three respondents disagreed, five respondents did not provide a clear affirmative or negative response but provided information; and seventeen respondents agreed that this issue persists today.²⁵⁹ Six respondents pointed out that this policy should accompany adequate resources such as inspector positions and funding for implementation of effective inspections.²⁶⁰ NPS noted that the current honor system of requiring passengers to self-declare goods "can be subverted by the dishonest."²⁶¹ OISC and UH CTAHR expressed specific concern over invasive species entering Hawaii through cargo/commercial importation because, as UH CTAHR explained, "[m]ost of the damaging invasive species that arrive are hidden in permitted commercial imports."²⁶²

- **"The National Park Service has taken an active role in fighting invasive species far beyond the boundaries of their parks."**

Out of nineteen entities that responded to this prompt: one disagreed; five did not provide a clear affirmative or negative response but provided information; and thirteen respondents agreed that in some cases, this statement is true.²⁶³ Although this was an issue of concern identified in the 2002 study, some respondents expressed positive attitudes towards NPS' invasive species work or indicated the NPS needs to do more in this regard.²⁶⁴ For example, OISC stated, "[t]he research that happens at those parks is really helpful."²⁶⁵ NPS explained that most parks have agreements with various other federal, state, and private agencies to allow for collaborative work across property boundaries.²⁶⁶ Respondents provided positive examples of collaboration, such as (1) controlling miconia and albizia outside of national park boundaries to prevent the species from entering and becoming established in national parks such as Haleakala National Park and (2) Hawaii Volcanoes National Park collaborating with a watershed alliance that includes one million acres on the Island of Hawaii.²⁶⁷

- **"More involvement by the federal Environmental Protection Agency in public health issues as it relates to invasive species."**

Thirteen of seventeen respondents agreed that this issue continues.²⁶⁸ Areas mentioned where more involvement by the federal Environmental Protection Agency (EPA) would be beneficial included: controlling feral ungulates, especially with respect to feral pigs' ability to reduce water quality;²⁶⁹ controlling invertebrates and fungi, which can cause avian malaria and crop damage;²⁷⁰ and providing outreach and education about pesticides and herbicides.²⁷¹ While OISC noted that the federal EPA's focus is more towards pollution, it did acknowledge that more federal EPA involvement in enforcement would be helpful because "their enforcement arm is bigger and allowed to enforce more than" FWO or DLNR's Division of Conservation and Resource Enforcement.²⁷²

- **"Provide properly funded collaborative USDA assistance, to in effect, 'deputize' the USDA's plant protection and quarantine program to enforce Hawaii's laws."**

Out of twenty respondents: one respondent disagreed; six respondents did not provide a clear affirmative or negative response but provided information; and thirteen respondents agreed that this statement is true today.²⁷³ APHIS appeared to reject the assertion as too simplistic, noting that, "[t]his is a 'solution', given without stating the underlying multiple problems it is expected to solve, and given without presenting the imagined outcomes with examples of specific applications."²⁷⁴ However, APHIS also noted that this may not be the solution, especially if Hawaii's laws extend beyond the scope of federal laws, because "federal officers can only enforce federal laws."²⁷⁵ DOA PPC noted that "existing systems (FRMSP) exist that give USDA these powers. However, the State must be more proactive."²⁷⁶ APHIS suggested the State take action to influence federal regulation by submitting comments to APHIS when new regulations are proposed.²⁷⁷ For example, APHIS recently solicited "input in order to formulate certain proposed rules prior to publishing proposed rules."²⁷⁸ APHIS also explained that Hawaii and APHIS Plant Protection and Quarantine Program have a Memorandum of Understanding outlining how each works together in Hawaii.²⁷⁹ NPS explained that a need for properly funded

collaborative USDA assistance extends not only to plants but also to "vertebrates, invertebrates, fungi, algae, bacteria, and others."²⁸⁰

Endnotes

1. Act 126, Session Laws of Hawaii 2015 is attached as Appendix A.
2. See *supra* Chapter 1, notes 55-61 and accompanying text for a discussion of the Bureau's efforts to gather information.
3. See Appendix G for a master spreadsheet of Survey 2 responses.
4. See **Survey 2, Part I**, Question 5, specifically, the response of NMFS ("Prevention is certainly much more cost effective than control/eradication."); **Part I**, Question 8, specifically, the response of County of Kauai ("prevention of invasive species is far less costly, then having to deal with it than after the fact."). See also **Survey 2, Part I**, Question 7, specifically, the responses of: DOH EHSD ("Prevention and early detection through active surveillance."); UHH ("Prevention of invasive species introductions by all accounts is the best strategy, and is the strategy indicated in the best research and recommended practices."); ARS ("Prevention through quarantine treatments, early detection and eradication"); NAVY (listing prevention as one of the most effective strategies in the fight against invasive species); NPS ("prevention of new introductions (sanitation protocols and monitoring for incipient)"); FWO (Prevention has and continues to be a vital element in the fight against invasive species."); and HARC ("The continued efforts at prevention of entry of unwanted pests, while not completely successful, has nonetheless probably been the most useful strategy. Quarantine and prevention are more effective than control of introduced pests after they are here."); and **Part I**, Question 8, specifically the response of UHH ("policies for proactive prevention of new invasive species is a prerequisite for action relating to effectively combating the current suite of invasive species in the State and the UHH with any best management practices recommended").
5. See **Survey 2, Part I**, Question 7, specifically, the responses of: DOA AQB, DOA ADC, DLNR DOFAW, DOH EHSD, UHH, ARS, APHIS, NPS, FWO, NAVY, MISC, OISC, KISC, and ARS.
6. See **Survey 2, Part I**, Question 5, specifically, the response of APHIS; and **Part I**, Question A, specifically, the response of DOA PQB. See also **Survey 2, Part I**, Question 5, specifically, the response of HISC ("Funding for invasive species programs is insufficient. The two primary agencies responsible for invasive species prevention and control (HDOA and DLNR) receive approximately 0.4% and 1% of the State's operating budget, respectively."); **Part I**, Question 10, specifically, the response of NPS ("please increase funding resource availability for both control and prevention work."); and **Part I**, Question 11, specifically, the responses of ARS ("Insufficient prevention programs in the [S]tate."); and NPS (a primary gap is "Prevention of new invasive species entering the state and becoming established.").
7. See *infra* notes 66-78 and accompanying text.
8. A number of respondents specifically mentioned a biosecurity plan, while others more generally referred to the need for a comprehensive strategy for prevention and detection of invasive species. See **Survey 2, Part I**, Question 8, specifically, the responses of CGAPS ("A biosecurity plan that lays out all the major needs and a timeline for completing, and a way to prioritize beyond political terms."); and KISC ("A biosecurity law to reduce introductions would be most cost effective."); **Part I**, Question 11, specifically, the responses of: DLNR DOFAW ("Invasive species duties, programs, and data are separated within different agencies, as described above."); and KISC ("Biosecurity is lacking"); **Part I**, Question 12, specifically, the responses of: HISC ("The State of Hawaii should develop a coordinated, multiagency biosecurity plan that clearly describes

agency authorities and responsibilities across pre-border, border, and post-border activities."); UH PCSU ("Establish a system to prevent invasives from arriving in Hawaii from the US mainland (federal quarantines prevent arrival internationally)."); NRCS ("A "highest priority" initiative from Governor Ige which includes a long term strategy"); NPS ("Implementing a biosecurity program similar to countries such as New Zealand for incoming visitors and container shipments would address many new introductions."); County of Maui ("Adopt a Hawaii Biosecurity Plan and insure there is capacity for strong monitoring, inspection, and enforcement."); KISC ("A biosecurity law and realistic funding/positions."); and CGAPS ("Prioritize, communicate needs and commitment over 20-year period to fixing biggest gaps, then do it again for the next 20 years."); **Part I**, Question 13, specifically, the responses of: DOA PQB ("Coordinate all state agencies' authority and responsibilities. Prioritize action for specific invasive species."); UH PCSU ("We need a coherent process to address species threats as they arrive. . . . This process must include science and management, and planning."); NPS ("Formulate a program to focus on prevention."); and FWO:

[T]here is a pressing need to ensure that adequate resources and capabilities are in place to ensure a sound biosecurity program is established in Hawaii. The state needs the ability to implement a pre-border component that prevents invasive species before reaching Hawaii. This can be accomplished through cooperative agreements and other phytosanitary requirements with producers at the port of departure or origin [sic] are met prior to arrival. In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff, inspection facilities to quarantine, safeguard, treat and dispose of infested articles, and to conduct a comprehensive surveillance program to detect new invasive species incursions and have the ability to eradicate and control them before they become established in Hawaii. Lastly, a post-border program is also needed to maintain the control and management of established invasive species to prevent their further spread within the state.;

Part II, Funding Issues, Question 2, specifically, the responses of NPS ("Inter-island biosecurity is poorly enforced, and most of the public is unaware of existing regulations."); and FWO ("currently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles, such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles."); and **Part 2, Federal Issues**, Question 4, specifically the responses of: DLNR DOFAW ("Similar to state agencies in Hawaii, federal agencies develop plans for addressing invasive species specific to their jurisdiction. Engagement of federal agencies in the development of a comprehensive biosecurity plan for Hawaii would assist in coordination among all partners, both state and federal."); and HISC ("Similar to state agencies in Hawaii, federal agencies develop plans for addressing invasive species specific to their jurisdiction. Engagement of federal agencies in the development of a comprehensive biosecurity plan for Hawaii would assist in coordination among all partners, both state and federal.").

9. **Survey 2, Part 1**, Question 12, specifically, the response of NRCS.
10. **Survey 2, Part I**, Question 8, specifically, the response of CGAPS.

11. **Survey 2, Part I**, Question 13, specifically, the response of FWO.
12. Biosecurity is statutorily defined with respect to an agricultural loan program administered by DOA as "a system that serves to protect the health of livestock, poultry, and humans from diseases, pests, and pathogens and measures that prevent disease causing agents from entering, spreading, or leaving the farm premises." Section 155-1, HRS.
13. See Part VI, Chapter 150A, HRS (relating to the biosecurity program).
14. §150A-52, HRS.
15. §150A-2, HRS.
16. See §150A-3, HRS.
17. See **Survey 2, Part I**, Question 6, specifically, the responses of County of Maui ("Lack of interisland emphasis on biosecurity has led to "porous" borders and repeat introductions of invasive species, especially LFA and coqui frog."); and MISC ("Ineffective inter-island biosecurity"); **Part I**, Question 8, specifically, the responses of KISC ("A biosecurity law to reduce introductions would be most cost effective."); and CGAPS ("A biosecurity plan that lays out all the major needs and a timeline for completing, and a way to prioritize beyond political terms. At the top would be inspection facilities at major ports and a requirement for compliance, stable/adequate funding for agencies/NGOs for rapid response/monitoring and control, and Federal recognition of Hawaii to enable Federal action on state pests."); **Part I**, Question 11, specifically, the responses of MISC ("Inadequate regulations, enforcement and inspection capacity @ HDOA"); KISC ("Biosecurity is lacking. HDOA is underfunded."); and CGAPS ("HDOA has a narrow focus on inspection of "ag commodities" and they are also charged with promoting/protecting local ag industry."); **Part I**, Question 12, specifically, the responses of: HISC ("The State of Hawaii should develop a coordinated, multiagency biosecurity plan that clearly describes agency authorities and responsibilities across pre-border, border, and post-border activities."); UH PCSU ("Establish a system to prevent invasives from arriving in Hawaii from the US mainland (federal quarantines prevent arrival internationally)."); and NPS ("Implementing a biosecurity program similar to countries such as New Zealand for incoming visitors and container shipments would address many new introductions."); and **Part I**, Question 13, specifically, the responses of: DOA PQB ("Coordinate all state agencies' authority and responsibilities. Prioritize action for specific invasive species."); UH PCSU ("We need a coherent process to address species threats as they arrive. . . . This process must include science and management, and planning."); NPS ("Formulate a program to focus on prevention."); and FWO:

[T]here is a pressing need to ensure that adequate resources and capabilities are in place to ensure a sound biosecurity program is established in Hawaii. The state needs the ability to implement a pre-border component that prevents invasive species before reaching Hawaii. This can be accomplished through cooperative agreements and other phytosanitary requirements with producers at the port of departure or origin [sic] are met prior to arrival. In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff, inspection facilities to quarantine, safeguard, treat and dispose of infested articles, and to conduct a comprehensive surveillance program to detect new invasive species incursions and have the ability to eradicate and control them before they become established in Hawaii. Lastly, a post-

border program is also needed to maintain the control and management of established invasive species to prevent their further spread within the state.;

and **Part II, Funding Issues**, Question 2, specifically, the responses of NPS ("Inter-island biosecurity is poorly enforced, and most of the public is unaware of existing regulations."); and FWO ("currently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles, such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles."). See also, *supra* note 66 and accompanying text.

18. See **Survey 2, Part I**, Question 6, specifically, the responses of County of Maui and MISC; **Part I**, Question 8, specifically, the responses of KISC and CGAPS; **Part I**, Question 12, specifically, the responses of: HISC; NPS; and FWO; and **Part II, Federal Administration**, Question 4, specifically, the response of DLNR DOFAW.
19. This can be inferred from various agency responses. See generally **Survey 2, Part I**, Question 10, specifically, the response of APHIS (suggesting that inspections should cover any "articles and conveyances that pose pest risk"); **Part I**, Question 11, specifically, the responses of: UHH ("vegetative propagative plants (not agriculture consumable products), and building materials need much greater inspections and stronger rules of prohibited items to mitigate the risks of those invasive species pathways."); APHIS ("There seems to be disagreement about whether or not HDOA [DOA] can initiate inspection and take action on any items/conveyance of agricultural risk, or only agricultural commodities [sic]. Significant pests hitchhike on non-agricultural products. Whether or not the argument is legitimate, it might be good to resolve the issue."); CGAPS (DOA "has a narrow focus on inspection of 'ag commodities.'"); **Part II, Funding Issues**, Question 1, specifically, the response of CGAPS (discussing CBP/U.S. Department of Agriculture risk assessments for inspection explaining that DOA "does very little of this - lack of capacity, . . . and authority to inspect non-ag cargo are all issues."); and **Part II, Funding Issues**, Question 2, specifically, the response of DOA PQB ("Household goods, vehicles and equipment could harbor invasive species, but these materials are not regulated by PQB and do not require agriculture inspections."). Cf. **Survey 2, Part II, Funding Issues**, Question A, specifically, the response of City and County of Honolulu (regarding DOA lacking "the much needed legal authority" to effectively "inspect the movement of agricultural materials.").
20. See **Survey 2, Part I**, Question 11, specifically, the response of CGAPS ("they [DOA] are also charged with promoting/protecting local ag industry."); **Survey 2, Part I**, Question, 12 specifically, the response of OISC ("Build more of a wall between HDOA's [DOA's] function of supporting nurseries and regulating them so that HDOA [DOA] can regulate and come down on the guys that don't treat for pests."); **Part II, State Administration**, Question 4, specifically, the response of OISC "The conflict is that the enviros want HDOA to do more and to be more forceful and, if you will forgive the expression, kick ass and take names. But they seem very reluctant to use their regulatory power. I think everyone understands that agriculture and natural resources are connected and deserve equal amounts of protection."); **Part II, Funding Issues**, Question A, specifically, the response of CGAPS ("Although many aquaculture species need to go through the Board of Agriculture [(BOA)] and a public process prior to importation, the decisions made have not always been protective of the environment--there is a contradictory mandate in HDOA's (and the BOA's) mission to promote and protect Hawaii agriculture (and aquaculture species have a tendency to "escape")."); **Part II, State Administration**, Question 2, specifically, the response of CGAPS ("Yes, to some extent (particularly when it can "harm"

local ag sales, as HDOA has competing mandate)."); and **Part II, State Administration**, Question 5, specifically, the responses of DOA PPC ("There can be an argument made that [Department of] Agriculture or [Department of] Land and Natural Resources functions that promote should be separated from functions that regulate, control, or enforce invasive species issues.") and UHH ("Aesthetic resources on private lands, especially related to invasive plants are known to be counter-productive to invasive species control programs, especially with the State plant import rules being non-selective to pests that may not be on the National Noxious Weed list. There should be a state Noxious Weed List to prevent aesthetic plant species introductions to Hawaii that are likely to become invasive.").

21. See **Survey 2, Part I**, Question 5, specifically, the response of DLNR DOFAW ("DOFAW has the mandate to manage species on state lands, but relies on other agencies for prevention (border/interisland, mandated to HDOA) and rapid response to species across public/private land boundaries (primarily achieved by the Watershed Partnerships and the Invasive Species Committees)."); **Survey 2, Part I**, Question 6, specifically, the responses of DLNR DOFAW:

DOFAW works collaboratively with HDOA and the ISCs on species of shared concern. One example is coqui frog on O'ahu. Coqui frog is designated as an agricultural pest by HRS 141. As such, HDOA inspects for and responds to reports of coqui on O'ahu. Because this species has the potential to infest DOFAW-managed forests and is incipient on O'ahu, staff from both DOFAW and the ISCs have worked with HDOA to respond to coqui reports and capture frogs, or to modify habitat to minimize the risk of establishment. While this has worked to some extent, the arrangement is largely voluntary and participation depends on which entity has staff capacity at any given time. Better understanding of responsibilities around shared concerns would be beneficial.;

HISC:

Gaps: there are gaps between agency mandates that complicate response to invasive species. A primary gap is the lack of a mandated agency to detect and control new invasive species threats within the State. HDOA provides border protection as well as response to designated pests detected within the state (e.g., the on-going responses to coconut rhinoceros beetle and little fire ant). DLNR controls invasive plants and animals primarily on State lands, focusing particularly on high-value areas such as Natural Area Reserves or Forest Reserves. Systematic survey and control for incipient weeds or other pests is not within the mandate or capacity of either agency, and is instead addressed primarily by the Invasive Species Committees (ISCs). The ISCs are projects of the University of Hawaii's Pacific Cooperative Studies Unit and are largely informal: they do not exist on the University's organizational chart and are not included in the University's budget. Instead they rely on competitive grants from the HISC or other state, county, federal, or private sources. . . . Overlaps: there are overlaps across agency mandates complicate response to invasive species. A primary example is the movement of organisms between islands in the state. HDOA has the mandate for interisland quarantine and inspection. DLNR regulates the movement of wildlife between islands, and DOH regulates the presence of vectors for human disease, including surveillance at ports. The points

of entry and exit for each island are largely managed by DOT. When moving an organism between islands, an individual may be utilizing a DOT facility and violating regulations of HDOA, DLNR, and/or DOH, depending on the species being transported.;

UH CTAHR ("There seems to be some territoriality, with some state organizations being very protective of what they perceive to be their sole responsibility."); APHIS ("The various quarantine entities have yet to find effective measures by a responsible federal or state agency to address mosquitos in foreign trade, containers, etc."); NMFS ("The priorities for managing invasive species are not clear across responsible entities. Getting consensus on this issue would help tremendously in defining how to move forward."); FWO ("the mechanisms to implement invasive species efforts including adequate funding, resource capacity, and legal and jurisdictional authorities have resulted in some challenges."); **Part I**, Question 8, specifically, the responses of DOA PQB ("Updating current laws and rules to provide a more consistent State policy on invasive species."); DLNR DOFAW ("Currently DOFAW only prohibits the release of introduced wildlife, and only prohibits the release, export, and transport to new locations of injurious wildlife. The public can still possess injurious wildlife, and they can be freely sold at pet stores. The State should explore prohibiting or otherwise regulating the sale and possession of injurious wildlife."); **Part I**, Question 9, specifically, the response of DOH EHSD. "The HISC seems to be focused on invasive species of concern to DLNR, and thus the invasive species of human health concern are not their first priority."); **Part I**, Question 11, specifically, the responses of: DOA PQB ("Overlapping authority on invasive species."); DLNR DOFAW ("The lack of a stable entity responsible for early detection and rapid response for incipient species is problematic. . . . Invasive species duties, programs, and data are separated within different agencies, as described above."); HISC ("the related but sometimes overlapping mandates for invasive species prevention or control at different agencies, as well as the significant gap between agency mandates for detection and control of incipient plants or animals across both state and private lands."); NMFS ("Clarity on who has the responsibility to prevent invasive impacts and adequate sustainable resources (money and people) to implement an achievable management plan."); FWO ("Inadequate state authorities, and related rules and regulations that fail to properly address the state's ability to properly respond to new invasive species incursions with the implementation of immediate eradication and control management programs, emergency quarantine orders, and enforcement capabilities due to violations."); and City and County of Honolulu ("Duplication of responsibilities is one of the major problems."); **Part I**, Question 12, specifically, the response of DOA PQB (suggesting that State agencies need to "agree on the authority to regulate invasive species."); **Part I**, Question 13, specifically, the responses of DOA PQB ("Coordinate all state agencies' authority and responsibilities. Prioritize action for specific invasive species."); **Part II, Funding Issues**, Question A, specifically, the response of CGAPS "DAR has little or no authority to manage aquaculture facilities for biosecurity purposes."); **Part II, Funding Issues**, Question 1, specifically, the responses of City and County of Honolulu ("Neither passengers nor visitors on yachts or other vessels are inspected. This may be due to lack of personnel and division of responsibilities. Inspection of yachts falls under DLNR."); and CGAPS ("CBP/USDA does a pretty good job at inspection, risk assessments to prioritize inspection and assessing efficiency (although it would be better if they could also focus on Hawaii priorities). HDOA does very little of this - lack of capacity, science direction, oversight, and authority to inspect non-ag cargo are all issues."); **Part II, Funding Issues**, Question 2, specifically, the response of FWO ("currently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii."); **Part II, State Administration**, Question 1, specifically, the response of FWO ("Related procedural challenges may also come into play since there may not be any clear and

comprehensive response plans developed by the state to address future invasive species risks.");

Part II, State Administration, Question 2, specifically, the response of FWO:

The Hawaii Department of Agriculture (HDOA) is clearly the first-line-of-defense against the introduction of invasive species that are detrimental to the agricultural, horticultural and aquacultural industries, natural resources and environment of Hawaii. However, HDOA may lack the ability to properly address these issues due to federal preemption laws, resource capacity and funding shortfalls, available tools and methodologies, and legal quarantine rule requirements and enforcement actions.;

Part II, State Administration, Question 4, specifically, the responses of: DBEDT OP ("There is a need to have clear definitions when using terminology, which would drive clearer purpose."); UH CTAHR ("Yes, in the opinion of some colleagues, it seems that agriculturally based agencies are not giving adequate consideration to the importance of protecting natural resources, for example the lack of active protection from pests like Ohia Rust is caused by the priority some agencies have for commerce."); UHH ("Yes. There is tension between State-wide agricultural resources, and what agency is best able to plan and dictate resource uses for those agricultural lands."); FWO ("The Service feels that there is a realized consensus and agreement between state agencies on invasive species as it relates to agriculture and natural resource protection; however, there may be a definitive difference or lack of agreement between the state agencies on what is a higher priority to address these issues."); City and County of Honolulu ("Yes, the problems existed between DOA and DLNR in dealing with plant pests and the problems also existed among DOH, DOA, and DLNR in dealing with pests with health significance."); and OISC ("The conflict is that the enviros want HDOA to do more and to be more forceful and, if you will forgive the expression, kick ass and take names. But they seem very reluctant to use their regulatory power."); **Part II, State Administration**, Question 5, specifically, the responses of: DLNR DOFAW: ("Yes, species that are used commercially or for game purposes may in some cases fit the definition of invasive species. There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state."); HISC ("Yes, species that are used commercially or for game purposes may in some cases fit the definition of invasive species. There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state."); DOH EHSD ("Yes, we believe there are instances that potentially destructive alien species are allowed to thrive even if it may not be in best interest of the State as a whole. At times, a delicate balance must be maintained to accommodate commercial and special interests. We acknowledge it is a complex issue and unfortunately we do not have a suggestion to a resolution."); UH CTAHR:

Agency mandates are dominated by mandates that preserve damaging invasives over wide areas of state land. This has become worse than it has ever been in the State's history, with larger numbers of damaging ungulates and invasive plants than ever before. If the state agencies do not change their mandates to effectively preserve large portions of the remaining native habitat soon, it will likely all become irreparably degraded. Sport hunting does not bring in nearly as much money as other forms of tourism, yet it is prioritized across most state land, to the detriment of native species. Recreational hunting should be limited to specific, fenced, areas, while ungulates are eliminated from other areas.;

UHH:

Yes, it is undeniable that game management areas and species used as game, when not effectively managed, are invasive as defined at the start of this document. Aesthetic resources on private lands, especially related to invasive plants are known to be counter-productive to invasive species control programs, especially with the State plant import rules being non-selective to pests that may not be on the National Noxious Weed list. There should be a state Noxious Weed List to prevent aesthetic plant species introductions to Hawaii that are likely to become invasive.;

NMFS ("Yes. This has been a long standing conflict and one that will require political consensus to solve."); MCBH ("Yes. Definitely commercial interests as well as no political will to adversely impact a commercial entity's bottom line even when it will result in harm to the environment."); FWO:

Yes. According to their website the mission of the Division of Forestry and Wildlife (DOFAW) under the Hawaii Department of Land and Natural Resources is to responsibly manage and protect watersheds, native ecosystems, and cultural resources and provide outdoor recreation and sustainable forest products opportunities, while facilitating partnerships, community involvement and education. DOFAW is responsible for the management of State-owned forests, natural areas, public hunting areas, and plant and wildlife sanctuaries. In addition, program areas cover (1) watershed protection; (2) native resources protection, including unique ecosystems and endangered species of plants and wildlife; (3) outdoor recreation; and (4) commercial forestry. They are also responsible for the issuance of hunting permits. As a result of these mandates, there is a definite conflict between watershed, native ecosystem and cultural resource protection, and game management for outdoor recreation as it relates to subsistence or sport hunting.;

and **Part II, State Administration**, Question 6, specifically, the responses of DOH EHSD ("mandating through rules and regulations may provide some stakeholders the needed authority to properly enforce and prevent the spread of invasive species."); and NRCS ("Yes, of course there needs to be a mandate that all state agencies not assist or promote the intro and spread of invasive species, if we are serious about this issue."). *See also supra* notes 195-199 and 204-208 and accompanying text.

22. **Survey 2, Part I**, Question 11, specifically, the response of HISC.
23. See **Survey 2, Part I**, Question 5, specifically, the response of MCBH ("Cannot control plants and insects introduced to base from homeowners that purchase nursery grown material."); **Part I**, Question 8, specifically, the responses of MCBH ("Stronger Federal and State laws to limit and prohibit the introduction and sale of plant and animal species shown to be detrimental to the environment. The ability of the State and Federal government to prohibit nurseries from growing known invasive detrimental plants and confiscate those found, regardless of economic impact to the commercial grower."); and MISC ("Require horticultural industry to demonstrate adherence to best management practices through annual certification."); **Part I**, Question 11, specifically, the responses of: UHH ("current studies (HDOA staff) indicate vegetative propagative plants (not agriculture consumable products), and building materials need much greater inspections and stronger rules of prohibited items to mitigate the risks of those invasive species pathways. 80% of invasive species arrive from horticultural sources, but plant nurseries only abide by pest plant species bans voluntarily, as it is not a regulatory rule, by and large."); MCBH ("The inability of

the State legislature to pass legislation that would help prevent the introduction and spread of invasive species, i.e., prohibiting private nurseries to grow and sell documented invasive species."); and OISC ("Nursery owners that don't follow best management practices for pests should be fined and those that do should receive a financial benefit. Interisland bio-security won't work unless the nursery trade is on board with it."); **Part I**, Question 12, specifically, the responses of NPS ("Prohibit the sale of known invasive plant species. Improve control of plant materials received by mail order."); and FWO (recommending the amendment of Plant Import Rules); OISC ("I think the majority of nursery owners want to do the right thing. Provide money for incentive programs so that nurseries will follow best management practices."); **Part II, State Administration**, Question 3, specifically, the response of MCBH ("I think stronger laws are needed to prevent private/commercial nurseries from importing, growing, and selling invasive plants."); and **Part II, State Administration**, Question 4, specifically, the response of DLNR DOFAW ("Agricultural pests that may infest natural areas come primarily from the nursery trade. There does seem to be a challenge in requiring nurseries to treat their stock prior to shipping, and a reluctance to place a burden on this sector by instituting such requirements. A solution to this problem is much needed.").

24. **Survey 2, Part I**, Question 11, specifically, the response of UHH.
25. Components of this program include a compliance agreement between DOA and the nursery requiring an active spray program to control and manage invasive species and DOA inspections every six months. Telephone conversation with Kevin Horiuchi, a Nursery Specialist at the DOA PQB on Dec. 22, 2015.
26. *Id.*
27. The transport company is responsible for notifying DOA, and upon notification, DOA staff inspect the plant material at a holding facility. Telephone conversation with DOA representative on Dec. 24, 2015.
28. *Id.* See also, **Survey 2, Part I**, Question 12, specifically, the response of NPS ("Improve control of plant materials received by mail order."); **Part II, Federal Administration**, Question 2, specifically, the responses of NPS ("Plants themselves [sic] a problem and potential hitch hikers can easily be ordered through the mail."); and DOA PPC ("it is known that first-class mail poses a significant pathway for invasive species movement, especially plants that can be highly invasive. This problem is being proliferated through ecommerce sites.").
29. **Survey 2, Part I**, Question 12, specifically, the response of NPS.
30. **Survey 2, Part I**, Question 12, specifically, the response of UHH.
31. **Survey 2, Part I**, Question 8, specifically, the response of MCBH.
32. **See Survey 2, Part I**, Question 8, specifically, the response of DLNR DOFAW ("Currently DOFAW only prohibits the release of introduced wildlife, and only prohibits the release, export, and transport to new locations of injurious wildlife. The public can still possess injurious wildlife, and they can be freely sold at pet stores. The State should explore prohibiting or otherwise regulating the sale and possession of injurious wildlife."); **Part II, State Administration**, Question 5, specifically, the responses of DLNR DOFAW ("There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state."); and HISC ("There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state."); **Part II, Federal Administration**, Question 5, specifically, the responses of DOA PQB ("Some of the State's injurious [sic] wildlife (e.g., turtles, frogs, various pet birds are allowed import into Hawaii under PQB permit for individual

- possession and pet trade."); and APHIS ("This should be explored with FWS, and any other federal agencies concerned, to get the facts on current regulations on injurious wildlife and the species of concern for Hawai'i. The definitions for injurious wildlife may be different, or some other factors may be evident.").
33. **Survey 2, Part I**, Question 8, specifically, the response of DLNR DOFAW.
 34. *Id.*
 35. See **Survey 2, Part I**, Question 6, specifically, the response of NRCS ("Hawaii State Noxious Weed List. The list we currently use was last updated on October 20, 2003, nearly twelve years ago. The one on the HDOA website is [sic] from 1998. Both lack many pernicious invasive weeds that are troubling us today, such as *Schinus terebinthifolius* (Wililaiki – Christmas Berry), *Psidium cattleianum* (Waiawi – strawberry guava), and *Acacia confusa* [sic] (formosan koa). The State's weed list is what gives us the authority to treat invasive species. If they're not on the state weed list, we have to take extra steps to justify control or eradication using Farm Bill funding. It would be great if this list could be updated soon and then be kept up-to-date yearly."); and CGAPS ("For example, HDOA doesn't have a list of plants that are invasive and absent in Hawaii; they have historically been very reluctant to do this in part because they would also have to be added to the Federal list."); **Part I**, Question 8, specifically, the response of NRCS ("Come to a state-wide agreement on what species in Hawaii are considered truly invasive and a great threat to Hawaii's ecology and environment and get them officially added to the Hawaii State Noxious Weed List. This will give us greater authority to treat and eradicate."); **Part I**, Question 10, specifically, the response of OISC ("There should be an interagency invasive species list that combines species that are of concern to natural resources, health and agriculture. Then HISC could presumably [sic] pass rules relating to that list."); **Part I**, Question 11, specifically, the response of CGAPS ("Legal gaps in Federal/State actionable lists;"); **Part II, State Administration**, Question 5, specifically, the response of UHH ("Aesthetic resources on private lands, especially related to invasive plants are known to be counter-productive to invasive species control programs, especially with the State plant import rules being non-selective to pests that may not be on the National Noxious Weed list. There should be a state Noxious Weed List to prevent aesthetic plant species introductions to Hawaii that are likely to become invasive.").
 36. Section 194-2(a)(6), HRS. *See supra* Chapter 3, note 68 and accompanying text.
 37. E-mail correspondence with HISC staff on Aug. 3, 2015.
 38. *See generally* **Survey 2, Part I**, Question 12, specifically, the response of NPS ("Streamline the process for agencies to prohibit and manage known invasive species. . . .").
 39. *See generally* **Survey 2, Part I**, Question 12, specifically, the response of NPS.
 40. See **Survey 2, Part I**, Question 8, specifically, the response of HISC. One of HISC's duties pursuant to section 194-2(a)(6), HRS, is to, "Identify and record all invasive species present in the State." HISC has not been able to comply with this mandate; however, HISC is developing proposed legislation for the 2016 regular session regarding this duty. *See supra* Chapter 3, notes 68-72 and accompanying text.
 41. See **Survey 2, Part I**, Question 5, specifically, the responses of: DOA PPC ("The lack of mechanisms to support hiring quickly to respond to outbreaks of invasive species incursions and the funding to support such responses."); DOA ADC ("Funding available on short notice to control and eradicate new infectious disease outbreaks and exotic external parasites discovered."); DLNR DOFAW ("Capacity and funding: Recent requests to establish "invasive species technician" positions under the Forestry Program have not been successful. Programmatic

funding is low across all programs."); HISC ("Funding for invasive species programs is insufficient. The two primary agencies responsible for invasive species prevention and control (HDOA and DLNR) receive approximately 0.4% and 1% of the State's operating budget, respectively. In addition to core agency programs, the HISC operates an annual grants program to support interagency projects. Requests have exceeded \$10M annually in recent years, but available funds decreased in FY16 from \$5.75M to \$4.75M, exacerbated by an additional 10% restriction imposed by the Department of Budget and Finance on general fund expenditures."); DOT ("Appropriate State funding is a major concern. With so many invasive species to combat, the DOT prioritizes the control of invasive species that compromises safety along major highway corridors such as Albizia, Coconut Rhinoceros Beetle, Banyan Stem Gall Wasp, and the Rapid Ohia Death Fungus."); UH PCSU ("We receive NO base funding for administration of our projects from the state or federal government but instead rely on direct and indirect charges associated with individual agreements."); NPS ("Funding, development of new tools (biocontrol, new herbicides, fencing materials), preventing the introduction of new invasive species."); MISC ("Funding limitations"); OISC ("there never seems to be enough money for what needs to be done. A permanent funding source we could count on would be great. HISC has been a phenomenal grant program for us, but there have been years when there was only 50% of what there had been before."); KISC ("Funding is extremely varied. It is difficult to keep basic staff to address invasive species. Have been able to use grant funding to keep operations running."); **Part I**, Question 6, specifically, the responses of ARS ("The State agencies often do not have adequate funding or staff to implement necessary eradication or quarantine procedures quickly or comprehensively to prevent the spread of invasive species specifically in Hawaii."); and FWO ("the mechanisms to implement invasive species efforts including adequate funding, resource capacity, and legal and jurisdictional authorities have resulted in some challenges."); **Part I**, Question 8, specifically, the responses of: DOA PPC ("Resources such as funding for new facilities and legislative appropriation of staff for the Biological Control program would allow increased research in beneficial parasitoids and pathogens."); DOA ADC ("Funding for rapid response to new disease outbreaks."); HISC ("a) Additional staff and operational funding capacity for interagency coordination and project support b) Sufficient staff and funding capacity for both interstate and intrastate inspection and quarantine"); UH PCSU ("short funding horizons (one year at a time prevents us from recruiting the best graduate students, 3 year funding blocks would be more effective) hamper our Base funding to provide PCSU with stability to allow it to plan several years out."); NRCS ("Better funding for HDOA in their invasive weed section and HISC is essential to have the staff to fight this growing threat to Hawaii's ecosystem."); FWO ("Annual dedicated funding and support to adequately address invasive species issues in Hawaii both at the federal and state level."); County of Kauai ("We would like to see the State put more resources (funding and personnel) towards combating invasive species."); and KISC ("A known base funding from the State would help keep long-term employees."); **Part I**, Question 10, specifically, the responses of: DOA PPC ("The HISC needs a larger SET budget that allows it to address some of its core functions."); HISC ("Increased funding for a grants program to support interagency projects"); DOT ("Appropriate State funding."); UH PCSU ("Funding has been highly variable, making planning difficult when faced with multi-year commitments to attack problems such as albizia, little fire ant or Miconia. The uncertainty has also meant that science has been underfunded or rather unfunded, but this makes it difficult to assess whether we are using the best methods or how we are progressing. Managers fly by the seat of their pants with sometimes inefficient or ineffectual results (coqui on Big Island)."); UHH ("Legislative HISC funding needs request for that funding level."); NRCS ("They're certainly serving as the collaborative hub in this fight and bringing together formerly disparate groups. But they lack political support and funding. . . . they really need to significantly increase their funding of HISC."); MCBH ("More funding and field staff."); NPS ("please increase funding resource

availability for both control and prevention work."); FWO ("Legislatively and part of the State's annual budget, the need to provide for dedicated funding and support to HISC that will adequately address the invasive species issues in Hawaii"); County of Maui ("More funding"); and KISC ("Regular funding and a Biosecurity team."); **Part I**, Question 11, specifically, the responses of: DBEDT OP ("Dedicated funding from agencies/industries that rely upon Hawaii's natural resources to maintain their economic returns."); DOH EHSD ("Having enough staff and funding to deal with the control and eradication of invasive species."); and MCBH ("Limited funding and personnel to tackle the problem at the port of entries and in the field."); **Part I**, Question 12, specifically, the responses of: DOA ADC ("Emergency funding system needs to be in place"); DBEDT OP ("Dedicated funding in coordination with the HISC from agencies/industries."); DBEDT HTA ("Dedicated funding in coordination with the HISC from agencies/industries."); DLNR DOFAW ("An early detection rapid response program, such as the ISCs, should be institutionalized and supported with consistent funding."); HISC ("The incipient detection and control functions carried about by the Invasive Species Committees should become a regular, sustained function with stable funding and organizational oversight."); DOT ("Appropriate State funding."); NRCS ("A 'highest priority' initiative from Governor Ige which includes a long term strategy and full funding to combat the invaders"); OISC ("Provide money for incentive programs so that nurseries will follow best management practices. A rainy-day fund for emergencies would be great. You write all these grants for what's already here and then by the time you get the money something else has arrived."); MISC ("More inspections and supportive funding"); KISC ("A biosecurity law and realistic funding/positions."); and HARC ("More funding and personnel."); **Part I**, Question 13, specifically, the responses of: DBEDT HTA ("The state needs a better understanding of the financial commitment needed annually to maintain operations for invasive species. Current actions are too 'reactionary' which is understandable given the fluctuating funding situations. It would be helpful for the State legislature to understand: Operational budget for existing operations in the State for priority species to include salaries, equipment, leases, utilities, etc... Project budget for additional needs should also be included as a separate budget. . . . This information should be provided by the respective ISCs."); NMFS ("Create a separate unit at DLNR that focuses on this issue, has defined leadership and basic staff funding support to oversee program."); NPS ("There is ambiguity in the funding of many invasive species programs – more reliable funding might free up time for work on the ground."); **Part II, Funding Issues**, Question A, specifically, the responses of: DOA PQB ("Dedicated funding to improve these areas including addressing pests introduced in ballast water and hull encrustations and the control microalgae growth on local beaches should be considered."); DOA PPC ("the present system lacks proper funding for adequate inspection and control efforts. Even with proper funding, the system lacks the ability to attract and retain qualified personnel in a timely manner."); DLNR DOFAW ("Post-border control also requires additional funding to adequately survey for and eradicate incipient pests, as well as provide on-going control of widespread pests where warranted."); HISC ("Post-border control also requires additional funding to adequately survey for and eradicate incipient pests, as well as provide on-going control of widespread pests where warranted."); UHH ("the present system still lacks proper funding to provide adequate content."); City and County of Honolulu:

[F]unding for the present system is woefully lacking. The cut backs that were dated back to 1992 have seriously impeded the functions of many state agencies, including HDOA, HDLNR, and HDOH. All these agencies have one way or another [sic] involved in preventing invasive species from establishing in Hawaii. Using HDOA as an example, the quarantine inspections at the airports and other ports of entry have been affected by the personnel reduction, since 2000. This problem continues

to persist till today. The recent spread of the little fire ant, *Wasmannia auropunctata*, was a good example as HDOA was unable to effectively inspect the movements of agricultural materials, e.g., hapuu, from the Big Island to Honolulu due to the lack of staffing and the much needed legal authority. Any effort to provide sufficient resources to enable the proper state agencies to carry out their inspectional functions would greatly reduce the risks for invasive species to gain their entry into Hawaii.;

OISC ("there is NOT adequate funding for inspection and control at almost every phase of the system."); NPS ("The general consensus from folk consulted on Maui, the Big Island, and Molokai is: The present system lacks proper or adequate funding to provide adequate inspection and control efforts at every phase of the transportation system including terrestrial and marine movement of people, goods and materials."); **Part II, Funding Issues**, Question 6, specifically, the responses of DOA AQB ("Inadequate funding."); and DBEDT OP ("Recent funding from the legislature to fund a position in the vector control branch is a positive step forward, however funding needs to be maintained as a critical function to reduce invasive species."); **Part II, State Administration**, Question 2, specifically, the response of FWO ("HDOA may lack the ability to properly address these issues due to federal preemption laws, resource capacity and funding shortfalls, available tools and methodologies, and legal quarantine rule requirements and enforcement actions."); and **Part II, State Administration**, Question 6, specifically, the response of DBEDT HTA ("Its seems as if HISC is this body but maybe the answer is more funding for them so they can increase visibility of that mission statement, coordinate and enforce.").

42. See **Survey 2, Part I**, Question 5, specifically, the responses of: DOA PPC; DOA ADC; DLNR UH PCSU; OISC; and KISC; **Survey 2, Part I**, Question 6, specifically, the response of ARS; **Survey 2, Part I**, Question 8, specifically, the responses of: DOA ADC; UH PCSU; FWO; and KISC; **Survey 2, Part I**, Question 10, specifically, the responses of: DOA PPC; UH PCSU; FWO; and KISC; **Survey 2, Part I**, Question 11, specifically, the response of DBEDT OP; **Survey 2, Part I**, Question 12, specifically, the responses of: DOA ADC; DBEDT OP; DBEDT HTA; DLNR DOFAW; OISC; and HISC; **Survey 2, Part I**, Question 13, specifically, the responses of DBEDT HTA; and NPS; and **Survey 2, Part II, Funding Issues**, Question A, specifically, the response of DOA PQB.
43. **Survey 2, Part I**, Question 12, specifically, the response of HISC.
44. See **Survey 2, Part I**, Question 12, specifically, the responses of: HISC, KISC, and NPS.
45. See **Survey 2, Part I**, Question 13, specifically, the responses of DBEDT OP and DBEDT HTA.
46. See **Survey 2, Part I**, Question 5, specifically, the responses of: DOA PPC ("The lack of mechanisms to support hiring quickly to respond to outbreaks of invasive species incursions and the funding to support such responses."); DOA ADC ("Funding available on short notice to control and eradicate new infectious disease outbreaks and exotic external parasites discovered."); **Part I**, Question 6, specifically, the responses of ARS ("The State agencies often do not have adequate funding or staff to implement necessary eradication or quarantine procedures quickly or comprehensively to prevent the spread of invasive species specifically in Hawaii."); **Part I**, Question 8, specifically, the responses of: DOA ADC ("Funding for rapid response to new disease outbreaks."); **Survey 2, Part I**, Question 12, specifically, the responses of DOA ADC ("Emergency funding system needs to be in place."); DLNR DOFAW ("An early detection rapid response program, such as the ISCs, should be institutionalized and supported with consistent funding."); and OISC ("A rainy-day fund for emergencies would be great. You write all these grants for what's already here and then by the time you get the money something

- else has arrived."). See also, **Survey 2, Part II, Funding Issues**, Question 6, specifically, the response of FWO ("Early detection and rapid response to newly discovered invasive species is the second-line of defense of a sound biosecurity program in Hawaii."). Cf. **Survey 2, Part II, State Administration**, Question 1, specifically, the response of DOH EHSD ("Yes, we believe that although the stakeholders (DOA, DNLR, DOH, Military, etc.) all acknowledge the benefits of a rapid response and are willing to cooperate but as indicated above there are problems that may impede a coordinated effort or the creation of an action plan.").
47. See **Survey 2, Part I**, Question 8, specifically, the response of DOA ADC.
 48. See **Survey 2, Part I**, Question 8, specifically, the response of DOA ADC; and **Part I**, Question 12, specifically, the responses of: DOA ADC, City and County of Honolulu, and OISC.
 49. See **Survey 2, Part II, Funding Issues**, Question 1, specifically, the responses of DOA PPC and UHH.
 50. See **Survey 2, Part I**, Question 9, specifically, the response of NRCS ("Quite frankly, HISC seems way underfunded for their mandate. They're so busy right now with Little Fire Ant (LFA) and the coconut rhinoceros beetle that they [don't] seem to have time or staff to address the invasive plant species at the level needed.") (and e-mail with NRCS representative on Jan. 19, 2016); **Part I**, Question 10, specifically, the responses of: DBEDT OP ("Further coordination and dedicated participation from other agencies. Currently, staff participation varies, but a dedicated staff person that can represent [the] agency specifically in invasive species may lend to more consistent outcomes. There does not seem to be dedicated staffing in the HISC member agencies (other than DLNR HISC staff) for invasive species."); HISC ("Permanent, full time staff positions to implement Council direction, including capacity for data and GIS management, outreach, planning, and program coordination."); DOH EHSD ("Additional staff resources within the DOH to enable full participation in the HISC"); NRCS ("For the staff . . . [HISC] have, they've done a phenomenal job. They've recruited many volunteers which is absolutely commendable but this invasive species war needs more than a volunteer army. If Hawaii is really serious about getting ahead of the invasive species problem, especially plant species, they really need to significantly increase their funding of HISC."); and MCBH ("More funding and field staff."); and KISC ("[HISC] need[s] more staff."); **Part I**, Question 11, specifically, the responses of: DOH EHSD ("Having enough staff and funding to deal with the control and eradication of invasive species."); UH CTAHR ("Lack of inspection staff for post inspections."); and NPS ("Improved agricultural inspection (staff/facilities) on smaller islands."); **Part II**, Question 12, specifically, the responses of: DLNR DOFAW ("HISC should be expanded to better act as a clearinghouse for invasive species planning, coordination, and data collection."); DOH EHSD ("Have sufficient staff and funds allocated to the appropriate agencies."); OISC ("HDOA needs more staff and resources. As does DOFAW."); **Part II**, Question 13, specifically, the responses of DOA PQB ("Provide adequate staffing for PQB and PPC branches."); NMFS ("Create a separate unit at DLNR that focuses on this issue, has defined leadership and basic staff funding support to oversee program."); and FWO ("In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff"); **Part II, Funding Issues**, Question A, specifically, the responses of City and County of Honolulu ("The recent spread of the little fire ant, *Wasmannia auropunctata*, was a good example as HDOA was unable to effectively inspect the movements of agricultural materials, e.g., hapuu, from the Big Island to Honolulu due to the lack of staffing and the much needed legal authority."); and CGAPS ("Without the State making this position [ballast water and hull fouling program coordinator] a permanent civil service position and giving them the staff to do the work necessary for getting this program up an [sic] running, we have two big gaps in our biosecurity program for the ocean."); **Part II, Funding Issues**, Question 1, specifically, the responses of:

DOA PQB ("Yes, as for [inspection of] passenger[s], PQB is currently operating on dayshift. Nightshift on Maui and Oahu were curtailed due to the lack of staff."); DOA PPC ("Given staffing issues, inspections need to be targeted in nature."); UH CTAHR ("Hawaii Ag inspectors are short staffed and cannot cover the waterfront literally."); and MCBH ("The State of Hawaii has cut a large number of inspectors from their staff and has only rehired a small handful. The current staff is overworked and overwhelmed by the volume of people and materials coming into Hawaii that needs inspecting."); **Part II, Funding Issues**, Question 2, specifically, the response of MISC ("inadequate HDOA staff capacity and no or little incentive for business to prevent movement of species."); **Part II, Funding Issues**, Question 3, specifically, the response of NPS ("Department of Agriculture is too underfunded and understaffed to carry out more extensive work objectives."); **Part II, Funding Issues**, Question 4, specifically, the responses of: DLNR DOFAW ("Strong laws and penalties are in place, but staffing for detecting illegal introductions is insufficient."); HISC ("Strong laws and penalties are in place, but staffing for detecting illegal introductions is insufficient."); NRCS ("I recall recently talking to the two HDOA staff charged with checking for illegal importation of wildlife. They told me their funding had been cut and they were now down to just two staff (yes, just two!!) for all of Hawaii (or perhaps it was all of Oahu). That tells me that it's not if a species like the Brown Tree Snake gets to Hawaii, it [sic] just when."); **Part II, Funding Issues**, Question 5, specifically, the response of NMFS ("There is no doubt that the interdiction of mongoose, rats and other rodents is an ongoing problem, however again this comes back to prioritizing use of limited funding and staff. Either more capacity is needed and/or changes in priorities."); **Part II, Funding Issues**, Question 6, specifically, the response of DOA PPC ("While this staff may allow for adequate coverage of routine programmatic activities, vector related emergence issues (detection of a new mosquito species or outbreak of a disease such as Dengue fever or malaria) is not adequately supported."); **Part II, State Administration**, Question 1, specifically, the response of DOA PPC ("No, unless it means that HDOA is understaffed then yes, response is delayed due to lack of manpower and mechanism to rapidly hire temporary work force to handle responses"); **Part II, State Administration**, Question 2, specifically, the responses of HISC ("Though the HISC was created in part to coordinate the State's position on federal issues, there is no staff capacity under the HISC to represent the State in discussions regarding federal issues and concerns."); and **Part II, Federal Administration**, Question 9, specifically, the response of OISC ("I think a full-time staff member whose job it was to lobby congress and work on these issues might help."); and County of Maui ("the State DOH would implement those actions, and they are currently underfunded, understaffed, and swamped with other issues.").

51. See **Survey 2, Part I**, Question 11, specifically, the response of NPS ("Improved agricultural inspection (staff/facilities) on smaller islands."); **Part I**, Question 12, specifically, the response of OISC ("HDOA needs more staff and resources."); **Part I**, Question 13, specifically, the responses of DOA PQB ("Provide adequate staffing for PQB and PPC branches."); and FWO ("In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff"); **Part II, Funding Issues**, Question A, specifically, the responses of City and County of Honolulu ("The recent spread of the little fire ant, *Wasmannia auropunctata*, was a good example as HDOA was unable to effectively inspect the movements of agricultural materials, e.g., hapuu, from the Big Island to Honolulu due to the lack of staffing and the much needed legal authority."); **Part II, Funding Issues**, Question 1, specifically, the responses of: DOA PQB ("Yes, for [inspection of] passenger[s], PQB is currently operating on dayshift. Nightshift on Maui and Oahu were curtailed due to the lack of staff."); DOA PPC ("Given staffing issues, inspections need to be targeted in nature."); UH CTAHR ("Hawaii Ag inspectors are short staffed and cannot cover the waterfront literally."); and MCBH ("The State of Hawaii has cut a large number of inspectors from their staff and has only

- rehired a small handful. The current staff is overworked and overwhelmed by the volume of people and materials coming into Hawaii that needs inspecting."); **Part II, Funding Issues**, Question 2, specifically, the response of MISC ("inadequate HDOA staff capacity and no or little incentive for business to prevent movement of species."); **Part II, Funding Issues**, Question 3, specifically, the response of NPS ("Department of Agriculture is too underfunded and understaffed to carry out more extensive work objectives."); **Part II, Funding Issues**, Question 4, specifically, the response of NRCS ("I recall recently talking to the two HDOA staff charged with checking for illegal importation of wildlife. They told me their funding had been cut and they were now down to just two staff (yes, just two!!) for all of Hawaii (or perhaps it was all of Oahu). That tells me that it's not if a species like the Brown Tree Snake gets to Hawaii, it [sic] just when."); and **Part II, State Administration**, Question 1, specifically, the response of DOA PPC ("No, unless it means that HDOA is understaffed then yes, response is delayed due to lack of manpower and mechanism to rapidly hire temporary work force to handle responses").
52. See **Survey 2, Part I**, Question 8, specifically, the response of DOA PPC and **Part I**, Question 13, specifically, the response of DOA PQB.
 53. See **Survey 2, Part I**, Question 12, specifically, the response of County of Kauai.
 54. See **Survey 2, Part I**, Question 8, specifically, the response of EHSD.
 55. See **Survey 2, Part I**, Question 8, specifically, the response of UHH.
 56. See **Survey 2, Part I**, Question 9, specifically, the response of NRCS ("Quite frankly, HISC seems way underfunded for their mandate. They're so busy right now with Little Fire Ant (LFA) and the coconut rhinoceros beetle that they [don't] seem to have time or staff to address the invasive plant species at the level needed.")(and e-mail with NRCS representative on Jan. 19, 2016); **Part I**, Question 10, specifically, the responses of: DBEDT OP ("Further coordination and dedicated participation from other agencies. Currently, staff participation varies, but a dedicated staff person that can represent agency specifically in invasive species may lend to more consistent outcomes. There does not seem to be dedicated staffing in the HISC member agencies (other than DLNR HISC staff) for invasive species."); HISC ("Permanent, full time staff positions to implement Council direction, including capacity for data and GIS management, outreach, planning, and program coordination."); NRCS ("For the staff they have, they've done a phenomenal job. They've recruited many volunteers which is absolutely commendable but this invasive species war needs more than a volunteer army. If Hawaii is really serious about getting ahead of the invasive species problem, especially plant species, they really need to significantly increase their funding of HISC."); and MCBH ("More funding and field staff."); and KISC ("They need more staff."); and **Part I**, Question 12, specifically, the responses of: DLNR DOFAW ("HISC should be expanded to better act as a clearinghouse for invasive species planning, coordination, and data collection.");
 57. See **Survey 2, Part I**, Question 13, specifically, the response of City and County of Honolulu.
 58. See **Survey 2, Part I**, Question 12, specifically, the response of KISC.
 59. See **Survey 2, Part I**, Question 8, specifically, the responses of: DOA PQB, DOA PPC, DOA AQB, HISC, KISC and UH CTAHR and **Part I**, Question 12, specifically, the response of MISC.
 60. See **Survey 2, Part I**, Question 5, specifically, the responses of: DOA PQB; DOA AQB; APHIS; and CGAPS; **Survey 2, Part I**, Question 6, specifically, the response of NPS; **Survey 2, Part I**, Question 8, specifically, the responses of: DOA PQB, DOA PPC, DOA AQB, HISC, and UH CTAHR; **Survey 2, Part I**, Question 11, specifically, the response of NPS; and CGAPS; **Survey 2, Part I**, Question 13, specifically, the response of FWO; **Survey 2, Part II, Funding Issues**,

Question A, specifically, the responses of: DLNR DOFAW; NPS; and CGAPS; and **Survey 2, Part II, Funding Issues**, Question 2, specifically, the response of HISC. *See infra* note 67 and accompanying text.

61. See **Survey 2, Part I**, Question 8, specifically, the response of DOA AQB.
62. See **Survey 2, Part I**, Question 11, specifically, the response of OISC ("HDOA also needs an air conditioned facility where it can inspect produce.").
63. See **Survey 2, Part I**, Question 8, specifically, the responses of DOA AQB and UH CTAHR.
64. See **Survey 2, Part I**, Question 8, specifically, the response of HISC.
65. *Id.*
66. See **Survey 2, Part 1**, Question 5, specifically, the responses of: DOA PQB ("major concerns include . . . lack of adequate inspection facilities at all ports."); DOA AQB ("Facilities in need of renovation and upgrades. . . . Increasing number of dogs and cats for inspection with inadequate inspection facilities at the airport."); HISC ("Examples include insufficient numbers of filled positions for border protection, interisland quarantine and inspection."); APHIS ("limited funds to increase staffing and to reconfigure/expand processing areas and design and build new Plant Inspection Stations (including the one in Honolulu)"; and CGAPS ("we can never address long-term issues like building inspection buildings at air and sea ports."); **Part I**, Question 6, specifically, the response of NPS ("One challenge exists on Molokai – lack of agricultural inspectors and facilities (for example, at the wharf), prevents adequate inspection of incoming and outgoing agricultural goods that could serve as vectors for invasive organisms."); **Part I**, Question 7, specifically, the response of UH CTAHR ("Early detection through port inspections and quarantine, though this is inadequate given current levels of invasive species arrivals."); **Part I**, Question 8, specifically, the responses of: DOA AQB ("Larger improved inspection facility at HNL for arriving animals. Updated station for quarantine of animals on Oahu. Improved inspection facilities for island of Hawaii."); HISC ("Sufficient staff and funding capacity for both interstate and intrastate inspection and quarantine . . . Facilities development for commodities inspection at air and sea ports, preferably developed as joint state-federal facilities."); and NPS ("Inspection of all imports following the New Zealand [sic] model of invasives control would greatly benefit Hawaii."); **Part I**, Question 11, specifically, the responses of: DOT ("The DOT supports appropriate State funds for DOA agricultural inspections."); UH CTAHR ("Lack of inspection staff for post inspections."); UHH ("current studies (HDOA staff) indicate vegetative propagative plants (not agriculture consumable products), and building materials need much greater inspections and stronger rules of prohibited items to mitigate the risks of those invasive species pathways."); NPS ("Improved agricultural inspection (staff/facilities) on smaller islands."); County of Maui ("Insufficient inspection capability at our harbors and airports."); MISC ("Inadequate regulations, enforcement and inspection capacity @ HDOA"); CGAPS ("Lack of inspection facilities."); and HARC ("the protective procedures in place are spread too thin to provide adequate inspection."); **Part I**, Question 12, specifically, the response of MISC ("More inspections and supportive funding"); **Part I**, Question 13, specifically, the responses of FWO ("the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff, inspection facilities to quarantine, safeguard, treat and dispose of infested articles, and to conduct a comprehensive surveillance program to detect new invasive species incursions and have the ability to eradicate and control them before they become established in Hawaii."); and City and County of Honolulu ("Reinstating detector dog program to fill inspectional gaps."); **Part II, Funding Issues**, Question A, specifically, the responses of: DOA PQB ("Inspections and control efforts are still deficient."); DOA PPC ("the present system lacks proper funding for adequate inspection and control

efforts."); DLNR DOFAW ("The present system does not provide for inspections of hull fouling nor regulation of ballast water (both are currently the subjects of a year-to-year research project funded by the HISC). Port inspection is also unfunded, lacking the basic inspection facilities (e.g., deconsolidation, covered inspection areas, reconsolidation) and other infrastructure (manifesting and risk assessments)."); HISC ("The present system does not provide for inspections of hull fouling nor regulation of ballast water (both are currently the subjects of a year-to-year research project funded by the HISC). Port inspection is also unfunded, lacking the basic inspection facilities (e.g., deconsolidation, covered inspection areas, reconsolidation) and other infrastructure (manifesting and risk assessments)."); UH CTAHR ("there are still inadequate funds for inspections of agricultural products into the state."); City and County of Honolulu ("Using HDOA as an example, the quarantine inspections at the airports and other ports of entry have been affected by the personnel reduction, since 2000. This problem continues to persist till today. . . . Any effort to provide sufficient resources to enable the proper state agencies to carry out their inspectional functions would greatly reduce the risks for invasive species to gain their entry into Hawaii."); OISC ("there is NOT adequate funding for inspection and control at almost every phase of the system."); NPS:

The present system lacks proper or adequate funding to provide adequate inspection and control efforts at every phase of the transportation system including terrestrial and marine movement of people, goods and materials. Inspection facilities at ports of entry and exit are not able to reliably detect or prevent inadvertent or intentional movement of invasive species. Sanitation capacity at ports is inadequate to prevent re-contamination of cleared goods in many circumstances, as is the specific case of coqui frogs and little fire ants being transported out of Hilo on the Island of Hawaii. Numerous vector pathways receive little or no oversight, such as private boats and aircraft, small commercial operators, and individuals.;

and CGAPS ("without proper inspection at the airports, some people will continue to smuggle in illegal pet trade species. In one case, a tip led DAR and HDOA to a patch of octocoral (not native to Hawaii) that had been planted in Kaneohe Bay. The individual/s had smuggled it in and were raising it to sell and export black market. Inspection facilities, inspectors, and detector dogs are all needed to reduce this pathway."); **Part II, Funding Issues**, Question 1, specifically, the responses of: DOA PPC ("Given staffing issues, inspections need to be targeted in nature."); UHH ("a majority of items goes uninspected upon entry, but that does not necessarily mean increased inspections will help. HDOA has an ongoing study which indicates what venues of recently introduced species came from which entry type (commodity, tourist, building materials, cars, etc.), and this should be used to better manage risk of new invasive species. Additionally, it is undeniable that more new invasive species entered the State after import inspectors were let go en masse in 2009."); City and County of Honolulu ("Although agricultural surveys of in-bound passengers are continued on commercial airlines, no actual inspection is conducted. Neither passengers nor visitors on yachts or other vessels are inspected. This may be due to lack of personnel and division of responsibilities."); and CGAPS ("CBP/USDA does a pretty good job at inspection, risk assessments to prioritize inspection and assessing efficiency (although it would be better if they could also focus on Hawaii priorities). HDOA does very little of this - lack of capacity, science direction, oversight, and authority to inspect non-ag cargo are all issues."); **Part II, Funding Issues**, Question 2, specifically, the responses of: DOA PQB ("Household goods, vehicles and equipment could harbor invasive species, but these materials are not regulated by PQB and do not require agriculture inspections. There are also gaps in notification of regulated materials requiring inspection."); DLNR DOFAW ("inspection and enforcement is

lacking."); HISC ("The larger problem is inspection facilities and capacity to conduct inspections."); FWO:

[C]urrently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles, such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles.;

and County of Kauai ("I don't believe inspections are conducted at the harbors with Young Brothers and other shipping vessels when traveling inter-island. There's no Department of Agriculture inspections at the airports when traveling inter-island."); **Survey 2, Part II, State Administration**, Question 2, specifically, the response of FWO ("No, to a certain extent. The Hawaii Department of Agriculture (HDOA) is clearly the first-line-of-defense against the introduction of invasive species that are detrimental to the agricultural, horticultural and aquacultural industries, natural resources and environment of Hawaii. However, HDOA may lack the ability to properly address these issues due to federal preemption laws, resource capacity and funding shortfalls, available tools and methodologies, and legal quarantine rule requirements and enforcement actions."); **Part II, Federal Administration**, Question 7, specifically, the response of UH CTAHR ("commercial imports are likely the biggest source of invasive species. Inadequate inspection and mass importation of high risk products like fresh flowers are a much larger problem needing greater attention"); and CGAPS ("HDOA does not have capacity to inspect."); **Part II, Federal Administration**, Question 2, specifically, the responses of NPS ("Right now the honor system of declaring goods can be subverted by the dishonest. Shoes, camping equipment, and goods part of household moves should all be sanitized and inspected."). In addition, Survey 2 asked whether "A large proportion of the total passenger, cargo, and other traffic entering Hawaii is currently uninspected, including materials known to be significant sources of new invasive species."

67. See *supra* note 6 and accompanying text.
68. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOT; UH CTAHR; NPS; County of Maui; and OISC.
69. See *supra* note 51 and accompanying text.
70. See **Survey 2, Part 1**, Question 13, specifically, the responses of DOA PQB ("Provide adequate staffing for PQB and PPC branches."); and FWO ("In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff"); **Part II, Funding Issues**, Question A, specifically, the responses of City and County of Honolulu ("The recent spread of the little fire ant, *Wasmannia auropunctata*, was a good example as HDOA was unable to effectively inspect the movements of agricultural materials, e.g., hapuu, from the Big Island to Honolulu due to the lack of staffing and the much needed legal authority."); **Part II, Funding Issues**, Question 1, specifically, the responses of: DOA PQB ("Yes, as for [inspection of] passenger[s], PQB is currently operating on dayshift. Nightshift on Maui and Oahu were curtailed due to the lack of staff."); DOA PPC ("Given staffing issues, inspections need to be targeted in nature."); UH CTAHR ("Hawaii Ag inspectors are short staffed and cannot cover the waterfront literally."); and MCBH ("The State of Hawaii has cut a large number of inspectors from their staff and has only rehired a small handful. The current staff is overworked and overwhelmed by the volume of people and materials coming into

Hawaii that needs inspecting."); and **Part II, Funding Issues**, Question 3, specifically, the response of NPS ("Department of Agriculture is too underfunded and understaffed to carry out more extensive work objectives."); and **Part II, Funding Issues**, Question 4, specifically, the response of NRCS ("I recall recently talking to the two HDOA staff charged with checking for illegal importation of wildlife. They told me their funding had been cut and they were now down to just two staff (yes, just two!!) for all of Hawaii (or perhaps it was all of Oahu). That tells me that it's not if a species like the Brown Tree Snake gets to Hawaii, it [sic] just when."); and e-mail correspondence with Dr. Jesse Eiben, Assistant Professor of Applied Entomology at UHH on Dec. 19, 2015.

71. See **Survey 2, Part I**, Question 12, specifically, the response of MISC ("Detector dog program."); Question 13, specifically, the response of the City and County of Honolulu ("Reinstating detector dog program to fill inspectional gaps."); **Part II, Funding Issues**, Question A, specifically, the response of CGAPS ("Inspection facilities, inspectors, and detector dogs are all needed to reduce this pathway [airport inspection]."); and **Part II, Federal Administration**, Question 2, specifically, the response of APHIS:

Is the problem staffing and commitment to doing so, or an actual legal barrier, or a bit of both? Canines may be the key to probable cause evidence to believe a package contains prohibited material, and therefore open it. If so, the canine program needs to be re-instated and supported throughout state funding cycles. Canines are costly and timely to reinstate due to the training for dogs and handlers, and the needed infrastructure for proper care and replacement of the canines. Perhaps identify a novel way the canines, kennel, feed, veterinary services, etc., can funded and embed in a different function which has a demonstrated, good-support for sustained funding instead of solely agricultural [sic] funding. In any event, once canines are available, there may be an opportunity to perform first class mail inspection for a year, or if not, especially in some seasons most likely to have a high pest risk (Valentines? Graduation? Mother's Day?) . That would provide data for funding support and continuing the program.;

and City and County of Honolulu ("A detector dog program can discourage the importation of invasive species via the pathway [first-class mail].").

72. See **Survey 2, Part I**, Question 5, specifically, the response of HISC ("Examples include insufficient numbers of filled positions for border protection, interisland quarantine and inspection."); **Part I**, Question 8, specifically, the response of HISC ("Sufficient staff and funding capacity for both interstate and intrastate inspection and quarantine"); **Part I**, Question 11, specifically, the response of NPS ("More stringent control of interisland movement of agricultural goods . . . Improved agricultural inspection (staff/facilities) on smaller islands."); **Part II, Funding Issues**, Question 1, specifically, the response of City and County of Honolulu ("Although agricultural surveys of in-bound passengers are continued on commercial airlines, no actual inspection is conducted. Neither passengers nor visitors on yachts or other vessels are inspected. This may be due to lack of personnel and division of responsibilities."); and **Part II, Funding Issues**, Question 2, specifically, the responses of FWO:

[C]urrently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles,

such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles.;

and County of Kauai ("I don't believe inspections are conducted at the harbors with Young Brothers and other shipping vessels when traveling inter-island. There's no Department of Agriculture inspections at the airports when traveling inter-island.").

73. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOA PQB ("Shipments by air through U.S. Mail, Federal Express, United Parcel Service and other air freight forwarders are not adequately identified, labeled and presented for inspection."); DOA AQB ("Incomplete knowledge of all cargo imported. . . .Incomplete oversight of private and commercial carriers due to insufficient positions/ funds."); and UH CTAHR ("Certain high risk, non-essential products should be banned from importation-like fresh flowers originating from high risk areas-this is how Ohia Rust arrived in Hawaii, for example."); **Part I**, Question 12, specifically, the response of NPS ("Implementing a biosecurity program similar to countries such as New Zealand for incoming visitors and container shipments would address many new introductions. . . .Improve control of plant materials received by mail order."); **Part II, Funding Issues**, Question 1, specifically, the responses of DLNR DOFAW ("there is likely a large volume of passenger, cargo and other traffic that is uninspected and acts as a pathway for species entry."); HISC ("Passenger traffic is not inspected on arrival unless noted on the state declaration form, which relies on voluntary information."); FWO ("any passenger, cargo and other traffic entering Hawaii that go uninspected poses a significant risk with the intentional (undeclared) and unintentional (hitchhiking) introduction of invasive species"); and OISC ("I suspect cargo harbors more invasive species in it than people"); **Part II, Funding Issues**, Question 2, specifically, the responses of FWO:

[C]urrently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles, such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles.;

Part II, Federal Administration, Question 2, specifically, the responses of: DOA PQB ("domestic first-class mail is a pathway for invasive species. Inspections are very limited by federal requirements and due to the lack of proper labeling to identify parcels requiring inspections."); DOA PPC ("it is known that first-class mail poses a significant pathway for invasive species movement, especially plants that can be highly invasive. This problem is being proliferated through ecommerce sites. However, first-class mail should not be solely targeted as all parcel services pose similar risks (i.e. FedEx, UPS, DHL)"); DLNR DOFAW ("first-class mail could be a pathway for invasive species movements."); FWO ("Certain jurisdictional federal agencies has [sic] the ability to open domestic first-class mail with a federal search warrant under probable cause; however, the use of federal canine detector teams to establish the required probable cause may not be targeting the specific invasive species of particular concern that Hawaii would like addressed in domestic first-class mail."); MCBH ("Yes, as well as packages sent via commercial shipping companies."); NPS ("This certainly a problem with the interisland spread of organisms. Plants themselves [sic] a problem and potential hitch hikers can easily be ordered through the mail."); and CGAPS ("Freight forwarders is [sic] also a huge gap."); and

Part II, Federal Administration, Question 7, specifically, the response of UH CTAHR ("Cargo specifically, commercial importation. Most of the damaging invasive species that arrive are hidden in permitted commercial imports. There is no reasonable reason to permit the importation of soil, or plants IN soil from outside of the state. This is incredibly risky and is virtually certain to lead to the invasion of serious pests like Fire Ant.").

74. E-mail correspondence with UH PCSU representative on Dec. 18, 2015.
75. See **Survey 2, Part I**, Question 11, specifically, the response of UHH.
76. *Id.*
77. See **Survey 2, Part I**, Question 11, specifically, the responses of APHIS. See also **Survey 2, Part I**, Question 11, specifically, the responses of CGAPS (explaining that DOA "has a narrow focus on inspection of 'ag commodities'").
78. See **Survey 2, Part I**, Question 11, specifically, the response of APHIS, stating: ("Significant pests hitchhike on non-agricultural products. Whether or not the argument is legitimate, it might be good to resolve the issue. If the language needs improvement, here is one example of the language APHIS uses in the 7 CFR 330's to have a broad application for quarantine inspection and action:
- §330.105 Inspection.
- (a) Inspection of foreign arrivals. In order to prevent the dissemination into the United States of plant pests and for the purpose of carrying out the regulations in this part, *all plant pests; means of conveyance and their stores; baggage; mail; plants; plant products; soil; stone and quarry products under § 330.300; garbage; and any other product or article of any character whatsoever which an inspector considers may be infested or infected by or contain a plant pest*, arriving in the United States from any place outside thereof for entry into or movement through the United States *shall be subject to inspection by an inspector at the port of first arrival*, except that mail will be handled in accordance with the joint customs and postal regulations for inspecting and handling mail.") (emphasis added).
79. See **Survey 2, Part I**, Question 10, specifically, the response of HISC ("Permanent, full time staff positions to implement Council direction, including capacity for data and GIS management, outreach, planning, and program coordination."); **Part I**, Question 11, specifically, the responses of: DOA PPC ("1)Public disinterest/disconnect, and 2) industry disinterest and disregard"); DBEDT OP ("Educating the public on what agencies are doing to combat invasive species."); DBEDT HTA ("Educating the public on what agencies are doing to combat invasive species. Educating public on what they can do to help"); DOH EHSD ("Having enough staff and funding to deal with the control and eradication of invasive species. Perhaps more outreach to the public to assist in the control and eradication.") NRCS ("Recognition of the seriousness of the problem. If Hawaiian's [sic] (both native and transplant) truly understood the scope of this invasion and its hugely negative impact on Hawaii's ecosystem, we would see a response much like TMT. And that, perhaps, is what is needed. Sacred lands in Hawaii are literally being invaded. Political clout needs to come to bear against this foe and dollars need to flow to combat it. Otherwise the war is already lost."); and OISC ("Many of the island's residents are disconnected from Hawaii's unique ecosystems. I think that is because the forests are so degraded on Oahu and 80% of the population lives here. People would be more supportive if there was more environmental education and people understood how unique Hawaii was."); **Part I**, Question 12, specifically, the responses of: DOA PPC ("Education should be initiated at a young age, grade school on up with curricula geared toward ownership or personal association. A shift in public perception is needed."); DBEDT HTA ("Public information campaign"); NRCS ("A "highest priority" initiative from

Governor Ige which includes a long term strategy and full funding to combat the invaders, followed by a full scale public campaign to educate Hawaiians about this invading army. Something that “rallies the troops.”); and **Part I**, Question 13, specifically, the responses of DOA PQB (“Conduct education and outreach on prioritization and actions (e.g., eradication).”); NPS:

Improve public education about the impacts of invasive organisms on Hawaii’s economy and natural resources. A good area to focus might be the numerous airports. Remote airports have little in the way of education materials. Exhibits at larger airports could be improved. At the Oahu airport staff noticed educational materials about invasive species located proximal to a booth selling a range of invasive species including various gingers, wood rose, and other plants considered highly invasive. Include more comprehensive videos about invasive species on all inbound and outbound flights.;

Part II, Funding Issues, Question 2, specifically, the response of NPS (“most of the public is unaware of existing regulations.”); **Part II, Funding Issues**, Question 4, specifically, the response of DBEDT HTA (“Not sure if the public is aware of what these laws are.”); **Part II, State Administration**, Question 1, specifically, the response of UH PCSU (“There is sometimes a desire to ‘control’ the situation by not telling the public or to control information. In public health during disease “outbreak” situations, this has proved to be unproductive and to help the spread of rumors.”); **Part II, State Administration**, Question 3, specifically, the response of UHH (“Programs like Plant Pono should be mandatory, and the public should be educated in what the program means.”); and **Part II, Federal Administration**, Question 9, specifically, the response of DLNR DOFAW (“One area where the EPA may be able to become more involved is in public education about pesticide and herbicide use. The human health risks associated with these products are poorly understood, and in Hawaii there has at times been great concern over the use of products that, when used according to label requirements, carry very little risk to human health.”).

80. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOA, PPC; NRCS; and OISC.
81. See **Survey 2, Part I**, Question 11, specifically, the response of OISC.
82. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOA PPC; NRCS; and OISC.
83. See **Survey 2, Part I**, Question 11, specifically, the responses of: DBEDT OP; DBEDT HTA; and DOH EHSD; and **Part I**, Question 7, specifically, the response of OISC.
84. See **Survey 2, Part I**, Question 11, specifically, the responses of DOA PPC and NRCS.
85. See **Survey 2, Part I**, Question 12, specifically, the responses of DBEDT HTA and NRCS.
86. See **Survey 2, Part I**, Question 13, specifically, the responses of: DOA PQB; UHH; and NPS.
87. See **Survey 2, Part I**, Question 13, specifically, the response of UHH.
88. See **Survey 2, Part I**, Question 13, specifically, the response of NPS.
89. See **Survey 2, Part I**, Question 12, specifically, the response of DOA PPC; and **Part I**, Question 13, specifically, the response of County of Maui.
90. Fifteen out of twenty-eight agencies raised this issue as a major gap or leak in Hawaii's present system to address invasive species. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOA PQB (“overlapping authority”); DOA PPC (insufficient oversight relating to imports and private and commercial carriers); DLNR DOFAW (no stable rapid response entity);

HISC (overlapping mandates for prevention and control and significant gaps for detection and control); UH CTAHR (importation of high-risk products); UHH (stronger rules of prohibited high risk items); APHIS (unclear whether DOA can inspect only agricultural commodities or also items posing an agricultural risk); NMFS (need clarity on prevention responsibility); MCBH (need laws preventing introduction and spread of invasive species); FWO (inadequate laws relating to rapid response, control programs, enforcement); MISC (inspection capability insufficient); OISC (nurseries are not required to comply with best management practices); KISC (need stronger laws); City and County of Honolulu (overlapping responsibilities); and CGAPS (inconsistency between state and federal lists and no rules to compel hull husbandry on certain vessels). See *supra* notes 21-40 and accompanying text.

91. See **Survey 2, Part I**, Question 6, specifically, the response of OISC:

The main interagency problem between state and federal is that the Feds have different lists about what they will stop during inspections. The species are all mainland species and so they aren't looking for things that matter to Hawaii. Hawaii doesn't seem to get any kind of special consideration for our unique environment. The Lacey Act is irritating too. USFWS could arrest someone for selling a snake from Hawaii to another US mainland state, but cannot arrest someone for selling a snake in California and sending that snake into Hawaii. For a Lacey Act violation to occur, a state law has to be violated and interstate commerce has to take place. It would be nice if we could get some federal backup on importing invasive species. That however, is something Congress would have to fix, so that's not going to happen anytime soon.;

Part I, Question 11, specifically, the responses of OISC ("If a state wants to restrict imports of something from other states because they might have invasive species on it, they need to get permission from APHIS and it seems to be rarely given."); and CGAPS ("Legal gaps in Federal/State actionable lists;"); **Part II, State Administration**, Question 1, specifically, the response of UHH ("an example is the National Noxious weed list should be expanded or altered to include species that can be defined as Hawaii Noxious weeds with rules regulating these organisms' introduction to Hawaii."); **Part II, State Administration**, Question 2, specifically, the response of OISC ("The feds don't listen to the governor (USFWS caved to the snake lobby and did not put boa constrictors on the federal injurious species list, even after the governor signed a letter asking them too [sic]), I don't think they would they listen to a single authority responsible for fighting invasive species. I think a full-time staff member whose job it was to lobby congress and work on these issues might help."); **Part II, Federal Administration**, Question 1, specifically, the response of DOA PPC ("Good examples abound where Federal and State regulations are in disharmony. Palms are regulated very differently and as a result foreign import of a palms is a loop hole for the industry to by-pass Hawaii's stricter quarantines."); DBEDT OP ("OP agrees that there are conflicting federal and state laws and regulations governing invasive species. With the non-recognition of these conflicts, it places Hawaii's invasive species organizations in a "gray area", and in a worst case scenario, introduction of an invasive species from the mainland in Hawaii."); UH CTAHR ("federal protections have been devastating for Hawaii as pests from Asia and South America have recently been introduced and are causing major damage"); UH PCSU ("Pre-emption is one of the major problems facing the state in terms of keeping invasive species out."); UHH ("an example is the National Noxious weed list should be expanded or altered to include species that can be defined as Hawaii Noxious weeds with rules regulating these organisms' introduction to Hawaii"); NPS ("In many ways, Hawaii is an open state, with the arrival of goods w/o fumigation or even inspection and

- quarantine. The federal government should create a system allowing the import of goods proved to be invasive plant/animal free, and not just select pests, but all potential hitch-hiking organisms. Staff that have travelled to New Zealand hold their model of combatting invasive organisms in high esteem."); MCBH ("In addition the federal process of identifying and listing prohibited plants and animals needs to be simplified to allow the process to respond more quickly to threats [to Hawaii]."); and City and County of Honolulu ("Certain species, e.g. mealy bugs, that are not prohibited from the Federal Quarantine Law are now of major concern to Hawaii."); and **Part II, Federal Administration**, Question 3, specifically, the response of HISC ("The priority need for Hawaii is for federal inspectors to be able to inspect for and act on pests of concern for Hawaii in foreign commerce, which state inspectors cannot inspect.").
92. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of HISC.
 93. **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of HISC. *Accord*, **Survey 2, Part II, Federal Administration**, Question 7, specifically, the response of FWO ("Without the proper authorities and related rules and regulations enacted, as well as funding appropriations are provided by congress, federal policy would not provide for the proper authorities that would be necessary to utilize federal enforcement to inspect domestic arrivals for invasive species.").
 94. **Survey 2, Part II, Funding Issues**, Question 1, specifically, the response of CGAPS ("CBP/USDA does a pretty good job at inspection, risk assessments to prioritize inspection and assessing efficiency (although it would be better if they could also focus on Hawaii priorities.").
 95. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of DOA PPC ("However, mechanisms currently exist for Hawaii to petition, a on [sic] pest basis, for USDA to act upon pests of concern through Federally Recognized State Managed Phytosanitary (FRSMP) program. FRSMP has been used by Florida on the Bagrada bug. USDA now regulates Bagrada for Florida despite Bagrada bugs's status as a non-actionable, non-reportable pest.").
 96. **Survey 2, Part I**, Question 11, specifically, the response of OISC.
 97. See **Survey 2, Part I**, Question 8, specifically, the response of APHIS.
 98. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the response of APHIS ("Articulate this assertion with scientific evidence of risk. Hawai'i can comment, provide research, to improve regulations before they become rules. For example, what are the species of concern, how are the species not mitigated in the pest management document. Are the species of concern plant pests? If not, does state action for non-plant pests even fall under pre-emption?").
 99. See **Survey 2, Part I**, Question 8, specifically, the response of APHIS (also providing a website link for more information regarding special needs requests: https://www.aphis.usda.gov/plant_health/special_needs_request/downloads/process.pdf). See *also infra* notes 236-238 and accompanying text.
 100. **Survey 2, Part II, Federal Issues**, Question 1, specifically, the response of FWO.
 101. See **Survey 2, Part I**, Question 11, specifically, the response of MISC.
 102. See **Survey 2, Part I**, Question 11, specifically, the response of KISC.
 103. **Survey 2, Part I**, Question 11, specifically, the response of UH CTAHR.
 104. Hull husbandry means the care, maintenance, and inspection of ship hulls.
 105. See **Survey 2, Part I**, Question 11, specifically, the response of CGAPS.

106. See **Survey 2, Part I**, Question 8, specifically, the response of UH CTAHR. See also **Survey 2, Part I**, Question 8, specifically, the response of UHH (explaining that it would be helpful to reduce "the bureaucratic burden relating to chemical or biological control programs for invasive species is advised. As a University, we follow all state and federal rules for pesticides (EPA label rules) used for invasive species control as part of standard buildings and grounds maintenance, but we are also under a unique regulatory burden connected to our responsibilities for public facilities, research facilities and teaching facilities. All UHH facility and staff types must adhere to different regulations relating to pesticide use for application, research or teaching/demonstration purposes.").
107. See **Survey 2, Part I**, Question 8, specifically, the response of OISC.
108. See **Survey 2, Part I**, Question 11, specifically, the response of APHIS ("There seems to be disagreement about whether or not HDOA can initiate inspection and take action on any items/conveyance of agricultural risk, or only agricultural commodities [sic]."). See *supra* notes 77-78 and accompanying text.
109. See **Survey 2, Part I**, Question 11, specifically, the response of CGAPS.
110. See also **Part II, State Administration**, Question 2, specifically, the responses of: DOA PPC (answering in the affirmative when asked if there are still jurisdictional problems that reflect the absence of a single authority responsible for invasive species); DBEDT HTA (answering in the affirmative when asked if there are still jurisdictional problems that reflect the absence of a single authority responsible for invasive species); DLNR DOFAW ("yes, having a single authority able to represent the State regarding federal issues would likely be beneficial."); DOH EHSD ("Yes, we believe without a single authority advocating for specific goals and objectives dedicated to the control of invasive species, the State's position on various federal issues may become unfocused or unclear as it tries to accommodate the multiple concerns from several different stakeholders."); UH PCSU ("Right now things are too scattered. Is it an agricultural or wildlands species, is it on DLNR land, or federal land or DOE or....? One entity needs to be in charge, a permanent incident commander, a planning/research entity, with institutional knowledge and a route to funding necessary for a response. Sort of like fire-fighting in the Western US."); UHH ("A single authority is not necessary for agencies to accept and assume responsibility, nor to be held accountable. However, a single authority to implement better prevention and response may be needed to start the process effectively. A central authority as the best resource for assistance in managing invasive species would be helpful, but they should not be the only agency responsible for invasive species research or control efforts."); and City and County of Honolulu (answering in the affirmative when asked if there are still jurisdictional problems that reflect the absence of a single authority responsible for invasive species). See *supra* notes 21-40 and accompanying text.
111. See **Survey 2, Part I**, Question 10, specifically, the response of City and County of Honolulu ("Establishing a dedicated responsible agency in administering invasive species detection, eradication and research activities. Duplication of the responsibility would create waste, inefficiency and ineffectiveness."); and **Part I**, Question 11, specifically, the response of City and County of Honolulu ("Duplication of responsibilities is one of the major problems."). See **Survey 2, Part I**, Question 11, specifically, the response of HISC. ("the related but sometimes overlapping mandates for invasive species prevention or control at different agencies, as well as the significant gap between agency mandates for detection and control or incipient pests or animals across both state and private lands").
112. **Survey 2, Part I**, Question 11, specifically, the response of DLNR DOFAW.
113. See **Survey 2, Part I**, Question 11, specifically, the response of DOA PQB.

114. **Survey 2, Part I**, Question 12, specifically, the response of DOA PQB.
115. See **Survey 2, Part I**, Question 11, specifically, the responses of UH CTAHR and NPS.
116. See **Survey 2, Part I**, Question 5, specifically, the responses of: DOT ("DOT is unable to sustain its control when sources of infestation are on private land"); County of Maui ("Recalcitrant land owners/lessees is [sic] proving problematic in addressing Little Fire Ant (LFA) populations in Nahiku and Huelo."); MISC (listing "Access to private property as a challenge regarding its role in the fight against invasive species"); and OISC ("one homeowner can say 'no, I won't let you treat' and then the rest of the neighborhood has to put up with the pest."); and **Part I**, Question 8, specifically, the responses of DOA PPC ("primacy of private/individual property rights vs. public good"); and MCBH (listing "Uncooperative private landowners" as one of the primary leaks or gaps in Hawaii's current invasive species system). See also, **Survey 2, Part I**, Question 7, specifically, the response of NRCS ("what good is it for us to treat a five or ten acre patch of invasive species on a client's land when the surrounding acreage is packed with abundant seed source of the same species.").
117. If a property owner resists, section 194-5(d), HRS, authorizes the department to obtain a court order to control or eradicate the invasive species on the property.
118. See *supra* Chapter 3, note 71 and accompanying text.
119. E-mail correspondence with HISC staff on Dec. 7, 2015; Section 194-5, HRS, and Submittal from Joshua Atwood, Program Supervisor, HISC, to co-chairs and members of HISC (June 10, 2015), available at <http://dlnr.hawaii.gov/hisc/files/2015/04/2015-6-10-HISC-submittal-1-Admin-Rules.pdf> ("In 2008, the DLNR Invasive Species Coordinator solicited assistance from attorney Justine Hura in analyzing the legal authorities and responsibilities assigned to the HISC by HRS 194. One of the outcomes of this legal review was the advice that the designation of species as "invasive" should based [sic] on an administrative rule process, due to the relationship between the HISC's authority to designate invasive species and the authority to enter private property for the control or eradication of species identified by the HISC as invasive (HRS 194-5).").
120. See **Survey 2, Part I**, Question 8, specifically, the response of MISC.
121. See **Survey 2, Part I**, Question 8, specifically, the response of OISC.
122. **Survey 2, Part I**, Question 8, specifically, the response of OISC.
123. See **Survey 2, Part I**, Question 8, specifically, the response of OISC ("A law that protects our field crews from harassment would be nice. . . . It would be nice to give him a ticket or get law enforcement to tell his to step aside.").
124. See **Survey 2, Part I**, Question 5, specifically, the response of HISC ("Funding for invasive species programs is insufficient. The two primary agencies responsible for invasive species prevention and control (HDOA and DLNR) receive approximately 0.4% and 1% of the State's operating budget, respectively."); **Part I**, Question 8, specifically, the response of NRCS ("Better funding for HDOA in their invasive weed section and HISC is essential to have the staff to fight this growing threat to Hawaii's ecosystem."); **Part I**, Question 9, specifically, the responses of: DOT ("With adequate State Funds the HISC would be empowered to meet its potential."); NRCS ("Quite frankly, HISC seems way underfunded for their mandate. They're so busy right now with Little Fire Ant (LFA) and the coconut rhinoceros beetle that they [don't] seem to have time or staff to address the invasive plant species at the level needed.")(and e-mail with NRCS representative on Jan. 19, 2016); NMFS ("The Council has played a positive role, but limited funding and people on the ground have minimized the success of this entity."); **Part I**, Question 10, specifically, the responses of: DOA PPC ("The HISC needs a larger SET budget that allows it

to address some of its core functions."); DBEDT HTA ("Bigger budget - coordinated effort among the counties and the State."); HISC ("Permanent, full time staff positions to implement Council direction, including capacity for data and GIS management, outreach, planning, and program coordination."); DOT ("Appropriate State funding."); UHH ("HISC should be funded at a level necessary to accomplish their ever-changing and expanding duties."); NRCS ("But they lack political support and funding. For the staff they have, they've done a phenomenal job. They've recruited many volunteers which is absolutely commendable but this invasive species war needs more than a volunteer army. If Hawaii is really serious about getting ahead of the invasive species problem, especially plant species, they really need to significantly increase their funding of HISC."); MCBH ("More funding and field staff."); NPS ("The HISC program is considered very successful - please increase funding resource availability for both control and prevention work."); FWO ("Legislatively and part of the State's annual budget, the need to provide for dedicated funding and support to HISC that will adequately address the invasive species issues in Hawaii."); County of Maui ("More funding."); County of Kauai ("Some may argue that you 'don't just throw money at the problem', but in this case, it is true."); MISC ("More funding."); OISC ("More money of course."); and KISC ("They need more staff. Regular funding and a Biosecurity team."); **Part II, State Administration**, Question 2, specifically, the responses of: DBEDT OP ("Coordination can always be better in order to more efficiently utilize funding to address projects. However, placing such an extensive issue with a single authority without the funding to support it will not lead to the desired outcome either."); HISC ("Yes. Though the HISC was created in part to coordinate the State's position on federal issues, there is no staff capacity under the HISC to represent the State in discussions regarding federal issues and concerns."); and County of Maui ("Yes. HISC has been a positive step towards addressing that, but more help is needed."); and **Part II, State Administration**, Question 6, specifically, the response of DBEDT HTA ("It seems as if HISC is this body but maybe the answer is more funding for them so they can increase visibility of that mission statement, coordinate and enforce."). See also, **Survey 2, Part I**, Question 10, specifically, the response of UH PCSU ("Funding has been highly variable . . .").

125. See *supra* Chapter 3, notes 40-42, 67-72, and 100-103 and accompanying text.
126. *Id.*
127. E-mail correspondence with HISC staff on Aug. 3, 2015.
128. See **Survey 2, Part I**, Question 9, specifically, the response of NRCS ("HISC seems way underfunded for their mandate"); and **Part I**, Question 10, specifically, the responses of: DOA PPC ("HISC needs a larger SET budget that allows it to address some of its core functions."); HISC ("[p]ermanent, full time staff positions to implement Council direction"); and UHH ("HISC should be funded at a level necessary to accomplish their ever-changing and expanding duties."); and **Part II, State Administration**, Question 2, specifically, the response of HISC ("[t]hough the HISC was created in part to coordinate the State's position on federal issues, there is no staff capacity under the HISC to represent the State in discussions regarding federal issues and concerns.>").
129. See **Survey 2, Part I**, Question 8, specifically, the response of NRCS ("Better funding for HDOA in their invasive weed section and HISC is essential to have the staff to fight this growing threat to Hawaii's ecosystem"); **Part I**, Question 9, specifically, the responses of: DOT ("With adequate State Funds the HISC would be empowered to meet its potential."); NRCS ("HISC seems way underfunded for their mandate"); and NMFS ("The Council has played a positive role, but limited funding and people on the ground have minimized the success of this entity."); **Part I**, Question 10, specifically, the responses of: DOA PPC ("HISC needs a larger SET budget that allows it to

address some of its core functions."); HISC ("Permanent, full time staff positions to implement Council direction"); and UHH ("HISC should be funded at a level necessary to accomplish their ever-changing and expanding duties."); DBEDT HTA ("bigger budget"); DOT ("Appropriate [s]tate funding"); UH PCSU ("Funding has been highly variable"); NRCS ("If Hawaii is really serious about getting ahead of the invasive species problem, especially plant species, they really need to significantly increase their funding of HISC."); NPS ("The HISC program is considered very successful - please increase funding resource availability for both control and prevention work."); FWO ("Legislatively and part of the State's annual budget, the need to provide for dedicated funding and support to HISC that will adequately address the invasive species issues in Hawaii."); MCBH ("More funding and field staff."); County of Maui ("More funding"); County of Kauai ("Some may argue that you 'don't just throw money at the problem', but in this case, it is true."); MISC ("More funding"); OISC ("More money of course."), and KISC ("They need more staff. Regular funding and a Biosecurity team."); and **Part II, State Administration**, Question 6, specifically, the response of: DBEDT HTA ("maybe the answer is more funding for them so they can increase visibility of that mission statement, coordinate and enforce.").

130. See *supra* Chapter 3, notes 8-14 and accompanying text.
131. See *supra* Chapter 3, note 8 and accompanying text.
132. E-mail correspondence with HISC staff on Dec. 8, 2015.
133. See **Survey 2, Part I**, Question 10, specifically, the response of HISC.
134. **Survey 2, Part I**, Question 10, specifically, the response of DOH EHSD.
135. **Survey 2, Part I**, Question 10, specifically, the responses of DBEDT OP.
136. See **Survey 2, Part I**, Question 10, specifically, the responses of DOA PPC and UH CTAHR.
137. **Survey 2, Part I**, Question 10, specifically, the response of DOA PPC.
138. See **Survey 2, Part I**, Question 10, specifically, the response of UH CTAHR.
139. See **Survey 2, Part I**, Question 9, specifically, the responses of: DOA PQB ("the control over funding appears to have coordinated some of the fight against invasive species."), DOA PPC ("HISC has provided funding for key projects such as biocontrol and CRB. More significantly, HISC has allowed connections to be made inter-departmentally which has allowed increased understanding of roles and responsibility and better coordination between agencies. HISC has also allowed streamlining of obtaining permits for invasive species control for HDOA PPC"); DBEDT HTA ("Yes, we have met on a few occasions. Information on the latest research and issues is helpful."); DLNR DOFAW ("The HISC has funded a number of programs that benefit DOFAW's efforts to combat invasive species, primarily the ISCs, Watershed Partnerships, and Hawaii Ant Lab. The HISC has also assisted in coordinating interagency response to recent invasive species threats that are of concern to both HDOA and DOFAW. In particular, HISC staff have helped coordinated [sic] efforts between O'ahu DOFAW and HDOA for response to the coconut rhinoceros beetle."); DOT ("Through the HISC the DOT is able to collaborate better with government agencies in addressing invasive species. They also foster professional contacts who provide training and resources to our staff. With adequate State Funds the HISC would be empowered to meet its potential."); UH CTAHR ("they have provided funding for some work on invasive species."); UH PCSU ("it has been a critical source of funding and increasingly has been an effective advocate and focus for synthesizing data across islands and projects."); UHH ("The Office of Maunakea Management uses HISC resources such as Weed Risk Assessment scores to prioritize actions."); NRCS ("we have a very good working relationship with Josh Atwood and great respect for HISC and the work they're doing to address this huge challenge."); NMFS ("The

Council has played a positive role, but limited funding and people on the ground have minimized the success of this entity."); NPS ("NPS personnel from all islands agree that island specific HISC programs have been a tremendous help in combatting invasive organisms."); FWO ("Although the Service does not receive funding from HISC for invasive species work in Hawaii, we have been integral partners in the evaluation and recommendation to support invasive species work performed by other agencies and organizations to further prevention activities, research and technology, control and management, and outreach and public awareness as it relates to invasive species."); CBP ("the information sent in email updates and meetings has on occasion given us information on emerging plant health threats, identification of plant material, and disease symptoms, as well as specific invasive species information."); City and County of Honolulu ("the city has, thus far, received a small grant (\$5,000) from the invasive species council, which was used by the Oahu Resource Conservation and Development Council to educate the public on invasive species issues."); County of Maui ("Have participated directly and received grant support."); MISC ("funding and coordination."); OISC ("they have been a major funder and allowed us to leverage federal and County funds. The staff are also great at putting us in contact with people from other agencies and generally helping us to get the job done."); and KISC ("HISC provides guidelines, planning, and core funding."); and **Part I**, Question 10, specifically, the response of NRCS ("They're certainly serving as the collaborative hub in this fight and bringing together formerly disparate groups. But they lack political support and funding. For the staff they have, they've done a phenomenal job."); and NPS ("The HISC program is considered very successful").

140. This count does not include agencies that did not respond to the question. For example, agencies stating "no comment," not answering the question, or explaining that they do not have the experience to offer an opinion were not included in the count.
141. See **Survey 2, Part II, Funding Issues**, Question A, specifically, the responses of: DOA PQB; DOA PPC; DLNR DOFAW; UHH; NPS; City and County of Honolulu; HISC; MISC; OISC; and CGAPS.
142. See *supra* note 41 and accompanying text.
143. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOT; DOA PQB; DOA AQB; UH CTAHR; UHH; APHIS; ARS; MCBH; NPS; County of Maui; MISC; OISC; CGAPS; HARC; and HISC. See *supra* notes 66-78 and accompanying text for a further discussion on inspections.
144. See **Survey 2, Part II, Funding Issues**, Question A, specifically, the response of CGAPS.
145. See **Survey 2, Part II, Funding Issues**, Question A, specifically, the responses of DLNR DOFAW and HISC.
146. See **Survey 2, Part II, Funding Issues**, Question A, specifically, the response of CGAPS.
147. *Id.*
148. *Id.*
149. *Id.* Further, CGAPS noted that the original 2002 issue may have misidentified microalgae (microscopic algae) instead of macroalgae (algae able to be seen without a microscope).
150. Section 141-2.5, HRS, and What is Aquaculture?, NOAA FISHERIES, http://www.nmfs.noaa.gov/aquaculture/what_is_aquaculture.html (last visited Jan. 7, 2016). See also CGAPS explained that DOA decides whether to approve importation of certain species, and DOA's mission to "promote and protect Hawaii agriculture" may sometimes conflict because

- promoting some of Hawaii's agriculture may not always protect other Hawaii agriculture. The promotion of aquaculture species may not protect other species. For example, many algae infestations detrimentally affecting the ocean habitat were introduced intentionally as aquaculture. Further, as CGAPS observed "aquaculture species have a tendency to 'escape.'" See **Survey 2, Part II, Funding Issues**, Question A, specifically, the response of CGAPS.
151. **Survey 2, Part II, Funding Issues**, Question A, specifically, the response of CGAPS.
 152. See **Survey 2, Part II, Funding Issues**, Question 1, specifically, the responses of: DOA PPC; DOA PQB; DBEDT OP; DBEDT HTA; DOH EHSD; DLNR DOFAW; DOT; UH CTAHR; UH PCSU; UHH; NRCS; ARS; MCBH; FWO; City and County of Honolulu; County of Maui; County of Kauai; HISC; MISC; OISC; KISC; CGAPS; NMFS; HARC; and NPS. The DOA ADC disagreed with this statement as it applies to animals typically used as pets and for food. See **Survey 2, Part II, Funding Issues**, Question 1, specifically, the responses of the DOA AQB ("No, regarding program jurisdiction of dogs cats and other carnivores.") and DOA ADC ("For livestock, poultry, other animals, the answer is (No)."). Also, CGAPS commented that federal authorities such as the CBP efficiently inspect and prioritize importation, but it should also be noted that federal inspections focus on different lists of species that are not uniquely tailored to Hawaii. See **Survey 2, Part II, Funding Issues**, Question 1, specifically, the response of CGAPS ("CBP/USDA does a pretty good job at inspection, risk assessments to prioritize inspection and assessing efficiency (although it would be better if they could also focus on Hawaii priorities). HDOA does very little of this - lack of capacity, science direction, oversight, and authority to inspect non-ag cargo are all issues.").
 153. See **Survey 2, Part II, Funding Issues**, Question 1, specifically, the responses of: HISC ("Passenger traffic is not inspected on arrival unless noted on the state declaration form, which relies on voluntary information."); NRCS ("I have to laugh every time I land at Honolulu International Airport and see the "Amnesty Bin" at the bottom of the escalator just before entering the baggage claim area. It's a bluff. Does it ever actually get used? I have never seen any Hawaii State person of authority check for passengers bringing in uninspected items on the plane. Even the forms we fill out on every return trip to Hawaii seem ineffectual. Who actually checks? There is zero fear of reprisal."); NPS ("Declaring goods is based on an honor system – it only takes one individual to smuggle in an unwanted pest."); and City and County of Honolulu ("Although agricultural surveys of in-bound passengers are continued on commercial airlines, no actual inspection is conducted.").
 154. See *supra* note 51 and accompanying text.
 155. See **Survey 2, Part II, Funding Issues**, Question 1, specifically, the responses of DOA PPC and UHH.
 156. See **Survey 2, Part 1**, Question 5, specifically, the response of HISC ("Examples include insufficient numbers of filled positions for border protection, interisland quarantine and inspection."); **Part I**, Question 6, specifically, the response of County of Maui ("Lack of interisland emphasis on biosecurity has led to "porous" borders and repeat introductions of invasive species, especially LFA and coqui frog."); **Part I**, Question 8, specifically, the responses of HISC ("Sufficient staff and funding capacity for both interstate and intrastate inspection and quarantine"); and County of Maui ("Stricter rules about interisland shipping. Penalties should be levied on those found to be responsible for shipping infested cargo."); **Part I**, Question 11, specifically, the responses of APHIS ("Requirements for survey to be done before interisland quarantines can be enacted, slows down the action needed for successful eradication. List what could improve the interim rule making. Identify and survey for pests that are predicted to require interisland quarantines. Recognize in whatever statutes are necessary, that those surveys provide

sufficient evidence that pests are not known to occur."); NPS ("More stringent control of interisland movement of agricultural goods . . . Improved agricultural inspection (staff/facilities) on smaller islands."); and OISC ("interisland bio-security won't work unless the nursery trade is on board with it."); **Part I**, Question 12, specifically, the response of UH PCSU ("Second establish an interisland quarantine so that if species do get in, they don't spread across the whole state."); **Part II, Funding Issues**, Question 1, specifically, the response of City and County of Honolulu ("Although agricultural surveys of in-bound passengers are continued on commercial airlines, no actual inspection is conducted. Neither passengers nor visitors on yachts or other vessels are inspected. This may be due to lack of personnel and division of responsibilities."); and **Part II, Funding Issues**, Question 2, specifically, the responses of: DOA AQB ("Under regulated."); DBEDT OP ("Evident with recent activity for Little Fire Ant (LFA)"); DBEDT HTA (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); DLNR DOFAW ("Though there are regulations in place, inspection and enforcement is lacking."); HISC ("there are regulations regarding interisland movement of pests. The larger problem is inspection facilities and capacity to conduct inspections."); DOT (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); UH CTAHR ("This has improved in recent years, but remains a problem in some situations."); UH PCSU ("coqui, little fire ants, and miconia clearly demonstrate that we have a problem."); UHH ("Agreed. Every port should have facilities available for chemical or heat treatments of materials that may contain invasive species. In this way, there can be better decision making regarding bans vs. mitigation methods for invasive species transport. Every person entering with illegal invasive species items should be prosecutable."); ARS (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); NPS ("Islands not yet impacted by fire ant and coqui frog think it is only a matter of time – largely because of the continued transport of agricultural and construction products. Inter-island biosecurity is poorly enforced, and most of the public is unaware of existing regulations."); NMFS ("It is a major issue. It is regulated but present measures are not adequate to protect the islands."); MCBH (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); FWO ("currently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles, such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles."); NRCS ("recent need for Ohia plant-part quarantine is a good thing but is an example of the need for greater regulation on the interisland transport of plants and/or soil."); City and County of Honolulu ("Yes, little fire ant is a good example."); County of Kauai ("I don't believe inspections are conducted at the harbors with Young Brothers and other shipping vessels when traveling inter-island. There's no Department of Agriculture inspections at the airports when traveling inter-island."); County of Maui (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); MISC ("It's not 'un-regulated' exactly, but it has inadequate HDOA staff capacity and no or little incentive for business to prevent movement of species."); OISC (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); KISC (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); CGAPS (answering in the affirmative when asked whether it agrees that the interisland spread of invasive species is a major, largely unregulated area); and HARC ("Interisland transport of unwanted invasive species is regulated, but it is apparent that these regulations have been ignored by individuals in many

- instances."). *See supra* notes 66-78 and accompanying text for a further discussion in inspections.
157. See **Survey 2, Part II, Funding Issues**, Question 2, specifically, the responses of: DOA PPC ("Regulations can definitely be improved but changes in regulations and authority must also be reflected in changes in staffing levels to insure all high risk pathways for invasive species movement is adequately addressed."); DLNR DOFAW ("Though there are regulations in place, inspection and enforcement is lacking."); HISC ("there are regulations regarding interisland movement of pests. The larger problem is inspection facilities and capacity to conduct inspections."); NMFS ("It is a major issue. It is regulated but present measures are not adequate to protect the islands"); NPS ("Islands not yet impacted by fire ant and coqui frog think it is only a matter of time – largely because of the continued transport of agricultural and construction products. Inter-island biosecurity is poorly enforced, and most of the public is unaware of existing regulations."); MISC ("It's not "un-regulated" exactly, but it has inadequate HDOA staff capacity and no or little incentive for business to prevent movement of species."); and HARC ("Interisland transport of unwanted invasive species is regulated, but it is apparent that these regulations have been ignored by individuals in many instances."). *See supra* notes 66-78 and accompanying text for a further discussion on inspections.
 158. When used in reference to the shipment of freight, "interline" means the movement of freight by different carriers, from pickup, to transit, and to delivery, sometimes by multiple modes of transit (truck, rail, aircraft, and sea vessel). As used in the 2002 study, the reference appears to be to the costs incurred by the State in inspecting freight prior to its transit from Hawaii, the inability to recover the cost of that inspection from the shipper, the transit operators, or the ultimate recipient, and the failure of the State to seek full reimbursement of these costs from the federal government.
 159. Eight entities agreed that the issue persists today. See **Survey 2, Part II, Funding Issues**, Question 2, specifically, the responses of: DOA PQB; DOA AQB; DLNR DOFAW; NPS; HISC; City and County of Honolulu; MISC; and KISC stated that this issue was ongoing. Six entities disagreed that this issue persists today. See **Survey 2, Part II, Funding Issues**, Question 2, specifically, the responses of: DOA PPC, UH CTAHR, UH PCSU, MCBH, ARS, and HARC. Perhaps because of the language, some thought the issue was unclear. See **Survey 2, Part II, Funding Issues**, Question 3, for example, entities such as UH PCSU stated that the question/statement was unclear or it did not understand.
 160. See **Survey 2, Part II, Funding Issues**, Question 3, specifically, the responses of: UH PCSU; UH CTAHR; and OISC.
 161. The Bureau obtained twenty-four responses to this question. Eleven responses agreed that the issue persists today. See **Survey 2, Part II, Funding Issues**, Question 4, specifically, the responses of: DLNR DOFAW, HISC, UHH, MCBH, NPS, City and County of Honolulu, County of Maui, County of Kauai, MISC, OISC, and KISC. Five responses disagreed. See **Survey 2, Part II, Funding Issues**, Question 4, specifically, the responses of: DOA PQB; UH CTAHR; UH PCSU; NRCS; and CGAPS. Eight responses did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Funding Issues**, Question 4, the responses of: DOA AQB; DOA ADC; DBEDT OP; DBEDT HTA; APHIS; NMFS; FWO; and HARC.
 162. See **Survey 2, Part II, Funding Issues**, Question 11, specifically, the response of FWO; and **Part II**, Question 13, specifically, the response of NRCS.
 163. See **Survey 2, Part II, Funding Issues**, Question 4, specifically, the responses of: DLNR DOFAW; UH PCSU; FWO; NMFS; and NPS.

164. E-mail correspondence with Dr. Jesse Eiben, Assistant Professor of Applied Entomology of the College of Agriculture, Forestry, and Natural Resource Management at UHH on Dec. 19, 2015.
165. See **Survey 2, Part II, Funding Issues**, Question 4, specifically, the response of DBEDT OP.
166. See **Survey 2, Part II, Funding Issues**, Question 12, specifically, the response of UH CTAHR.
167. See **Survey 2, Part II, Funding Issues**, Question 8, specifically, the response of County of Maui and **Part II**, Question 13, specifically, the response of NRCS. *Cf.* **Survey 2, Part II, Funding Issues**, Question 2, specifically, the response of UHH ("Every person entering with illegal invasive species items should be prosecutable.").
168. See **Survey 2, Part II, Funding Issues**, Question 5 specifically, the responses of: DOA PQB; DOA PPC; DBEDT HTA; DLNR DOFAW; HISC; DOH EHSD; UH CTAHR; UH PCSU; NRCS; FWO; County of Maui; MISC; OISC; KISC; and CGAPS.
169. See **Survey 2, Part II, Funding Issues**, Question 5, specifically, the responses of: DBEDT OP; DBEDT HTA; UH PCSU; UHH; and NMFS.
170. See **Survey 2, Part II, Funding Issues**, Question 5, specifically the response of UH PCSU.
171. See *supra* Chapter 5, notes 85-124 and accompanying text for a discussion on mosquitoes, a vector for the current outbreak of Dengue fever on the Island of Hawaii.
172. Vector & Disease Control, Department of Health Environmental Health, <http://health.hawaii.gov/epo/strategic/disease/> (last visited Dec. 18, 2015).
173. Vector & Disease Control, Department of Health Environmental Health, <http://health.hawaii.gov/epo/strategic/disease/> (last visited Dec. 18, 2015).
174. See **Survey 2, Part II, Funding Issues**, Question 6 specifically, the responses of: DOA PQB; DOA PPC; DOA AQB; DBEDT OP; DLNR DOFAW; UH PCSU; FWO; City and County of Honolulu; County of Maui; MISC; OISC; KISC; CGAPS; and HARC.
175. See **Survey 2, Part II, Funding Issues**, Question 6, specifically, the responses of: OISC; DOA PPC; and DOA PQB. The Bureau notes that the dengue fever outbreak had not yet reached a critical status during the timeframe entities were asked to respond to the survey; thus dengue fever was mentioned in only four instances from survey respondents. See **Survey 2, Part I**, Question 3, specifically, the response of DOH EHSD:

EPO has prepared one page handouts on vectors of human health concern. Some are currently present in Hawaii and others have the potential to be introduced (Dengue, Malaria, Yellow Fever, Chikungunya). These handouts are purely for educational purposes and are not intended for disease investigation.

DISEASE	OTHER LINKS		
Chikungunya		CDC	WHO
Dengue Fever	DOCD	CDC	
Leptospirosis	DOCD	CDC	WHO
Malaria	DOCD	CDC	WHO
Rat Lungworm Disease	DOCD	CDC	WHO
Yellow Fever	DOCD	CDC	WHO;

Part I, Question 5, specifically, the response of HISC ("The lack of detection and response capacity for vectors of human disease at Hawaii's points of entry and exit. The removal of the Vector Control Branch at the Department of Health has resulted in a small number of remaining

- Vector Control Workers being subsumed by the Sanitation Branch, which is primarily focused on restaurant cleanliness and safety. Detection and response is lacking for mosquitoes and other pests that may carry human diseases such as malaria, yellow fever, dengue fever, and chikungunya disease."); and **Part II, Funding Issues**, Question 6, specifically, the response of DOA PPC ("Yes. Duties previously assigned to Vector Control have now been assumed by Sanitation within DOH. While this staff may allow for adequate coverage of routine programmatic activities, vector related emergence issues (detection of a new mosquito species or outbreak of a disease such as Dengue fever or malaria) is not adequately supported.").
176. See **Survey 2, Part II, Funding Issues**, Question 6, specifically, the response of DLNR DOFAW.
 177. Vector & Disease Control, Department of Health Environmental Health, <http://health.hawaii.gov/epo/strategic/disease/> (last visited Dec. 18, 2015).
 178. Vector & Disease Control, Department of Health Environmental Health, <http://health.hawaii.gov/epo/strategic/disease/> (last visited Dec. 18, 2015).
 179. See **Survey 2, Part II, Funding Issues**, Question 6, specifically, the response of DOH EHSD.
 180. *Id.*
 181. See **Survey 2, Part II, State Administration**, Question 1 specifically, the responses of: DBEDT OP; DBEDT HTA; DLNR DOFAW; HISC; DOH EHSD; DOT; UH CTAHR; UH PCSU; UHH; ARS; NMFS; MCBH; NPS; FWO; City and County of Honolulu; County of Maui; County of Kauai; MISC; OISC; and CGAPS.
 182. See **Survey 2, Part II, State Administration**, Question 1, specifically, the responses of: UH PCSU; NMFS; and HISC.
 183. This can be inferred from various entity responses. See **Survey 2, Part II, State Administration**, Question 1, specifically, the responses of: DOA PPC ("response is delayed due to lack of manpower and mechanism to rapidly hire temporary work force to handle responses."); DLNR DOFAW ("Yes, most likely. The coconut rhinoceros beetle response has been a strong example of success by Hawaii standards, but even this response took some time to figure out which agencies could contribute staff and resources, what authorities were available, and what procedural roadblocks would be encountered."); HISC ("Yes, though an underlying problem exists in the natural [sic] of invasive species biology: when present in small, controllable numbers, invasive species populations often go unnoticed. By the time populations are detected, they may be too large to feasibly contain or control. That being said, a standing response plan and clearer jurisdictional responsibilities would assist in increasing the speed for a response, when one is feasible."); DOH EHSD ("we believe that although the stakeholders (DOA, DNLR, DOH, Military, etc.) all acknowledge the benefits of a rapid response and are willing to cooperate but [sic] as indicated above there are problems that may impede a coordinated effort or the creation of an action plan."); UHH ("Comprehensive buy-in from all land managers (including private) will greatly enhance rapid detection and control efforts."); and APHIS ("Identify what causes delays. Concentrate on solutions that can provide even a little improvement. Move the dial in the right direction. One of the tools many states, and federal quarantine officers have, is an Emergency Action Notification. This document is used, for example, to stop sale of and isolate plants that may be exposed to plants infected or infested with a new pest. It is a tool to quickly stop the spread of a newly discovered pest, particularly if the pest is already identified as high risk. EAN's can also require certain actions be taken to address the pest risk by the owner. This is helpful in emergency pest response situations, and in addressing infected/infested commodities that are discovered after entry into the state.").

184. See **Survey 2, Part II, State Administration**, Question 1, specifically, the response of APHIS.
185. *Id.*
186. Twenty-three entities responded to this prompt. Eleven respondents agreed with the statement. See **Survey 2, Part II, State Administration**, Question 2, specifically, the responses of: DOA PQB ("Yes."); DBEDT HTA ("YES"); DLNR DOFAW ("DOFAW works well with its federal partners on issues regarding native species protection and invasive species control, but yes, having a single authority able to represent the State regarding federal issues would likely be beneficial."); HISC ("Yes. Though the HISC was created in part to coordinate the State's position on federal issues, there is no staff capacity under the HISC to represent the State in discussions regarding federal issues and concerns."); DOH EHSD ("Yes, we believe without a single authority advocating for specific goals and objectives dedicated to the control of invasive species, the State's position on various federal issues may become unfocused or unclear as it tries to accommodate the multiple concerns from several different stakeholders."); UH PCSU ("Right now things are too scattered. Is it an agricultural or wildlands species, is it on DLNR land, or federal land or DOE or....? One entity needs to be in charge, a permanent incident commander, a planning/research entity, with institutional knowledge and a route to funding necessary for a response. Sort of like fire-fighting in the Western US."); UHH ("A single authority is not necessary for agencies to accept and assume responsibility, nor to be held accountable. However, a single authority to implement better prevention and response may be needed to start the process effectively. A central authority as the best resource for assistance in managing invasive species would be helpful, but they should not be the only agency responsible for invasive species research or control efforts."); NRCS ("Seems like it, but no direct knowledge."); City and County of Honolulu ("I strongly believe so."); County of Maui ("Yes. HISC has been a positive step towards addressing that, but more help is needed."); and CGAPS ("Yes, to some extent (particularly when it can "harm" local ag sales, as HDOA has competing mandate). However, I worry about creating a silo where there may be less ability to address pests, due to conflicts between agencies."). Six respondents disagreed with the statement. See **Survey 2, Part II, State Administration**, Question 2 specifically, the responses of: DOA PPC ("No. The Plant Industry Administrator also known as the State Plant Regulatory Official fulfills this role. However, more staff needs to be focusing on working to address Federal-State issues needs to be increased, perhaps dedicated in nature, needs to be created to help move these issues along."); DOA AQB ("Scope of invasive species problem too large for a single authority to manage."); FWO ("No, to a certain extent. The Hawaii Department of Agriculture (HDOA) is clearly the first-line-of-defense against the introduction of invasive species that are detrimental to the agricultural, horticultural and aquacultural industries, natural resources and environment of Hawaii. However, HDOA may lack the ability to properly address these issues due to federal preemption laws, resource capacity and funding shortfalls, available tools and methodologies, and legal quarantine rule requirements and enforcement actions."); MCBH ("No. CGAPS and HISC appear to be doing a good job coordinating a response to State and Federal issues."); MISC ("No- not sure a "single authority" approach is the only or best answer."); and OISC:

I don't think the jurisdictional problems between the feds and the state would be solved by a single authority. The feds don't listen to the governor (USFWS caved to the snake lobby and did not put boa constrictors on the federal injurious species list, even after the governor signed a letter asking them too [sic]), I don't think they would they [sic] listen to a single authority responsible for fighting invasive species. I think a full-time staff member whose job it was to lobby congress and work on these issues might help.;

Six entities did not provide a clear affirmative or negative response, but provided information. See **Survey 2, Part II, State Administration**, Question 2, specifically, the responses of: DOA ADC ("Scope of invasive species problem too large for a single authority to manage."); DBEDT OP:

Coordination can always be better in order to more efficiently utilize funding to address projects. However, placing such an extensive issue with a single authority without the funding to support it will not lead to the desired outcome either. For example, funding for the DLNR, which has responsibility over the majority of the State's land is a minimal amount of the state budget. Progress is better seen when partnering with agencies such as DOA, DOH, and other organizations.;

APHIS ("The jurisdictional authority needs to be accurately identified. Define how the actual (versus perceived) problems that are supposedly due to jurisdictional authority, and take a look at the actual solutions. Perhaps there are advantages to [having] state authority and the federal authority."); NMFS ("Because this issue spans many sectors of Government, it is not likely to have a single authority. However, it seems reasonable to have a point of contact or Government leader."); NPS ("A single authority may not be able to develop the contacts and knowledge of sister organizations to work effectively across the landscape. The collaborative approach working with ISC groups is a better strategy to follow."); and County of Kauai ("It boils down to the leader. The Governor needs to direct the various agencies to work together to work together to solve the problem. The top person needs to drive the initiative.").

187. See **Survey 2, Part II, State Administration**, Question 2, specifically, the responses of: DOA AQB ("Scope of invasive species problem too large for a single authority to manage."); DBEDT OP:

Coordination can always be better in order to more efficiently utilize funding to address projects. However, placing such an extensive issue with a single authority without the funding to support it will not lead to the desired outcome either. For example, funding for the DLNR, which has responsibility over the majority of the State's land is a minimal amount of the state budget. Progress is better seen when partnering with agencies such as DOA, DOH, and other organizations.;

UHH ("A single authority is not necessary for agencies to accept and assume responsibility, nor to be held accountable. However, a single authority to implement better prevention and response may be needed to start the process effectively. A central authority as the best resource for assistance in managing invasive species would be helpful, but they should not be the only agency responsible for invasive species research or control efforts."); APHIS ("The jurisdictional authority needs to be accurately identified. Define how the actual (versus perceived) problems that are supposedly due to jurisdictional authority, and take a look at the actual solutions. Perhaps there are advantages to [having] state authority and the federal authority."); NMFS ("Because this issue spans many sectors of Government, it is not likely to have a single authority. However, it seems reasonable to have a point of contact or Government leader."); FWO ("No, to a certain extent. The Hawaii Department of Agriculture (HDOA) is clearly the first-line-of-defense against the introduction of invasive species that are detrimental to the agricultural, horticultural and aquacultural industries, natural resources and environment of Hawaii. However, HDOA may lack the ability to properly address these issues due to federal preemption laws, resource capacity and funding shortfalls, available tools and methodologies, and legal quarantine rule requirements and enforcement actions."); NPS ("A single authority may not be able to develop the contacts and

knowledge of sister organizations to work effectively across the landscape. The collaborative approach working with ISC groups is a better strategy to follow."); County of Maui ("HISC has been a positive step towards addressing that, but more help is needed."); County of Kauai ("It boils down to the leader. The Governor needs to direct the various agencies to work together to work together to solve the problem. The top person needs to drive the initiative."); MISC ("No-not sure a "single authority" approach is the only or best answer."); and OISC ("I don't think the jurisdictional problems between the feds and the state would be solved by a single authority. The feds don't listen to the governor (USFWS caved to the snake lobby and did not put boa constrictors on the federal injurious species list, even after the governor signed a letter asking them too), I don't think they would they listen to a single authority responsible for fighting invasive species. I think a full-time staff member whose job it was to lobby congress and work on these issues might help.").

188. **Survey 2, Part II, State Administration**, Question 2, specifically, the response of DBEDT OP.

189. See **Survey 2, Part II, State Administration**, Question 2, specifically, the response of NMFS.

190. A total of twenty-one entities answered this question. Thirteen respondents agreed with this statement. See **Survey 2, Part II, State Administration**, Question 3, specifically, the responses of: DBEDT OP ("Yes. It is always beneficial to include county agencies in the discussions since they often are more "on the ground". Currently, it appears that the individual ISCs are the primary liaisons to the counties, to which communication may vary."); DBEDT HTA ("Yes"); DLNR DOFAW ("Yes, more engagement with the counties would be beneficial, though it depends by county how involved they currently are. On O'ahu and Maui, the county Board of Water Supply sits on their local ISC, along with representation from DOFAW."); HISC ("Yes, more involvement from county governments would be most welcome, both in terms of an organizational resource (e.g., Civil Defense as part of an emergency response) and a funding source for the Invasive Species Committees in each county."); DOH EHSD ("The control and eradication of an invasive species must be coordinated effort between all levels of government (county, state, federal) and should include the military, private sector and the general public."); UH PCSU ("Varies by county, but yes they should be involved and perhaps best through the Invasive Species Committees which are county based and essentially informal, avoiding all the protocol and bureaucratic problems of government to government agreements."); UHH:

Better involvement with County governments in State-wide rules and invasive species plans and responsibilities would be helpful to have everyone involved in invasive species control. However, splintering of State and Federal programs and responsibilities is a possibility when authority is delegated to the County level in matters that affect the State as a whole, as invasive species can and do. County governments need to be subject to full compliance with and enforcement of the law, as do all other commercial, private, and public entities. Programs like Plant Pono should be mandatory, and the public should be educated in what the program means.;

NRCS ("Yes, to fight a war, which this is for invasive species, one needs all resources coordinated and allied to attack the invader."); NMFS ("Yes. The success of such an effort depends on strong partnerships. It should be emphasized that this issue is equally a marine resource problem and the entities identified should also include appropriate marine resource stakeholders."); County of Maui ("Yes"); County of Kauai ("County governments definitely need to be involved. It's their 'aina, it's their kuleana. With the State's leadership being on Oahu and totally removed from the problem, not all State agencies work with a sense of urgency that needs

to take place. The Counties end up addressing these problems anyway because it's happening in the back and front yard."); KISC ("Yes - though Kauai county regularly funds our efforts and is very supportive of our work."); and CGAPS ("I think NGO programs like BIISCs are great for outreach, but it shouldn't have to fill a void where state agencies have a mandate but don't adequately do the job. If a state agency cannot adequately manage pests or compliance, I wonder what the counties could do -- I think of the court rulings on GMO, etc."). Two entities disagreed with this statement, although they may have focused on the latter part of the question concerning nurseries. See **Survey 2, Part II, State Administration**, Question 3, specifically, the responses of DOA PQB ("No.") and DOA PPC ("No"). Six respondents did not provide a clear affirmative or negative response. See **Survey 2, Part II, State Administration**, Question 3, specifically, the responses of: MCBH; NPS; FWO; City and County of Honolulu; MISC; and OISC. See also *supra* notes 23-31 and accompanying text for a discussion of the nursery trade.

191. See **Survey 2, Part II, State Administration**, Question 3 specifically, the responses of: DLNR DOFAW ("it depends by county how involved they currently are. On O'ahu and Maui, the county Board of Water Supply sits on their local ISC, along with representation from DOFAW."); UH PCSU ("Varies by county, but yes they should be involved and perhaps best through the Invasive Species Committees which are county based and essentially informal, avoiding all the protocol and bureaucratic problems of government to government agreements."); NPS ("Collective NPS staff think this is dependent on the island in question. Despite the examples offered above, consensus is that improved involvement is needed on the Big Island. Maui county has shown very successful involvement on the islands of Maui and Molokai."); and MISC ("It depends. Maui County is very involved and supportive, way more than other counties in terms of funding and support. But county initiatives to require BMPs is a desirable direction."). See *supra* note 190 and accompanying text.
192. See **Survey 2, Part II, State Administration**, Question 3 specifically, the response of MISC.
193. See *supra* note 190 and accompanying text.
194. See **Survey 2, Part II, State Administration**, Question 3 specifically, the response of DBEDT OP.
195. Twenty-three entities responded to this question. Seven entities agreed with this statement. See **Survey 2, Part II, State Administration**, Question 4, specifically, the responses of: DOA PQB ("Yes."); UH CTAHR ("Yes, in the opinion of some colleagues, it seems that agriculturally based agencies are not giving adequate consideration to the importance of protecting natural resources, for example the lack of active protection from pests like Ohia Rust is caused by the priority some agencies have for commerce."); UHH ("Yes. There is tension between State-wide agricultural resources, and what agency is best able to plan and dictate resource uses for those agricultural lands."); ARS ("Yes"); NMFS ("Yes. This is not uncommon but there needs to be a process for sorting through potential mandate conflicts. In most cases there are ways to achieve both the business targets with the desired natural resource outcomes."); City and County of Honolulu ("Yes, the problems existed between DOA and DLNR in dealing with plant pests and the problems also existed among DOH, DOA, and DLNR in dealing with pests with health significance."); and County of Maui ("Yes"). Five entities did not agree with this statement. See **Survey 2, Part II, State Administration**, Question 4, specifically, the responses of: DOA PPC ("No"); DBEDT OP ("OP does not believe it is lack of agreement versus differing agency missions and interpretation of "natural resources." For example, preservation of agricultural land is sometimes viewed as preservation of open space, in which open space is considered a natural resource. There is a need to have clear definitions when using terminology, which would drive clearer purpose."); HISC:

No, both local agriculture and natural resource management are important goals and are not necessarily oppositional in nature. For example, support for local agricultural development decreases reliance on imported goods, which in turn lowers the risk for introduction of invasive species that may damage natural resources. Careful consideration of the types of crops grown and increasing biosecurity measures to prevent the establishment of agricultural pests should allow these two goals to be supported in tandem.");

MISC ("I don't think so. Everyone knows we need both."); and OISC ("I don't think it's an Ag vs. Enviro thing. The enviros all support local agriculture. The conflict is that the enviros want HDOA to do more and to be more forceful and, if you will forgive the expression, kick ass and take names. But they seem very reluctant to use their regulatory power. I think everyone understands that agriculture and natural resources are connected and deserve equal amounts of protection."). Eleven entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, State Administration**, Question 4, specifically, the responses of: DOA AQB ("To a degree with respect to preserving the agricultural base vs resources, but greater divergence with respect to expanding the agricultural base."); DOA ADC ("I think it is pretty clear to agriculturalists that our goal is to preserve agriculture and natural resources. I am not so certain that it is clear to environmentalists."); DLNR DOFAW ("Agricultural interests, in terms of crop development or local food production, are not in conflict with DOFAW's mission. Agricultural pests that may infest natural areas come primarily from the nursery trade. There does seem to be a challenge in requiring nurseries to treat their stock prior to shipping, and a reluctance to place a burden on this sector by instituting such requirements. A solution to this problem is much needed."); DOH EHSD ("Perhaps as each stakeholder has their own missions, goals and limitations that may not allow for a complete consensus."); DOT ("DOT defers to the Office of Planning (OP)"); UH PCSU ("Isn't this less a lack at agency level or more at the Legislative funding level?"); APHIS ("Whatever the answer, how will the state proceed to determine a common ground and remedy?"); NRCS ("Difficult question to answer for us, a Federal agency. To see the 1554 acre Ho'opeli [sic] project to build over 11,000 homes on Prime Farmland soil in west Oahu makes me question the state's commitment to preserving the agricultural base, thus leading others to open up other of the state's natural resources for ag development."); NPS ("This is to be expected -- different agencies have different mandates. Coordination, improved landscape planning, zoning, and a collaborative approach could resolve the above-described issue."); FWO ("The Service feels that there is a realized consensus and agreement between state agencies on invasive species as it relates to agriculture and natural resource protection; however, there may be a definitive difference or lack of agreement between the state agencies on what is a higher priority to address these issues."); and CGAPS ("This is currently not a big issue, but it changes with Chairs and top level managers."). The remainder of responses were unclear, deferred, or provided no comment.

196. See **Survey 2, Part II, State Administration**, Question 4, specifically, the responses of DLNR DOFAW and UH CTAHR.
197. See **Survey 2, Part II, State Administration**, Question 4, specifically, the response of DLNR DOFAW.
198. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of County of Kauai.
199. See **Survey 2, Part II, State Administration**, Question 4, specifically, the response of UH CTAHR.

200. See **Survey 2, Part II, State Administration**, Question 4, specifically, the response of NMFS.
201. See **Survey 2, Part II, State Administration**, Question 4, specifically, the response of CGAPS.
202. See **Survey 2, Part II, State Administration**, Question 4, specifically, the responses of HISC.
203. See **Survey 2, Part II, State Administration**, Question 4, specifically, the responses of DLNR DOFAW and UH CTAHR.
204. Twenty-five entities responded to this question. Twenty respondents agreed with this statement. See **Survey 2, Part II, State Administration**, Question 5, specifically the responses of: DOA PQB; ("Yes."); DOA PPC ("Yes. There can be an argument made that Agriculture or Land and Natural Resources functions that promote should be separated from functions that regulate, control, or enforce invasive species issues."); DOA AQB ("Yes, but only for instances of legitimate agricultural [sic] production value under defined, specific, measurable conditions determined by the department and monitored by the state."); DLNR DOFAW ("Yes, species that are used commercially or for game purposes may in some cases fit the definition of invasive species. There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state."); HISC ("Yes, species that are used commercially or for game purposes may in some cases fit the definition of invasive species. There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state."); DOH EHSD ("Yes, we believe there are instances that potentially destructive alien species are allowed to thrive even if it may not be in best interest of the State as a whole. At times, a delicate balance must be maintained to accommodate commercial and special interests. We acknowledge it is a complex issue and unfortunately we do not have a suggestion to [sic] a resolution."); UH CTAHR:

Agency mandates are dominated by mandates that preserve damaging invasives over wide areas of state land. This has become worse than it has ever been in the State's history, with larger numbers of damaging ungulates and invasive plants than ever before. If the state agencies do not change their mandates to effectively preserve large portions of the remaining native habitat soon, it will likely all become irreparably degraded. Sport hunting does not bring in nearly as much money as other forms of tourism, yet it is prioritized across most state land, to the detriment of native species. Recreational hunting should be limited to specific, fenced, areas, while ungulates are eliminated from other areas.;

UH PCSU ("Yes. This is especially problematic for DLNR."); UHH:

Yes, it is undeniable that game management areas and species used as game, when not effectively managed, are invasive as defined at the start of this document. Aesthetic resources on private lands, especially related to invasive plants are known to be counter-productive to invasive species control programs, especially with the State plant import rules being non-selective to pests that may not be on the National Noxious Weed list. There should be a state Noxious Weed List to prevent aesthetic plant species introductions to Hawaii that are likely to become invasive. If the question is one of traditional cultural practices and subsistence as inexorably connected sport hunting, aesthetic resources, or other values, the State will need to define "traditional" and "subsistence" to make a determination if this is included in other values.;

NRCS ("Yes"); ARS ("Yes"); NMFS ("Yes. This has been a long standing conflict and one that will require political consensus to solve."); MCBH ("Yes. Definitely commercial interests as well as no political will to adversely impact a commercial entity's bottom line even when it will result in harm to the environment."); NPS ("Yes. Community values can also come into play, for example, the desire to keep deer, pigs, and goats on the landscape for either meat or trophy defies the principles of native natural resource management."); FWO:

Yes. According to their website the mission of the Division of Forestry and Wildlife (DOFAW) under the Hawaii Department of Land and Natural Resources is to responsibly manage and protect watersheds, native ecosystems, and cultural resources and provide outdoor recreation and sustainable forest products opportunities, while facilitating partnerships, community involvement and education. DOFAW is responsible for the management of State-owned forests, natural [reserve] areas, public hunting areas, and plant and wildlife sanctuaries. In addition, program areas cover (1) watershed protection; (2) native resources protection, including unique ecosystems and endangered species of plants and wildlife; (3) outdoor recreation; and (4) commercial forestry. They are also responsible for the issuance of hunting permits. As a result of these mandates, there is a definite conflict between watershed, native ecosystem and cultural resource protection, and game management for outdoor recreation as it relates to subsistence or sport hunting.;

County of Maui ("Yes"); County of Kauai ("Yes"); MISC ("Yes"); KISC ("Yes"); and CGAPS ("Yes. Add to the list invasive plants for biofuel."). Four respondents did not agree with this statement. See **Survey 2, Part II, State Administration**, Question 5, specifically the responses of: DBEDT OP ("No."); DBEDT HTA ("No."); City and County of Honolulu ("No. I strongly disagree."); and OISC:

The agencies mandate it, but I don't agree. I think that feral animals should be fenced out of all forest that is mostly native. If people want to hunt in the lower-elevation disturbed forests, great, have at it. There is enough meat running around the forest to keep hunters happy for a long, long time. I don't think anyone has ever done any numbers on this, but I'd be willing to bet that the current hunting pressure isn't even enough to keep the population stable. My guess is that even with hunting, pig populations are increasing. So, I do think that hunting should be preserved and frankly, axis deer is the tastiest meat I've ever had. But managing the game program needs to be more scientific with preservation of native ecosystems given priority.;

One respondent did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, State Administration**, Question 5, specifically the response of DOA ADC ("Livestock, poultry, and aquaculture under the control of agriculture are not destructive alien species. They certainly can be when not under control, and feral populations are allowed to exist."). The remainder of responses were unclear, deferred, or provided no comment.

- 205. See **Survey 2, Part II, State Administration**, Question 5, specifically the response of FWO.
- 206. See **Survey 2, Part II, State Administration**, Question 5, specifically, the responses of: UH CTAHR; OISC; and NPS.

207. See **Survey 2, Part II, State Administration**, Question 5, specifically, the responses of DLNR DOFAW and HISC.
208. See **Survey 2, Part II, State Administration**, Question 5, specifically, the response of UHH.
209. Twenty-six entities responded to this prompt. Ten entities agreed that the State lacks a mission statement. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOA PQB ("Yes, State lack an invasive species mission statement."); UH CTAHR ("Yes, a stronger mission statement covering both agricultural and natural areas pests should be developed"); UHH ("Yes"); NRCS ("If Hawaii has an invasive species mission statement, we don't know what it is."); NPS ("Yes. The lack of a mission/vision statement is evidenced by the continued introduction of alien organisms to Hawaii and poor interisland bio-security."); FWO:

Yes, to a certain extent. There may not be a designated or clear invasive mission statement adopted by the state, but this important concept may be conveyed as defined objectives or purposes by the different jurisdictional agencies that address invasive species efforts. Under HRS chapter 194, the Hawaii Invasive Species Council (HISC) was established as a state interdepartmental collaboration to provide 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 already established in the state and to prevent the introduction of other invasives that may be potentially harmful. The establishment and purpose of HISC may be the closest to providing an invasive species mission statement that could be used and adopted by the state.");

County of Maui ("Yes"); County of Kauai ("Absolutely, when do we start?"); OISC ("Yes"); and CGAPS ("Yes"). Ten entities disagreed that the State lacks a mission statement. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOA PPC ("No, although an encompassing mission statement may facilitate broader awareness and funding."); DBEDT OP ("No. The HISC has a mission statement that was developed with its member agencies and constituents."); DLNR DOFAW ("The HISC has developed an invasive species mission statement as part of its 2015-2020 strategic plan. "); HISC ("The HISC has developed an invasive species mission statement as part of its 2015-2020 strategic plan."); DOH EHSD ("We believe HISC has a clear mission statement"); DOT ("While DOT defers to the HISC, our State motto: "Ua Mau Ke Ea O Ka Aina I Ka Pono" serves an adequate interpretation as Hawaii's mission statement."); UH PCSU ("Not really"); ARS ("No"); MCBH ("HISC has a mission statement as does HDOA, they just need to be unhindered to allow them to do their job."); and KISC ("I think HISC acts as a mission statement for the state and does an excellent job."). Two entities did not provide a clear affirmative or negative response relating to a mission statement but provided information. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOA ADC ("That's a loaded question. Deal with this in the "right" way."); and DBEDT HTA ("Not sure about this. It seems as if HISC is this body but maybe the answer is more funding for them so they can increase visibility of that mission statement, coordinate and enforce."). Thirteen entities agreed that there is a need for a mandate that state agencies not assist or promote the introduction or spread of invasive species. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOH EHSD ("We believe HISC has a clear mission statement and has made substantial efforts to encourage state agencies to prevent, monitor, and control invasive species. However mandating through rules and regulations may provide some stakeholders the needed authority to properly enforce and prevent

the spread of invasive species."); UH CTAHR ("Yes, . . . state agencies must be part of the fight against the spread of invasive species."); UH PCSU ("yes."); UHH ("Yes"); APHIS ("This could be the start of a solution to explore the use of state/county personnel already working in key locations, for assistance in survey or emergency pest response."); NRCS ("Yes, of course there needs to be a mandate that all state agencies not assist or promote the intro and spread of invasive species, if we are serious about this issue."); MCBH ("The State should have a regulation similar to the federal EO on Invasive Species."); City and County of Honolulu ("This will help especially establishing penal codes to discourage illegal production in transportation of invasive species."); County of Maui ("Yes"); County of Kauai ("Absolutely, when do we start?"); MISC ("Mandate might be good."); OISC ("Yes"); and CGAPS ("Yes"). Four entities disagreed that there is a mandate that state agencies not assist or promote the introduction or spread of invasive species. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOA PQB ("No, currently the PQB regulates the importation of all non-domestic animals, microorganisms (pathogens) and plants by permit for various uses. Some of those species may be considered invasive."); DOA AQB ("No, if such a mandate is in conflict with #5. [agency mandates and commercial interests that conflict with fighting invasive species]"); DBEDT OP ("New mandates for state agencies would not likely be effective. Agencies do not need additional laws for compliance, they need resources to be able to manage the problem."); and ARS ("No"). Three entities did not provide a clear affirmative or negative response relating to a mandate but provided information. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOA ADC ("That's a loaded question. Deal with this in the 'right' way."); DLNR DOFAW:

With regard to a mandate that state agencies not assist or promote the introduction or spread of invasive species, it is important to note that there is no current designation of invasive species in the State, only a definition used for liability purposes (HRS 520A). There are lists for noxious weeds and injurious wildlife, but to my knowledge no species on these lists are promoted or spread by state agencies.;

and HISC ("With regard to a mandate that state agencies not assist or promote the introduction or spread of invasive species, it is important to note that there is no current designation of invasive species in the State, only a definition used for liability purposes (HRS 520A)."). The remainder of responses were unclear, deferred, or provided no comment.

210. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DLNR DOFAW; DBEDT OP; DOH EHSD; HISC; UH PCSU; ARS; MCBH; and KISC.
211. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of: DOA PQB; FWO; NRCS; and NPS.
212. See **Survey 2, Part II, State Administration**, Question 6, specifically, the responses of DBEDT OP and DOA PQB.
213. See **Survey 2, Part II, State Administration**, Question 6, specifically, the response of DBEDT OP.
214. Twenty-three entities responded to this prompt. Twenty respondents agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the responses of: DOA PQB ("Agree. While federal risk assessments are done to 'satisfy' Hawaii's concerns, the assessments do not take into account pests important to Hawaii and for other quarantine issues important to Hawaii."); DOA PPC ("Yes. Good examples abound where Federal and State regulations are in disharmony. Palms are regulated very differently and as a result foreign import

of a palms is a loop hole for the industry to by-pass Hawaii's stricter quarantines."); DOA AQB ("Yes"); DBEDT OP ("OP agrees that there are conflicting federal and state laws and regulations governing invasive species. With the non-recognition of these conflicts, it places Hawaii's invasive species organizations in a "gray area", and in a worst case scenario, introduction of an invasive species from the mainland in Hawaii."); DBEDT HTA ("Most likely."); DLNR DOFAW ("Yes, though trade agreements and federal preemption are better addressed by the HDOA."); HISC ("Yes, as previously noted and as described in HISC Resolutions 13-1, 13-2, and 13-3, available at <http://dlnr.hawaii.gov/hisc/reports/resolutions/>"); DOT ("Yes"); UH CTAHR ("Yes, federal protections have been devastating for Hawaii as pests from Asia and South America have recently been introduced and are causing major damage"); UH PCSU ("Yes. Pre-emption is one of the major problems facing the state in terms of keeping invasive species out."); UHH ("Yes – an example is the National Noxious weed list should be expanded or altered to include species that can be defined as Hawaii Noxious weeds with rules regulating these organisms' introduction to Hawaii."); MCBH ("Yes, I agree. In addition the federal process of identifying and listing prohibited plants and animals needs to be simplified to allow the process to respond more quickly to threats."); NPS ("Yes. In many ways, Hawaii is an open state, with the arrival of goods w/o fumigation or even inspection and quarantine. The federal government should create a system allowing the import of goods proved to be invasive plant/animal free, and not just select pests, but all potential hitch-hiking organisms. Staff that have travelled to New Zealand hold their model of combatting invasive organisms in high esteem."); FWO ("Yes, to a certain extent. It is the state's responsibility to convey to the responsible federal agency that there is a special need to provide for an exemption from a particular federal preemption to further protect Hawaii from pests that may not yet be established within the state. This request would include the best available scientific information and literature that would accurately describe the risk to Hawaii should a certain commodity that may be infested with a pest already established within the continental United States enter the state, and allow for the proper disposition at the state level. This may include additional quarantine and safeguard requirements, treatment standards, or exclusion authority."); City and County of Honolulu ("Indeed, this is a fact. Certain species, e.g. mealy bugs, that are not prohibited from the Federal Quarantine Law are now of major concern to Hawaii."); County of Maui ("Yes"); MISC ("Yes"); OISC ("Absolutely yes."); KISC ("Yes - through the offshore incipients program addressing this."); and CGAPS ("Yes. Even the risk assessment process for importing species (like orchids from Taiwan) does not look at the risk, range, and harm of bringing incidental pests -- they only look at risk of bringing pests to the commodity itself."). Two respondents disagreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the responses of: DOA ADC ("For livestock/poultry diseases, federal regulations and state regulations work well to protect Hawaii's animal industries."); ARS ("No"). One respondent did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the response of APHIS ("Articulate this assertion with scientific evidence of risk. Hawai'i can comment, provide research, to improve regulations before they become rules. For example, what are the species of concern, how are the species not mitigated in the pest management document. Are the species of concern plant pests? If not, does state action for non-plant pests even fall under pre-emption?"). The remainder of responses were unclear, deferred, or provided no comment.

215. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the responses of DOA PPC ("Yes. Good examples abound where Federal and State regulations are in disharmony. Palms are regulated very differently and as a result foreign import of a palms is a loop hole for the industry to by-pass Hawaii's stricter quarantines."); DBEDT OP ("OP agrees that there are conflicting federal and state laws and regulations governing invasive species. With the non-

recognition of these conflicts, it places Hawaii's invasive species organizations in a "gray area", and in a worst case scenario, introduction of an invasive species from the mainland in Hawaii."); UHH ("Yes – an example is the National Noxious weed list should be expanded or altered to include species that can be defined as Hawaii Noxious weeds with rules regulating these organisms' introduction to Hawaii."); UH CTAHR ("Yes, federal protections have been devastating for Hawaii as pests from Asia and South America have recently been introduced and are causing major damage"); and City and County of Honolulu ("Indeed, this is a fact. Certain species, e.g. mealy bugs, that are not prohibited from the Federal Quarantine Law are now of major concern to Hawaii."). See also *supra* notes 35-40 and accompanying text for a discussion on Hawaii's lists of harmful species.

216. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the response of UHH.
217. See **Survey 2, Part II, Federal Administration**, Question 1, specifically, the responses of NPS and CGAPS.
218. **Survey 2, Part II, Federal Administration**, Question 1, specifically, the response of FWO.
219. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of APHIS.
220. **Survey 2, Part II, Federal Administration**, Question 1, specifically, the response of APHIS
221. See **Survey 2, Part II, Federal Administration**, Questions 3 and 10, specifically, the responses of DOA PPC ("This is possible; however, existing systems (FRMSP) exist that give USDA these powers. However, the State must be more proactive.").
222. See **Survey 2, Part I**, Question 8, specifically, the response of APHIS.
223. Nineteen entities responded to this prompt. Fourteen agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the responses of: DOA PQB ("Yes, domestic first-class mail is a pathway for invasive species. Inspections are very limited by federal requirements and due to the lack of proper labeling to identify parcels requiring inspections."); DOA PPC ("Yes; it is known that first-class mail poses a significant pathway for invasive species movement, especially plants that can be highly invasive. This problem is being proliferated through ecommerce sites. However, first-class mail should not be solely targeted as all parcel services pose similar risks (i.e. FedEx, UPS, DHL)"); DOA AQB ("Can be."); DLNR DOFAW ("Yes, first-class mail could be a pathway for invasive species movements."); HISC ("Yes, this is a potential pathway for invasive species into Hawaii. Whether it is a "major" pathway depends on how frequently this pathway is utilized and for what species. This data is lacking."); UHH ("Yes - example of poison dart frogs brought into the Manoa area of Oahu."); MCBH ("Yes, as well as packages sent via commercial shipping companies."); NPS ("Yes. This certainly a problem with the interisland spread of organisms. Plants themselves [sic] a problem and potential hitch hikers can easily be ordered through the mail."); FWO ("Yes, to a certain extent. Certain jurisdictional federal agencies has [sic] the ability to open domestic first-class mail with a federal search warrant under probable cause; however, the use of federal canine detector teams to establish the required probable cause may not be targeting the specific invasive species of particular concern that Hawaii would like addressed in domestic first-class mail."); City and County of Honolulu ("Yes. A detector dog program can discourage the importation of invasive species via the pathway."); MISC ("Yes"); OISC ("Yes, people smuggle in reptiles that way."); KISC ("Yes"); and CGAPS ("Yes. Canine inspection helps. I think CBP does this, so I am not sure how large the gap is. Freight forwarders is [sic] also a huge gap. HDOA does not have capacity to inspect, lack canine teams to check."). Five entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 2,

specifically, the responses of: DOA ADC ("We addressed the concern when West Nile Virus was moving westward towards Hawaii. USPS discontinued transporting high risk poultry and birds to Hawaii and that has remained in place till today.") UH CTAHR ("It may be, but commercial imports are likely the biggest source of invasive species. Inadequate inspection and mass importation of high risk products like fresh flowers are a much larger problem needing greater attention") APHIS:

The state of California now inspects first class mail through an Act that allows them to address invasive species. Hawai'i can review the Act, and perhaps dialog with the state of California for the requirements, especially if there is a commitment of staff to regularly perform inspections according to the requirements in that Act. Is the problem staffing and commitment to doing so, or an actual legal barrier, or a bit of both? Canines may be the key to probable cause evidence to believe a package contains prohibited material, and therefore open it. If so, the canine program needs to be re-instated and supported throughout state funding cycles. Canines are costly and timely to reinstate due to the training for dogs and handlers, and the needed infrastructure for proper care and replacement of the canines. Perhaps identify a novel way the canines, kennel, feed, veterinary services, etc., can [be] funded and embed in a different function which has a demonstrated, good-support for sustained funding instead of solely agricultural [sic] funding. In any event, once canines are available, there may be an opportunity to perform first class mail inspection for a year, or if not, especially in some seasons most likely to have a high pest risk (Valentines? Graduation? Mother's Day?) . That would provide data for funding support and continuing the program.;

NRCS ("Not sure, perhaps, but I don't suspect it necessarily needs to be categorized as "major"."); and County of Maui ("Unclear. Not aware that it is a major vector."). See *supra* notes 23-28 and 73-74 and accompanying text for further discussion on pathways. The remainder of responses were unclear, deferred, or provided no comment.

224. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the responses of: HISC ("Yes, this is a potential pathway for invasive species into Hawaii. Whether it is a "major" pathway depends on how frequently this pathway is utilized and for what species. This data is lacking."); NRCS ("Not sure, perhaps, but I don't suspect it necessarily needs to be categorized as "major".") and County of Maui ("Unclear. Not aware that it is a major vector.").
225. See **Survey 2, Part I**, Question 11, specifically, the responses of: DOA PQB ("Shipments by air through U.S. Mail, Federal Express, United Parcel Service and other air freight forwarders are not adequately identified, labeled and presented for inspection."); and **Part II, Federal Administration**, Question 2, specifically, the response of DOA PQB ("domestic first-class mail is a pathway for invasive species. Inspections are very limited by federal requirements and due to the lack of proper labeling to identify parcels requiring inspections.").
226. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the responses of: DOA PPC ("Yes; it is known that first-class mail poses a significant pathway for invasive species movement, especially plants that can be highly invasive. This problem is being proliferated through ecommerce sites. However, first-class mail should not be solely targeted as all parcel services pose similar risks (i.e. FedEx, UPS, DHL)"); UH CTAHR ("It may be, but commercial imports are likely the biggest source of invasive species. Inadequate inspection and mass importation of high risk products like fresh flowers are a much larger problem needing greater

attention"); CGAPS ("Yes. Canine inspection helps. I think CBP does this, so I am not sure how large the gap is. Freight forwarders is [sic] also a huge gap. HDOA does not have capacity to inspect, lack canine teams to check."); and MCBH ("Yes, as well as packages sent via commercial shipping companies."); **Part II, Federal Administration**, Question 7, specifically, the response of UH CTAHR ("Cargo specifically, commercial importation. Most of the damaging invasive species that arrive are hidden in permitted commercial imports. There is no reasonable reason to permit the importation of soil, or plants IN soil from outside of the state. This is incredibly risky and is virtually certain to lead to the invasion of serious pests like Fire Ant.").

- 227. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the responses of: DOA PPC.
- 228. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the response of APHIS.
- 229. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the response of UH CTAHR.
- 230. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the responses of: APHIS:

Canines may be the key to probable cause evidence to believe a package contains prohibited material, and therefore open it. If so, the canine program needs to be re-instated and supported throughout state funding cycles. Canines are costly and timely to reinstate due to the training for dogs and handlers, and the needed infrastructure for proper care and replacement of the canines. Perhaps identify a novel way the canines, kennel, feed, veterinary services, etc., can funded and embed in a different function which has a demonstrated, good-support for sustained funding instead of solely agricultural [sic] funding. In any event, once canines are available, there may be an opportunity to perform first class mail inspection for a year, or if not, especially in some seasons most likely to have a high pest risk (Valentines? Graduation? Mother's Day?) . That would provide data for funding support and continuing the program.;

City and County of Honolulu ("A detector dog program can discourage the importation of invasive species via the pathway [first-class mail]."); and CGAPS ("Canine inspection helps."). See also, See **Survey 2, Part I**, Question 12, specifically, the response of MISC ("Detector dog program."); **Part I**, Question 13, specifically, the response of the City and County of Honolulu ("Reinstating detector dog program to fill inspectional gaps."); and **Part II, Funding Issues**, Question A, specifically, the response of CGAPS ("Inspection facilities, inspectors, and detector dogs are all needed to reduce this pathway [airport inspection].").

- 231. See **Survey 2, Part II, Federal Administration**, Question 2, specifically, the response of DOA ADC.
- 232. Twenty-four entities responded to this prompt. Fifteen respondents agreed that this issue persists. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the responses of: DOA PPC:

Yes. However, mechanisms currently exist for Hawaii to petition, a on [sic] pest basis, for USDA to act upon pests of concern through Federally Recognized State Managed Phytosanitary (FRSMP) program. FRSMP

has been used by Florida on the Bagra bug. USDA now regulates Bagra for Florida despite Bagra bugs's status as a non-actionable, non-reportable pest.;

DOA AQB ("Yes however, federal priorities may not mirror state priorities. For example, rabies virus is endemic on the continental US so the federal government's focus is on control within the continental US compared to Hawaii which does not have rabies virus."); DBEDT OP ("Yes."); DBEDT HTA ("Yes"); DOT ("Yes"); UH CTAHR ("Yes"); UH PCSU ("Yes"); NRCS ("Yes"); MCBH ("Both State and Federal intervention is necessary."); NPS ("Yes"); County of Maui ("Yes"); County of Kauai ("Yes. Why is Hawaii different? We're all part of the United States."); MISC ("Yes or [at] least cooperate, especially with data share."); OISC ("Yes"); and KISC ("Yes"). Two respondents disagreed that this issue persists. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the responses of DOA PQB ("No."); and ARS ("No"). Seven entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the responses of: DOA ADC ("We receive cooperative agreement funding annually from the USDA to prevent, control, and eradicate diseases of domestic concern."); DLNR DOFAW ("The federal government should only take on quarantine of pests arriving from the mainland if they are the best agency to do so. At the moment, they are only able to act on species of federal, not state, concern."); HISC:

The federal government has the authority to regulate plants and plant pests in both foreign and domestic commerce, though by practice federal agents focus on foreign commerce while HDOA inspectors focus on domestic commerce arriving in Hawaii from the US mainland. The priority need for Hawaii is for federal inspectors to be able to inspect for and act on pests of concern for Hawaii in foreign commerce, which state inspectors cannot inspect. With regard to domestic commerce, there would be no benefit to having the federal government assume the duties of domestic commerce inspection unless the federal government is able to inspect for and act on pests of concern for Hawaii.;

UHH ("Not necessarily, but coordination between state and federal quarantine should be better utilized."); APHIS ("A fact to consider: Current federal regulations cover only a few interstate quarantines pertinent to Hawai'i, generally found in the 7CFR 301's. This means federal officers have the authority to do [sic] address a very small part of the pest risks in domestic trade. The areas not covered by the 7 CFR 301's give Hawai'i and other states the opportunity to well-regulate interstate commerce under well- constructed state authority."); FWO:

No opinion at this time. Establishing federal government oversight of domestic pests arriving to Hawaii from the U.S. mainland would entail congressional authorities and related rules and regulations to be promulgated as well as funding appropriations before a responsible federal agency can establish a similar inspection program that would protect Hawaii from invasive species arriving into the state from domestic origins.;

CGAPS ("Only if they are restrictive in actionable pests as HDOA. That is, they need to look for pests on HDOA's list."). The remainder of responses were unclear, deferred, or provided no comment.

233. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of DOA AQB.

234. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the responses of: DOA PPC ("Yes. However, mechanisms currently exist for Hawaii to petition, a on [sic] pest basis, for USDA to act upon pests of concern through Federally Recognized State Managed Phytosanitary (FRSMP) program. FRSMP has been used by Florida on the Bagra da bug. USDA now regulates Bagra da for Florida despite Bagra da bugs's status as a non-actionable, non-reportable pest."); DOA AQB ("Yes however, federal priorities may not mirror state priorities. For example, rabies virus is endemic on the continental US so the federal government's focus is on control within the continental US compared to Hawaii which does not have rabies virus."); DLNR DOFAW ("The federal government should only take on quarantine of pests arriving from the mainland if they are the best agency to do so. At the moment, they are only able to act on species of federal, not state, concern."); HISC ("With regard to domestic commerce, there would be no benefit to having the federal government assume the duties of domestic commerce inspection unless the federal government is able to inspect for and act on pests of concern for Hawaii."); APHIS ("A fact to consider: Current federal regulations cover only a few interstate quarantines pertinent to Hawai'i, generally found in the 7CFR 301's. This means federal officers have the authority to do [sic] address a very small part of the pest risks in domestic trade. The areas not covered by the 7 CFR 301's give Hawai'i and other states the opportunity to well-regulate interstate commerce under well- constructed state authority."); and CGAPS ("Only if they are restrictive in actionable pests as HDOA. That is, they need to look for pests on HDOA's list.").
235. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of HISC.
236. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of DOA PPC. See also *supra* notes 97-99 and accompanying text for a discussion on federal mechanisms available for state use to address invasive species.
237. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of DOA PPC.
238. See **Survey 2, Part II, Federal Administration**, Question 3, specifically, the response of DOA PPC.
239. Twenty-two entities responded to this prompt. Seven entities agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the responses of: DOA PPC ("Yes. While there is good coordination between HDOA and USFWS and HDOA and varying degrees of different Armed Services, there is little coordination between all the agencies listed above."); DOA AQB ("Can occur."); DBEDT OP ("Yes. There is a certain amount of coordination that currently exists, especially in regards to individual projects. These agencies sometimes provide funds for project implementation or provide "match" in services/materials/helicopter time. However, there is room for better coordination at the program level."); UH CTAHR ("Yes, it seems that some of these agencies do very little in that regard."); UHH ("Yes. These agencies are burdened with many of the same issues that multiple agencies and jurisdictions suffer from, lack of effective communication of strategies and rules."); County of Kauai ("I believe this is a true statement. I am of the impression that as a federal agency, there's a feeling of entitlement and autonomy. In working with U.S. Fish & Wildlife on Kaua'i, their protection of an "endangered species" (Nene) is actually an invasive species for the taro farmers where the Nene have development [sic] an appetite [sic] for taro and cause hundreds of thousands of dollars each year for taro farmers. I feel that Kaua'i is punished by controlling its mongoose population and designated as the place to grow endangered bird populations."); and MISC ("Could be improved."). Five entities disagreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the responses of: ARS ("No"); MCBH

("Marine Corps Base Hawaii has not had an issue with lack of coordination with any of the agencies identified."); FWO:

The Service does not believe there is a lack of coordination between our agency, DoD and NPS. There is semi-informal coordination between these Federal Departments through the Hawaii Conservation Alliance. In a formal sense, there is on-going dialogue between the Service and the DoD and NPS for many on-going actions as Federal regulatory review with the Service is required for many types of actions. Other informal coordination related to control of established pests occurs at a staff / middle management level through Watershed Partnerships and Invasive Species Committees.

In early years, the Coordinating Group for Alien Pest Species (CGAPS) provided an excellent forum for communication between State, County, Federal and non-governmental entities working on control and quarantine of invasive species. The formation of the Hawaii Invasive Species Council strengthened communication between State agencies related to invasive species. Due to the current manner the Hawaii Invasive Species Council is composed the role of Federal Partners is limited to non-voting membership / participation on committees. This has likely lead [sic] to a shift in participation of certain Federal Agencies working on land management to other forums. The Service has supported and continues to attend Hawaii Invasive Species Council meetings when staffing is available.

The Coordinating Group for Alien Pest Species has remained an excellent forum for communication between State, County, Federal and non-governmental entities working on biosecurity / quarantine issues. In fact, it is a key forum for the Service, Department of Homeland Security - Customs and Border Protection, USDA – Animal Plant Health Inspection Service – Plant Protection and Quarantine and the U.S. Forest Service to share information with partners. Similarly, discussions occur between State and Federal quarantine and land management agencies thru CGAPS as a vehicle;

County of Maui ("Not so much."); and OISC:

Actually, those three agencies are pretty good. USFWS makes DOD spend a lot of money on invasive species control and it has helped stop and/or contain introductions of new species. The National Park Service is pretty good about managing its lands for invasive species, I don't know if they have issues with DOD and NPS. Its APHIS and Customs that are the problem (although to be fair the local representatives of APHIS and Customs in Hawaii try their best to [be] partners and help us navigate the federal system, it's the Washington folks that seem to not care about us);

Ten respondents did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the responses of: DOA PQB ("Not aware."); DOA ADC ("For livestock and poultry there is only one agency involved, USDA-Veterinary Services."); DLNR DOFAW ("Similar to state agencies in Hawaii, federal agencies develop plans for addressing invasive species specific to their jurisdiction. Engagement of federal agencies in the development of a comprehensive biosecurity

plan for Hawaii would assist in coordination among all partners, both state and federal."); HISC ("Similar to state agencies in Hawaii, federal agencies develop plans for addressing invasive species specific to their jurisdiction. Engagement of federal agencies in the development of a comprehensive biosecurity plan for Hawaii would assist in coordination among all partners, both state and federal."); UH PCSU ("They coordinate through the invasive species committees and watershed partnerships at the action level, but at the planning level I am not sure how this works."); NRCS ("Perhaps, but we don't know. We coordinate with other Federal agencies, including those three and others, when we address invasive species if the lands adjoining our project belongs to those Federal agencies."); NPS:

While there is limited interaction between federal agencies, coordination on combatting invasive species is not a prime goal. Hawaii Volcanoes has had limited interactions with the department of defense. Most parks have worked with U.S. Fish and Wildlife Service on invasive species issues related to endangered species. There are some current examples of favorable cooperation, for example, the preparation of a Draft Programmatic EIS [environmental impact statement] for IPM [integrated pest management] of rodents & mongooses, an endeavor that includes state and federal agencies.;

City and County of Honolulu ("Recent experience in LFB [sic] showed that USDA-PPQ and HDOA worked well in consideration of the eradication"); KISC ("Unsure - there seems to be fairly strong coordination on Kauai."); and CGAPS ("I think this is getting better."). The remainder of responses were unclear, deferred, or provided no comment.

240. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of FWO. FWO continued, "[t]here is semi-informal coordination between these Federal Departments through the Hawaii Conservation Alliance. In a formal sense, there is on-going dialogue between the Service and the DoD [Department of Defense] and NPS for many on-going actions as Federal regulatory review with the Service is required for many types of actions. Other informal coordination related to control of established pests occurs at a staff / middle management level through Watershed Partnerships and Invasive Species Committees." For the full response see Appendix G.
241. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of MCBH.
242. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of NPS. NPS further explained, "Hawaii Volcanoes has had limited interactions with the department of defense. Most parks have worked with U.S. Fish and Wildlife Service on invasive species issues related to endangered species. There are some current examples of favorable cooperation, for example, the preparation of a Draft Programmatic EIS for IPM of rodents & mongooses, an endeavor that includes state and federal agencies." See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of NPS.
243. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of UH PCSU.
244. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of DBEDT OP.
245. *Id.*

246. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of UH PCSU.
247. See **Survey 2, Part II, Federal Administration**, Question 4, specifically, the response of FWO.
248. See *supra* Chapter 3, note 62 and accompanying text.
249. Nineteen entities responded to the prompt. Fifteen entities agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 5, specifically, the responses of: DOA PPC ("Yes"); DOA AQB ("Yes"); DLNR DOFAW ("Yes. Because the federal government has authority to regulate movement across state boundaries, they should take Hawaii's needs as a state into consideration in their regulations."); HISC ("Yes. The HISC requested this action with specific regard to constrictor snakes in HISC Resolution 13-3."); UH PCSU ("Yes, if possible. But it would have to be enforced."); UHH ("Yes"); NRCS ("Yes"); MCBH ("Absolutely"); NPS ("Yes, the lack of agreement results in confusion and enforcement difficulty."); City and County of Honolulu ("Yes, I do. In fact, I strongly recommend that the amendment be proposed."); County of Maui ("Yes. We haven't even prohibited the sale or transport of ivory in Hawaii."); County of Kauai ("This sounds good, but I am unfamiliar with the Lacey Act and need to learn more about this."); MISC ("Yes"); OISC ("Absolutely yes."); and KISC ("Yes"). One entity disagreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 5, specifically, the response of DOA PQB ("No. Some of the State's injurious wildlife (e.g., turtles, frogs, various pet birds[]) are allowed import into Hawaii under PQB permit for individual possession and pet trade."). Three entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 5, specifically, the responses of: CGAPS ("The Lacey Act can be used to enforce state wildlife laws. However, they are also stretched thin on inspectors and the ability to build cases and prosecute. The Lacey Act does need other amendments, including a risk assessment on wildlife in pet trade, etc."); FWO ("As the federal Lacey Act is a Service regulation and this survey could be used to support future changes in Service policy it would be better to hold off answering this question at this time."); and APHIS ("This should be explored with FWS, and any other federal agencies concerned, to get the facts on current regulations on injurious wildlife and the species of concern for Hawai'i. The definitions for injurious wildlife may be different, or some other factors may be evident."). The remainder of responses were unclear, deferred, or provided no comment.
250. See **Survey 2, Part I**, Question 12, specifically, the response of NPS ("Streamline the process for agencies to prohibit and manage known invasive species. The difficulty in adding organisms to the state invasive species lists indicates political and economic forces may sometimes be a barrier to the management of invasive species."); **Part II, State Administration**, Question 4, specifically, the responses of UH CTAHR ("Yes, in the opinion of some colleagues, it seems that agriculturally based agencies are not giving adequate consideration to the importance of protecting natural resources, for example the lack of active protection from pests like Ohia Rust is caused by the priority some agencies have for commerce."); and DOH EHSD ("Perhaps as each stakeholder has their own missions, goals and limitations that may not allow for a complete consensus."); and **Part II, Federal Administration**, Question 5, specifically, the responses of APHIS ("This should be explored with FWS, and any other federal agencies concerned, to get the facts on current regulations on injurious wildlife and the species of concern for Hawai'i. The definitions for injurious wildlife may be different, or some other factors may be evident."); and County of Maui ("Yes. We haven't even prohibited the sale or transport of ivory in Hawaii.").
251. See **Survey 2, Part II, Federal Administration**, Question 5, specifically, the response of DOA PQB and telephone conversation with Amy Takahashi, Acting Plant Quarantine Branch Manager, on Dec. 18, 2015.

252. **Survey 2, Part II, Federal Administration**, Question 5, specifically, the response of NPS.
253. See **Survey 2, Part II, Federal Administration**, Question 5, specifically, the response of CGAPS; e-mail correspondence with Christy Martin, Public Information Officer of CGAPS on Jan. 10, 2016; and telephone conversation with Christy Martin, Public information Officer of CGAPS on Jan. 11, 2016.
254. For more information see **Survey 2, Part II, Federal Administration**, Question 6, specifically the response of FWO stating:

The establishment of the U.S. Customs and Border Protection (CBP) in 2003 combined specific parts of three border clearing federal agencies (U.S. Customs, Immigration and Naturalization Service, and U.S. Department of Agriculture's Animal and Plant Inspection Service (USDA)) to serve as a single border inspection agency. Its agriculture-related work include[s] the enforcement of USDA laws and regulations pertaining to border clearance of cargo, passengers, conveyance, mail, and military, and works closely with USDA under a memorandum of agreement to identify certain operational procedures, identification, enforcement, compliance, and coordination. In addition, other biosecurity-related work include[s] the enforcement of certain laws and regulations for other agencies at the border including Centers for Disease Control, Food and Drug Administration, Fish and Wildlife Service, Food Safety and Inspection Service, and the National Marine Fisheries Service.

255. Fifteen entities responded to this prompt. Six entities agreed that this issue is true today. See **Survey 2, Part II, Federal Administration**, Question 6, specifically the responses of: DOA ADC ("It has taken some adjustment, but it seems to be working well."); DOT ("Yes"); ARS ("Yes"); APHIS:

The DHS-CBP arrangement allows for both agricultural officers and non-agricultural officers to be aware of pest risk. This provides the opportunity for more inspectors than just agricultural officers to find and respond to pests. This happens, though I do not know to what extent. Hawai'i CBP's mail branch interceptions are high, as well as their inspections of household goods from Guam, and they have intercepted federal noxious weed seeds on items such as poolside furniture which were made of thatched roofs in which airborne seeds could easily lodge. Hawai'i CBP also collaborates with PPQ and other federal (and to some extent, state agencies), which perform functions for both invasive species and endangered species.;

FWO:

Yes. The establishment of the U.S. Customs and Border Protection (CBP) in 2003 combined specific parts of three border clearing federal agencies (U.S. Customs, Immigration and Naturalization Service, and U.S. Department of Agriculture's Animal and Plant Inspection Service (USDA)) to serve as a single border inspection agency. Its agriculture-related work include the enforcement of USDA laws and regulations pertaining to border clearance of cargo, passengers, conveyance, mail, and military, and works closely with USDA under a memorandum of agreement to identify certain operational procedures, identification,

enforcement, compliance, and coordination. In addition, other biosecurity-related work include the enforcement of certain laws and regulations for other agencies at the border including Centers for Disease Control, Food and Drug Administration, Fish and Wildlife Service, Food Safety and Inspection Service, and the National Marine Fisheries Service.;

and CBP ("Yes, the use of technology, information exchange, systems, and force multiplier of additional inspectors monitoring international movement has been beneficial."). Seven entities disagreed that this issue is true today. See **Survey 2, Part II, Federal Administration**, Question 6, specifically the responses of: DOA PQB ("No. We have concerns thef [sic] not disclosing information to State agriculture for inspection."); DOA AQB ("No"); UH CTAHR ("No"); UHH ("No"); City and County of Honolulu ("No, I think the integration has put the quarantine inspection with the back seat, although the emphasis of port security is important."); County of Maui ("I wish I could say that has been the case, but I really doubt it. TSA has the big money and the crumbs to go to the DOA."); and MISC ("No"). Two entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 6, specifically the responses of: DOA PPC ("Unknown. A comparison must be made of statistics before and after the split in functioning. It appears that DHS has been adequately enforcing USDA authorities."); and UH PCSU ("It is my understanding, not based on direct knowledge, that DHS is less interested in invasive species, but that locally Customs has continued to maintain its efforts."). The remainder of responses were unclear, deferred, or provided no comment.

256. See **Survey 2, Part II, Federal Administration**, Question 6, specifically, the responses of: APHIS; ARS; FWO; and CPB.
257. See **Survey 2, Part II, Federal Administration**, Question 6, specifically, the response of CBP.
258. See **Survey 2, Part II, Federal Administration**, Question 6, specifically, the response of APHIS.
259. Twenty-five entities responded to this prompt. Seventeen entities agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the responses of: DOA PPC ("Yes - US Mainland to Hawaii"); DOA AQB ("Yes if necessary positions and funding is provided with any associated policy implementation. Should include plant and animal species whether invasive or not as they could harbor/transport invasive species. Inspection should also occur prior to departure from continental US to Hawaii."); DBEDT OP ("Yes. However, the policy must also have adequate resources for implementation."); DBEDT HTA ("Yes. However, the policy must also have adequate resources for implementation."); DLNR DOFAW ("Yes, this would be helpful, provided that the federal inspectors are able to search for an act on species of concern to Hawaii."); DOT ("Yes"); UH CTAHR ("Cargo specifically, commercial importation. Most of the damaging invasive species that arrive are hidden in permitted commercial imports. There is no reasonable reason to permit the importation of soil, or plants IN soil from outside of the state. This is incredibly risky and is virtually certain to lead to the invasion of serious pests like Fire Ant."); UHH ("Yes"); MCBH ("Not only federal policy, but adequate personnel and funding to be able to effectively inspect not only airliners, but also commercial shipping and cruise lines."); NPS ("Yes. Such inspections would constitute a good preventative action. Right now the honor system of declaring goods can be subverted by the dishonest. Shoes, camping equipment, and goods part of household moves should all be sanitized and inspected."); City and County of Honolulu ("Although it may not be consistent with federal policy, it would help minimize the risk of introducing invasive species into Hawaii if inspections can be done at the ports where domestic airlines are destined to Hawaii."); County of Maui ("Yes"); County of

Kauai ("Yes. Everyone leaving Hawaii is inspected, why not everyone coming into the state?"); MISC ("Yes"); OISC ("Yes, definitely cargo"); KISC ("Yes"); and CGAPS ("I believe that inspection is a core airport function and should be given the rights and consideration in all port operations."). Three entities disagreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the responses of: DOA PQB ("No. State has the current authority. Two agencies having inspection authority will cause confusion among importers."); ARS ("No"); and FWO ("No. Without the proper authorities and related rules and regulations enacted, as well as funding appropriations are provided by congress, federal policy would not provide for the proper authorities that would be necessary to utilize federal enforcement to inspect domestic arrivals for invasive species."). Five entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the responses of: DOA ADC ("For our purposes, state laws and regulations have been effective."); HISC ("The HISC reviewed a draft resolution in 2013 relating to this issue. The language would have supported agricultural inspections being considered a core airport function that could be supported using federal funding. The HISC did not adopt the resolution."); UH PCSU ("Whether state or federal, there has to be an effective policy."); APHIS ("The state would perform inspection of airlines coming into Hawai'i from the mainland. The Kahului Airport research probably explored the risk presented by passengers versus cargo and may have made some important conclusions. Those conclusions may need to be further evaluated and tested. Are there ways to increase the participation in, and accuracy of, the passenger declarations (wording, or delivery/training of airline personnel, etc)? Could a study identify which airlines from which origins are highest risk? Maybe some flights are higher risk than others."); and NRCS ("Perhaps, if that is identified as the key or major source of invasive species reaching the state."). The remainder of responses were unclear, deferred, or provided no comment.

260. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the responses of: DOA AQB ("Yes if necessary positions and funding is provided with any associated policy implementation. Should include plant and animal species whether invasive or not as they could harbor/transport invasive species. Inspection should also occur prior to departure from continental US to Hawaii."); DBEDT OP ("Yes. However, the policy must also have adequate resources for implementation."); DBEDT HTA ("Yes. However, the policy must also have adequate resources for implementation."); MCBH ("Not only federal policy, but adequate personnel and funding to be able to effectively inspect not only airliners, but also commercial shipping and cruise lines."); and FWO ("No. Without the proper authorities and related rules and regulations enacted, as well as funding appropriations are provided by congress, federal policy would not provide for the proper authorities that would be necessary to utilize federal enforcement to inspect domestic arrivals for invasive species."). Cf. **Survey 2, Part II, Federal Administration**, Question 7, specifically, the response of HISC ("The HISC reviewed a draft resolution in 2013 relating to this issue. The language would have supported agricultural inspections being considered a core airport function that could be supported using federal funding. The HISC did not adopt the resolution.").
261. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the response of NPS.
262. See **Survey 2, Part II, Federal Administration**, Question 7, specifically, the responses of UH CTAHR and OISC.
263. Nineteen entities responded to this prompt. Thirteen respondents agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the responses of: DOA PPC ("Yes. What authority does NPS have beyond their property borders. [sic] What can be improved is how NPS responds to issues on their properties as they do not fully utilize all tools available to them (i.e. biocontrol)"); DLNR DOFAW ("In some cases, yes. They have taken on a

role of preventative work to keep invasive species out of parks, including miconia on Maui and axis deer on Hawaii Island."); HISC ("The National Park Service has at times been active outside of park boundaries. An example includes working with partners on the control of miconia on Maui outside the boundaries of Haleakalā National Park, in order to prevent it from entering the park."); DOT ("Yes"); UH CTAHR ("Not far enough."); UH PCSU ("Yes, especially on Maui."); UHH ("The NPS is active in advising roles relating to invasive species management outside their borders, such as partnerships with Watershed Alliances, but their hands-on control work is generally limited to their lands. More hands-on coordination, similar to the state NARS program funds being used for controlling invasive species far outside its borders to more effectively manage their NARS lands[,] could be valuable from NPS organizations."); NRCS ("In some instances at least, yes. For example, we USDA NRCS, were approached by NPS for collaborative opportunities for the control of albezia [sic] on the private lands outside of National Park. Beyond that, not sure."); ARS ("Yes"); FWO ("Yes, over a decade ago leadership within the National Park Service worked to expand park efforts outside of official boundaries. A key challenge has been continuing this effort during a period of time that has had declining Federal budgets for certain types of invasive species work."); County of Maui ("In the case of Haleakala National Park, yes, until budget cuts limited their ability to assist in this fashion."); MISC ("Yes"); OISC ("Yes, but it depends on the administrator. Haleakala funds invasive species control outside its borders, I don't know if Hawaii Volcanoes does. The research that happens at those parks is really helpful."); and CGAPS ("In limited instances; they try to do what they can to support, but they are limited. Other DOI agencies are better aligned to assist."). One entity disagreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the response of DOA PQB ("No."). Five entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the responses of: DBEDT HTA ("Not sure but they should be involved."); UH CTAHR ("Not far enough."); NPS:

Most parks have relations/agreements with other federal and state agencies, non-governmental organizations, or private land-owners that allow collaborative landscape-level work on weed or rare species across ownership boundaries. Hawaii Volcanoes National Park works with the Three Mountain Alliance on a number of invasive species issues. This watershed alliance includes one million acres on the island of Hawaii. Another example is the east Molokai Watershed Partnership on the island of Molokai. An agreement between more than 15 entities allows management across ownership boundaries to protect the islands[] remaining forest resources.;

County of Kauai ("I'm not sure. Although we don't have a national park on Kaua'i, I haven't seen anything in the news that would indicate this."); and KISC ("Unsure - Kauai has no national parks."). The remainder of responses were unclear, deferred, or provided no comment.

264. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the responses of: DBEDT HTA ("Not sure but they should be involved."); UH CTAHR ("Not far enough."); UHH:

The NPS is active in advising roles relating to invasive species management outside their borders, such as partnerships with Watershed Alliances, but their hands-on control work is generally limited to their lands. More hands-on coordination, similar to the state NARS program funds being used for controlling invasive species far outside its borders to more effectively manage their NARS lands[,] could be valuable from NPS organizations.;

and OISC ("Yes, but it depends on the administrator. Haleakala funds invasive species control outside its borders, I don't know if Hawaii Volcanoes does. The research that happens at those parks is really helpful.").

- 265. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the response of OISC.
- 266. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the response of NPS.
- 267. See **Survey 2, Part II, Federal Administration**, Question 8, specifically, the responses of: DLNR DOFAW; NRCS; NPS; and HISC.
- 268. See **Survey 2, Part II, Federal Administration**, Question 9, specifically, the responses of: DOA PQB; DBEDT OP; DBEDT HTA; DLNR DOFAW; DOT; UH CTAHR; UHH; NRCS; MCBH; City and County of Honolulu; County of Maui; KISC; and CGAPS.
- 269. See **Survey 2, Part II, Federal Administration**, Question 9, specifically, the response of NRCS.
- 270. See **Survey 2, Part II, Federal Administration**, Question 9, specifically, the response of KISC.
- 271. See **Survey 2, Part II, Federal Administration**, Question 9, specifically, the response of DLNR DOFAW.
- 272. See **Survey 2, Part II, Federal Administration**, Question 9, specifically, the response of OISC.
- 273. Twenty entities responded to the prompt. Thirteen entities agreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the responses of: DOA PQB ("Yes. Deputizing federal inspectors for inspection of foreign shipments"); DOA AQB ("Yes"); DOA ADC ("Yes, having the ability for the local office of the USDA to enforce restrictions for pest entry regulated by the State of Hawaii would be helpful."); DBEDT OP ("Yes."); DBEDT HTA ("Yes."); DLNR DOFAW ("Yes, this would be helpful."); UH PCSU ("That would help and provide consistency in state efforts that can face oscillations in state budgeting."); UHH:

Yes. It is apparent that Hawaii is a special case regarding natural resource protections that the USA at large should assist in managing. Like the comparative lack of funds for endangered species recovery that Hawaii receive[s] compared to other states (shared state borders are part of this issue, for which Hawaii has no 'partner State(s)'), our agriculture rules should be better handled outside our state borders with federal assistance.;

NPS ("Yes, but the issue is more than just a plant protection problem. The problem extends to other taxa including vertebrates, invertebrates, fungi, algae, bacteria, and others. The plant protection and quarantine program is too specific – there is a need for an integration of resources rather than a narrow focus. "); City and County of Honolulu ("Yes and it has recently been done in a very effective way in a joint combat of coconut rhinoceros beetle infestations on Oahu."); County of Maui ("Yes."); MISC ("Yes"); and CGAPS ("Yes"). One entity disagreed with this statement. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the response of ARS ("No"). Six entities did not provide a clear affirmative or negative response but provided information. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the responses of: DOA PPC ("This is possible; however, existing systems (FRMSP) exist that give USDA these powers. However, the State must be more proactive."); APHIS:

This is a "solution", given without stating the underlying multiple problems it is expected to solve, and given without presenting the

imagined outcomes with examples of specific applications. For example, which “Hawai’i laws”?

- i. If Hawai’i laws parallel federal laws, APHIS PPQ enforcement of federal regulations already supports Hawai’i rules. For example, if Hawai’i can regulate federal noxious weeds in domestic commerce, Hawai’i is protected because HDOA can enforce interstate and intrastate parallel rules to keep out federal noxious weeds in domestic commerce, and the federal enforcement agencies enforce the federal regulations for incoming foreign commerce. In this example, the solution for complete protection is the other way around: State enforced rules parallel federal enforced rules so that the instances of intra-state and interstate origin (some mainland states are infested with a federal noxious weed and some are not), complete the circle of protection against federal noxious weeds enforced in foreign commerce.
- ii. An important point to consider to improve protection for Hawai’i, is that weeds are often found inside containers, used vehicles, tile, pallets and other non-plant products. For weeds, as well as other pests, (think about ants in household goods), it seems important for states to have authority to inspect and to address pests in any article or conveyance that may carry a pest risk. Additionally, Hawai’i can influence federal regulations. APHIS-PPQ invites comments when new regulations are being made. Recently, APHIS solicits input in order to formulate certain proposed rules prior to publishing proposed rules. APHIS has a stakeholder registry in which anyone can be alerted via e-mail on newly proposed regulations and other topics of interest. APHIS also works with the State Plant Regulatory Officials, (that is the Administrator, Plant Industry Division for the HDOA), through the National Plant Board. At the National Plant Board meetings, common state-federal issues could be discussed and different perspectives/workable solutions shared.
- iii. If the focus is on certain Hawai’i rules, which extend beyond the scope of, or are contrary to, federal regulations, and, if federal officers can only enforce federal laws, then funding from any source, cannot change that situation. It is generally a fallacy that Memorandums of Understanding or Memorandums of Agreements allow APHIS PPQ to disregard and/or violate federal regulations. There is an existing general MOU between Hawai’i and APHIS PPQ describing how each works together. That MOU may be a good resource to see how, and to what extent the HDOA and APHIS PPQ work together. The HDOA works with APHIS PPQ to ensure changes and insertion of proper language are made prior to the signature of the chair of the Board of Agriculture. The HDOA now has a signed copy of that agreement which has been reviewed by the state’s attorney general.

- iv. Question 10 may not be a broad solution, but it may have merit in specific situations. Those situations may be identified by exploring successes in other states, and countries, particularly other continental countries with islands or isolated geographical areas unlike the flora and fauna of the main continent.;

NRCS ("That depends. If native Hawaiians believe invasive species (plant, animal and insect) are a threat to both their cultural heritage and to Hawaii's ecosystems and they want the 'deputize' USDA, then yes, that might prove an effective way to lead this war. What might prove better is the leadership for this fight coming from Hawaiians, the funding coming from tourist dollars, and technical assistance coming from Federal agencies such as USDA. Otherwise it may be viewed as another "take over." Key words are "properly funded" which in today's Federal financial climate is challenging at best."); MCBH ("Only if it would support Hawaii DOA's plant protection and quarantine program."); FWO ("Only if the proper authorities and related rules and regulations, as well as funding appropriations established by congress allow for the U.S. Department of Agriculture to enforce Hawaii's state law."); and OISC ("I'd rather that HDOA had more enforcement people and state lawyers dedicated to their issue and a state Attorney General that would prioritize these cases. It's our state, we ought to be able to write decent laws (reptile laws are great, plant ones not so much) and enforce them."). The remainder of responses were unclear, deferred, or provided no comment.

- 274. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the response of APHIS.
- 275. *Id.*
- 276. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the response of DOA PPC.
- 277. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the response of APHIS.
- 278. *Id.*
- 279. *Id.*
- 280. See **Survey 2, Part II, Federal Administration**, Question 10, specifically, the response of NPS.

Chapter 9

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based upon all of the information gathered by the Bureau to update its 2002 study on the State's efforts to address the threat of invasive species, there appears to be consensus that:

- Current prevention efforts are inadequate;

and that:

- Over-lapping or conflicting mandates of different agencies;
- Inconsistencies between statutory or administrative authority; and
- Insufficient funding, including for rapid-response actions, for staffing and other resources, particularly for increased inspection capability;

have led to significant gaps and leaks in the current system.

Further, based upon the sum of this updated information, it appears that some of the conclusions and suggestions made in the Bureau's 2002 Report with respect to issues involving state and federal jurisdiction and responsibility for invasive species in Hawaii were not, or are no longer, accurate or may not have ultimately addressed the root of one of the major problems, i.e., the inconsistency between state and federal lists for pests of concern. Unless federal agencies have the authority to inspect and act upon pests of concern for Hawaii, it appears that some suggestions will be of little effect, including: federal quarantine of domestic pests or invasive species arriving from the mainland or international destinations; federal inspection of first-class mail or domestic airline passengers, baggage, and cargo; or federal agency personnel acting as deputized agents to enforce state laws.¹

Instead, there reportedly are several existing mechanisms the State could pursue, but apparently has not, to address the inconsistencies between state and federal lists, including through the Federally Recognized State Managed Phytosanitary program (FRMSP), the Not Authorized Pending Pest Risk Analysis (NAPPRA) program, and taking an active role in shaping federal regulations by responding to solicitations for comments on proposed federal regulations.² In addition, while there seems to be general support for the notion that the Lacey Act needs to be amended, there also seems to be a lack of agreement as to exactly what wildlife should be covered by the Lacey Act, due to the different mandates and missions of various involved agencies.³ For example, turtles, frogs, and certain birds are considered "injurious wildlife" by DLNR, but only a "conditional risk" by DOA if imported through the pet trade for individual possession.⁴ By one agency's understated assessment, which was echoed by a few others, the State needs to be more "proactive" in availing itself of these mechanisms to address this issue.⁵

Finally, there appears to be broad consensus that the State needs a coordinated, comprehensive multiagency plan or strategy (i.e., a comprehensive statewide biosecurity plan) that clearly addresses agencies' authority and responsibility across pre-border, border, and post-border activities to resolve the existing leaks and gaps in the current system.⁶

Having distilled this core consensus from a flood of conflicting information, we now turn to finding the way forward.

Bureau Recommendations

- (1) Hawaii should develop a comprehensive, statewide biosecurity plan that comprises all components necessary to adequately prevent the introduction, and control the spread, of invasive species.**

The biosecurity plan should be developed by persons with expert knowledge of all aspects of invasive species prevention, control, management, and eradication, as well as sufficient knowledge of the mandates and capabilities of the various responsible agencies involved in the fight against invasive species. At a minimum, the plan should:

- Include a comprehensive, prioritized list of invasive species that pose a threat to health, the environment, and the economy (including agriculture and tourism) in Hawaii, including a mechanism to expeditiously update the list, as necessary;
- Address all aspects of the policies, processes, and procedures necessary to institute effective pre-border, border, and post-border programs to prevent establishment of, and to control or eradicate existing, invasive species in Hawaii, including:
 - Developing an emergency rapid response plan that includes dedicated emergency funding to quickly acquire the resources (e.g., temporary staff, equipment, supplies, etc.) necessary to execute the plan;⁷ and
 - Realistically address specific gaps that may facilitate the introduction of invasive species or specific barriers that may hinder control and enforcement, including but not limited to the following: importation of exotic pets; the various pathways for the importation and interisland movement of products on which invasive species can hitchhike (e.g., nursery plants or lumber); and the time-consuming procedures necessary to gain access to public or private land for control and eradication of invasive species;
- Identify specific goals and objectives of the biosecurity plan and clearly allocate responsibility for the various aspects of the biosecurity plan among the responsible agencies, taking into account the following issues: the various agencies' specific roles, mandates, and capacities; and the overall goal of further developing strong collaboration and coordination among involved agencies at all levels of government and relevant nonprofit entities;

- Include specific actionable recommendations, based upon a clear and comprehensive understanding of federal and state legal and regulatory authority, to effect the federal and state statutory or regulatory changes (including but not limited to addressing the inconsistencies between state and federal lists for pests of concern through existing mechanisms already in place) that are necessary to achieve a consistent and comprehensive partnership with all involved federal, state, county, and other agencies;
- Provide for a continuous, rigorous scientific research component to develop a methodology for identifying potential new invasive species that may pose a threat to Hawaii and to establish best practices for controlling, managing, or eradicating incipient and established invasive species;
- Include a component for public education and outreach designed to increase the public's awareness of the serious threat invasive species pose to all facets of life in Hawaii and to enlist the public's assistance, as appropriate, in the fight against invasive species;
- Propose specific statutory and rule amendments that may be necessary to reduce or eliminate any existing barriers or gaps that would hinder the full implementation of the biosecurity plan; and
- Propose a budget to fully effectuate the implementation of the biosecurity plan, including but not limited to sufficient funding for the following aspects: personnel (including additional positions for inspections); vector control (e.g., mosquito surveillance and entomologists to conduct it); inspection and quarantine facilities and other infrastructure (especially to address interisland movement of invasive species); and enforcement.

- (2) **The Legislature should take the action necessary to effect the statutory and regulatory changes proposed in a comprehensive, statewide biosecurity plan, as recommended herein, and to provide sufficient funding and support for its development and full implementation. Further, going forward, moneys should be appropriated, allocated, and expended according to the biosecurity plan to ensure its full effectiveness.**

A coordinated, comprehensive multi-agency strategy or biosecurity plan for addressing invasive species will be ineffective unless sufficient funding and resources are actually committed, allocated, and expended to develop or increase the capacity of the agencies to fully implement the plan.

In addition, the Legislature may wish to require the expending agencies to track and report their expenditures relating to invasive species and to demonstrate how those expenditures address the prevention, control, management, or eradication components of the biosecurity plan.

- (3) The Legislature should give consideration to how the organizational structure of HISC may need to be changed to provide clearer authority to direct interagency coordination and provide resources and support for priority actions necessary in the fight against invasive species.**

As noted in the Bureau's 2002 report, because none of the three alternative models used in other jurisdictions appeared to provide the efficiency and accountability required for the administration of the State's invasive species program, the Bureau suggested the Legislature consider a hybrid approach that seemed to combine the best of all approaches.⁸ Under this approach, it was envisioned that an Invasive Species Administrator/Coordinator would:

1. Be selected by a nominating committee and placed independently in the Governor's office to ensure a "big picture" approach;
2. Be advised in the performance of the duties by the collective wisdom and guidance of an advisory committee composed of involved state, federal, and private organizations;
3. Consult regularly with heads of the primary departments involved with invasive species, to address the lack of authority that existed under the then present system and to provide for increase coordination and collaboration; and
4. Have clear authority to designate a state agency as the lead agency to have responsibility and accountability to address a specific invasive species, to provide for a quicker response to prevent the establishment of invasive species.⁹

It was also contemplated that the Administrator/Coordinator would have the authority to hire sufficient staff and be given sufficient resources to carry out the considerable duties and responsibilities that were recommended¹⁰ and that were ultimately specified for HISC in chapter 194, HRS.¹¹

The threat of invasive species is a complex problem that both crosses the jurisdiction of many agencies and, in some cases, lies outside their jurisdiction. The council approach that was favored by the Legislature in Act 85, Session Laws of Hawaii 2003 (which established HISC),¹² to administer the State's invasive species program has, among other things, reportedly resulted in increased cooperation and collaboration among the various involved agencies.¹³ However, issues underlying the administration of the State's invasive species program have reportedly impacted its effectiveness. In particular, it appears that in some cases, clear authority or responsibility to act on the part of an agency may be lacking. Further efforts are not always fully coordinated, are duplicated, or both, and there appears to be a lack of clear leadership or authority necessary to resolve these issues.

Although the council approach presumably was expected to address the lack of political leadership, or the power vacuum, referenced in the Bureau's 2002 report,¹⁴ it is not clear that it

has been fully effective in this regard. For example, a number of those who responded to the Bureau's Survey 2 raised the issue of leadership at various times in their responses, referring among other things to the need for "senior leadership engagement," "political will," "elevat[ing] this issue," "top person ... to drive the initiative," and "political consensus" to adequately address the threat of invasive species to the State.¹⁵

Further, and perhaps more detrimental to an effective response to the invasive species problem, HISC was statutorily assigned considerable duties and responsibilities¹⁶ but not statutorily provided with funding or staff to accomplish them. As noted previously, HISC is administratively placed under DLNR, which assigns one permanent full-time staff person who allocates ninety percent of his time to HISC.¹⁷ Two temporary staff support positions are provided to HISC by RCUH and funded through an annual HISC grant program.¹⁸ Further, funding to HISC through annual general fund appropriations in DLNR's budget has been sporadic and varied.¹⁹

In view of the foregoing, the Bureau suggests the following more specific actions to effectuate Recommendation (3):

- The Legislature may want to reexamine other options for the organizational structure of the entity responsible for administering the State's invasive species program, to ensure it has the needed authority and resources to exercise effective leadership and to achieve the level of state, federal, county, and nonprofit interagency coordination and collaboration necessary to fully address the threat of invasive species to the State;
- Regardless of what, if any, organizational changes are made with respect to the administration of the State's invasive species program, the Legislature should provide sufficient funding and other resources, including dedicated staff, to enable HISC or any successor entity to function fully and perform all of the duties necessary to address the threat of invasive species to the State, as detailed in the comprehensive, statewide biosecurity plan. Further, the Legislature should enact the legislation necessary to conform the duties and responsibilities of the entity charged with administering the State's invasive species program (whether HISC or any successor entity) with those envisioned in the biosecurity plan; and
- If no change is made to the organizational structure of the entity responsible for administering the State's invasive species program, the Legislature should consider amending section 194-2, HRS, to scale back some of the existing statutory duties of HISC to focus on the duties that HISC is actually able to perform or should be performing. This would seem particularly called for if the Legislature declines to increase funding and staff resources for HISC, but seems advisable in any case with respect to some of the existing statutory responsibilities that may be better handled by other entities, given HISC's current organizational structure.²⁰ Further, with respect to federal issues specified in section 194-2(5), HRS, the Legislature should consider amending HISC's duties as follows: to focus on directing efforts to resolve the inconsistencies between state and national lists for pests of concern; and to replace some narrowly-focused provisions with a more broadly-phrased mandate for HISC to

work with involved federal agencies to find achievable and effective avenues for coordination and collaboration in both addressing all potential pathways by which invasive species may enter the State and controlling or eradicating those that are present. Finally, the Legislature should consider the following:

- Amending Chapter 194, HRS, by adding responsibilities related to the operation of an interagency grants program, a public online reporting system, and a central repository for invasive species data, which are not explicitly authorized by current statute; and
- Providing the necessary resources to carry out these additional responsibilities.

In the alternative, if the Legislature intends that HISC focus on full compliance with its present statutory mandates, it could direct HISC to reallocate its budget. Thus, instead of HISC using most of its general fund appropriation to provide grants to invasive species projects that address gaps and leaks in the invasive species system, the Legislature could direct HISC to use this money to establish and fill temporary positions to fulfill its duties, or fund projects that help HISC to comply with its specific mandates.²¹ It should be noted, however, that because money would no longer support existing projects such as the Weed Risk Assessment, this alternative may actually contribute to increased gaps and leaks in the fight against invasive species. Accordingly, the Bureau does not recommend this course of action without the Legislature providing some alternative means of financial and other support for these grant projects or without at least making some determination as to which projects are worthy of continued support.

- (4) The Legislature should provide sufficient funding and support (including but not limited to providing for additional inspectors, inspection facilities, and other necessary infrastructure improvements) to increase the capacity of the agencies responsible for conducting the needed detection and inspections throughout the State, but particularly at those border entry points and points of interisland movement of passengers, cargo, and other traffic that pose the greatest opportunity for importation and spread of invasive species.**

Ideally, this funding and support would be provided to agencies consistent with the biosecurity plan as recommended herein, but should be provided even in the absence of the adoption of a comprehensive, statewide biosecurity plan, if the State hopes to make a genuine effort to address the threat of invasive species. While the Bureau estimated that approximately \$57,488,910 in state, county, federal, and other funds was expended by various state, county, and federal agencies to fight invasive species in fiscal year 2013-2014,²² it appears that less than \$19,000,000 was spent on prevention and detection activities.²³ The Bureau also reiterates the point made in its 2002 Report, and loudly echoed by most respondents to the surveys conducted for this report, that "funding for inspection or detection purposes represents the greatest return on funds expended" for invasive species efforts.²⁴

- (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 the Bureau's 2002 recommendation to provide a stable, dedicated means of funding for invasive species operations, including rapid response actions.**²⁵

The Bureau suggests consideration of at least the following funding sources:

- (a) Conveyance tax, by amending section 247-7, HRS, to specify invasive species as a priority for disbursement;²⁶
- (b) Transient accommodations tax, by amending section 237D-6.5, HRS, to specify invasive species as a priority for disbursement;
- (c) Inspection, quarantine, and eradication service fee, 150A-5.3, HRS;²⁷
- (d) Airport landing fee, by adding a new paragraph to section 261-7, HRS, to require a percentage of the airport landing fee to be disbursed for invasive species activities at airports because revenues from this fee can only be used for airports;²⁸
- (e) Pest inspection, quarantine, and eradication fund, section 150A-4.5, HRS, although money may need to be appropriated from the fund to other entities besides DOA, depending on the invasive species activity; and
- (f) General funds.

Further, the Legislature may want to consider establishing an emergency rainy day fund,²⁹ particularly to support emergency rapid response actions to prevent the establishment or spread of new invasive species, pursuant to the emergency response provisions of the biosecurity plan.³⁰

- (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.**

As noted previously, while the State is required to prevent transmission of invasive species from Hawaii to the mainland, there is no reciprocal federal requirement to protect Hawaii from the interstate or international transmission of invasive species. Suggested measures to afford this protection have included, among other things, harmonizing federal and state invasive species lists; requiring inspection and appropriate labeling at points of origin; and inspection of arriving cargo, United States mail, passengers and luggage, and quarantine where necessary, for species deemed invasive in Hawaii. Ideally, a comprehensive, statewide biosecurity plan would address these issues with specific actionable recommendations, as appropriate, such as requiring

appropriate state agencies to take advantage of existing federal mechanisms to register its concerns about invasive species, including by commenting on proposed additions to the Code of Federal Regulations and petitioning APHIS for assistance in addressing particular invasive species, as Florida did with the bagrada bug.³¹ The State should, in turn, enlist the support of the congressional delegation to take action to ensure the cooperation of federal agencies to the full extent of their authority and, where appropriate, to pursue federal legislation to address any remaining gaps and leaks that lie beyond the State's authority.

- (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.**

As noted in Chapter 1, in view of its discussions with HISC and the University of Hawaii Economic Research Organization (UHERO), the Bureau concluded that it does not appear creating an economic model would provide a viable or accurate tool to predict economic costs to the State of future invasive species.³² The Bureau found UHERO's alternative suggestion to be a reasonable approach.³³ However, the Bureau was uncertain whether using the appropriated funds for this purpose was within the scope of its authority under Act 126, Session Laws of Hawaii 2015, and in any case, this project could not be completed by UHERO within the time frame required for this report.

Endnotes

1. *See supra*, Chapter 8, notes 223-238, 248-262, and 273-280 and accompanying text.
2. *Id.*, notes 217-222 and accompanying text.
3. *See supra* Chapter 8, note 250 and accompanying text.
4. *See supra* Chapter 8, note 251 and accompanying text.
5. *See supra* Chapter 8, notes 222, 236-238, and 276-278 and accompanying text.
6. *See supra* Chapter 8, notes 4-66 and accompanying text.
7. *See supra* Chapter 8, notes 46-48 and accompanying text.
8. Legislative Reference Bureau, *Filling the Gaps in the Fight Against Invasive Species* (2002), at 64-65.
9. *Id.* at 67-68.
10. *Id.*, Appendix G, at 113-117.
11. *See supra* Chapter 3, notes 35-118 and accompanying text.
12. Codified as Chapter 194, HRS.
13. See **Survey 2, Part I**, Question 9, specifically, the responses of DOA PQB ("Yes, the control over funding appears to have coordinated some of the fight against invasive species."); DOA PPC

("HISC has allowed connections to be made inter-departmentally which has allowed increased understanding of roles and responsibility and better coordination between agencies. HISC has also allowed streamlining of obtaining permits for invasive species control for HDOA PPC"); DLNR DOFAW ("The HISC has also assisted in coordinating interagency response to recent invasive species threats that are of concern to both HDOA and DOFAW. In particular, HISC staff have helped coordinated efforts between O‘ahu DOFAW and HDOA for response to the coconut rhinoceros beetle."); DOT ("Through the HISC the DOT is able to collaborate better with government agencies in addressing invasive species. They also foster professional contacts who provide training and resources to our staff."); UH PCSU ("Yes, it has been a critical source of funding and increasingly has been an effective advocate and focus for synthesizing data across islands and projects."); NRCS ("Yes, we have a very good working relationship with Josh Atwood and great respect for HISC and the work they’re doing to address this huge challenge. We work well with the respective Islands Councils (OISC, MISC, etc.). We would love to do more collaborative projects."); FWO ("Yes. Although the Service does not receive funding from HISC for invasive species work in Hawaii, we have been integral partners in the evaluation and recommendation to support invasive species work performed by other agencies and organizations to further prevention activities, research and technology, control and management, and outreach and public awareness as it relates to invasive species."); CBP ("Yes, the information sent in email updates and meetings has on occasion given us information on emerging plant health threats, identification of plant material, and disease symptoms, as well as specific invasive species information."); MISC ("Yes, funding and coordination."); OISC ("Absolutely, they have been a major funder and allowed us to leverage federal and County funds. The staff are also great at putting us in contact with people from other agencies and generally helping us to get the job done."); KISC ("Yes - HISC provides guidelines, planning, and core funding."); and CGAPS ("Somewhat. Without the mechanism to engage appointed leaders in the efforts, we could not have progressed nearly as far."); **Part II, Funding Issues**, Question 6, specifically, the response of DLNR DOFAW ("DOFAW staff are assisting DOH in developing an airports monitoring plan under coordination by the HISC, but ideally the DOH program would be adequately funded."). Cf. **Survey 2, Part I**, Question 6, specifically, the responses of DOA PQB ("PQB has some coordination with USDA, APHIS, PPQ, and the Military."); DOA AQB ("Coordination with USDA-Veterinary Services works very well. . . . Relationship with the US Postal Service has been excellent."); DLNR DOFAW ("DOFAW works collaboratively with HDOA and the ISCs on species of shared concern. One example is coqui frog on O‘ahu"); DOH EHSD ("Our experience with other state, federal and military agencies with regards to an "invasive vector" has been generally positive.) DOT ("The DOT works maintains good partnerships with DOA, DOH, DLNR and our Federal Agencies."); UH PCSU ("basically we have had a continuing process learning how other agencies work and how to interact with them. While there are occasional hiccups, the process has worked well, except when agencies experience high turnover or are short-staffed."); NAVY ("JBPHH [Joint Base Pearl Harbor Hickam] and PMRF [Pacific Missile Range Facility] have experienced excellent inter-agency coordination with state and federal agencies."); MCBH ("the State of Hawaii agencies (HDOA, OISC) tackling the invasive species issue have been very supportive."); NPS ("Staff from multiple parks report that coordination/cooperation has greatly improved over past 10 years, but that further improvements are possible."); FWO ("Interagency coordination with other federal and state agencies as it relates to invasive species issues has been very responsive; however, the mechanisms to implement invasive species efforts including adequate funding, resource capacity, and legal and jurisdictional authorities have resulted in some challenges."); OISC ("In general I think Federal/State cooperation is good between federal and state agencies involved in natural resource management."); KISC ("there has been excellent coordination on Kauai."); and HARC ("HARC scientists have generally had a good working relationship with HDOA and APHIS as far as

exchange of information and prevention of transport of unwanted pests and diseases into or out of the state.").

14. Legislative Reference Bureau, Filling the Gaps in the Fight Against Invasive Species, *supra* note 8 at 63 (noting in a discussion of a council approach that one of the criticisms of CGAPS is that "it lacked 'high-level political leadership'" and that "[m]ajor improvements . . . require political leadership of the highest level"); at 64 (noting that the "same authority or power vacuum at CGAPS is also lacking at the state agency level. Comments by some state agency officers confirm the comments by private organizations -- that the State lacks political will to effectively fight the invasive species problem. A council approach could presumably address this concern."); and at 67 (recommending a hybrid approach in which the Invasive Species Administrator would consult with the primary departments involved with invasive species on "a regular basis to address the authority or power vacuum that exists in the present system.") Whether the hybrid approach recommended by the Bureau would have been more successful in addressing this issue remains to be seen.
15. See **Survey 2, Part I**, Question 8, specifically, the response of NMFS addressing changes necessary to assist agencies ("This is a highly sensitive issue and would take senior leadership engagement across a broad spectrum of entities to change. If these changes could be made, this would yield the best outcome but they are also the hardest agreements to achieve."); **Part I**, Question 11, specifically, the response of UH CTAHR identifying primary gaps or leaks ("Lack of political will – aggressive approaches to invasive species are often shied away from;"); **Part I**, Question 12, specifically, the responses of UHH concerning recommendations to address primary gaps or leaks ("Develop the political will to have new law passed restricted (sic) trade and sale of invasive plants in Hawai'i. Develop political will to acknowledge that invasive animals such as pigs and birds are spreading some key invasive plant species, and take appropriate action with those animals to limit their spread."); and NMFS ("A major first step would be to elevate this issue within and between government entities with two key targets. To start this process, I would recommend the Governor of Hawaii and the Secretary of Interior take the lead as co-chairs in starting this process. 1) Define Senior Agency and Political leads and target priorities 2) Define sustainable funding needs and commitments by respective partners"); **Part I**, Question 13, specifically, the response of NMFS concerning other recommendations ("Create a separate unit at DLNR that focuses on this issue, has defined leadership and basic staff funding support to oversee program."); **Part II, State Administration Issues**, Question 2, specifically the County of Kauai concerning whether jurisdictional problems reflect the lack of a single authority with sole responsibility for invasive species ("It boils down to the leader. The Governor needs to direct the various agencies to work together to work together [sic] to solve the problem. The top person needs to drive the initiative."); **Part II, State Administration Issues**, Question 3, specifically, the response of the County of Kauai concerning the need for better involvement of county governments ("With the State's leadership being on Oahu and totally removed from the problem, not all State agencies work with a sense of urgency that needs to take place."); **Part II, State Administration Issues**, Question 5, specifically, the response of NMFS concerning agency mandates and commercial interests calling for maintenance of potentially destructive alien species ("This . . . has been a long standing conflict and one that will require political consensus to solve."); NRCS ("Birds are the most threatened species in Hawaii. Mongooses, rats, and cats are a huge threat to this yet there seems little political will to combat this"); and MCBH ("Yes. Definitely commercial interests as well as no political will to adversely impact a commercial entity's bottom line even when it will result in harm to the environment.") Cf. **Part II, State Administration Issues**, Question 2, ."); DOH EHSD ("Yes, we believe without a single authority advocating for specific goals and objectives dedicated to the control of invasive species, the State's position on various federal issues may become unfocused or unclear as it tries to

- accommodate the multiple concerns from several different stakeholders."); UH PCSU ("Right now things are too scattered. . . . One entity needs to be in charge").
16. See §194-2 (a), (d), and (e), HRS.
 17. See *supra* Chapter 3, notes 8-9 and accompanying text.
 18. See *supra* Chapter 3, notes 10-13 and accompanying text.
 19. See STATE OF HAWAII DLNR, REPORT TO THE TWENTY-SEVENTH LEGISLATURE REGULAR SESSION OF 2014, (Oct. 2014), *available at* <http://dlnr.hawaii.gov/hisc/files/2013/02/Invasive-Species-Rpt-FY14-Sec-194-2.pdf>. (explaining that the Legislature allocated HISC: \$2,000,000 for fiscal years 2005 and 2006; \$0 for fiscal year 2007 because funding was allocated to the County of Hawaii for controlling coqui frogs; \$2,000,000 for fiscal year 2008; \$1,000,000 for fiscal year 2009; \$0 for fiscal years 2010-2013 because of the economic recession; and \$750,000 annually for the 2014-2015 biennium, although the Legislature provided a supplemental \$5,000,000 for fiscal year 2015 totaling \$5,750,000. Further, HISC is requesting \$6,000,000 annually for the 2016-2017 biennium.).
 20. See *supra* Chapter 3, notes 85-88, 92-93, 100-105, and 112-115 and accompanying text.
 21. For example, HISC could fund a research project to identify and record all invasive species present in Hawaii.
 22. See *supra* Chapter 7, Table 2.
 23. *Id.*
 24. Legislative Reference Bureau, Filling the Gaps in the Fight Against Invasive Species, *supra* note 8 at 67.
 25. See *id.* at 66-67 for discussion of possible funding sources.
 26. This funding source was also recommended in the Bureau's initial study. Legislative Reference Bureau, Filling the Gaps in the Fight Against Invasive Species, *supra* note 8 at 66.
 27. Suggestion (c) could be considered as either a stand-alone suggestion or a subset of suggestion (e). The inspection, quarantine, and eradication service fee is one of eight revenue sources for the pest inspection, quarantine, and eradication fund.
 28. This funding source was recommended in the Bureau's initial study: Legislative Reference Bureau, Filling the Gaps in the Fight Against Invasive Species, *supra* note 8 at 66-67.
 29. For example, the Legislature may wish to establish a fund similar to the major disaster fund, section 127A-16, HRS, but alter the triggering mechanism to access the fund moneys (gubernatorial proclamation of a state of emergency) to a process that would make it more accessible without causing undue alarm while still being fiscally accountable to the Legislature.
 30. See *supra* Chapter 8, notes 46-48 and accompanying text.
 31. See *supra* Chapter 8, notes 219-222 and accompanying text.
 32. See *supra* Chapter 1, notes 50-52 and accompanying text.
 33. See *supra* Chapter 1, notes 53-54 and accompanying text.

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Approved by the Governor

JUN 19 2015

HOUSE OF REPRESENTATIVES
TWENTY-EIGHTH LEGISLATURE, 2015
STATE OF HAWAII

H.B. NO.

1471
H.D. 2
S.D. 2
C.D. 1

A BILL FOR AN ACT

RELATING TO THE FUNDING OF GOVERNMENT PROGRAMS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

PART I

SECTION 1. The purpose of this Act is to address the funding of government programs.

More specifically, this Act:

- (1) Makes an appropriation to the legislative reference bureau for an invasive species study;
- (2) Forces the lapse of certain appropriations for fiscal year 2014-2015 that are not expected to be expended; and
- (3) Re-appropriates some of the lapsed appropriations.

The legislature finds that this Act enables the savings of the forced lapses to be identified as part of the carryover balance for fiscal year 2014-2015 in the state financial plan. The legislature finds that this approach is more efficient than simply allowing the unexpended and unencumbered amounts to lapse. Because lapsed appropriations do not become known until after the fiscal year ends, the legislature is unable to



1 consider lapsed appropriations when making budgetary decisions
2 during the regular session immediately preceding the lapse date.

3 The legislature emphasizes that the repeal or reduction of
4 the appropriations in this Act does not represent
5 discontinuation of support for the de-funded programs. The
6 intent of this Act is to make more general funds available for
7 the state financial plan.

8 The legislature also finds that the lapsing, repeal, or
9 reduction of the appropriations for fiscal year 2014-2015 by
10 this Act is not intended to reduce the base budget of the
11 affected programs.

12 PART II

13 SECTION 2. The legislature finds that the invasion of
14 Hawaii by insects, disease-bearing organisms, snakes, weeds, and
15 other pests is a major threat to the State's economy, natural
16 environment, and health. The legislature further finds that
17 immediate action is needed to mitigate the threats and impacts
18 of invasive species.

19 The legislature previously recognized the critical
20 importance of eliminating invasive species in Hawaii by adopting
21 Senate Concurrent Resolution No. 45, H.D. 1 (2001), and by



1 passing Act 85, Session Laws of Hawaii 2003. Senate Concurrent
2 Resolution No. 45, H.D. 1 (2001), resulted in the 2002
3 legislative reference bureau study "Filling the Gaps in the
4 Fight Against Invasive Species," and Act 85, Session Laws of
5 Hawaii 2003, resulted in the creation of the interagency Hawaii
6 invasive species council to provide policy level direction,
7 coordination, and planning among agencies. The Hawaii invasive
8 species council has disbursed funds on an annual basis to
9 support critical invasive species prevention, control, outreach,
10 research, and planning projects that enhance or supplement
11 existing departmental projects.

12 The legislative reference bureau study "Filling the Gaps in
13 the Fight Against Invasive Species," estimated the annual cost
14 to address invasive species issues in Hawaii at \$50,000,000.
15 The original goal for an annual Hawaii invasive species council
16 budget was \$5,000,000 from the general fund, though the initial
17 approved appropriation in fiscal year 2005 was \$2,000,000. From
18 fiscal years 2010-2013, no general funds were provided. In
19 fiscal year 2014, \$750,000 was provided from the general fund.
20 In fiscal year 2015, \$5,750,000 was provided from the general
21 fund. The legislature finds that a continued commitment to



1 having the best possible understanding, science, plans, and
2 capacity is necessary to maintain and enhance invasive species
3 prevention and mitigation in Hawaii, to effectively protect the
4 State's natural resources and economy and the health and
5 lifestyle of its people.

6 The purpose of this part is to provide moneys for and
7 direct the legislative reference bureau to update its 2002 study
8 titled "Filling the Gaps in the Fight Against Invasive Species."

9 SECTION 3. (a) The legislative reference bureau shall
10 update its 2002 study "Filling the Gaps in the Fight Against
11 Invasive Species;" provided that the legislative reference
12 bureau shall consult with relevant government and non-government
13 organizations, experts, and individuals in its analysis;
14 provided further that the bureau shall update its study to the
15 extent necessary to describe the present scope of the invasive
16 species problem in Hawaii; economic and other costs to Hawaii;
17 health and safety issues; state, federal, county, and non-
18 government roles and responsibilities; gaps and leaks in
19 prevention and response systems; and recommendations related to
20 policy, programs, and funding to address invasive species.



1 (b) The legislative reference bureau may contract the
2 services of another entity to perform any economic modeling or
3 any related services that may be required pursuant to this
4 section. Any contract for services executed pursuant to this
5 section shall be exempt from chapter 103D, Hawaii Revised
6 Statutes.

7 (c) The legislative reference bureau shall submit the
8 updated study to the legislature no later than twenty days prior
9 to the convening of the regular session of 2016.

10 SECTION 4. There is appropriated out of the general
11 revenues of the State of Hawaii the sum of \$100,000 or so much
12 thereof as may be necessary for fiscal year 2015-2016 for
13 contracting for services to update the 2002 study "Filling the
14 Gaps in the Fight Against Invasive Species."

15 The sum appropriated shall be expended by the legislative
16 reference bureau for the purposes of this part.

17 PART III

18 SECTION 5. The purpose of this part is to provide general
19 funds for the juvenile justice reform initiative for the 2015-
20 2017 fiscal biennium. The general funds are provided from a
21 portion of the appropriation for the Hawaii youth correctional



1 facility for fiscal year 2014-2015 that is expected to lapse on
2 June 30, 2015. The legislature finds that the appropriation
3 rightfully should be re-used for the juvenile justice reform
4 initiative instead of lapsing into the general fund for
5 expenditure on other programs.

6 The legislature emphasizes its intent that the
7 appropriation made in this part take effect only if the
8 requisite general fund appropriation is lapsed pursuant to
9 section 6.

10 The legislature intends that the appropriation in this part
11 for the juvenile justice reform initiative be additional to any
12 other appropriation that may be made in the General
13 Appropriations Act of 2015.

14 The legislature also intends that, under this part, the
15 base budget for the Hawaii youth correctional facility shall not
16 be reduced by the amount lapsed under section 6 of this Act.

17 SECTION 6. Act 134, Session Laws of Hawaii 2013, as
18 amended by Act 122, Session Laws of Hawaii 2014, is amended by
19 adding a new section to part III, social services, to be
20 appropriately designated and to read as follows:



19 SECTION 9. The purpose of this part is to provide general
20 funds for the agricultural loan revolving fund and appropriate
21 those proceeds for agricultural loans.

1 The general funds are provided from portions of the
2 appropriation for the department of agriculture for fiscal year
3 2014-2015 that are expected to lapse on June 30, 2015. The
4 legislature finds that the appropriation rightfully should be
5 re-used for a program of the department of agriculture instead
6 of lapsing into the general fund for expenditure on other
7 programs.

8 The legislature emphasizes its intent that the
9 appropriations contained in sections 11 and 12 of this part take
10 effect only if the requisite general fund appropriations are
11 lapsed pursuant to section 10. The legislature also intends
12 that under this part, the base budget for plant, pest, and
13 disease control (AGR122), animal disease control (AGR132), or
14 agricultural resource management (AGR141) shall not be reduced
15 by the amounts lapsed under section 10 of this Act.

16 The legislature finds that the appropriations referred to
17 in section 10 of this part are the following from the executive
18 budget worksheets of the regular session of 2013:

19 (1) Sequence 90-001 for plant, pest, and disease control
20 (AGR122);



- 1 (2) A portion of sequence 91-001 for plant, pest, and
2 disease control (AGR122);
- 3 (3) A portion of sequence 3070-001 for animal disease
4 control (AGR132); and
- 5 (4) A portion of sequence 90-001 for agricultural resource
6 management (AGR141).

7 SECTION 10. Act 134, Session Laws of Hawaii 2013, as
8 amended by Act 122, Session Laws of Hawaii 2014, is amended by
9 adding four new sections to part III, economic development, to
10 be appropriately designated and to read as follows:

11 "SECTION B. Provided that of the general fund
12 appropriation for plant, pest, and disease control (AGR122) for
13 fiscal year 2014-2015, \$162,540 appropriated for the detector
14 dog program shall not be expended during that fiscal year and
15 shall lapse on June 30, 2015.

16 SECTION C. Provided that of the general fund appropriation
17 for plant, pest, and disease control (AGR122) for fiscal year
18 2014-2015, \$165,055 appropriated for the queen bee program shall
19 not be expended during that fiscal year and shall lapse on June
20 30, 2015.



1 SECTION D. Provided that of the general fund appropriation
2 for animal disease control (AGR132) for fiscal year 2014-2015,
3 \$165,055 appropriated for rent shall not be expended during that
4 fiscal year and shall lapse on June 30, 2015.

5 SECTION E. Provided that of the general fund appropriation
6 for agricultural resource management (AGR141) for fiscal year
7 2014-2015, \$500,000 appropriated for livestock pasture
8 improvements shall not be expended during that fiscal year and
9 shall lapse on June 30, 2015."

10 SECTION 11. Except as otherwise provided under section 13,
11 there is appropriated out of the general revenues of the State
12 of Hawaii the sum of \$2,000,000 or so much thereof as may be
13 necessary for fiscal year 2015-2016 for deposit into the
14 agricultural loan revolving fund.

15 The sum appropriated shall be expended by the department of
16 agriculture for the purposes of this part.

17 SECTION 12. Except as otherwise provided under section 13,
18 there is appropriated out of the agricultural loan revolving
19 fund the sum of \$2,000,000 or so much thereof as may be
20 necessary for fiscal year 2015-2016 for the making of
21 agricultural loans.



1 The sum appropriated shall be expended by the department of
2 agriculture for the purposes of this part.

SECTION 13. Sections 11 and 12 shall not take effect unless at least \$992,650 of the general fund appropriation for fiscal year 2014-2015 is lapsed in accordance with the amendments made to Act 134, Session Laws of Hawaii 2013, as amended by Act 122, Session Laws of Hawaii 2014, in section 10 of this Act.

9 PART V

10 SECTION 14. The purpose of this part is to repeal the
11 appropriation in Act 164, Session Laws of Hawaii 2014, for the
12 state building code council and staff to carry out their duties
13 and functions.

14 The legislature finds that the department of accounting and
15 general services does not plan to expend the appropriation.

16 SECTION 15. Act 164, Session Laws of Hawaii 2014, is
17 amended by repealing section 11.

~~18 ["SECTION 11. There is appropriated out of the general~~
~~19 revenues of the State of Hawaii the sum of \$136,676 or so much~~
~~20 thereof as may be necessary for fiscal year 2014 2015 for the~~

1 ~~state building code council and staff to carry out their duties~~
2 ~~and functions, including operating costs and staff salaries.~~

3 ~~The sum appropriated shall be expended by the department of~~
4 ~~accounting and general services for the purposes of this Act."]~~

5 PART VI

6 SECTION 16. The purpose of this part is to repeal the
7 appropriation in Act 166, Session Laws of Hawaii 2014, for the
8 counties to implement voter registration at absentee polling
9 places.

10 The legislature finds that the office of elections does not
11 plan to expend the appropriation.

12 SECTION 17. Act 166, Session Laws of Hawaii 2014, is
13 amended by repealing section 4.

14 ["SECTION 4. There is appropriated out of the general
15 revenues of the State of Hawaii the sum of \$100,000 or so much
16 thereof as may be necessary for fiscal year 2014-2015 for the
17 counties to implement this Act, which may include upgrading the
18 registration process by purchasing electronic poll books.

19 ~~The sum appropriated shall be expended by the office of~~
20 ~~elections for the purposes of this Act."]~~



PART VII

SECTION 18. The purpose of this part is to reduce the appropriations in Act 151, Session Laws of Hawaii 2014, for various programs on aging.

The legislature finds that the executive office on aging does not plan to expend the entire amount of each of the appropriations reduced in this part.

SECTION 19. Act 151, Session Laws of Hawaii 2014, is amended as follows:

1. By amending sections 2, 3, and 4 to read:

"SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of [~~\$4,200,000~~] \$3,780,000 or so much thereof as may be necessary for fiscal year 2014-2015 for the kupuna care program; provided that the sum appropriated shall be in addition to the base budget of the executive office on aging.

SECTION 3. There is appropriated out of the general revenues of the State of Hawaii the sum of [~~\$1,900,000~~] \$1,710,000 or so much thereof as may be necessary for fiscal year 2014-2015 for the aging and disability resource center.



1 SECTION 4. There is appropriated out of the general
2 revenues of the State of Hawaii the sum of [~~\$476,772~~] \$429,095
3 or so much thereof as may be necessary for fiscal year 2014-2015
4 for the healthy aging partnership program of the department of
5 health's executive office on aging."

6 2. By amending section 8 to read:

7 "SECTION 8. There is appropriated out of the general
8 revenues of the State of Hawaii the sum of [~~\$500,000~~] \$450,000
9 or so much thereof as may be necessary for fiscal year 2014-2015
10 for the executive office on aging to conduct a public education
11 and awareness campaign on long-term care and to obtain an
12 independent evaluation of the campaign's effectiveness.

13 The sum appropriated shall be expended by the department of
14 health for the purposes of this part."

15 PART VIII

16 SECTION 20. The purpose of this part is to:

17 (1) Reduce a portion of the general fund appropriation for
18 medicaid coverage for non-United States citizens for
19 fiscal year 2014-2015; and



(2) Repeal Act 179, Session Laws of Hawaii 2014, which makes an appropriation to restore basic adult dental benefits to medicaid enrollees.

The legislature finds that the department of human services does not plan to expend the entire amount of the appropriation referenced in paragraph (1), nor does it plan to spend the appropriation referenced in paragraph (2).

The legislature also intends, under this part, that the base budget for health care payments (HMS401) shall not be reduced by the amount lapsed under section 21 of this Act.

SECTION 21. Act 134, Session Laws of Hawaii 2013, as amended by Act 122, Session Laws of Hawaii 2014, is amended by adding a new section to part III, social services, to be appropriately designated and to read as follows:

"SECTION F. Provided that of the general fund appropriation for health care payments (HMS401) for fiscal year 2014-2015, \$7,000,000 shall not be expended for medicaid coverage for non-United States citizens during fiscal year 2014-2015 and shall lapse on June 30, 2015."

SECTION 22. Act 179, Session Laws of Hawaii 2014, is repealed.



PART IX

SECTION 23. The purpose of this part is to repeal the appropriations made in Act 147, Act 148, and Act 149, Session Laws of Hawaii 2014, for public safety programs.

The legislature finds that the department of public safety does not plan to expend the appropriations.

SECTION 24. Act 147, Session Laws of Hawaii 2014, is amended by repealing section 2.

~~["SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of \$110,000 or so much thereof as may be necessary for fiscal year 2014 2015 for the department of public safety to provide substance abuse treatment services for inmates of the Halawa correctional facility.~~

~~The sum appropriated shall be expended by the department of public safety for the purposes of this Act."]~~

SECTION 25. Act 148, Session Laws of Hawaii 2014, is amended by repealing section 2.

~~["SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of \$125,000 or so much thereof as may be necessary for fiscal year 2014 2015 for~~



1 ~~funding programs and services for children of incarcerated~~
2 ~~parents and assisting with family reunification.~~

3 ~~The sum appropriated shall be expended by the department of~~
4 ~~public safety for the purposes of this Act."]~~

5 SECTION 26. Act 149, Session Laws of Hawaii 2014, is
6 amended by repealing section 3.

7 ~~["SECTION 3. There is appropriated out of the general~~
8 ~~revenues of the State of Hawaii the sum of \$250,000 or so much~~
9 ~~thereof as may be necessary for fiscal year 2014-2015 for the~~
10 ~~pilot project known as the reentry pilot project for nonviolent,~~
11 ~~low risk drug offenders established by this Act.~~

12 ~~The sum appropriated shall be expended by the department of~~
13 ~~public safety for the purposes of this Act."]~~

14 PART X

15 SECTION 27. The purpose of this part is to reduce the
16 appropriation for the tax system modernization for fiscal year
17 2014-2015.

18 The legislature finds that the department of taxation does
19 not plan to expend the entire amount appropriated.

20 The legislature intends that, under this part, the base
21 budget for supporting services-revenue collection (TAX107) shall



1 not be reduced by the amount lapsed under section 28 of this
2 Act.

3 SECTION 28. Act 134, Session Laws of Hawaii 2013, as
4 amended by Act 122, Session Laws of Hawaii 2014, is amended by
5 adding a new section to part III, government-wide support, to be
6 appropriately designated and to read as follows:

7 "SECTION G. Provided that of the general fund
8 appropriation for supporting services-revenue collection
9 (TAX107) for fiscal year 2014-2015, \$2,400,000 shall not be
10 expended for tax system modernization expenses during that
11 fiscal year and shall lapse on June 30, 2015."

12 PART XI

13 SECTION 29. The purpose of this part is to reduce the
14 appropriations for debt service payments for fiscal year 2014-
15 2015.

16 The legislature finds that the department of budget and
17 finance does not plan to expend the entire amount of each of the
18 appropriations reduced in this part.

19 The legislature intends that, under this part, the base
20 budget for debt service payments-State (BUF721), debt service-



1 DOE (BUF725), and debt service-UH (BUF728) shall not be reduced
2 by the amounts lapsed under section 30 of this Act.

3 SECTION 30. Act 134, Session Laws of Hawaii 2013, as
4 amended by Act 122, Session Laws of Hawaii 2014, is amended by
5 adding three new sections to part III, to be designated and to
6 read as follows:

7 "SECTION H. Provided that of the general fund
8 appropriation for debt service payments-State (BUF721) for
9 fiscal year 2014-2015, \$15,000,000 shall not be expended and
10 shall lapse on June 30, 2015.

11 SECTION I. Provided that of the general fund appropriation
12 for debt service-DOE (BUF725) for fiscal year 2014-2015,
13 \$10,000,000 shall not be expended and shall lapse on June 30,
14 2015.

15 SECTION J. Provided that of the general fund appropriation
16 for debt service-UH (BUF728) for fiscal year 2014-2015,
17 \$5,000,000 shall not be expended and shall lapse on June 30,
18 2015."

19 PART XI

20 SECTION 31. In codifying the new sections added by
21 sections 6, 10, 21, 28, and 30 of this Act, the revisor of



1 statutes shall substitute appropriate section numbers for the
2 letters used in designating the new sections in this Act.

3 SECTION 32. Statutory material to be repealed is bracketed
4 and stricken. New statutory material is underscored.

SECTION 33. This Act shall take effect on June 29, 2015.

APPROVED this 19 day of JUN , 2015



GOVERNOR OF THE STATE OF HAWAII



HB No. 1471, HD 2, SD 2, CD 1

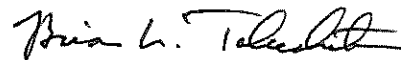
THE HOUSE OF REPRESENTATIVES OF THE STATE OF HAWAII

Date: May 5, 2015
Honolulu, Hawaii

We hereby certify that the above-referenced Bill on this day passed Final Reading in the House of Representatives of the Twenty-Eighth Legislature of the State of Hawaii, Regular Session of 2015.



Joseph M. Souki
Speaker
House of Representatives



Brian L. Takeshita
Chief Clerk
House of Representatives

H.B. No. 1471, H.D. 2, S.D. 2, C.D. 1

THE SENATE OF THE STATE OF HAWAII

Date: May 5, 2015
Honolulu, Hawaii 96813

We hereby certify that the foregoing Bill this day passed Final Reading in the
Senate of the Twenty-eighth Legislature of the State of Hawaii, Regular Session of 2015.


President of the Senate


Clerk of the Senate

APPENDIX B

EXECUTIVE ORDER NO. 2002-03

ESTABLISHING THE HAWAII INVASIVE SPECIES COUNCIL

WHEREAS, the land, water, and other resources of Hawaii are being severely impacted by the invasion of an increasing number of harmful non-native plant and animal species; and

WHEREAS, invasive pests already cause millions of dollars of crop losses, the extinction of native species, the destruction of native forests, and the spread of disease; and

WHEREAS, many more harmful pests now threaten to invade Hawaii and wreak further damage; and

WHEREAS, even one new pest--such as the brown tree snake or the red imported fire ant--could change the character of our islands; and

WHEREAS, these impacts are resulting in the destruction of Hawaii's environment and causing economic hardships to public and private landowners; and

WHEREAS, directed leadership and coordinated actions among all state agencies are critical to the fight against invasive species; and

WHEREAS, the multitude of public and private organizations with an interest in controlling and preventing the spread of harmful invasive species in Hawaii need a mechanism for cooperation, collaboration, coordination, and for planning a statewide plan of action to meet this threat;

NOW, THEREFORE, I, BENJAMIN J. CAYETANO, Governor of the State of Hawaii, by the authority vested in me by law, including section 26-41, Hawaii Revised Statutes, do hereby order:

1. There is created the Hawaii Invasive Species Council.
2. The purpose of the Hawaii Invasive Species Council is to provide policy level direction and planning for combating harmful invasive species infestations throughout the state and for preventing the introduction of others that may be potentially harmful.

The Invasive Species Council's responsibilities will be:

1. To minimize the effects of harmful non-native species on Hawaii's citizens and to ensure the economic and environmental well-being of the State of Hawaii;
2. To serve as a nonpartisan forum for identifying and understanding invasive species issues from all perspectives;
3. To take measures that will encourage, control and prevent the introduction of harmful non-native invasive species;
4. To organize and streamline the process for identifying and controlling invasive species;
5. To consider ways to halt the introduction and spread of invasive species as well as find possible ways to bring current problems under control; and
6. To explore, pursue, and develop additional sources of funding for invasive species measures as appropriate.

The official state membership of the Invasive Species Council shall include a representative from the executive office of the Governor and the heads of the following state entities:

1. Department of Agriculture;
2. Department of Land and Natural Resources;
3. Department of Business Economic Development and Tourism;
4. Department of Health;
5. Department of Transportation;
6. Department of Commerce and Consumer Affairs;
7. Department of Hawaiian Home Lands; and
8. the University of Hawaii.

The Hawaii Invasive Species Council shall be a joint effort between county, state, and federal governments as well as the profit and not-for-profit sectors. Representatives from respective agencies and organizations with an interest in the well being of Hawaii pertaining to invasive species shall be invited to participate as members, by consensus of the Council.

Pursuant to section 26-41, Hawaii Revised Statutes, the Hawaii Invasive Species Council shall be temporary and shall not remain in existence for a term extending beyond

the last day of the second regular session of the legislature after the date of the Council's establishment or beyond the period required to receive federal grants-in-aid, whichever occurs later, unless extended by concurrent resolution of the legislature.

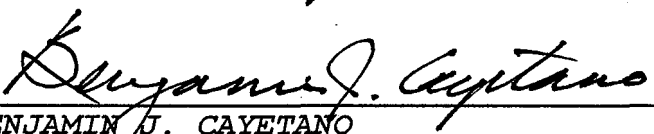
The Council's purpose is to foster coordinated approaches that support local initiatives for the prevention and control of invasive species, such as the Coordinating Group on Alien Pest Species and the Island Invasive Species Committees. The Council should not usurp the individual missions of any of its member organizations or duplicate effort.

The Hawaii Invasive Species Council will 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. The Council shall submit a report of its activities to the Governor and Legislature annually.

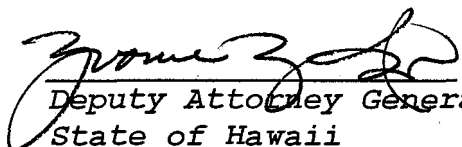
Hawaii

DONE at the State Capitol, Honolulu,

This 21 day of June, 2002.


BENJAMIN J. CAYETANO
Governor of Hawaii

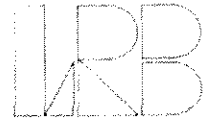
APPROVED AS TO FORM:


Deputy Attorney General
State of Hawaii

APPENDIX C

Charlotte A. Carter-Yamauchi
Acting Director

Research (808) 587-0666
Revisor (808) 587-0670
Fax (808) 587-0681



LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 446
415 S. Beretania Street
Honolulu, Hawaii 96813

July 17, 2015

Mr. Scott Enright
Chair, Board of Agriculture
Department of Agriculture
1428 South King Street
Honolulu, HI 96814

Dear Mr. Enright:

Subject: Invasive Species Study

Act 126, part II, Session Laws of Hawaii 2015, directs the Legislative Reference Bureau to update its 2002 study titled "Filling the Gaps in the Fight Against Invasive Species," as necessary to determine the present scope of the invasive species problem in Hawaii. As a part this effort, the Bureau is attempting to obtain a clearer, more accurate view of the resources committed to combating invasive species in Hawaii. Please find enclosed a survey relating to expenditures by the executive branch and other agencies for invasive species activities in fiscal year 2014.

We would appreciate it if you would forward copies of this survey to your various divisions, agencies, and administratively attached agencies, if any, to complete.

The survey asks for expenditure amounts relating to prevention, detection, control (management), monitoring, restoration, research and development, information management, and education, outreach, partnerships, and cooperative activities. It also asks for the identification of specific types of invasive species (e.g., brown tree snake, miconia calvescens, ivy gourd) targeted by the agency and the related expenditure amounts. Specifically, it asks for up to ten species for which the most expenditures were made, their individual expenditure amounts, and the expenditure amounts for all other invasive species combined.

We would appreciate it if the appropriate staff would complete the survey and return it to the Bureau by August 17, 2015.

If you have any questions, please contact Dean Sugano, who may be reached by phone at 587-0682 or by email at sugano@capitol.hawaii.gov.

July 17, 2015

The Bureau appreciates your cooperation and looks forward to receiving your input on this matter.

Very truly yours,

Charlotte A. Carter-Yamauchi
Acting Director

CCY: ls

Enc.

Survey of Executive Branch Departments Regarding Invasive Species Expenditure Amounts

Please provide the following information for the person we should contact if we have any questions.

Name:	
Title:	
Department:	
Division or Agency:	
Phone:	
E-mail:	

For the purposes of this survey, an "invasive species" is a species that is not native to the ecosystem of Hawaii and whose presence in Hawaii does or is likely to cause economic or environmental harm or harm to human health.

1. In the table below, please provide your division or agency's fiscal year 2014 expenditures for invasive species activities broken down by their source of funding--specifically, state funds, federal funds, and any other sources of funding:

**Actual Expenditures in Dollars for Invasive Species Activities by Funding Source
Fiscal Year July 1, 2013, to June 30, 2014**

Activities	State Funds	Federal Funds	Other (Specify): _____
Prevention			
Detection			
Control			
Monitoring			
Restoration			
Research and development			
Education, outreach, partnerships, cooperative activities			
Other (specify):			
Total Expenditures			

2. Please identify up to ten invasive species for which your division or agency made the most expenditures in fiscal year 2014 and list the corresponding expenditure amounts. Please also list the expenditure amounts for all remaining invasive species:

**Actual Expenditures in Dollars for Specific Types of Invasive Species by Funding Source
Fiscal Year July 1, 2013, to June 30, 2014**

Invasive Species (please list)	State Funds	Federal Funds	Other (Specify):

Invasive Species (please list)	State Funds	Federal Funds	Other (Cont'd):
All other species			
Expenditures that cannot be broken down into specific invasive species			
Total Expenditures			

Charlotte A. Carter-Yamauchi
Acting Director

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Fax (808) 587-0681



LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 446
415 S. Beretania Street
Honolulu, Hawaii 96813

August 31, 2015

The Honorable Kirk Caldwell
Mayor of the City and County of Honolulu
530 South King Street, Room 300
Honolulu, Hawaii 96813

Dear Mayor Caldwell:

Subject: Invasive Species Study

Act 126, part II, Session Laws of Hawaii 2015, directs the Legislative Reference Bureau to update its 2002 study titled "Filling the Gaps in the Fight Against Invasive Species," as necessary to determine the present scope of the invasive species problem in Hawaii. As a part this effort, the Bureau is attempting to obtain a clearer, more accurate view of the resources committed to combating invasive species in Hawaii. Please find enclosed a survey relating to expenditures by the counties of county funds for invasive species activities in fiscal year 2014. When filling out the survey, please do not include any funds received from other governmental agencies for invasive species mitigation or eradication purposes.

We would appreciate it if you would forward copies of this survey to your various departments, divisions, agencies, and administratively attached agencies, if any, to complete, as appropriate.

The survey asks for expenditure amounts relating to prevention, detection, control (management), monitoring, restoration, research and development, information management, and education, outreach, partnerships, and cooperative activities.

We would appreciate it if the appropriate staff would complete the survey and return it to the Bureau by September 30, 2015.

If you have any questions, please contact Dean Sugano, who may be reached by phone at 587-0682 or by email at sugano@capitol.hawaii.gov.

August 31, 2015

The Bureau appreciates your cooperation and looks forward to receiving your input on this matter.

Very truly yours,

Charlotte A. Carter-Yamauchi
Acting Director

CCY: ls

Enc.

Survey of County Departments Regarding Invasive Species Expenditure Amounts

Please provide the following information for the person we should contact if we have any questions.

Name:	
Title:	
Department:	
Division or Agency:	
Phone:	
E-mail:	

For the purposes of this survey, an "invasive species" is a species that is not native to the ecosystem of Hawaii and whose presence in Hawaii does or is likely to cause economic or environmental harm or harm to human health.

	Yes or No
Does the division or agency's response reflect the response of only the division or agency or that of the entire department?	

In the table below, please provide your division or agency's fiscal year 2014 expenditures for invasive species activities whose source of funding is your own county funds. To prevent the double-counting of the same funds, please do not report expenditures based upon state or federal funds:

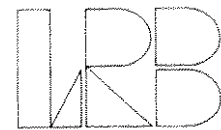
**Actual Expenditures in Dollars for Invasive Species Activities
based upon County Funds
Fiscal Year July 1, 2013, to June 30, 2014**

Activities	County Funds	State Funds	Federal Funds	Other (Specify):
Prevention				
Detection				
Control				
Monitoring				
Restoration				
Research and development				
Education, outreach, partnerships, cooperative activities				

Activities	County Funds	State Funds	Federal Funds	Other (Specify): _____
Other (specify): _____				
Total Expenditures				

Charlotte A. Carter-Yamauchi
Acting Director

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Fax (808) 587-0681



LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 446
415 S. Beretania Street
Honolulu, Hawaii 96813

August 31, 2015

Mr. Vernon Harrington
Plant Protection and Quarantine State Plant Health Director
Animal and Plant Health Inspection Service
300 Ala Moana Blvd., Ste. 8-120
Honolulu, HI 96850

Dear Mr. Harrington:

Subject: Invasive Species Study

Act 126, part II, Session Laws of Hawaii 2015, directs the Legislative Reference Bureau to update its 2002 study titled "Filling the Gaps in the Fight Against Invasive Species," as necessary to determine the present scope of the invasive species problem in Hawaii. As a part this effort, the Bureau is attempting to obtain a clearer, more accurate view of the resources committed to combating invasive species in Hawaii. Please find enclosed a survey relating to expenditures by federal agencies for invasive species activities in Hawaii in fiscal year 2014. When filling out the survey, please do not include any funds received from other governmental agencies for invasive species mitigation or eradication purposes.

We would appreciate it if you would forward copies of this survey to your various divisions to complete, as appropriate.

The survey asks for expenditure amounts directly incurred by federal agencies relating to prevention, detection, control (management), monitoring, restoration, research and development, information management, and education, outreach, partnerships, and cooperative activities.

We would appreciate it if the appropriate staff would complete the survey and return it to the Bureau by September 30, 2015.

If you have any questions, please contact Dean Sugano, who may be reached by phone at 587-0682 or by email at sugano@capitol.hawaii.gov.

August 31, 2015

The Bureau appreciates your cooperation and looks forward to receiving your input on this matter.

Very truly yours,

Charlotte A. Carter-Yamauchi
Acting Director

CCY: ls

Enc.

Survey of Federal Agencies Regarding Invasive Species Expenditure Amounts in Hawaii

Please provide the following information for the person we should contact if we have any questions.

Name:	
Title:	
Department:	
Division or Agency:	
Phone:	
E-mail:	

For the purposes of this survey, an "invasive species" is a species that is not native to the ecosystem of Hawaii and whose presence in Hawaii does or is likely to cause economic or environmental harm or harm to human health.

In the table below, please provide your division or agency's fiscal year 2014 expenditures for invasive species activities in Hawaii broken down by their source of funding. To prevent the double-counting of the same funds, please do not include expenditures that consisted of the transfer of funds to a governmental agency of the State of Hawaii or any of its counties.

**Actual Expenditures in Dollars for Invasive Species Activities by Funding Source
Fiscal Year July 1, 2013, to June 30, 2014**

Activities	Federal Funds	Other (Specify):
Prevention		
Detection		
Control		
Monitoring		
Restoration		
Research and development		
Education, outreach, partnerships, cooperative activities		
Other (specify):		
Total Expenditures		

APPENDIX D

Survey 1

Agency	Responded (with funds expended on invasive species)	Responded, but no funds expended on invasive species	Did not respond
State			
Department of Accounting and General Services		X	
Department of Agriculture	X		
Department of the Attorney General			X
Department of Business, Economic Development, and Tourism	X		
Department of Commerce and Consumer Affairs		X	
Department of Defense	X		
Department of Education	X		
Department of Hawaiian Home Lands			X
Department of Health	X		
Department of Human Services		X	
Department of Land and Natural Resources	X		
Department of Public Safety		X	
Department of Transportation	X		
University of Hawaii	X		
Office of Hawaiian Affairs	X		

Survey 1

Agency	Responded (with funds expended on invasive species)	Responded, but no funds expended on invasive species	Did not respond
Federal			
U.S. Department of Agriculture			
Animal and Plant Health Inspection Service, Plant Protection & Quarantine			X
Farm Service Agency	X		
Forest Service, Pacific Southwest Research Station, Institute of Pacific Islands Forestry			X
Natural Resources Conservation Service, Pacific Islands Area	X		
Agricultural Research Service, Pacific West Area	X		
Daniel K. Inouye U.S. Pacific Basin Agricultural Research Center			X
Department of Commerce			
United States Department of Commerce, NOAA, NWS, Pacific Region		X	
Department of Defense			
Department of the Air Force, Pacific Air Forces			X
Department of the Army, U.S. Army, Pacific	X		
Department of the Navy, U.S. Pacific Fleet			X
U.S. Marine Corps, Marine Forces Pacific	X		
Department of Homeland Security			
U.S. Coast Guard, 14 th Coast Guard District		X	

Survey 1

Agency	Responded (with funds expended on invasive species)	Responded, but no funds expended on invasive species	Did not respond
Department of the Interior			
Pacific Islands Fish and Wildlife Office	X		
National Park Service, Pacific Islands Office, Pacific West Region - Honolulu	X		
Department of Transportation			
Federal Aviation Administration, Pacific		X	
Department of Veterans Affairs			
National Memorial Cemetery of the Pacific			X
Other Agencies			
U.S. Postal Service			X
County			
City & County of Honolulu	X		
County of Maui			X
County of Hawaii			X
County of Kauai	X		

APPENDIX E

Charlotte A. Carter-Yamauchi
Acting Director

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Fax (808) 587-0681



LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 446
415 S. Beretania Street
Honolulu, Hawaii 96813

August 26, 2015

Dr. Virginia Pressler, Director
Department of Health
Kinau Hale
1250 Punchbowl Street
Honolulu, HI 96813

Dear Dr. Pressler:

Subject: Invasive Species Survey

Act 126, part II, Session Laws of Hawaii 2015, directs the Legislative Reference Bureau to update its 2002 study titled "Filling the Gaps in the Fight Against Invasive Species," as necessary to determine the present scope of the invasive species problem in Hawaii. Thank you very much for your responses to our initial survey to obtain an accurate view of the resources committed to combating Hawaii's invasive species. To continue our effort to update the 2002 study, the Bureau is attempting to obtain additional information regarding the present effort to combat the threat of invasive species in Hawaii and how that system may be improved. Please find enclosed a follow-up survey relating to agency efforts to address invasive species in Hawaii.

We would appreciate it if you would forward copies of this survey to the following divisions and branches, the Clean Water Branch of the Environmental Management Division and the Vector Control Branch of the Environmental Health Services Division, to complete.

Specifically, the survey solicits information about your agency's current role and responsibility in the fight against invasive species, existing programs, gaps and leaks in the current system, and recommendations for improvements. In particular, Part II of the survey addresses issues that were identifiable in the 2002 study's discussion on system gaps and leaks and asks that your agency analyze whether these issues exist today.

We would appreciate it if the appropriate staff would complete the survey and return it to the Bureau by September 15, 2015.

If you have any questions, please contact Fiamma Rago or Ted Baker, who may be reached by phone at 587-0666 or by email at f.rago@capitol.hawaii.gov or tbaker@capitol.hawaii.gov, respectively.

The Bureau appreciates your cooperation and looks forward to receiving your input on this matter.

Very truly yours,

Charlotte A. Carter-Yamauchi
Acting Director

jv
Enc.

Survey of State, Federal, County, and Private Agencies Regarding Invasive Species

Please provide the following information for the person we should contact if we have any questions.

Name:	
Title:	
Department:	
Division or Agency:	
Phone:	
E-mail:	

For the purposes of this survey, an "invasive species" is a species that is not native to the ecosystem of Hawaii and whose presence in Hawaii does or is likely to cause economic or environmental harm or harm to human health.

PART I

Please respond to the following questions:

- (1) Please briefly describe your agency's current role and responsibility concerning invasive species.

- (2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?

- (3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.
- (4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.
- (5) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.
- (6) How have invasive species affected the health and safety of Hawaii's residents and tourists?
- (7) Do you have any examples of specific species that have affected or have the potential to affect Hawaii's residents and tourists?
- (8) Are there any invasive species you are closely following because they may cause potential damage to Hawaii's population?

- (9) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.
- (10) In your experience, what strategies have been most effective in the fight against invasive species?
- (11) What resources, if provided, or changes in laws, rules, or regulations would most help your agency more effectively combat invasive species?
- (12) If applicable, has the Hawaii Invasive Species Council been effective in assisting your agency in the fight against invasive species? Yes or no. Please explain.
- (13) What changes would you suggest to improve the effectiveness of the Hawaii Invasive Species Council in the fight against invasive species?
- (14) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawaii's efforts in the fight against invasive species?

- (15) What could to be done to address these leaks or gaps?
- (16) Please provide any other recommendations to improve the present system of addressing invasive species in Hawaii.

PART II

State and federal agencies, CGAPS, the Hawaii Nature Conservancy, and others identified a number of specific gaps and leaks for alien species entry and establishment that were included in the LRB's 2002 study. As part of our update to that study, we are attempting to determine what progress has been made in addressing these gaps and leaks. Please indicate whether, in your experience, these issues remain or have been resolved (yes or no). Please provide any additional updates, information, or comments that may be pertinent:

Funding Issues

- (1) In your opinion, does a large portion of the total passenger, cargo, and other traffic entering Hawaii currently go uninspected and, if so, do you think that these uninspected persons and cargo include materials that are known to be a significant source of invasive species that are not established in Hawaii?
- (2) Do you agree that the interisland spread of invasive species is a major, largely unregulated area?

- (3) In your opinion, could federal reimbursement be better utilized for state funds generally, and specifically, for funding to subsidize the protection of the U.S. mainland from pests in Hawaii?
- (4) Do you believe that the present laws and penalties for illegal introductions are inadequately enforced?
- (5) In your opinion, does funding for vertebrate-control research (such as developing techniques to control mongooses, rats, and other rodents) need to be increased because current levels are insufficient to cover more than a couple species, despite the wide range of pests in Hawaii?
- (6) Is the Department of Health's revised Port-of-Entry Program inadequately funded to provide an effective amount of rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance, and other alien vector activities at ports-of-entry?

State Administration Issues

- (1) Do you agree that response to new infestations is frequently delayed by jurisdictional, organizational, or procedural problems, allowing pests to become established and, in some cases, spread beyond control?

- (2) Do you believe that there are still jurisdictional problems that reflect the absence of a single authority solely responsible for fighting invasive species that can adequately represent the State regarding federal issues and concerns?
- (3) In your opinion, is better involvement of county governments needed in the island invasive species committees and in the prevention of the spread of invasive plants through state and county endorsed or sponsored nurseries, such as the Big Island Invasive Species Committee Plant Pono Endorsement Program nurseries on the island of Hawaii, which focuses on early detection of the nursery import trade of plants, and the Division of Forestry and Wildlife of the Department of Land and Natural Resources state tree nursery?
- (4) Is there a lack of agreement between state agencies on the goals of preserving the agricultural base versus the natural resources of the State?
- (5) Do you agree that agency mandates and commercial interests sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values?
- (6) In your opinion, does the State lack an invasive species mission statement and, is there a need to mandate that state agencies not assist or promote the introduction or spread of invasive species?

Federal Issues

- (1) Do you agree that international trade agreements and other federal programs do not protect Hawaii from the full range of pests and, in particular, do you agree that Hawaii's fight against invasive species is hampered by federal laws (such as the quarantine preemption problem) that do not recognize the dangers of pests already on the mainland but not established in Hawaii and international trade agreements that do not take into account the issues related to foreign pests?
- (2) Do you believe that domestic first-class mail is a pathway for invasive species into Hawaii and is federally protected from inspection, which continues to be a major, unaddressed issue in the fight against invasive species?
- (3) In your opinion, should quarantine of domestic pests arriving to Hawaii from the mainland be provided by the federal government, similar to the federal government's present practice that protects the mainland from pests originating in Hawaii?
- (4) Is there a lack of coordination between federal agencies to address invasive species in Hawaii, especially between the U.S. Fish and Wildlife Service, the Department of Defense, and the National Park Service?
- (5) Do you agree that the federal Lacey Act should be amended to include possession of prohibited alien wildlife that is consistent with the State's injurious wildlife list to improve state-federal coordination in enforcing smuggling and black market violations involving injurious alien species?

- (6) In your opinion, has the blending of the quarantine mission of the U.S. Department of Agriculture with the Department of Homeland Security resulted in the enhanced interdiction of invasive species for international airline arrivals?
- (7) Do you believe that federal policy is needed to inspect domestic airline passengers, baggage, and cargo specifically for invasive species?
- (8) In your opinion, has the National Park Service taken an active role in fighting invasive species far beyond the boundaries of their parks?
- (9) Do you agree that more involvement is needed by the federal Environmental Protection Agency in public health issues as it relates to invasive species?
- (10) Should properly funded collaborative U.S. Department of Agriculture assistance be provided, to in effect, "deputize" the U.S. Department of Agriculture's plant protection and quarantine program to enforce Hawaii's laws?

APPENDIX F

Survey 2

Agency	Responded	Did not respond	Responded but work does not involve invasive species in Hawaii
State			
Department of Agriculture			
Plant Industry Division, Plant Quarantine Branch	X		
Plant Industry Division, Plant Pest Control Branch	X		
Plant Industry Division, Pesticides Branch	X		
Animal Industry Division, Animal Quarantine Branch	X		
Animal Industry Division, Animal Disease Control Branch	X		
Department of Business, Economic Development, and Tourism			
Office of Planning	X		
Hawaii Tourism Authority	X		
Department of Health			
Environmental Health Services Division, Vector Control Branch	X		
Environmental Management Division, Clean Water Branch	X		
Department of Land and Natural Resources			
Division of Forestry & Wildlife	X		
Division of Aquatic Resources	X		
Department of Transportation	X		
University of Hawaii			
College of Tropical Agriculture and Human Resources	X		
College of Natural Sciences, Pacific Cooperative Studies Unit	X		

Survey 2

Agency	Responded	Did not respond	Responded but work does not involve invasive species in Hawaii
Hilo College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	X		
Federal			
National Invasive Species Center		X	
U.S. Postal Service		X	
U.S. Department of Agriculture			
Animal & Plant Health Inspection Service, Plant Protection and Quarantine	X		
Institute of Pacific Islands Forestry, Forest Service, Pacific Southwest Research Station		X	
Forest Service, Pacific Island Liaison		X	
Natural Resource Conservation Service	X		
Agricultural Research Service, Pacific West Area	X		
Daniel K. Inouye U.S. Pacific Basin Agricultural Research Center		X	
U.S. Department of Commerce			
National Oceanic Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office	X		
Hawaii U.S. Export Assistance Center, International Trade Administration, Pacific Island		X	
U.S. Department of Defense			
U.S. Pacific Command		X	
Pacific Air Forces, Department of the Air Force		X	

Survey 2

Agency	Responded	Did not respond	Responded but work does not involve invasive species in Hawaii
U.S. Army, Pacific, Department of Army		X	
U.S. Pacific Fleet, Department of Navy	X		
Marine Forces Pacific, U.S. Marine Corps	X		
U.S. Department of Health & Human Services			
Centers for Disease Control and Prevention, Division of Global Migration and Quarantine			X
U.S. Food & Drug Administration			X
U.S. Department of Homeland Security			
U.S. Customs & Border Protection	X		
14 th Coast Guard District		X	
U.S. Department of the Interior			
National Park Service, Pacific Island Office	X		
Geological Survey, Pacific Islands Water Science Center	X		
Geological Survey, Pacific Islands Ecosystems Research Center		X	
Pacific Islands Fish & Wildlife Office	X		
U.S. Department of State			
Bureau of Oceans & International Environmental & Scientific Affairs		X	
U.S. Department of Transportation			
Federal Highway Administration			X
Federal Aviation Administration			X

Survey 2

Agency	Responded	Did not respond	Responded but work does not involve invasive species in Hawaii
U.S. Environmental Protection Agency			
Pacific Islands Contact Office			X
County			
City & County of Honolulu	X		
County of Maui	X		
County of Hawaii		X	
County of Kauai	X		
Other			
Big Island Invasive Species Committee		X	
Bishop Museum: Hawaii Biological Survey		X	
Coordinating Groups on Alien Pest Species	X		
Hawaii Agricultural Research Center	X		
Hawaii Conservation Alliance	X		
Hawaii Island Invasive Species Council		X	
Hawaiian Humane Society	X		
Kauai Invasive Species Committee	X		
Maui Humane Society		X	
Maui Invasive Species Committee	X		
Molokai Subcommittee of Maui Invasive Species		X	
National Ecological Observatory Network		X	

Survey 2

Agency	Responded	Did not respond	Responded but work does not involve invasive species in Hawaii
North Carolina State University, Center for Integrated Pest Management		X	
Oahu Invasive Species Committee	X		
Sierra Club, Hawaii Chapter		X	
Smithsonian Environmental Research Center		X	
The Nature Conservancy of Hawaii		X	

APPENDIX G

SURVEY 2 RESPONSES

(Verbatim Excerpts)

PART I.

(1) Please briefly describe your agency's current role and responsibility concerning invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	The Plant Quarantine Branch's (PQB) mission is to prevent the introduction, spread and establishment of pests, which includes harmful insect s, plants, plant disease, and illegal animals.
DOA	Plant Industry Division Plant Pest Control Branch	The Plant Pest Control Branch is responsible for limiting plant pest populations that are detrimental to agriculture by using chemical, mechanical, biological, and integrated pest management methods for control or eradication.
DOA	Plant Industry Division Pesticides Branch	The Registration & Technical Review Unit of the Pesticides Branch provides a mechanism for conservation agencies and other groups to gain access to pest control tools to assist in invasive species control or management.
DOA	Animal Industry Division Animal Quarantine Branch	To protect animal and public health by preventing the introduction of rabies and animal diseases in imported cats and dogs through import regulation, quarantine, and monitoring of animal entries for alien pests and diseases.
DOA	Animal Industry Division Animal Disease Control Branch	Prevent, control, and eradicate infectious diseases and external parasites of livestock, poultry, and aquaculture.
DBEDT	Office of Planning	- On behalf of the Department of Business, Economic Development, and Tourism, the Office of Planning (OP) is the designee for the Hawaii Invasive Species Council (HISC). - Voting member
DBEDT	Hawaii Tourism Authority	The HTA has an environmental initiative which focuses on preserving Hawai'i's natural resources and as part of this initiative we have funded invasive species eradication, research and control.
DLNR	Division of Forestry & Wildlife	The Division of Forestry and Wildlife (DOFAW) is responsible for managing the State's natural resources, including native plants and animals. As invasive species are a primary threat to those resources, DOFAW mitigates invasive species impacts where they threaten native plants and animals.
DLNR	Division of Aquatic Resources	The DLNR, Division of Aquatic Resources (DAR), Aquatic Invasive Species (AIS) Program is committed to managing AIS threats to Hawai'i with the goal to minimize the ecological, economic, and human health impacts of AIS through the prevention and management of AIS introduction, expansion, and dispersal into, within and from Hawai'i (State of Hawai'i Aquatic Invasive Species Plan 2003). DLNR is designated as the lead State agency for preventing the introduction of AIS through ballast water, and the release of aquatic life. The DAR, AIS program's main focus areas include: - Invasive algae management and control in Kāneʻohe Bay, Oʻahu - Managing and operating the sea urchin hatchery for use as a biocontrol for invasive algae

A table of entity acronyms is attached as Appendix J.

The U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS) complete Survey 2 response is attached as Appendix H.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(1) Please briefly describe your agency's current role and responsibility concerning invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		• Ballast water and hull fouling data gathering and policy development • Prevention of AIS introduction and early detection • Ecosystem monitoring related to invasive species • Rapid response to AIS introductions • AIS focused outreach, education, and community engagement • AIS policy development • Coordination and collaboration with researchers and partners
DLNR	Hawaii Invasive Species Council (HISC)	The Hawaii Invasive Species Council (HISC) is responsible for cabinet-level direction on invasive species direction, coordination, and planning among state departments, federal agencies, and international and local initiatives. The HISC provides a unified voice for six state department heads on matters of invasive species policy, and administers an interagency budget to support projects that fill gaps between agency mandates or advance research and tools for invasive species prevention and control.
DOH	Environmental Health Services Division Vector Control Branch	The primary responsibility of the Vector Control Program within the Department of Health, Environmental Health Services Division (EHSD) is to suppress outbreaks of vector-borne diseases and to prevent the establishment of new vector species in Hawaii. A vector is an organism, usually an insect or other arthropod, rodent or other animal, capable of transmitting the causative agent of human disease. The primary vector that is still under surveillance are mosquitoes, although the number of traps have been greatly reduced. Due to the reduction-in-force in 2009, the Vector Control Branch was left with a very limited statewide staff with vector surveillance capabilities reduced to small areas around the major airports. Mosquitoes captured in traps are identified and if a new species of mosquito is discovered and is a known vector (not all mosquitoes transmit human diseases) then the Vector Control staff will aggressively treat the area with pesticides and other chemicals to ensure the new species of mosquito is eradicated. Since 2009, the Vector Control Program on Oahu has detected at the Honolulu International Airport the presence of certain species of mosquitoes found on some of the neighbor islands but not on Oahu. With aggressive treatment, the "new" vectors were eradicated. However, the Vector Control Program reported no invasive species activity in fiscal year 2014. EPO assists with education, coordination and communication across the Department of Health and with other agencies such as DLNR with HISC and the US FWS. Please see EPO's website page on invasive species to get a more detailed description of our role. http://health.hawaii.gov/epo/strategic/disease
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species. The CWB may get involved if an invasive species causes adverse water quality impacts to a State surface water. For example: algal bloom from excessive nutrients The CWB administers Hawaii Administrative Rules (HAR), Chapter 11-54. This is Hawaii's Water Quality Standards (WQS) that protects human health and all aquatic life, regardless if a species is considered invasive.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(1) Please briefly describe your agency's current role and responsibility concerning invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOT		To provide a safe, efficient, accessible, and inter-modal transportation system that ensures the mobility of people and goods, and enhances and/or preserves economic prosperity and the quality of life; we do this through our Statewide Noxious Invasive Pest Program which is our commitment to mitigate the introduction, spread and impact of invasive species. SNIPP's multi-faceted approach includes prevention, early detection and rapid response, restoration, and collaboration. Included in the control of non-native invasive plants will be their replacement with native Hawaiian species, which often consume less water than non-indigenous species.
UH - College of Tropical Agriculture and Human Resources		Our department includes research, extension and instruction faculty who are engaged in research and instruction on invasive species management, specifically insects, plant pathogens, and weeds to some extent. We address invasive species that are of agricultural importance, human health issues and those that impact natural ecosystems.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	We operate cooperatively with state and federal agencies, NGOs and private landowners to address invasive species issues at the landscape level or when rapid responses are necessary. Our operations range from policy to basic and applied research to hands-on efforts.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	a) The University of Hawaii at Hilo (UHH) is a Center of Higher Education with faculty and staff proud to have a mandate for teaching, research, and service that informs and benefits our local community, the State of Hawaii, and the world through our core education mission. The basic science underlying invasive species effects on natural and human created environments is part of many academic programs' formal curriculum, and the social, political and economic implications of invasive species effects are covered in education, service, and research endeavors. In addition, the University is responsible for management of approximately 12,000 acres of State-owned land on Maunakea, and campus buildings and grounds, and off-campus teaching and research agricultural and research facilities. b) Our role and responsibilities regarding invasive species is centered on direct invasive species management on lands UHH manages (campus grounds, off campus support sites, and research lands) and the research, education and service UHH staff engages in relating to the field. UH Hilo does not have a system wide invasive species management strategy, and this includes a lack of a comprehensive invasive species management strategy within our land management and curricula. The community at large, and land-management functions, rely on the expertise of many UHH employees and collaborators for factual information, research, and advice on understanding and managing invasive species effects, and UHH supports our staff and collaborators in this regard with policies favoring invasive species risk mitigation and facilitating resource allocation needed to be competitive in this advanced scientific and policy field.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	To protect the health and value of American agriculture and natural resources. See Appendix X for complete answer.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(1) Please briefly describe your agency's current role and responsibility concerning invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Natural Resource Conservation Service	NRCS is an agency committed to “helping people help the land”—our mission is to provide resources to farmers, ranchers, non-industrial private forest managers and other landowners/operators to aid them with conservation of the lands under their control.. Ensuring productive lands in harmony with a healthy environment is our priority. We are a non-regulatory, technical & financial assistance agency for private landowner/operator clients to address natural resource concerns/problems. Our first role after being invited to enter a client’s property and obtaining their objectives, is to conduct a site/land inventory and evaluation. The acronym SWAPA, which stands for Soil (erosion and quality/health), Water (quantity and quality), Animal (domestic livestock and fish & wildlife), Plant (productivity and invasive species) & Air (quality), represents the major resource concerns that we evaluate. Once a resource concern/problem is identified, we develop a conservation plan that gives the client alternatives to address that resource concern on their property, if they wish to. In many cases, Farm Bill program financial assistance is available to help them implement their plan. Invasive species falls under our “Degraded Plant Condition – Plant Pests” natural resource concern, which is defined as “Excessive pest damage to [desirable] plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes.” Also, we lack authority to address animal and insect invasive species. We can fence to “enhance, restore and improve” wildlife habitat and forests but we can’t fence to “control or exclude feral ungulates.” A bit of a semantics game but that’s the wording of our policy. Trapping and/or hunting of feral invasive animal species is in USDA APHIS’s jurisdiction.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	ARS conducts research to develop methods for the detection, mitigation, control, quarantine treatment, biology and behavior of invasive pest species, primarily insects but also some plant pathogens.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	NMFS has a federal mandate to manage marine resources. This applies to federal marine areas and/or federal actions. Agency does not have a designee for invasive species.
U.S. Department of Commerce	Pacific Islands, Hawaii U.S. Export Assistance Center, International Trade Administration	Do not do anything involved in invasive species, will not be answering the survey.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	We implement invasive species projects which are contained in the Joint Base Pearl Harbor-Hickam (JBPHH) and Pacific Missile Range Facility (PMRF) Integrated Natural Resources Management Plans (INRMPs).
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	We detect, monitor, and control invasive plants and animals to limit their introduction and/or spread. We attempt to minimize their ecological impacts in a cost-effective and environmentally-sound manner subject to the availability of appropriations, and within budgetary limits; promote public education on invasive species and the means to address them.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(1) Please briefly describe your agency's current role and responsibility concerning invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of the Interior	Pacific Islands Office, National Park Service	The mission of the National Park Service is to “Conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations” (Organic Act 1916). Invasive species are the most significant threat to native ecosystems and are strategically controlled within the national park. Staff also serve in advisory roles on multi-agency groups such as rapid Ceratocystis working group, and the Invasive Species Committees (HISC, BIISC, KISC, MISC, OISC) throughout the main Hawaiian islands.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	We have proposed studies to evaluate water use characteristics of native and invasive species; collaboration with Tom Giambelluca.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The U.S. Fish and Wildlife Service (Service) is the only agency of the U.S. Government whose primary responsibility is the conservation of the nation’s fish, wildlife, and plants. Because of our responsibilities, the Service is very concerned about the impacts that invasive species are having across the Nation. Invasive plants and animals have many impacts on fish and wildlife resources. Invasive species degrade, change or displace native habitats and compete with our native wildlife and are thus harmful to our fish, wildlife and plant resources.
U.S. Department of Health & Human Services	Division of Global Migration and Quarantine, Centers for Disease Control and Prevention	As you know, the CDC’s mandate is to protect public health, and not to prevent the introduction of invasive species. While there might be some overlap that occurs when an invasive species also poses a public health risk, CDC is not sufficiently engaged in the invasive species issue to be able to productively comment on the questions raised in the Legislative Reference Bureau’s survey.
U.S. Department of Health & Human Services	U.S. Food & Drug Administration	Do not do anything involved in invasive species, will not be answering the survey.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Enforcement of USDA regulations regarding plant material and commodities. It is not specific to an invasive species.
U.S. Department of Transportation	Federal Highway Administration	The FHWA’s role and responsibilities concerning invasive species is outlined in our guidance: https://www.environment.fhwa.dot.gov/ecosystems/vegmgmt_inv_guid.asp . We oversee the recipients of federal highway funds, primarily the Hawaii Department of Transportation and the counties, who must in turn consider and comply with federal and state requirements regarding invasive species on federally funded transportation projects. Relative to other federal and state agencies, our involvement in this issue is fairly limited; therefore, we have few or no substantive comments or opinions to offer on your survey questions.
U.S. Department of Transportation	Federal Aviation Administration	The FAA has no direct role in implementing any program concerning invasive species unless it would be specifically required for mitigation under the NEPA process such as an Environmental Assessment or Environmental Impact Statement for projects involving FAA Federal Actions. (This applies to all questions in this survey.)
U.S. Environmental Protection Agency	Pacific Islands Contact Office	Do not do anything involved in invasive species, will not be answering the survey.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(1) Please briefly describe your agency's current role and responsibility concerning invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
City & County of Honolulu		1) Coordinating with federal and state agencies in detecting, monitoring, delineating, and/or controlling invasive species; 2) Disseminating information on invasive species; and 3) Training city employees to identify, detect, and/or control invasive species.
County of Maui		OED houses grants to Maui Invasive Species Committee (MISC).
County of Kauai		The County of Kaua'i – Office of Economic Development with the support of Mayor Carvalho and the Kaua'i County Council, feels its kuleana is to support the Kaua'i Invasive Species Council (KISC) with community and financial support in the form of an annual grant. Over the last 5 years, the County of Kaua'i has contributed \$50,000 each year.
Maui Invasive Species Committee		• Work across Maui County (esp. Maui and Molokai) • Detect and control priority invasive species (> 30) on island-wide basis, including plants, vertebrates, invertebrates, and diseases • Comprehensive outreach and education program
Oahu Invasive Species Committee		OISC is a partnership whose mission is to eradicate incipient invasive species from Oahu and stop established species from spreading. We work with species that are only just beginning to “jump the fenceline” and become naturalized but that have characteristics that make them ecosystem-changers once they invade. The idea is to eradicate these species before they become chronic problems for land-managers.
Kauai Invasive Species Committee		KISC works closely with federal and state natural resource agencies and HDOA to help "fill gaps" in invasive species management.
Coordinating Group on Alien Pest Species		CGAPS is a project aimed at providing and facilitating inter-agency (federal, state, county) and NGO (TWC, Invasive Species Committees, etc) communication and coordination through quarterly meetings and collaborative projects.
Hawaii Agricultural Research Center		Historically, Hawaii Agriculture Research Center (previously Hawaiian Sugar Planters' Assoc.) provided the first line of defense statewide for the sugarcane industry for surveying, identification and control of invasive species of microorganisms and insect pests. It has since expanded to other crops and collaborates with the University of Hawaii, HDOA, APHIS, and mainland USDA sugarcane quarantine and other sugarcane research groups to prevent the transport of pests and diseases.
Hawaiian Humane Society		Amnesty location for illegal pets.
Hawaii Conservation Alliance		HCA is an alliance with 26 members from the federal government, state government, non-profit sector, and academia. The HCA promotes strategic environmental stewardship, stimulates community participation in resource management, and leverages capacity across the Hawaiian Islands. One of the HCA's four topical focus areas is Biosecurity. The Alliance members form a Biosecurity sub-committee which has played a role organizing and initiating various state collaborative efforts such as the Coordinating Group on Alien Pest Species. The HCA also publishes a white paper on biosecurity, and supports its members (including HISC & C-GAPS) to accomplish their strategic plans.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Pest Control Branch	Current work on target pests for control or eradication by the PPC branch includes researching and studying the invasive and beneficial organisms, rearing and liberating parasitoids, and chemical or mechanical control. A) Biological Control projects (control or suppression of pests) 1) fireweed 2) macadamia felted coccid 3) hala scale 4) maile pilau 5) strawberry guava 6) Erythrina gall wasp B) Chemical/Mechanical Control projects (control or eradication of pests) 1) little fire ants 2) Coqui frogs 3) banana bunchytop virus 4) hala scale C) Rapid Response Program: Joint program with HDOA Plant Quarantine Branch and UH to address the Coconut Rhinoceros Beetle
DOA	Plant Industry Division Pesticides Branch	Not applicable to Pesticides Branch Registration & Technical Review Unit
DOA	Animal Industry Division Animal Quarantine Branch	Specific: rabies virus mitigation on imported carnivores General: exotic ticks, parasites on imported carnivores
DOA	Animal Industry Division Animal Disease Control Branch	Prevent, control, and eradicate infectious diseases and external parasites of livestock, poultry, and aquaculture.
DBEDT	Office of Planning	Not a direct authority, OP serves as a support/network agency.
DBEDT	Hawaii Tourism Authority	There is no specific species or area.
DLNR	Division of Forestry & Wildlife	DOFAW does not focus on a specific invasive species, but focuses on any invasive species that threatens native species. Though DOFAW may conduct prevention, control, research, or eradication activities, the two primary foci for DOFAW are: 1) Prevention, via the construction of fences to exclude invasive animals from high-value natural areas 2) Control, via the removal or dispatch of invasive plants and animals from DOFAW-managed lands.
DLNR	Division of Aquatic Resources	Control and Eradication DAR's primary focus in terms of invasive species control is invasive algae (Kappaphycus spp., Eucheuma spp., Gracilaria salicornia, and Acanthophora specifera). Invasive algae has been identified as a management priority due to its detrimental effects on coral reef ecosystems. Coral reefs are vital for the health of our near shore fisheries, tourism, and provide coastline protection from waves and storms. DAR has focused control activities to Kaneohe Bay where two invasive algae species (Kappaphycus and

SURVEY 2 RESPONSES (Verbatim Excerpts)

(2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		Eucheuma) because they are particularly damaging to coral reefs and are confined to Kaneohe Bay and therefore considered a manageable threat. The primary goals of this project are to: a) eliminate the threat of Eucheuma to reefs outside Kāneʻohe Bay by controlling it within the bay and removing incipient populations outside of the bay, and b) to improve the health of reefs in Kāneʻohe Bay that have been impacted by Eucheuma/Kappaphycus and stop its spread to unaffected reefs. To achieve these goals, this project has two primary strategies: (1) Stop the spread of Eucheuma by preventing northward expansion of populations in Kāneʻohe Bay through repeated clearing and biocontrol along the northern edge of the distribution, and by removing all incipient populations that are found in the north of the bay and beyond its border. (2) Restore reefs in Kāneʻohe Bay through the removal and control of strategically selected populations of Eucheuma in the bay. DAR and its partners are working to remove these species from reefs using an underwater vacuum system called “The Super Sucker” and adding native collector urchins (<i>Tripneustes gratilla</i>) as a biocontrol agent to graze the remaining fragments and keep it from growing back. The urchins will also graze on other species of invasive algae not targeted by the Super Sucker. This approach has been very successful in terms of controlling re-growth to less than 1% after removal. Eradication is unlikely, given the vast spread of these algae, however we believe that we can control it to level where native organisms can re-colonize these habitats and minimize the spread of invasive algae to unaffected areas. Research The DAR AIS team has an extensive monitoring program to evaluate reef ecosystems before and after invasive algae removal. This work helps evaluate the success of the project and refine our techniques. We also partner with a number of researchers on AIS related projects including biofouling and ballast water introductions, tsunami debris introductions, invasive freshwater fish species, invasive mullet (kanda), California grass, invasive algae, mangroves, and Roi. Prevention The DAR AIS team participates in a variety of prevention focused outreach and community engagement events aimed towards local community members, resource managers, researchers, students, and the general public. In addition, DAR has been gathering information in order to make policy recommendation that would help prevent non-native species from entering Hawaii through ship biofouling and ballast water, the aquarium trade, and aquaculture.
DLNR	Hawaii Invasive Species Council (HISC)	The HISC does not focus on a specific invasive species. Any species that matches the definition of “invasive species” (lacking a statutory definition in HRS 194, HISC generally utilizes the federal definition provided by Executive Order 13112) falls under the purview of the HISC. The HISC addresses prevention, control, outreach, research, and resources available for invasive species work.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOH	Environmental Health Services Division Vector Control Branch	Please refer to the above narrative on the activities of the Vector Control Program with regards to mosquitoes. However beyond mosquitoes, if an "invasive vector" is detected the level of response by the Vector Control Program would be limited logistically due to the small number of staff and the type and nature of the "invasive vector". The EPO participates on the HISC working group and assists with the evaluation of proposals. This year there were 60 proposals to evaluate across control, research, eradication, prevention and other.
DOH	Environmental Management Division Clean Water Branch	No
DOT		Legal mandates requires control actions on specific species found in the United States Department of Agriculture (USDA) Federal Noxious Weed List and those listed in the Hawaii Department of Agriculture's (DOA), Hawaii Administrative Rules (HAR) 68, "Noxious Weed Rules." Of these, Albizia (Falcataria moluccana) has been the greatest threat to the safety of our highways and we continue to prioritize its control and eradication along essential corridors of our highway system.
UH - College of Tropical Agriculture and Human Resources		We address a wide range of insect and plant pathogen invasive species.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	We operate against a wide range of invasive species as needed. Our emphasis is on natural ecosystems but we work cooperatively with state agencies on agricultural and health issues related to invasive species.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	UHH does not have a specific focus on any one aspect of invasive species, however, research programs can inform control, eradication, or prevention, and our grounds and facilities staff engage in invasive species control through grounds maintenance activities where appropriate. Broadly, our faculty and staff have access to resources to decide what aspect of invasive species research and management are needed for the communities we serve, and the UHH facilitates these research needs to the best of our ability. Existing (invasive species) management policies, formally adopted by the University under State of Hawaii management plan authority, emphasize risk-reduction and adaptive ecosystem management. UH Hilo does not have a system wide invasive species management strategy.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	a) There are situations which are focused on a specific pest, as for the Chrysanthemum White Rust, mentioned above in question (1). Another example is the Incident Command structure which is a standard plan for response to plant health and all hazards emergencies, and applicable to specific pest outbreaks: The initial PPQ response for coconut rhinoceros beetle was to assist the state in the setup of the emergency Incident Command structure specific to the coconut rhinoceros beetle. b) Through the PPQ Cooperative Agricultural Pest Survey, PPQ helps fund State cooperators to survey and report for high-risk pests interest to the United States as a whole, and some pests of state interest. One possible outcome is that new introductions of harmful plant pests and diseases are detected as soon as possible, before they have a chance to spread and cause significant damage. The University of Hawai'i traps that initially detected coconut rhinoceros beetle was part of the CAPS survey for Hawai'i. c) Please see Appendix X for complete answer.
U.S. DOA	Natural Resource Conservation Service	The focus of NRCS is on control, eradication and prevention of invasive plant species, but we do not do research, per se. We do have an 80 acre Plant Materials Center on the island of Moloka'i on which we conduct field trials and demonstration plots, some of which include the need for invasive plant species control, but not strictly research on invasive plant species themselves.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	ARS is a federal research agency. In Hawaii, we have extensive expertise in tephritid fruit flies (all aspects), but also other invasive insect and pathogen pests of agricultural crops in Hawaii. For example, ARS developed the areawide fruit fly control program in Hawaii, provided scientific assistance that identified the cause of the Rapid Ohi'a Death, and is in the process of developing an areawide coffee berry borer control program.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Yes, however this is driven by grants, focus areas and federal authorities such as the Endangered Species Act or the Magnuson-Stevens Fishery Conservation and Management Act.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	At the base-wide level we focus on biosecurity and monitoring, however with regard to control efforts we focus on invasive species that affect protected species and habitat. These efforts are primarily in natural areas (forests, wetlands, etc). The installations' facilities departments focus on control of urban invasives, and the medical department focuses on invasives that are potential vectors of human disease.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	MCB Hawaii Environmental Department focuses both on specific invasive plant and animal species to control their spread and degradation of resources, as well as attempt to eradicate incipient populations when discovered. We control pluchea spp, Christmasberry (Schinus terebinthifolia), kiawe (Prosopis pallida), Seagrass (Coccoloba uvifera), red mangrove (Rhizophora mangle), Fountain grass (Pennisetum setaceum), California grass (Brachiaria mutica), Devil weed (Chromolaena odorata), Golden crownbeard (Verbesina encelioides), mongoose (Herpestes javanicus), cats (felis catus), feral pigs (Sus scrofa), Yellow crazy ants (Anoplolepis gracilipes), Coconut Rhinoceros beetle (Oryctes rhinoceros).
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Our agency focuses on control, eradication and prevention within the National Park Service units. Species include pigs, mouflon sheep, goats, feral cattle, small mammals, coqui, incipient insect populations, and over 100 species of plants. However, staff also work with adjacent land owners/managers to more effectively combat invasive species across the landscape. Management goals are adaptable - some areas are zero tolerance for feral animals, while other areas have less strict thresholds dependent on threat level, condition of natural resources, and known reaction to the alleviation of invasive threats.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	• No specific species. • Proposed research. • USGS Pacific Islands Water Science Center is a science organization focused on water resources. • We have no water, land, or species management or regulatory authority.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The Service focuses on various program activities that are addressed in subject areas commonly used in the invasive species world such as prevention, control, detection and monitoring, and outreach.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Regulatory enforcement is determined by the Code of Federal Regulations, agreement with USDA, and Policy. It is not specific to an "invasive species".
City & County of Honolulu		The city & county of Honolulu focuses primarily on detecting, controlling, or eradicating invasive species if found in city properties, including parks, golf courses, botanical gardens & others.
County of Maui		Partners with MISC. All of the above.
County of Kauai		The County of Kaua'i provides funding, along with other agencies and sources of income for KISC. We allow them to provide their plan in their grant application. KISC provides a description of the initiatives they plan to address during the year which includes which invasive species they will focus on, but is not limited to just those. Their program also covers control, research, eradication and prevention practices.
Maui Invasive Species Committee (MISC)		• > 30 species, including Maui and Molokai • Control • Some research • Eradication • Outreach and education • Prevention mostly from a policy/advocacy perspective

SURVEY 2 RESPONSES (Verbatim Excerpts)

(2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Oahu Invasive Species Committee		Early detection, eradication, control, and outreach. Our main targets are: Miconia calvescens, Chromolaena odorata, Himalayan blackberry, Fountain grass, Tibouchina herbacea, Tibouchina urvilleana, Little Fire Ant, Coqui frog.
Kauai Invasive Species Committee		KISC focuses on several invasive species and is tasked with prioritizing the species for control, eradication, as well as prevention. Research is also an increasing component of our work.
Coordinating Groups on Alien Pest Species		We focus on overarching goals, needs, and hot topic issues/species policy needs. Part of my job is coordinating public outreach to engender support for conservation of natural resources and better biosecurity.
Hawaii Agricultural Research Center		We are not confined to one such area or species.
Hawaiian Humane Society		No
Hawaii Conservation Alliance		As an Alliance, our organization supports our member organizations in their strategic plans, which could be a range of activities including control, research, eradication, or prevention.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	PQB's programs include the import and intrastate programs (inspection, permitting, certification, quarantine, treatment, compliance); export (certification, compliance); detection and survey (sampling, diagnostics, monitoring); enforcement; rapid response (BTS interdiction, coqui, LFA, CRB); and education and outreach.
DOA	Plant Industry Division Plant Pest Control Branch	The PPC Branch is responsible for limiting plant pest populations that are detrimental to agriculture by using chemical, mechanical, biological, and integrated pest management methods for control or eradication.
DOA	Plant Industry Division Pesticides Branch	Pesticide licensing, Special local need registrations, Section 18 emergency exemptions
DOA	Animal Industry Division Animal Quarantine Branch	Rabies Quarantine Branch - Regulatory Program concerning import of dogs, cats, and other carnivores into Hawaii. Minimize possibility of rabies virus entering and establishing itself in the State as well as external parasites such as ticks not established in Hawaii, and diseases associated with these vectors.
DOA	Animal Industry Division Animal Disease Control Branch	Animal Disease Control Branch: Inspects all animals entering the state. Controls and eradicates regulated diseases or livestock, poultry, and aquatic species. Rabies Quarantine Branch: Insures all carnivores entering the state are free of rabies. Veterinary Laboratory: Serves both branches with these missions.
DBEDT	Office of Planning	Under the Coastal Zone Management Program (CZM), the Hawaii Ocean Resources Management Plan (ORMP) is a framework for the management of ocean and coastal resources in Hawaii. Measures for aquatic invasive species (AIS), as managed by the Department of Land & Natural Resources, Division of Aquatic Resources (DLNR-DAR) are included in the plan.
DBEDT	Hawaii Tourism Authority	HTA's Community Natural Resources Program – This is an annual RFP that is offered to projects and programs that help to preserve Hawai'i's unique environment. It has historically funded invasive species programs.
DLNR	Division of Forestry & Wildlife	DOFAW is comprised of the following relevant programs. Each program is represented both at the statewide Admin office in Honolulu as well as at individual branch offices on Kaua'i, O'ahu, Maui, and Hawaii Island. 1) Forestry Program: Includes Forestry Technicians also known as “invasive species technicians,” who control invasive species in Forest Reserves and other DOFAW-managed lands 2) Protection Program: Includes a Forest Health Protection Coordinator, who specializes in plant diseases including invasive fungi and invertebrates. Also includes the state's fire protection staff. 3) Native Ecosystems Protection & Management Program (a.k.a. Natural Area Reserves Program): Includes the control of invasive species in high value reserves and watershed areas through fencing, weed control, and animal removal. 4) Wildlife Program: Includes invasive species control efforts to protect native wildlife, such as rodent control or removal of invasive vertebrates in high-value areas. The Wildlife Program includes an Invasive Species Coordinator that is also responsible for management of the Hawaii Invasive Species Council.
DLNR	Division of Aquatic Resources	DAR Aquatic Invasive Species (AIS) Program: Conducts AIS control, rapid response, prevention, research, and coordination.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.																															
DEPARTMENT	DIVISION/AGENCY	ANSWER																													
		DAR Ballast Water and Hull Fouling Program: Focused on policy development to prevent the introduction of invasive species through biofouling and ballast water. Biofouling is the number one vector for the introduction of non-native species to Hawaii. DAR Estuaries Program: conducts estuary monitoring throughout the State. Monitors invasive species inhabiting estuaries. DAR Streams Program: conducts stream monitoring throughout the State. Monitors invasive species inhabiting streams.																													
DLNR	Hawaii Invasive Species Council (HISC)	HISC as an agency does not have a specific structure other than the composition of the Council itself (six state department directors designated by HRS 194). The support program for HISC is not comprised of programs per se, as it includes one civil servant and two temporary research positions. The HISC does, however, utilize informal working groups to facilitate discussions and actions among agency staff and other stakeholders. The HISC Working Groups include the Prevention Working Group, the Control Working Group, the Public Outreach Working Group, the Research and Technology Working Group, and the Resources Working Group. These working groups attempt to address the goals and strategies of the HISC Strategic Plan (2015-2020).																													
DOH	Environmental Health Services Division Vector Control Branch	Please refer to Question #1 regarding the activities of the Vector Control Program. The EPO works with the Hawaii Invasive Species Council (HISC) and many others. For this purpose EPO has prepared one page handouts on vectors of human health concern. Some are currently present in Hawaii and others have the potential to be introduced (Dengue, Malaria, Yellow Fever, Chikungunya). These handouts are purely for educational purposes and are not intended for disease investigation. <table><tr><th>DISEASE</th><th colspan="3">OTHER LINKS</th></tr><tr><td>Chikungunya</td><td></td><td>CDC</td><td>WHO</td></tr><tr><td>Dengue Fever</td><td>DOCD</td><td>CDC</td><td></td></tr><tr><td>Leptospirosis</td><td>DOCD</td><td>CDC</td><td>WHO</td></tr><tr><td>Malaria</td><td>DOCD</td><td>CDC</td><td>WHO</td></tr><tr><td>Rat Lungworm Disease</td><td>DOCD</td><td>CDC</td><td>WHO</td></tr><tr><td>Yellow Fever</td><td>DOCD</td><td>CDC</td><td>WHO</td></tr></table>		DISEASE	OTHER LINKS			Chikungunya		CDC	WHO	Dengue Fever	DOCD	CDC		Leptospirosis	DOCD	CDC	WHO	Malaria	DOCD	CDC	WHO	Rat Lungworm Disease	DOCD	CDC	WHO	Yellow Fever	DOCD	CDC	WHO
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Yellow Fever	DOCD	CDC	WHO																												
DOH	Environmental Management Division Clean Water Branch	The CWB Monitoring Section may post signs and work with other agencies if an invasive species is adversely impacting the water quality of a State surface water.																													
DOT		1) Statewide Noxious Invasive Pest Program establishes a ten year strategic plan to mitigate the introduction, spread and impact of invasive species within the state highways right-of-way. 2) Mamalu Poe Poe is a recent cooperative project between the DOT, Department of Health (DOH), University of Hawaii, Department of Agriculture (DOA) and the Department of Land and Natural Resources (DLNR) who is the administrator of the project to increase pest monitoring at Hawaii airports.																													

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH - College of Tropical Agriculture and Human Resources		In summary: • Insect pests: we have projects addressing major agricultural pests such as coffee berry borer; macadamia felted coccid; fruit flies; insect vectors of plant pathogens; environmental pests: Erythrina (Wiliwili) gall wasp; naiao thrips; coconut rhinoceros beetle; urban pests: termites and ants. Research is also conducted on the impacts of invasive species on natural ecosystems, particularly biological control of weeds • Plant pathogens: Our projects typically address agricultural pests including plant viruses, fungi and bacteria. We have some projects addressing environmental pests, such as ohia rust. • Pesticide registration: we have a program that addresses the registration of pesticides for minor use.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	See survey response attachment. [The attachment is located at the end of this appendix.]
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Formal Coursework with focus on Invasive Species theory, species, and control (Topics include aquatic and terrestrial environments, invasive plants, insects, molluscs, vertebrates, and pathogens, hypotheses, mechanisms, and impacts of invasion are covered in coursework) – ANSC453&454, CBES 601, ENTO304, ENTO374, BIOL156, BIOL281, BIOL 481, BIOL 481L, FOR440, NRES410, PPTH301, PPTH405, PPTH412, HORT481, AQUA466 Buildings and Grounds (Auxiliary Services) – The UHH Auxiliary Services staff and programs are a very important piece of the direct work that UHH does regarding invasive species control. In some cases emergency responses to invasive species may become a primary role in the event of disease outbreak in human or natural environments in and around campus facilities. University Housing has responsibilities for all of its buildings (residence halls) which includes control of invasive species inside the building and exteriors. Auxiliary Services maintains all yard and parking areas. The general duties include Lawn and landscaping maintenance and outdoor pest control, pest control in buildings affecting humans as a nuisance, or as a health and safety hazard. UH Hilo has a work order request (WOR) process, where campus employees, students, users, and visitors can submit request for repairs, pest control, vegetation trimming/removal etc. If a WOR is received, we investigate and if appropriate resolve. The crew supervisors also place requests for problem areas they become aware of (either by personal inspection/observation, discussions with others, emails, etc.). A campus wide policy to empower our campus community to put in WOR for invasive species removal may burden the facilities and grounds crew and should be planned for accordingly. Office of Maunakea Management – Direct responsibility for prevention and control activities of invasive species on UH managed lands on Maunakea. Maunakea Invasive Species Management Plan is the University's policy guiding document and explicit procedures applicable to mountain uses that fall under the auspices of the 2009 Comprehensive Management Plan. This includes early detection surveys, monitoring, control, rapid response, and other typical biosecurity procedures which the University requires of University permittees and encourages State entities to follow. Please review the 2009 Comprehensive Management Plan and 2015 Maunakea Invasive Species Management Plan and accompanying annual reports for complete details.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	PPQ and NPB Strategic Alliance, Plant Pest and Disease Programs, Cooperative Agricultural Pest Survey (CAPS) Program, Crop Biosecurity and Emergency Management, Biological Control, Import Programs, Federal Import Orders, Accreditation and Certification Programs for Plant Imports, Agricultural Quarantine Inspection, Offshore Plant Health Safeguarding Activities. See Appendix X for complete answer.
U.S. DOA	Natural Resource Conservation Service	Conservation Technical Assistance (CTA) – discretionary funds for staff time to address invasive species. Environmental Quality Incentive Program (EQIP); Agricultural Management Assistance Program (AMA); and Conservation Stewardship Program (CSP) – Financial Assistance funds to address invasive species, among other things. Conservation Innovation Grants (CIG) – Grant funds that can be awarded for innovative invasive species control projects. Emergency Watershed Protection (EWP) – Funds that can be tapped in a Presidentially-declared emergency to possibly address invasive species if applicable. Agricultural Conservation Easement Program (ACEP) – funds that can be accessed under an easement purchase for the control of invasive species on agricultural lands and wetlands. Regional Conservation Partnership Program (RCPP) – Grant-like funds that can be used in a collaborative effort to control invasive species.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	1) Biology, control and areawide management of fruit flies and other quarantine pests. 2) Pre- and postharvest treatment of tropical commodities to improve quality and increase trade through quarantine security 3) Development of irradiation treatments for high-impact invasive species and evaluation of commodity tolerance to irradiation treatments 4) Export fruit markets: Phytosanitary doses for high-impact invasive species 5) Development of low-cost cabinet x-ray tube machine for phytosanitary irradiation 6) Diagnostic resources to support fruit fly exclusion and eradication 7) Genomic approaches to fruit fly exclusion and pathway analysis 8) Phytosanitary irradiation for high-impact invasive species 9) Bactrocera (a fruit fly) genome study 10) Development of detection, quarantine treatments and control/eradication systems for crops susceptible to tephritid fruit fly in the U.S. 11) Residual effectiveness of foliar sprays against Mediterranean fruit fly, Malaysian fruit fly and Oriental fruit fly 12) Developing semiochemical-based enhancements for improved efficacy of microbial and chemical control agents for coffee berry borer 13) Improved semiochemicals for detection of coconut rhinoceros beetle, and invasive pest on coconut and other tropical plants 14) Improved semiochemicals for detection of coffee berry borer for detection and control 15) Areawide mitigation and management of coffee berry borer 16) Development of coffee harvest management tools to facilitate sanitation and coffee berry borer by

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		manipulation of coffee flowering 17) Molecular resources for the improvement of tropical ornamental and fruit crops 18) Determining patterns and causes of rapid death of O'hi'a stands and limitations to their recovery in wet lowland forests of Hawaii Island 19) Characterization and management of invasive plant viruses in Hawaii 20) Optimization of coffee berry borer control methods in hand and mechanical harvested coffee operation in Hawaii 21) Development of biological control technologies and strategies for arthropod pests of perennial tropical crops important to the U.S.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	• Habitat Conservation Division This program has staff that participate in marine natural resource technical support with state and community based programs. This program also reviews federal permits such as Army Corps of Engineers permits, conducts Essential Fish Habitat Consultation on federal actions impacting marine public trust resources. • Protected Resources Division This program has staff that participate in marine ESA and MMPA compliance through reviews of federal permits such as Army Corps of Engineers permits, conducts ESA section 7 consultation on federal actions impacting marine public trust resources as well as MMPA compliance. • Monuments Program The Hawaii portion of this program co-leads the effective sustainable management of natural and cultural resources in these areas. This includes the co-management of invasive species. Each of these programs provide technical input to work with the state on Biosecurity with respect to their areas of focus as well as federal oversight of areas or federal actions.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	Each installation (JBPHH and PMRF) in Navy Region Hawaii has a natural resources program and an Integrated Natural Resources Management Plan that outlines projects and programs funding for natural resources conservation, including prevention and control of invasive species. Projects related to invasive species include biosecurity plans, invasive plant control (e.g. mangrove, long thorn kiawe, pickleweed, christmasberry, etc.), predator control (feral cats, mongoose, rats), ungulate control (trapping, shooting, fencing), and coconut rhinoceros beetle control (monitoring/trapping, breeding site mitigation, green waste quarantining).
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Natural Resources, Environmental Department. This section is responsible for fish and wildlife management, watershed management, wetland management, coastal and marine resources management, grounds maintenance and landscape management, conducting outreach, and providing technical oversight for outdoor recreation that impact the natural resources.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Ungulate control and fencing: Staff control invasive ungulates through strategic fencing and removal of animals. Alien Plant Program: Staff control widespread alien plants within Special Ecological Areas and localized alien plants populations in parks throughout the major Hawaiian islands. Monitoring and control is also conducted for incipient weed populations.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		Nene recovery program: Localized control of small mammals and pigs to protect nests. Uau recovery program: Localized control of small mammals to protect nests. Construction of predator proof fence around nesting colony. Hawksbill recovery program: Localized control of small mammals to protect nests. Restoration Program: Localized control of grasses and other non-native plants to facilitate regeneration of rare and common native species. Monk seal recovery program: Kalaupapa National Historical Park includes beaches that are key to the monk seal recovery program. Most parks have agreements that allow staff to work with other federal and state agencies, non-government organizations, and private land-owners to combat weeds and aid rare species recovery across political and ownership boundaries. Most parks have Interpretation/educational programs, and may even help develop curricula for local schools. Park law enforcement staff are well informed about resource use and can play a role in both enforcement and education about natural resource use laws and regulations.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	Refer you to Gordon Tribble, Director. USGS Pacific Island Ecosystem Research Center (PIERC) gtribble@usgs.gov
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The following programs within the Service are involved in invasive species activities: - The Aquatic Nuisance Species (ANS) Program, which is part of the Service's Fisheries Program, leads the nation on aquatic invasive species and brown treesnake outreach through various public awareness campaigns. - The Branch of Invasive Species also conducts activities related to the listing of organisms as Injurious Wildlife. - The National Wildlife Refuge System addresses invasive species issues on its 545 Refuges, which encompass approximately 96 million acres of wildlife habitat. - Several programs within the Service are involved in Habitat Restoration of degraded wildlife habitats including those impacted by invasive species. - The Endangered Species Program is involved in the recovery of listed threatened and endangered species and the ecosystems on which they depend, and invasive species are often part of the reason the listed species are at risk. - The Division of Environmental Quality addresses invasive species through Integrated Pest Management with the promotion of the use of native plants as part of its efforts to protect pollinators, as well as its work on the use of biocontrol agents. - The Office of Law Enforcement utilizes wildlife inspectors at 32 major U.S. air and sea ports, and border crossings to prevent the introduction of injurious wildlife through its wildlife inspection program.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	CBP collaborates with Hawaii Department of Agriculture on non-federally regulated material. This may include invasive species. CBP also collaborates with other Federal agencies and respective states on species of concern.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
City & County of Honolulu		The Office of Economic Development (through Agricultural Liaison), Office of Emergency Management, Department of Facility Management, Department of Parks & Recreation, Department of Enterprise Services, Department of Planning and Permitting, Department of Environmental Services
County of Maui		Primary liaison between public and other agencies, including MISC and watershed partnerships.
County of Kauai		As mentioned previously, the County of Kaua'i feels it is our kuleana to address invasive species on our 'aina. Although the County is not trained or have the resources to address invasive species, we support the agency that is responsible which is KISC.
Maui Invasive Species Committee		• 25 field staff focused on detection and control program • ~ 2 FTE involved in outreach and education: classroom visits, public events, presentations, websites, video production • Advocacy/policy work @ statewide level
Oahu Invasive Species Committee		Our entire project is focused on incipient invasive species.
Kauai Invasive Species Committee		Mongoose response, early detection botanist, early detection/rapid response crew, public outreach & education
Coordinating Group on Alien Pest Species		I can only list CGAPS - specific projects. All on CGAPS.org. • Invasive species legal fellows with UH WSR School of Law to help address policy issues and build long-term supporters in the field. • Outreach campaigns and public awareness/opinion surveys
Hawaiian Humane Society		Amnesty program. We allow people to surrender illegal animals/pets with no penalty. We contact Plant Quarantine (DOA) for pickup of these animals.
Hawaii Conservation Alliance		Hawaii Conservation Conference: The largest gathering of people actively involved in the research and management of Hawaiian ecosystems. Every year, there are multiple Invasive Species posters, presentations, and sessions. Biosecurity Sub-committee: The HCA Biosecurity Sub-committee has the goal of providing a framework for biosecurity and lines of defense to prevent invasive species introductions to the Hawaiian Archipelago. The sub-committee has participated in the Micronesia and Hawai'i Biosecurity Plan (RBP) as well as the formation of C-GAPS. Conservation Connections: Conservationconnections.org is an initiative to increase conservation work across the Hawaiian Islands by linking people who want to do work with organizations that have work days. Often, invasive species management initiatives are hosted on Conservationconnections.org Pacific Exchange Emerging Professionals Program (PEEP): PEEP seeks to provide professional development opportunities for the next generation of conservation leaders. This is a funded exchange for young professionals to have peer learning experiences across Hawai'i, Micronesia, Melanesia, and the Polynesian archipelagoes. The majority of our PEEP exchanges have been associated with invasive species control. Talk Story: Talk Story is HCA's conservation lecture series. This forum often hosts speakers on invasive species.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Chapter 150A, HRS. Chapters 4-70, 4-71, 4-71A, 4-72, and 4-73, HAR.
DOA	Plant Industry Division Plant Pest Control Branch	Chapter 141 HRS, Agriculture and Animals; Chapter 150 HRS, Hawaii Seed Law; Chapter 4-67 HAR, Seed Rules Chapter 152 HRS, Noxious Weed Law, Chapter 4-68 HAR, Noxious Weed Rules Chapter 69A HAR, Pests for Control or Eradication
DOA	Plant Industry Division Pesticides Branch	Not applicable - No Administrative Rules specifically relating to invasive species.
DOA	Animal Industry Division Animal Quarantine Branch	Chapter 4-29, Hawaii Administrative Rules, Chapter 142, Hawaii Revised Statutes
DOA	Animal Industry Division Animal Disease Control Branch	Hawaii Revised Statutes - Ch 142 (Animals, Brands, and Fences) Hawaii Administrative Rules - Hawaii Department of Agriculture (Chapters 16, 17, 20, 21, 23, 27, 28, and 29)
DBEDT	Office of Planning	• §205A-3 establishes OP as the lead agency tasked with the coordination of the implementation of the ORMP • §225M-2 tasks OP with coordinating the implementation of the ORMP
DBEDT	Hawaii Tourism Authority	N/A
DLNR	Division of Forestry & Wildlife	a) HRS 194: Invasive Species Council (Section 194-2(a)(17)(b) places HISC in DLNR for administrative purposes) b) HRS 195: Natural Area Reserves System (does not specify actions relating to invasive species, but mandates protection of natural resources) c) HRS 183D: Wildlife (does not specify actions relating to invasive species, but mandates protection of native wildlife) d) HAR 13-124: Prohibits release of introduced wildlife, prohibits transport/export/release of species designated as “injurious wildlife,” designates by exhibit a list of species as injurious.
DLNR	Hawaii Invasive Species Council (HISC)	The HISC is responsible for implementing mandates under HRS 194. There are no administrative rules associated with this chapter currently, though the HISC does intend to develop rules in the near future.
DOH	Environmental Health Services Division Vector Control Branch	HAR Title 11, Chapter 11-26 Vector Control
DOH	Environmental Management Division Clean Water Branch	The CWB administers HAR, Chapter 11-54. This is Hawaii's WQS that protects human health and aquatic life, regardless if a species is considered invasive. There are no invasive species restrictions/requirements in Hawaii's WQS.
DOT		Executive Order 13112- USDA Federal Noxious Weed List and the DOA, HAR 68.
UH - College of Tropical Agriculture and Human Resources		We abide by HDOA rules for importation of biocontrol agents.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	None. We respond to needs of cooperating agencies who may have statutory authority.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	The UHH and specifically, Office of Maunakea Management makes every effort to adhere to all relevant Statutes, Policies, rules, etc. These include but are in no way limited to Hawaii Administrative Rules for the Conservation District, Department of Health rules, Department of Agriculture rules, and additional Department of Land & Natural Resources rules. Federal statutes are also applied, and when not legally applicable, are still applied as required best practices.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	Most of PPQ's authority for the prevention of pests in foreign and the domestic regulations as well, are in the Plant Pest Act of 2000, http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/PPAText.pdf which better consolidated most of the weed and other authorities under one Act. Title 7 of the Code of Federal Regulations, and the PPQ manuals carry the information for regulatory authorities (e.g., PPQ and CBP, and inspectors and other persons so authorized by the Secretary of Agriculture). Link to: 1/1/2015 copy of Title 7: http://www.gpo.gov/fdsys/pkg/CFR-2015-title7-vol5/pdf/CFR-2015-title7-vol5.pdf International Standards for Phytosanitary Measures (ISPMs) are adopted by the Commission on Phytosanitary Measures (CPM). The IPPC is the only international standard setting organization for plant health recognized by the World Trade Organization (WTO) under the Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement). PPQ is the contracting party to the International Plant Protection Convention (IPPC) and participates in the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures. Both contracting and non-contracting parties to the IPPC are encouraged to implement these standards. Standards in themselves are not regulatory instruments, but come into force once countries establish requirements within their national legislation. International Codes and standards for animals: The APHIS Deputy Administrator of Veterinary Services (VS), as the Chief Veterinary Officer (CVO) is charged with managing U.S. animal health standard-setting activities related to the OIE (Office International des Epizooties – World Organisation for Animal Health) codes and standards relating to import and pest risk analyses.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Natural Resource Conservation Service	Clean Air Act, Criteria Pollutants – Nonattainment area for ozone and/or particulate matter. Clean Air Act, Regional Visibility Degradation – Regional haze and poor visibility of scenic areas. Clean Water Act, Sections 404, 401, 402, and 303 – Potential discharges of pollutants into waters of the U.S. and State/Territorial TMDLs. Coastal Zone Management Areas – Proposed action is inconsistent with CZMA’s of Hawaii and their Coastal Zone Management Plans. Coral Reefs, Executive Order 13089 – Nutrient and sediment runoff from near-shore watersheds. Cultural Resources, National Historic Preservation Act (NHPA), Section 106 – Potential impacts to cultural resources and/or historic properties (“Undertakings”) and the new 2016 to 2020 Hawaii SHPD Programmatic Agreement. Endangered Species Act for Threatened, Endangered, Candidate and Proposed Species, Section 7 – Potential negative impacts to Federal, State and Territorial Species of Concern. Environmental Justice, Executive Order 12898 – Disproportionately high or adverse impacts to specific populations. Essential Fish Habitat, Magnuson-Stevens Act – Potential negative impacts to essential fish habitat. Floodplain Management, Executive Order 11988 – Potential negative impacts to floodplains. Invasive Species, Executive Order 13112 – Recognizing and addressing the presence of invasive species as an integral part of NRCS conservation planning and implementation policy and any existing county, State or Federal regulation concerning noxious and/or invasive species. NRCS policy further defines a plant species as “invasive” only when it occurs on the Federal or Hawaii-specific noxious weed list or a list developed by the Hawaii DOA with their partners and approved by the NRCS State Technical and Advisory Committee (STAC). Migratory Bird Treaty Act – Proposed action may adversely impact migratory birds. Farmland Protection Policy Act, Prime and Unique Farmlands – Proposed farmland conversion. Riparian Areas, NRCS General Manual Policy (190-GM, Part 411) – Degraded riparian areas. Wetlands, Executive Order 11990 – Wetlands with impaired functions. National Wild and Scenic Rivers Act – Proposed action may adversely impact a designated river or river segment. All other local, county and/or State laws, regulations and permits – Our policy binds us to follow all laws, rules, guidance coming from jurisdictional entities. We ensure that clients are aware of their responsibility to obtain applicable permits prior to implementation of any practices.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	We are not a regulatory agency, but our research supports quarantine treatment decisions by regulatory agencies such as USDA-APHIS and HDOA.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	• Endangered Species Act • Magnuson-Stevens Fishery Conservation Management Act, Essential Fish Habitat

SURVEY 2 RESPONSES (Verbatim Excerpts)

(4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	- JBPHH internal policy memo - green waste quarantine procedures for CRB. - CNO (Commander Navy Operations) policy letter - prevention of feral cat and dog populations on Navy property. - Executive Order 13112 Invasive Species - OPNAV 5090.1D 10 Jan 2014; Ch 12 section 3.10.
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	E.O. 13112 Invasive Species, Base Landscape Manual, Plant Protection Act (2000), Integrated Natural Resources Management Plan
U.S. Department of the Interior	Pacific Islands Office, National Park Service	National Environmental Policy Act of 1969, as Amended Endangered Species Act of 1973, as Amended Federal Noxious Weed Act of 1975 The Federal Noxious Weed Act (7 USC 2801–2814, January 3, 1975, as amended 1988 and 1994) National Historic Preservation Act of 1966, as Amended Section 106 of the National Historic Preservation Act Wilderness Act of 1964 National Parks and Recreation Act of 1978 Title 36, Code of Federal Regulations Executive Order 13112, “Invasive Species” Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds” Director’s Order 77: Natural Resources Management Guideline (1991) Director’s Order 41: Wilderness Preservation and Management (1999) Director’s Order 28: Cultural Resource Management (1998) Animal Welfare Act, as Amended (7 USC 2131–2159) National Parks Omnibus Management Act of 1998
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	See above. For the remainder of these questions I will refer you to Gordon Tribble, because PIERC does species-specific research throughout Hawaii.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The following existing legislation and Executive Orders provides the authorities to address some aspect of invasive species: a. The Nonindigenous Aquatic Nuisance Prevention And Control Act Of 1990 (As Amended Through P.L. 106–580, Dec. 29, 2000.) is the Act under which the USFWS Branch of Invasive Species manages the Aquatic Nuisance Species Task Force and its Aquatic Nuisance Species Program. b. The Lacey Act of 1900 is the Act under which the Branch of Invasive Species conducts its activities pertaining to listing an organism as Injurious Wildlife. It also regulates the import and transport of species determined to injurious to the health and welfare of humans, the interests of agriculture, horticulture, or forestry, and the welfare and survival of wildlife resources of the United States. c. The Endangered Species Act provides a means whereby ecosystems upon which endangered and threatened species depend may be conserved.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		d. The Executive Order 13112, signed by President Clinton on February 3, 1999, created the National Invasive Species Council and the Invasive Species Advisory Committee, mandating that each federal agency whose actions may affect the status of invasive species, shall to the extent practicable and permitted by law to not authorize, fund, or carry out actions to cause or promote the introduction and spread of invasive species in the US, or elsewhere unless pursuant to guidelines, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by the invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. e. The Brown Tree Snake Control and Eradication Act of 2004 provides for the control and eradication of the brown tree snake on the island of Guam and the prevention of the introduction of the brown tree snake to other areas of the United States. f. The Nutria Eradication and Control Act of 2003 authorizes the Secretary of the Interior to provide financial assistance to the State of Maryland and the State of Louisiana for a program to implement measures to eradicate or control nutria and restore marshland damaged by nutria. g. The Alien Species Prevention and Enforcement Act of 1992 makes it illegal to ship plants or animals that are covered under the Lacey Act or the Plant Protection Act through the U.S. mail.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	N/A
County of Maui		N/A
County of Kauai		Not applicable. Our contribution to KISC is through a grant from the Office of Economic Development's Annual General Fund Budget that is approved by the Mayor and County Council.
Maui Invasive Species Committee		HISC laws
Oahu Invasive Species Committee		We are not a regulatory agency. Our activities do implement sections of control, prevention, and outreach sections of the Hawaii Invasive Species Council strategic plan.
Kauai Invasive Species Committee		Titles 4, 11, & 13
Coordinating Group on Alien Pest Species		None -- CGAPS is non-regulatory. However, we are working to address the lack of rules regarding hull fouling and the interisland inspection/nursery/ag product certification or compliance program and other issues.
Hawaiian Humane Society		N/A

SURVEY 2 RESPONSES (Verbatim Excerpts)

(5) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, major concerns include the lack of sufficient staff; large number of higher level permanent positions filled by temporarily assigned staff; and lack of adequate inspection facilities at all ports.
DOA	Plant Industry Division Plant Pest Control Branch	The concerns and challenges are bundled together in the lack of adequate staffing, both professional and clerical support, and facilities. The lack of mechanisms to support hiring quickly to respond to outbreaks of invasive species incursions and the funding to support such responses.
DOA	Plant Industry Division Pesticides Branch	This question would be better answered by other branches within the Plant Industry Division.
DOA	Animal Industry Division Animal Quarantine Branch	Facilities in need of renovation and upgrades. Computer system and program in need of upgrades. Increasing number of dogs and cats for inspection with inadequate inspection facilities at the airport. Lack of Federal regulations preventing service animal fraud.
DOA	Animal Industry Division Animal Disease Control Branch	Funding available on short notice to control and eradicate new infectious disease outbreaks and exotic external parasites discovered.
DBEDT	Office of Planning	Not direct authority, OP serves as a support/network agency.
DBEDT	Hawaii Tourism Authority	N/A
DLNR	Division of Forestry & Wildlife	DOFAW has done well integrating invasive species management into its various programs, but continues to face a number of challenges: 1) Capacity and funding: Recent requests to establish “invasive species technician” positions under the Forestry Program have not been successful. Programmatic funding is low across all programs. 2) DOFAW has the mandate to manage species on state lands, but relies on other agencies for prevention (border/interisland, mandated to HDOA) and rapid response to species across public/private land boundaries (primarily achieved by the Watershed Partnerships and the Invasive Species Committees). 3) DOFAW does not have a coordinated invasive species plan for prioritization of species and actions.
DLNR	Hawaii Invasive Species Council (HISC)	Major concerns that have been discussions of the HISC include the following: 1) Capacity at state agencies: Insufficient numbers of staff positions and a high number of vacancies within existing positions at state agencies hinder the State’s ability to prevent and control invasive species infestations. Examples include insufficient numbers of filled positions for border protection, interisland quarantine and inspection, vector control workers and supervisors, and forestry and wildlife technicians. 2) Funding for invasive species programs is insufficient. The two primary agencies responsible for invasive species prevention and control (HDOA and DLNR) receive approximately 0.4% and 1% of the State’s operating budget, respectively. In addition to core agency programs, the HISC operates an annual grants program to support interagency projects. Requests have exceeded \$10M annually in recent years, but available funds decreased in FY16 from \$5.75M to \$4.75M, exacerbated by an additional 10% restriction imposed by the Department of Budget and Finance on general fund expenditures.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(5) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		3) Federal regulations that do not adequately recognize Hawaii's unique biosecurity needs: HISC Resolutions 13-1, 13-2, and 13-3 address, respectively, the need for federal inspections of foreign commerce to include pests of concern to Hawaii, the need for federal coordination and funding on the brown tree snake detection and control in US jurisdictions in the Pacific, and the need for federal regulations prohibiting the transport and trade of constrictor snakes. 4) The lack of detection and response capacity for vectors of human disease at Hawaii's points of entry and exit. The removal of the Vector Control Branch at the Department of Health has resulted in a small number of remaining Vector Control Workers being subsumed by the Sanitation Branch, which is primarily focused on restaurant cleanliness and safety. Detection and response is lacking for mosquitoes and other pests that may carry human diseases such as malaria, yellow fever, dengue fever, and chikungunya disease.
DOH	Environmental Health Services Division Vector Control Branch	We are building back our vector control staff after it was significantly reduced during the 2009 RIF's
DOH	Environmental Management Division Clean Water Branch	No
DOT		Appropriate State funding is a major concern. With so many invasive species to combat, the DOT prioritizes the control of invasive species that compromises safety along major highway corridors such as Albizia, Coconut Rhinoceros Beetle, Banyan Stem Gall Wasp, and the Rapid Ohia Death Fungus. In addition, the DOT is unable to sustain its control when sources of infestation are on private land.
UH - College of Tropical Agriculture and Human Resources		The lack of adequate quarantine facilities for conducting biological control research is a serious obstacle in our efforts to address invasive species. Currently, The Hawaii Department of Agriculture has the sole quarantine facility on Oahu and it is inadequate to address all needs that exist, thus the lack of facilities available to the University hinders or outright prevents some research from taking place.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	We receive NO base funding for administration of our projects from the state or federal government but instead rely on direct and indirect charges associated with individual agreements. We thus operate year to year in terms of funding, but having been around for 42 years, this model seems to work, although it makes it difficult to develop long term infrastructure or to develop human resources. Our projects are subsidized by UH through reduced indirect charges to awards.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Through the research and education efforts of UHH faculty, staff and students, the greatest challenges we have are finding straightforward methods of effective collaboration with other entities also conducting similar research or education goals. A related challenge is the community at large comes to the UHH as a resource for information and action recommendations regarding invasive species, as many of our faculty and staff are involved in and collaborate with research or education efforts relating to invasive species. Yet the community may not see the UHH as a separate entity from UHM CTAHR or the various federal or non-profit agencies with whom we collaborate, but do not control. Frustration is voiced by members of the community if we do not have direct lines of communication or authority to answer their questions or concerns.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(5) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		Office of Maunakea Management has limited jurisdiction over users on Maunakea. In particular, traditional cultural practices engage in practices of moving non-native vegetation onto University managed lands, while many (not all) partner State agencies have adopted the attitude that University policies in protection of the environment apply only to University research and do not apply to State oversight and support functions. Administrative Rulemaking, ongoing, once adopted will hopefully address
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	PPQ's major mission is tied to prevention of pest risk, and so are the major challenges: Increased trade volumes; market access for growing numbers of countries; increased volumes of cargo, containers, passengers, and baggage; limited funds to increase staffing and to reconfigure/expand processing areas and design and build new Plant Inspection Stations (including the one in Honolulu); research and identification support for new species and taxonomic challenges in plant pathology, nematology, mollusks, and other disciplines; visual inspection is still a standard used in PPQ risk management for visible pests, for both propagative material and commodities, but it requires time, good eyesight/lenses, experience, and knowledge. The challenge is to quickly and accurately determine what or who poses significant risk, improving upon selection of higher risk individuals and cargo, while periodically validating those assumptions. See Appendix X for complete answer.
U.S. DOA	Natural Resource Conservation Service	No, as a non-regulatory technical assistance agency to private landowners/operators, we are pretty clear of our role and responsibility. Invasive species are among the top three high priority resource concerns for us, along with water quality and soil erosion.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	We are primarily an agricultural research agency.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	The Agency plays a limited role controlling the entry of invasive species. Hawaii continues to suffer from new invasive species introductions. Prevention is certainly much more cost effective than control/eradication. Present efforts have tended to focus on terrestrial issues and NMFS would like to see a more focus effort on marine risks.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	Primary objective/concern of invasive species programs is to support the missions of the installations.
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Cannot control plants and insects introduced to base from homeowners that purchase nursery grown material. Troops' movements have the potential to introduce invasive species. We requires that all gear be cleaned and inspected prior to movement.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Funding, development of new tools (biocontrol, new herbicides, fencing materials), preventing the introduction of new invasive species. The transport of materials can be a problem in remote parks (Kalaupapa National Historical Park).
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	Refer you to Gordon Tribble, Director. USGS Pacific Island Ecosystem Research Center (PIERC) gtribble@usgs.gov
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	To a certain extent some concern, as it relates to the annual fiscal appropriations allocated legislatively that can be used toward invasive species work.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(5) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Homeland Security	U.S. Customs & Border Protection	CBP collaborates with other federal and state agencies and special interest organizations to keep informed of issues.
City & County of Honolulu		Lack of funds and other resources will be a major challenge in the event that invasive species are found in city properties. Interagency coordination is another challenge.
County of Maui		Recalcitrant land owners/lessees is proving problematic in addressing Little Fire Ant (LFA) populations in Nahiku and Huelo.
County of Kauai		As mentioned previously, we feel it is our kuleana to address invasive species, but not everyone feels County funds should be used. Certain individuals feel it is a State responsibility. If we do nothing and wait for the State, we will not have a second chance once an invasive species has established itself.
Maui Invasive Species Committee		• Funding limitations • Access to private property
Oahu Invasive Species Committee		• Miconia calvenscens seeds can remain viable in the soil for up to 18 years. It would be successfully eradicated by now if not for that biological trait. There are more organisms coming into Hawaii and beginning to establish than we have the resources to cope with. We do our best to prioritize, but it is difficult. • With respect to coqui frogs and Little Fire Ant, 100% cooperation is really needed for treatments to be effective. Unfortunately, one homeowner can say “no, I won’t let you treat” and then the rest of the neighborhood has to put up with the pest. I’d like to see some really good laws that would allow HDOA to treat without consent if a pest is not established on an island. I’d also like to see more incentive programs and rewards for nurseries that do make a good-faith effort to keep themselves free of these pests and fines and other punishments for nurseries that don’t. Again, it’s a question of 100% participation. Nurseries that keep their plants clean have to expend extra and don’t get a financial reward for it. And then their work doesn’t have much of an impact because other nurseries are not careful and are dispersing pests. • And of course, there never seems to be enough money for what needs to be done. A permanent funding source we could count on would be great. HISC has been a phenomenal grant program for us, but there have been years when there was only 50% of what there had been before.
Kauai Invasive Species Committee		Funding is extremely varied. It is difficult to keep basic staff to address invasive species. Have been able to use grant funding to keep operations running.
Coordinating Group on Alien Pest Species		Yes! Our group is comprised of mid-level managers, the long term staff that really understand the issues and outlast the chairs/Department heads. Even with HISC, the decisions and priorities are based on 1, 2, or at most 4 year terms -- we can never address long-term issues like building inspection buildings at air and sea ports.'
Hawaii Agricultural Research Center		HARC does not have a specified role or responsibility statewide, but works with client companies on an as-needed basis.
Hawaiian Humane Society		N/A for all remaining questions.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(6) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	PQB has some coordination with USDA, APHIS, PPQ, and the Military. Challenges exist with: 1) PPQ-foreign (plant & animal) shipments are not referred to PQB for inspection; and federal actionable pests does not include pests of importance to Hawaii; and 2) Military-direct access to people who make decisions for immediate response are not adequate.
DOA	Plant Industry Division Plant Pest Control Branch	The primary coordination issue between State and Federal agencies relate to what is "Federally actionable" or what pest USDA APHIS will or will not respond to. The biggest issue is unknown insects and plant diseases are not "actionable" and USDA therefore will not get involved. The Federal emphasis is also on pests that will pose problems to the continental US and are not reflective of pests that may be more significant to our range of climactic environments in Hawaii.
DOA	Plant Industry Division Pesticides Branch	This question would be better answered by other branches within the Plant Industry Division.
DOA	Animal Industry Division Animal Quarantine Branch	Coordination with USDA-Veterinary Services works very well. Coordination with state and federal wildlife agencies could be improved. Relationship with the US Postal Service has been excellent.
DOA	Animal Industry Division Animal Disease Control Branch	Not significant at this point. Agency has good working relationships with Hawaii DOH, USDA APHIS Vet Services and coordinates with US Army Veterinary Command in Hawaii on occasion.
DBEDT	Office of Planning	N/A
DBEDT	Hawaii Tourism Authority	N/A
DLNR	Division of Forestry & Wildlife	DOFAW works collaboratively with HDOA and the ISCs on species of shared concern. One example is coqui frog on O'ahu. Coqui frog is designated as an agricultural pest by HRS 141. As such, HDOA inspects for and responds to reports of coqui on O'ahu. Because this species has the potential to infest DOFAW-managed forests and is incipient on O'ahu, staff from both DOFAW and the ISCs have worked with HDOA to respond to coqui reports and capture frogs, or to modify habitat to minimize the risk of establishment. While this has worked to some extent, the arrangement is largely voluntary and participation depends on which entity has staff capacity at any given time. Better understanding of responsibilities around shared concerns would be beneficial.
DLNR	Hawaii Invasive Species Council (HISC)	a) State coordination- Gaps: there are gaps between agency mandates that complicate response to invasive species. A primary gap is the lack of a mandated agency to detect and control new invasive species threats within the State. HDOA provides border protection as well as response to designated pests detected within the state (e.g., the on-going responses to coconut rhinoceros beetle and little fire ant). DLNR controls invasive plants and animals primarily on State lands, focusing particularly on high-value areas such as Natural Area Reserves or Forest Reserves. Systematic survey and control for incipient weeds or other pests is not within the mandate or capacity of either agency, and is instead addressed primarily by the Invasive Species Committees (ISCs). The ISCs are projects of the University of Hawaii's Pacific Cooperative Studies Unit and are largely informal: they do not exist on the University's organizational chart and are not included in the University's budget. Instead they rely on competitive grants from the HISC or other state, county, federal, or private sources.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(6) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		b) State coordination- Overlaps: there are overlaps across agency mandates complicate response to invasive species. A primary example is the movement of organisms between islands in the state. HDOA has the mandate for interisland quarantine and inspection. DLNR regulates the movement of wildlife between islands, and DOH regulates the presence of vectors for human disease, including surveillance at ports. The points of entry and exit for each island are largely managed by DOT. When moving an organism between islands, an individual may be utilizing a DOT facility and violating regulations of HDOA, DLNR, and/or DOH, depending on the species being transported. c) Federal coordination: HISC resolution 13-1 describes some of the challenges with state and federal coordination regarding agricultural inspection. In particular, federal pre-emption prevents the state from inspecting foreign commerce for species of state concern. Existing processes for petitioning the federal government to inspect for or quarantine species of state concern have not been successful to date.
DOH	Environmental Health Services Division Vector Control Branch	Our experience with other state, federal and military agencies with regards to an "invasive vector" has been generally positive. In 2010 an army entomologist had identified a possible new "invasive vector," a mosquito that is an excellent transmitter of malaria. The army reached out to DOH and DLNR for assistance in trapping and possible eradication efforts. DOH in turned reached out to the navy for assets and CDC to aid in the definitive identification of the mosquito. Fortunately the mosquito was identified as a known species of mosquito already in Hawaii that can but is not a very effective transmitter of malaria. From this experience, we believe that requests for assistance from other agencies for routine duties may be met with resistance since it would impinge upon their staff's ability to conduct their duties. However, during an emergency or crisis situation, we believe stakeholders will be willing to share assets and cooperate as a team.
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		The DOT works maintains good partnerships with DOA, DOH, DLNR and our Federal Agencies.
UH - College of Tropical Agriculture and Human Resources		Yes. There seems to be some territoriality, with some state organizations being very protective of what they perceive to be their sole responsibility. Directly requesting that university research not be conducted.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	In certain circumstances owing to extrinsic factors, agencies have been slow to fund continuation of projects, so we have had to supply bridge funds from our own operating funds. And more basically we have had a continuing process learning how other agencies work and how to interact with them. While there are occasional hiccups, the process has worked well, except when agencies experience high turnover or are short-staffed.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(6) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	It can be difficult to work on funded research projects relating to invasive species within the UH system of grants, contracts, and rewards due to the need for rapid research start times and quick project completion tied to the funding mechanisms for invasive species that are often ‘emergency’ in nature. These emergency invasive species problems are often what our diverse faculty and staff specialists are called upon to assist with, but it can be exceedingly difficult to work on the timeline needed due to the fast re-allocation of resources (staff, facilities, materials, etc.) that are often tied to other long-term grants and contracts. Other agencies want our assistance, often get some information and resources, but the research grant cycle for emergent invasive species problems does not mesh well with our UHH research and education strengths of long-term investigative research and education topics. Again, our strengths are directed to long-term research and education, but some funds and community voices are directed to rapid research and answers, and there is frustration when we cannot accommodate those issues.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	The various quarantine entities have yet to find effective measures by a responsible federal or state agency to address mosquitos in foreign trade, containers, etc. Malaria infected persons do exist in Hawai’i, but the primary mosquito vector does not. State mosquito survey and trapping for mosquito that was set up years ago, but is no longer supported at its former status.
U.S. DOA	Natural Resource Conservation Service	NRCS has concerns with the lack of an updated Hawaii State Noxious Weed List. The list we currently use was last updated on October 20, 2003, nearly twelve years ago. The one on the HDOA website is from 1998. Both lack many pernicious invasive weeds that are troubling us today, such as Schinus terebinthifolius (Wililaiki – Christmas Berry), Psidium cattleianum (Waiawi – strawberry guava), and Acacia confuse (formosan koa). The State’s weed list is what gives us the authority to treat invasive species. If they’re not on the state weed list, we have to take extra steps to justify control or eradication using Farm Bill funding. It would be great if this list could be updated soon and then be kept up-to-date yearly.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	The State agencies often do not have adequate funding or staff to implement necessary eradication or quarantine procedures quickly or comprehensively to prevent the spread of invasive species specifically in Hawaii.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	The priorities for managing invasive species are not clear across responsible entities. Getting consensus on this issue would help tremendously in defining how to move forward.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	JBPHH and PMRF have experienced excellent inter-agency coordination with state and federal agencies.
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	No, in fact the State of Hawaii agencies (HDOA, OISC) tackling the invasive species issue have been very supportive.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	One challenge exists on Molokai – lack of agricultural inspectors and facilities (for example, at the wharf), prevents adequate inspection of incoming and outgoing agricultural goods that could serve as vectors for invasive organisms. While the MoMISC group tries to fill the gap, more staff and facilities are needed. Staff from multiple parks report that coordination/cooperation has greatly improved over past 10 years, but

SURVEY 2 RESPONSES (Verbatim Excerpts)

(6) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		that further improvements are possible.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	Refer you to Gordon Tribble, Director. USGS Pacific Island Ecosystem Research Center (PIERC) gtribble@usgs.gov
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	No. Interagency coordination with other federal and state agencies as it relates to invasive species issues has been very responsive; however, the mechanisms to implement invasive species efforts including adequate funding, resource capacity, and legal and jurisdictional authorities have resulted in some challenges.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	None
City & County of Honolulu		As mentioned above, interagency coordination has been a problem encountered in dealing with the little fire ant and the coconut rhinoceros beetle.
County of Maui		Lack of interisland emphasis on biosecurity has led to "porous" borders and repeat introductions of invasive species, especially LFA and coqui frog.
County of Kauai		We have not experienced any challenges. We provide funding to KISC and its members, as well as the State Department of Agriculture is most appreciative of the County's contribution.
Maui Invasive Species Committee		• Lack of coordination with state agencies on response and data sharing responsibilities • Ineffective inter-island biosecurity
Oahu Invasive Species Committee		In general I think Federal/State cooperation is good between federal and state agencies involved in natural resource management. We don't have an online reporting system because (I think) HDOA wants it housed there, but they don't have the capacity to staff an online reporting system so we can't make any movement on that project. The main coordination challenge I see with HDOA is fundraising. It seems like they could make justifiable arguments for joint inspection facilities at the airport and better biocontrol facilities, but they don't want to harness the rest of the invasive species network to help make that happen. Its something everyone in natural resources management would support and we'd do what we could to assist, but they really have to spearhead that. We get along really well with DOFAW and we are pleased they understand and support our mission. The main interagency problem between state and federal is that the Feds have different lists about what they will stop during inspections. The species are all mainland species and so they aren't looking for things that matter to Hawaii. Hawaii doesn't seem to get any kind of special consideration for our unique environment. The Lacey Act is irritating too. USFWS could arrest someone for selling a snake from Hawaii to another US mainland state, but cannot arrest someone for selling a snake in California and sending that snake into Hawaii. For a Lacey Act violation to occur, a state law has to be violated and interstate commerce has to take place. It would be nice if we could get some federal backup on importing invasive species. That however, is something Congress would have to fix, so that's not going to happen anytime soon.
Kauai Invasive Species Committee		No, there has been excellent coordination on Kauai.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(6) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Coordinating Group on Alien Pest Species		Yes. Trying to have/get equal protection from both agencies makes even starting a project difficult. For example, HDOA doesn't have a list of plants that are invasive and absent in Hawaii; they have historically been very reluctant to do this in part because they would also have to be added to the Federal list.
Hawaii Agricultural Research Center		HARC scientists have generally had a good working relationship with HDOA and APHIS as far as exchange of information and prevention of transport of unwanted pests and diseases into or out of the state.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(7) In your experience, what strategies have been most effective in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Strategies most effective is education and outreach; enforcement; and collaboration among affected agencies and organizations.
DOA	Plant Industry Division Plant Pest Control Branch	PPC Branch projects that were most effective in the fight against invasive species were successful because of the cooperation, coordination, and collaboration between HDOA and partner agencies in dedicating manpower and resources against a common target. Having available funding to support the resources being expended also aided the program. Other components that aided in effective fighting of invasive species were community support and education on project objectives within the Branch, partner agencies, and the general public. Solid information on new pests is also key. Too often setbacks occur as we have to "learn as we respond".
DOA	Plant Industry Division Pesticides Branch	This question would be better answered by other branches within the Plant Industry Division. However, it appears that the most effective strategies have involved collaboration between multiple agencies, involving public outreach and both chemical and mechanical methods of pest control. In the past it seems that resistance from the public that are not appropriately educated on the risks of no action have resulted in the spread of invasive species.
DOA	Animal Industry Division Animal Quarantine Branch	Mitigation strategies that can be implemented and documented prior to the animal (regulated entity) arriving in Hawaii. i.e. rabies vaccination, serological testing, tick treatment, etc.
DOA	Animal Industry Division Animal Disease Control Branch	Rapid response to prevent movement into the state of high risk animal populations. Emergency quarantine and embargo powers have been effective in controlling the movement of high risk animals.
DBEDT	Office of Planning	Not direct authority, OP serves as a support/network agency.
DBEDT	Hawaii Tourism Authority	• Partnerships with other agencies and organizations to maximize impacts for removal and control. • Coordinated efforts among agencies and organizations to share best management practices across counties, lessons learned, to reduce the amount of redundancy across projects.
DLNR	Division of Forestry & Wildlife	Early detection and rapid response is an effective strategy to prevent establishment of invasive species. Unfortunately DOFAW manages lands where some invasive species are well established. Whether or not DOFAW should, or can, control established species on state lands depends largely on resource availability.
DLNR	Hawaii Invasive Species Council (HISC)	The most effective strategies are those that exist within an organized structure with clear responsibilities and authorities for partners. Recent responses to coconut rhinoceros beetle and little fire ant have utilized the Incident Command System to organize disparate partners into a cohesive structure with distinct functions for individuals (decision making, operational planning, outreach, etc).
DOH	Environmental Health Services Division Vector Control Branch	Prevention and early detection through active surveillance.
DOT		The Hawaii Invasive Species Council (HISC) provides policy, 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.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(7) In your experience, what strategies have been most effective in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH - College of Tropical Agriculture and Human Resources		Early detection through port inspections and quarantine, though this is inadequate given current levels of invasive species arrivals. Banning the importation of high risk products. Biological control of weeds and insects.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Communication, communication and communication. Second is building the infrastructure, planning and long term commitment to evaluate the scope of a problem, assess the resources needed, identify the needed endpoint, and to make a commitment to follow through to the end.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Prevention of invasive species introductions by all accounts is the best strategy, and is the strategy indicated in the best research and recommended practices. Rapid eradication efforts when applicable are a secondary priority, and this type of eradication program must be solidly funded and well planned for a potential long-term process. Reactionary and temporary eradication plans are prone to failure, especially when tied to research. There should be no overlap between eradication research and eradication efforts. Species specific long-term funded methods of invasive species control using Integrated Pest Management best practices are most effective. UHH faculty also research the biological mechanisms that make species (including invasive species) successful, and research the consequences of invasion on the dynamics of Hawaiian ecosystems Additionally, biological control has been extraordinarily effective in Hawaii when well researched using modern principles of species-specific beneficial organisms as a long-term strategy.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	Regulations that give inspection and authority for action of all articles and conveyances of risk. 7CFR 330's use broad language to cover the different articles and conveyances that may present pest risk. §330.105 Inspection. (a) Inspection of foreign arrivals. In order to prevent the dissemination into the United States of plant pests and for the purpose of carrying out the regulations in this part, all plant pests; means of conveyance and their stores; baggage; mail; plants; plant products; soil; stone and quarry products under § 330.300; garbage; and any other product or article of any character whatsoever which an inspector considers may be infested or infected by or contain a plant pest, arriving in the United States from any place outside thereof for entry into or movement through the United States shall be subject to inspection by an inspector at the port of first arrival, except that mail will be handled in accordance with the joint customs and postal regulations for inspecting and handling mail. Ongoing survey and trapping for early detection and programs that allow the university and others to perform research and trapping for new pests likely to arrive and establish in Hawai'i. Active university extension, and a good reporting system for new pests. Good containment facilities. Cooperative work with other invasive species efforts. Collaboration among regulatory entities. Good Smuggling and Trade Interdiction to address smuggling. Canine program to substantiate probable cause in the inspection of First Class mail (going to the U.S. mainland).
U.S. DOA	Natural Resource Conservation Service	First and foremost is ability to conduct repeat treatments of pernicious weeds, often with a mixture of mechanical, hand-control and possibly chemical (where appropriate) control. The second is collaboration; what good is it for us to treat a five or ten acre patch of invasive species on a client's land when the

SURVEY 2 RESPONSES (Verbatim Excerpts)

(7) In your experience, what strategies have been most effective in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		surrounding acreage is packed with abundant seed source of the same species. Third seems is the state ramping up control of the spread via nurseries and/or movement of plant materials intra-island, interisland, or into the state.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Prevention through quarantine treatments, early detection and eradication.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is a complex answer. There is no doubt that effectiveness can be measured in many ways. The overall measure of management, control, eradication, awareness is highly variable across the various efforts. In general, effort are always best when well defined with responsible parties, shared and conversed with the appropriate communities and stakeholders and have political and fiscal support.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	Education, outreach, prevention, communication, and partnering
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Constant vigilance and interagency (State & Federal) cooperation and coordination. Ability to leverage other agency assets to help control a mutual threat.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	• prevention of new introductions (sanitation protocols and monitoring for incipient) • strategic fencing and animal removal • ACETA • development of the Special Ecological System to control widespread weeds • localized control of small weed populations (outlying or incipient) • localized control of small mammals around bird nesting areas • outreach and education
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	Refer you to Gordon Tribble, Director. USGS Pacific Island Ecosystem Research Center (PIERC) gtribble@usgs.gov
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Prevention has been and continues to be a vital element in the fight against invasive species. Ensuring that an adequate border inspection program is in place (inspectional capacity including personnel resources and facilities to quarantine, safeguard, treat and dispose of infested articles) to prevent the introduction of invasive species. In addition, border surveillance with early detection and rapid response capabilities to address early incipient invasive species incursions to prevent their establishment in Hawaii. And lastly, having the ability to control and manage invasive species within Hawaii's border to prevent the further spread of invasive species between islands, and from one locality to another within an island.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	There is real value in participating in various groups to collaborate with a wide interest participation. This allows for information to be shared within the organization for awareness.
City & County of Honolulu		Consolidation of invasive species eradication command under one agency, e.g. Hawaii DOA. That enhances a quicker, better coordinated response.
County of Maui		Sufficient funding (Maui County tops the other 3), ample education and outreach.
County of Kauai		The County relies on KISC's expertise in addressing invasive species and will provide assistance where possible.
Maui Invasive Species Committee		• Outreach and education → community support / funding • Early detection

SURVEY 2 RESPONSES (Verbatim Excerpts)

(7) In your experience, what strategies have been most effective in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Oahu Invasive Species Committee		Getting it early and public outreach. Everyone knows to report snakes now, that's great. LFA in Mililani and Waimanalo were successfully eradicated because the populations were still small. The Mililani infestation was a residential area and there was 100% cooperation because of good public outreach. OISC has been able to keep several nasty plant species at bay because they were found before they had gotten a foothold in natural areas. Examples are pampas grass, Cape ivy, Tibouchina urvilleana. Miconia is contained because we found it early enough, and as stated above it would be eradicated by now were it not for the extremely long-lived seedbank. Keeping the whole state protected is important. Once a species establishes on one island, it will eventually get to the others.
Kauai Invasive Species Committee		Getting to the problem early and obtaining the best method/effort to completely eradicate.
Coordinating Group on Alien Pest Species		Interagency communication, cooperation, elected official engagement and support, public awareness and support.
Hawaii Agricultural Research Center		The exchange of information and publishing of newly detected invasive species is critical to any collaborative effort at control and prevention. The continued efforts at prevention of entry of unwanted pests, while not completely successful, has nonetheless probably been the most useful strategy. Quarantine and prevention are more effective than control of introduced pests after they are here.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(8) What resources, if provided, or changes in laws, rules, or regulations would most help your agency more effectively combat invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Resources needed are staffing and facilities. Updating current laws and rules to provide a more consistent State policy on invasive species.
DOA	Plant Industry Division Plant Pest Control Branch	Resources such as funding for new facilities and legislative appropriation of staff for the Biological Control program would allow increased research in beneficial parasitoids and pathogens. Possible stricter laws and rules would prevent the spread of invasives between islands. Broader access to enter private property or inclusion of HDOA in the environmental courts could be of benefit.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. Our role is to regulate the use, distribution, and sale of pesticides in the State.
DOA	Animal Industry Division Animal Quarantine Branch	Larger improved inspection facility at HNL for arriving animals. Updated station for quarantine of animals on Oahu. Improved inspection facilities for island of Hawaii.
DOA	Animal Industry Division Animal Disease Control Branch	Funding for rapid response to new disease outbreaks.
DBEDT	Office of Planning	N/A. Funding resources would most efficiently be allocated through the HISC.
DBEDT	Hawaii Tourism Authority	N/A
DLNR	Division of Forestry & Wildlife	a) Currently DOFAW only prohibits the release of introduced wildlife, and only prohibits the release, export, and transport to new locations of injurious wildlife. The public can still possess injurious wildlife, and they can be freely sold at pet stores. The State should explore prohibiting or otherwise regulating the sale and possession of injurious wildlife. b) Prohibiting the feeding of predators (as defined in HRS 183D) on state lands would also assist in DOFAW's efforts to minimize the impact of invasive species on native species.
DLNR	Hawaii Invasive Species Council (HISC)	a) Additional staff and operational funding capacity for interagency coordination and project support b) Sufficient staff and funding capacity for both interstate and intrastate inspection and quarantine c) Facilities development for biocontrol research d) Facilities development for commodities inspection at air and sea ports, preferably developed as joint state-federal facilities e) Administrative rules designating species as invasive for the State of Hawaii.
DOH	Environmental Health Services Division Vector Control Branch	Additional statewide staffing for the Vector Control Program could provide assistance in the control of "invasive vectors".
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		The DOT defers to the DOA and/or HISC.
UH - College of Tropical Agriculture and Human Resources		• Improved quarantine facilities. • Streamlined handling of state funds being transferred to UH would be helpful. • We have the expertise and the potential, through graduate researchers, to address a wide range of invasive species problem quickly and aggressively. But regulations which limit our ability to work quickly and independently, and short funding horizons (one year at a time prevents us from recruiting the best graduate students, 3 year funding blocks would be more effective) hamper our

SURVEY 2 RESPONSES (Verbatim Excerpts)

(8) What resources, if provided, or changes in laws, rules, or regulations would most help your agency more effectively combat invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		capacity.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Base funding to provide PCSU with stability to allow it to plan several years out. Such resources would also allow us to develop talent through the ranks from field workers to project managers. It would also allow us to ensure that there is more communication between scientists and projects
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Assistance in managing (through monies for trained staff, or access to central training/records) or reducing the bureaucratic burden relating to chemical or biological control programs for invasive species is advised. As a University, we follow all state and federal rules for pesticides (EPA label rules) used for invasive species control as part of standard buildings and grounds maintenance, but we are also under a unique regulatory burden connected to our responsibilities for public facilities, research facilities and teaching facilities. All UHH facility and staff types must adhere to different regulations relating to pesticide use for application, research or teaching/demonstration purposes. Additional recordkeeping and training will likely be needed in the future with the increased regulatory burden that Federal, State, and County rule makers are imposing on all pesticides. The University advises the safest forms of invasive species control necessary for the desired outcome recommended as the best practice for any given invasive species control. State enforcement of existing rules and policies for proactive prevention of new invasive species is a prerequisite for action relating to effectively combating the current suite of invasive species the State and the UHH with any best management practices recommended
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	APHIS PPQ addressed some of these situations fairly recently. Here are a few examples: • The United States, as well as other countries, needed to change the way plants for planting were regulated. NAPPRA (Not Authorized Pending Pest Risk Analysis) is solving this problem. Hawai'i invasive species entities can be actively involved to extend the lists of NAPPRA plants. See https://www.aphis.usda.gov/wps/portal/aphis/ourfocus/planthealth/sa_import/sa_permits/sa_plant_plant_products/sa_plants_for_planting/ct_nappra!/ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOK9_D2MDJ0MjDzd3V2dDDz93HwCzL29jAx8TfULsh0VAY_1WkE!/ • Additionally, international agreements required control for pests in order for those pests to be actionable for border security at ports of entry. Federal control was not funded for the many state concerns. States were taking the equivalent of official control but needed to be recognized federally. APHIS designed the FRSMP program to give federal recognition to state control/quarantine programs so that PPQ/CBP could take action on pests for commodities as destined to states granted official control recognition. • Additionally, special needs requests have always been possible, but the procedures were not well presented until a few years ago. Now for federal regulations for domestic interstate movement, (mostly the 7CFR301's) there is procedure for states to petition APHIS to take more restrictive action than the federal regulation. See https://www.aphis.usda.gov/plant_health/special_needs_request/downloads/process.pdf

SURVEY 2 RESPONSES (Verbatim Excerpts)

(8) What resources, if provided, or changes in laws, rules, or regulations would most help your agency more effectively combat invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Natural Resource Conservation Service	Come to a state-wide agreement on what species in Hawaii are considered truly invasive and a great threat to Hawaii's ecology and environment and get them officially added to the Hawaii State Noxious Weed List. This will give us greater authority to treat and eradicate. Better funding for HDOA in their invasive weed section and HISC is essential to have the staff to fight this growing threat to Hawaii's ecosystem. We are always open to more collaboration with HDOA, DLNR, DOH, UH and other state agencies to fight on the invasive species front.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Hawaii has had to endure the challenges of being a State that is remotely located and in a climate location ideal for most invasive introductions to survive. This clearly merits some unique thinking that has to often been limited by existing protocols. This is a highly sensitive issue and would take senior leadership engagement across a broad spectrum of entities to change. If these changes could be made, this would yield the best outcome but they are also the hardest agreements to achieve.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Stronger Federal and State laws to limit and prohibit the introduction and sale of plant and animal species shown to be detrimental to the environment. The ability of the State and Federal government to prohibit nurseries from growing known invasive detrimental plants and confiscate those found, regardless of economic impact to the commercial grower.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	- Increased regulations to prevent the new introduction of invasive species to the state would also benefit the NPS. More stringent regulations controlling the movement of goods between islands may prevent the spread of fire ant, coqui frog, and other pests to non-afflicted islands. - Inspection of all imports following the New Zealand model of invasives control would greatly benefit Hawaii. Efforts should be focused not just on known pests, but also on organisms that have the potential of becoming pests.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	Not applicable.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Annual dedicated funding and support to adequately address invasive species issues in Hawaii both at the federal and state level.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Training and information sharing are critical, especially when invasive species are initially detected. If and when invasive species are found in city properties, contingency funds should be made available to enable quick response to effectuate the control or eradication of invasive species.
County of Maui		Stricter rules about interisland shipping. Penalties should be levied on those found to be responsible for shipping infested cargo.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(8) What resources, if provided, or changes in laws, rules, or regulations would most help your agency more effectively combat invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
County of Kauai		We would like to see the State put more resources (funding and personnel) towards combating invasive species. The efforts placed in prevention of invasive species is far less costly, then having to deal with it than after the fact. Besides the financial toll on government agencies, the private business sector and residents are much greater. As an example, both guinea grass and albisia have taken over the landscape of all Hawaii counties. It costs the County and State a lot of money just to maintain the shoulders of roadways, not to mention what those species do to overtake native species that are on private lands or State agriculture and conservation lands, yet there is no program to address these two invasive species.
Maui Invasive Species Committee		• Ability to require landowners to control limited number of designated invasive species or require them to pay if won't allow access to control for free. • Require horticultural industry to demonstrate adherence to best management practices through annual certification.
Oahu Invasive Species Committee		It would be great if we could conduct control work on state land managed by other agencies without having to get a permit first. Just because of the time it takes. We have a big patch of Chromolaena odorata in Kahana Valley that isn't being controlled because we are waiting for a permit. The law that says landowners are not liable for workers doing invasive species work on their lands has been working great and helps us get permission on private lands. For private land that is unoccupied, it would be great to be able to control the invasive species without landowner permission, or at least after having a certified letter to whatever address is on file with the tax office. Absentee landowners, especially on the neighbor islands can be really difficult to get to. A law that protects our field crews from harassment would be nice. We have a guy that regularly threatens the field crew with machetes and a gun and so we've stopped going there. It would be nice to give him a ticket or get law enforcement to tell his to step aside. Crews on the Big Island have run into booby traps.
Kauai Invasive Species Committee		1) A biosecurity law to reduce introductions would be most cost effective. 2) A known base funding from the State would help keep long-term employees.
Coordinating Group on Alien Pest Species		A biosecurity plan that lays out all the major needs and a timeline for completing, and a way to prioritize beyond political terms. At the top would be inspection facilities at major ports and a requirement for compliance, stable/adequate funding for agencies/NGOs for rapid response/monitoring and control, and Federal recognition of Hawaii to enable Federal action on state pests.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(9) If applicable, has the Hawaii Invasive Species Council been effective in assisting your agency in the fight against invasive species? Yes or no. Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, the control over funding appears to have coordinated some of the fight against invasive species.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. HISC has provided funding for key projects such as biocontrol and CRB. More significantly, HISC has allowed connections to be made inter-departmentally which has allowed increased understanding of roles and responsibility and better coordination between agencies. HISC has also allowed streamlining of obtaining permits for invasive species control for HDOA PPC
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. Our role is to educate the use, distribution, and sale of Pesticides in the State.
DOA	Animal Industry Division Animal Quarantine Branch	No position.
DOA	Animal Industry Division Animal Disease Control Branch	Little to no interaction up to this point.
DBEDT	Office of Planning	N/A
DBEDT	Hawaii Tourism Authority	Yes, we have met on a few occasions. Information on the latest research and issues is helpful.
DLNR	Division of Forestry & Wildlife	The HISC has funded a number of programs that benefit DOFAW's efforts to combat invasive species, primarily the ISCs, Watershed Partnerships, and Hawaii Ant Lab. The HISC has also assisted in coordinating interagency response to recent invasive species threats that are of concern to both HDOA and DOFAW. In particular, HISC staff have helped coordinated efforts between O'ahu DOFAW and HDOA for response to the coconut rhinoceros beetle. The policy statements (e.g. resolutions) produced by the HISC in recent years have been more focused on prevention and inspection (i.e., HDOA mandates) than on DLNR or DOFAW mandates.
DLNR	Hawaii Invasive Species Council (HISC)	N/A
DOH	Environmental Health Services Division Vector Control Branch	The HISC seems to be focused on invasive species of concern to DLNR, and thus the invasive species of human health concern are not their first priority.
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		Yes. Through the HISC the DOT is able to collaborate better with government agencies in addressing invasive species. They also foster professional contacts who provide training and resources to our staff. With adequate State Funds the HISC would be empowered to meet its potential.
UH - College of Tropical Agriculture and Human Resources		Yes -- they have provided funding for some work on invasive species.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes, it has been a critical source of funding and increasingly has been an effective advocate and focus for synthesizing data across islands and projects.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(9) If applicable, has the Hawaii Invasive Species Council been effective in assisting your agency in the fight against invasive species? Yes or no. Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes, the HISC (BIISC) has been communicative with UHH relating to invasive species control and monitoring needs. Many research and education efforts have been coordinated with HISC staff (internships, trainings, class projects, research collaborations). The Office of Maunakea Management uses HISC resources such as Weed Risk Assessment scores to prioritize actions.
U.S. DOA	Natural Resource Conservation Service	Yes, we have a very good working relationship with Josh Atwood and great respect for HISC and the work they're doing to address this huge challenge. We work well with the respective Islands Councils (OISC, MISC, etc.). We would love to do more collaborative projects. Quite frankly, HISC seems way underfunded for their mandate. They're so busy right now with Little Fire Ant (LFA) and the coconut rhinoceros beetle that they seem to have time or staff to address the invasive plant species at the level needed.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Not sure
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	The Council has played a positive role, but limited funding and people on the ground have minimized the success of this entity.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	Yes, JBPHH and PMRF have both utilized the services of KISC and OISC for invasive species surveys and control efforts.
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	The Oahu Invasive Species Committee on O'ahu has been very instrumental in assisting MCB Hawaii to control invasive species. They have provided field survey crews, and used their equipment and materials to control invasive species on MCB Hawaii Installations. Two prominent cases are assistance with controlling the Coconut Rhinoceros Beetle on our Pu'uloa Range Training Facility and a plant known as Devil Weed at Camp Smith.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes, NPS personnel from all islands agree that island specific HISC programs have been a tremendous help in combatting invasive organisms.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	Not applicable.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes. Although the Service does not receive funding from HISC for invasive species work in Hawaii, we have been integral partners in the evaluation and recommendation to support invasive species work performed by other agencies and organizations to further prevention activities, research and technology, control and management, and outreach and public awareness as it relates to invasive species.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Yes, the information sent in email updates and meetings has on occasion given us information on emerging plant health threats, identification of plant material, and disease symptoms, as well as specific invasive species information.
City & County of Honolulu		Yes, the city has, thus far, received a small grant (\$5,000) from the invasive species council, which was used by the Oahu Resource Conservation and Development Council to educate the public on invasive species issues.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(9) If applicable, has the Hawaii Invasive Species Council been effective in assisting your agency in the fight against invasive species? Yes or no. Please explain.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
County of Maui		Yes. Have participated directly and received grant support.
County of Kauai		I'm not sure about the Hawaii Invasive Species Council, but certainly the Kaua'i Invasive Species Council has done an excellent job with the limited resources they have. Kaua'i continues to keep both the mongoose and coqui frog population low or non-existent.
Maui Invasive Species Committee		Yes, funding and coordination.
Oahu Invasive Species Committee		Absolutely, they have been a major funder and allowed us to leverage federal and County funds. The staff are also great at putting us in contact with people from other agencies and generally helping us to get the job done.
Kauai Invasive Species Committee		Yes - HISC provides guidelines, planning, and core funding.
Coordinating Group on Alien Pest Species		Somewhat. Without the mechanism to engage appointed leaders in the efforts, we could not have progressed nearly as far. However, we are still not able to achieve some of the big overarching needs listed previously.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(10) What changes would you suggest to improve the effectiveness of the Hawaii Invasive Species Council in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Create one entity to oversee all non-government agencies and organizations to provide a more cohesive structure to uniformly address invasive species by priority.
DOA	Plant Industry Division Plant Pest Control Branch	The HISC needs a larger SET budget that allows it to address some of its core functions. Changes in how funding is awarded needs to be done with a greater emphasis on the HISC providing core funding in lieu of funding programs that address new issues or old issues in new, innovative ways.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. Our role is to educate the use, distribution, and sale of Pesticides in the State.
DOA	Animal Industry Division Animal Quarantine Branch	No suggestions.
DBEDT	Office of Planning	Further coordination and dedicated participation from other agencies. Currently, staff participation varies, but a dedicated staff person that can represent agency specifically in invasive species may lend to more consistent outcomes. There does not seem to be dedicated staffing in the HISC member agencies (other than DLNR HISC staff) for invasive species.
DBEDT	Hawaii Tourism Authority	Bigger budget - coordinated effort among the counties and the State.
DLNR	Division of Forestry & Wildlife	The HISC could play a stronger role in organizing interagency responses to invasive species, and creating generalized response plans or protocols.
DLNR	Hawaii Invasive Species Council (HISC)	a) Permanent, full time staff positions to implement Council direction, including capacity for data and GIS management, outreach, planning, and program coordination. b) Liaison positions designated within each agency to work on interagency initiatives c) Increased funding for a grants program to support interagency projects d) Clear roles for the HISC in coordinating interagency response to invasive species detection, including the development of a general emergency response plan for invasive species
DOH	Environmental Health Services Division Vector Control Branch	Additional staff resources within the DOH to enable full participation in the HISC.
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		Appropriate State funding.
UH - College of Tropical Agriculture and Human Resources		Funding should go to projects with clear demonstrable products. Requiring that funding recipients Publish papers in peer-reviewed journals is a sure confirmation that research has been conducted that is of the highest quality. Continued support for projects which produce non-peer reviewed 'white papers' or reports are not vetted by the scientific community and are generally considered to be of lower value, and integrity, since they have not undergone the standard peer review process. Such informal work is also of limited availability since it is not published. Most funding agencies require such products and HISC should as well. Holding prior recipients to this lowest standard is the least that should be done to confirm the quality of the research they are funding. Without this rigor and value are subjective and unconfirmed.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(10) What changes would you suggest to improve the effectiveness of the Hawaii Invasive Species Council in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Funding has been highly variable, making planning difficult when faced with multi-year commitments to attack problems such as albizia, little fire ant or Miconia. The uncertainty has also meant that science has been underfunded or rather unfunded, but this makes it difficult to assess whether we are using the best methods or how we are progressing. Managers fly by the seat of their pants with sometimes inefficient or ineffectual results (coqui on Big Island).
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	HISC should be funded at a level necessary to accomplish their ever-changing and expanding duties. See last Legislative HISC funding needs request for that funding level.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	See (7). Regulations that cover articles and conveyances that pose pest risk. Mosquito and other vector surveillance and prevention. Use of the federal avenues of NAPPRA, Special Needs Requests where appropriate. The Plant Protection Act 2000 gave authority to the Secretary of Agriculture to address pest risk. From there, PPQ makes regulations (with public input), without needing to go to Congress for each change. There may be a way the state can analyze the system whereby state rules are made and revamp that system so that rules are written by the state entity responsible for enforcing them, and to identify and fix the resistance/blockage to assigning and clarifying authority and to broaden the scope where needed.
U.S. DOA	Natural Resource Conservation Service	They're certainly serving as the collaborative hub in this fight and bringing together formerly disparate groups. But they lack political support and funding. For the staff they have, they've done a phenomenal job. They've recruited many volunteers which is absolutely commendable but this invasive species war needs more than a volunteer army. If Hawaii is really serious about getting ahead of the invasive species problem, especially plant species, they really need to significantly increase their funding of HISC.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is a balance between a more integrated effort within the existing framework to looking at the regulatory fixes that could solve some of the pending challenges.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	More funding and field staff.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	The HISC program is considered very successful - please increase funding resource availability for both control and prevention work.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	See Gordon Tribble.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Legislatively and part of the State's annual budget, the need to provide for dedicated funding and support to HISC that will adequately address the invasive species issues in Hawaii.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer

SURVEY 2 RESPONSES (Verbatim Excerpts)

(10) What changes would you suggest to improve the effectiveness of the Hawaii Invasive Species Council in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
City & County of Honolulu		Establishing a dedicated responsible agency in administering invasive species detection, eradication and research activities. Duplication of the responsibility would create waste, inefficiency and ineffectiveness.
County of Maui		More funding.
County of Kauai		Some may argue that you “don’t just throw money at the problem”, but in this case, it is true. The State needs to take this very seriously as some of these invasive species are taking over our ‘aina, flora and fauna right before our eyes.
Maui Invasive Species Committee		• More funding • Facilitate more interagency coordination.
Oahu Invasive Species Committee		More money of course. I’d like to see them get more involved in interagency policies. For example, are invasive species considered when giving permits for development? There have in the past been development projects that introduced incipient invasive species via contaminated construction equipment and the companies aren’t made to pay mitigation costs for that. OISC then has to clean it up with the HISC budget. There should be an interagency invasive species list that combines species that are of concern to natural resources, health and agriculture. Then HISC could presumably pass rules relating to that list.
Kauai Invasive Species Committee		They need more staff. Regular funding and a Biosecurity team.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(11) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawaii's efforts in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Overlapping authority on invasive species. Shipments by air through U.S. Mail, Federal Express, United Parcel Service and other air freight forwarders are not adequately identified, labeled and presented for inspection.
DOA	Plant Industry Division Plant Pest Control Branch	Gaps in current system that hurt Hawaii's efforts are 1) Public disinterest/ disconnect, and 2) industry disinterest and disregard 3) primacy of private/individual property rights vs. public good and 4) definition of "emergency" falls under the category of imminent threats to life and property.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch Registration and Technical Review Unit.
DOA	Animal Industry Division Animal Quarantine Branch	Incomplete knowledge of all cargo imported. Insufficient oversight of imports at point of origin/departure. Incomplete oversight of private and commercial carriers due to insufficient positions/ funds.
DOA	Animal Industry Division Animal Disease Control Branch	Rapid early response.
DBEDT	Office of Planning	• Educating the public on what agencies are doing to combat invasive species. • Dedicated funding from agencies/industries that rely upon Hawaii's natural resources to maintain their economic returns.
DBEDT	Hawaii Tourism Authority	• Educating the public on what agencies are doing to combat invasive species. • Educating public on what they can do to help • More support for HISC and better coordination amongst the counties and the state.
DLNR	Division of Forestry & Wildlife	a) The lack of a stable entity responsible for early detection and rapid response for incipient species is problematic. The ISCs do excellent work, but if they will continue to be the primary resource for this important function, then they should be organizationally and fiscally secure. b) Invasive species duties, programs, and data are separated within different agencies, as described above.
DLNR	Hawaii Invasive Species Council (HISC)	As previously discussed, the related but sometimes overlapping mandates for invasive species prevention or control at different agencies, as well as the significant gap between agency mandates for detection and control of incipient plants or animals across both state and private lands.
DOH	Environmental Health Services Division Vector Control Branch	Having enough staff and funding to deal with the control and eradication of invasive species. Perhaps more outreach to the public to assist in the control and eradication.
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		The DOT supports appropriate State funds for DOA agricultural inspections.
UH - College of Tropical Agriculture and Human Resources		Lack of inspection staff for post inspections; Lack of political will – aggressive approaches to invasive species are often shied away from; Improved quarantine facilities for biological control work; Certain high risk, non-essential products should be banned from importation-like fresh flowers originating from high risk areas-this is how Ohia Rust arrived in Hawaii, for example.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(11) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawaii's efforts in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	We need a quarantine system to prevent the introduction of new invasive species into the islands and an inter-island quarantine to keep them from spreading once they arrive. Without this, we will continually have new species arrive.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Lack of enforcement, and inadequate resources for invasive species interception. A well-vetted and informed risk assessment should be revamped to better intercept invasive species in the likely pathways of introduction to the State. For example, current studies (HDOA staff) indicate vegetative propagative plants (not agriculture consumable products), and building materials need much greater inspections and stronger rules of prohibited items to mitigate the risks of those invasive species pathways. 80% of invasive species arrive from horticultural sources, but plant nurseries only abide by pest plant species bans voluntarily, as it is not a regulatory rule, by and large.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	There seems to be disagreement about whether or not HDOA can initiate inspection and take action on any items/conveyance of agricultural risk, or only agricultural commodities. Significant pests hitchhike on non-agricultural products. Whether or not the argument is legitimate, it might be good to resolve the issue. If the language needs improvement, here is one example of the language APHIS uses in the 7 CFR 330's to have a broad application for quarantine inspection and action: §330.105 Inspection. (a) Inspection of foreign arrivals. In order to prevent the dissemination into the United States of plant pests and for the purpose of carrying out the regulations in this part, all plant pests; means of conveyance and their stores; baggage; mail; plants; plant products; soil; stone and quarry products under § 330.300; garbage; and any other product or article of any character whatsoever which an inspector considers may be infested or infected by or contain a plant pest, arriving in the United States from any place outside thereof for entry into or movement through the United States shall be subject to inspection by an inspector at the port of first arrival, except that mail will be handled in accordance with the joint customs and postal regulations for inspecting and handling mail. Requirements for survey to be done before interisland quarantines can be enacted, slows down the action needed for successful eradication. List what could improve the interim rule making. Identify and survey for pests that are predicted to require interisland quarantines. Recognize in whatever statutes are necessary, that those surveys provide sufficient evidence that pests are not known to occur. Look into funding (CAPS where appropriate?) Expand the state, county, and non-profit groups/personnel that can be trained and perform legitimate survey, i.e, the survey acceptable to the standards of the HDOA. Look into different state e and county entities that regularly perform work in locations where traps would likely be placed. This might be entities that landscape, work in parks and highways, forested areas, and around entry points (maritime and air commerce).
U.S. DOA	Natural Resource Conservation Service	Recognition of the seriousness of the problem. If Hawaiian's (both native and transplant) truly understood the scope of this invasion and its hugely negative impact on Hawaii's ecosystem, we would see a response much like TMT. And that, perhaps, is what is needed. Sacred lands in Hawaii are literally being invaded. Political clout needs to come to bear against this foe and dollars need to flow to combat it. Otherwise the war is already lost.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(11) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawaii's efforts in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Insufficient prevention programs in the state.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Clarity on who has the responsibility to prevent invasive impacts and adequate sustainable resources (money and people) to implement an achievable management plan.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Limited funding and personnel to tackle the problem at the port of entries and in the field. Uncooperative private landowners. The inability of the State legislature to pass legislation that would help prevent the introduction and spread of invasive species, i.e., prohibiting private nurseries to grow and sell documented invasive species.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	• Prevention of new invasive species entering the state and becoming established. • More stringent control of interisland movement of agricultural goods. • Improved agricultural inspection (staff/facilities) on smaller islands. • Combatting invasive organisms should focus on more than just known pests, but also be pro-active to block unknown pests.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	See Gordon Tribble
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Inadequate state authorities, and related rules and regulations that fail to properly address the state's ability to properly respond to new invasive species incursions with the implementation of immediate eradication and control management programs, emergency quarantine orders, and enforcement capabilities due to violations.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Duplication of responsibilities is one of the major problems.
County of Maui		Insufficient inspection capability at our harbors and airports.
County of Kauai		I don't know the inner-workings of the Invasive Species Council's organization, but feel more can be done with re-prioritizing the State's Operating Budget and placing more emphasis on invasive species. In some areas I'm afraid it's almost too late, where invasive species have established themselves and it will cost an incredible amount of money to eradicate the species than if we were to have focused on serious prevention efforts.
Maui Invasive Species Committee		Inadequate regulations, enforcement and inspection capacity @ HDOA
Oahu Invasive Species Committee		• Not enough state inspectors. HDOA needs more resources to be to implement their manifest system so that they know what is coming into the port and plan accordingly. HDOA also needs an air conditioned facility where it can inspect produce. Hawaii is denied the ability by several

SURVEY 2 RESPONSES (Verbatim Excerpts)

(11) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawaii's efforts in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		federal laws (and I think the Constitution) to keep out many of the invasive species that are harmful to our environment. If a state wants to restrict imports of something from other states because they might have invasive species on it, they need to get permission from APHIS and it seems to be rarely given. • Nursery owners that don't follow best management practices for pests should be fined and those that do should receive a financial benefit. Interisland bio-security won't work unless the nursery trade is on board with it. • Many of the island's residents are disconnected from Hawaii's unique ecosystems. I think that is because the forests are so degraded on Oahu and 80% of the population lives here. People would be more supportive if there was more environmental education and people understood how unique Hawaii was.
Kauai Invasive Species Committee		Biosecurity is lacking. HDOA is underfunded. Laws are not strong enough. DLNR is underfunded.
Coordinating Group on Alien Pest Species		• Legal gaps in Federal/State actionable lists; • Absence of rules to compel hull husbandry on certain types of vessels. • HDOA has a narrow focus on inspection of "ag commodities" and they are also charged with promoting/protecting local ag industry. • Lack of inspection facilities. • Lack of money for responding to pests and long-term control of pests.
Hawaii Agricultural Research Center		With ever more people and cargo continually entering the state from the mainland and foreign countries the protective procedures in place are spread too thin to provide adequate inspection.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(12) What could to be done to address these leaks or gaps?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	State agencies agree on the authority to regulate invasive species. Federal law is amended to require disclosure of agriculture materials and animals shipped interstate requiring specific label for Hawaii.
DOA	Plant Industry Division Plant Pest Control Branch	Education should be initiated at a young age, grade school on up with curricula geared toward ownership or personal association. A shift in public perception is needed.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch Registration and Technical Review Unit.
DOA	Animal Industry Division Animal Quarantine Branch	Federal assistance with oversight/inspections at departure within US (to Hawaii).
DOA	Animal Industry Division Animal Disease Control Branch	Emergency funding system needs to be in place.
DBEDT	Office of Planning	• Dedicated funding in coordination with the HISC from agencies/industries. • Agencies/industries can direct funds specifically to projects addressing invasive species in their areas of interest.
DBEDT	Hawaii Tourism Authority	• Dedicated funding in coordination with the HISC from agencies/industries. Agencies/industries can direct funds specifically to projects addressing invasive species in their areas of interest. • Public information campaign
DLNR	Division of Forestry & Wildlife	a) An early detection rapid response program, such as the ISCs, should be institutionalized and supported with consistent funding. b) The HISC should be expanded to better act as a clearinghouse for invasive species planning, coordination, and data collection.
DLNR	Hawaii Invasive Species Council (HISC)	a) The State of Hawaii should develop a coordinated, multiagency biosecurity plan that clearly describes agency authorities and responsibilities across pre-border, border, and post-border activities. b) The incipient detection and control functions carried about by the Invasive Species Committees should become a regular, sustained function with stable funding and organizational oversight.
DOH	Environmental Health Services Division Vector Control Branch	Have sufficient staff and funds allocated to the appropriate agencies. Perhaps better networking with private organizations to harness additional manpower.
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		Appropriate State funding.
UH - College of Tropical Agriculture and Human Resources		There is a lack of accountability for importers who have brought in pests, like the stinging nettle caterpillar. The costs for control should be borne by the importers, this would naturally increase the cost of high risk items to a level which is more reflective of what they actually cost when a pest is introduced.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(12) What could to be done to address these leaks or gaps?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Establish a system to prevent invasives from arriving in Hawaii from the US mainland (federal quarantines prevent arrival internationally). This would require a change in federal statutes. Second establish an interisland quarantine so that if species do get in, they don't spread across the whole state.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Have increased invasive species inspections before entering Hawaii, rather than at port of entry. Enforce the law, equitably and consistently, including whenever violations are apparent. Develop the political will to have new law passed restricted trade and sale of invasive plants in Hawai'i. Develop political will to acknowledge that invasive animals such as pigs and birds are spreading some key invasive plant species, and take appropriate action with those animals to limit their spread.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	See survey question (11)
U.S. DOA	Natural Resource Conservation Service	A "highest priority" initiative from Governor Ige which includes a long term strategy and full funding to combat the invaders, followed by a full scale public campaign to educate Hawaiians about this invading army. Something that "rallies the troops."
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	A major first step would be to elevate this issue within and between government entities with two key targets. To start this process, I would recommend the Governor of Hawaii and the Secretary of Interior take the lead as co-chairs in starting this process. 1) Define Senior Agency and Political leads and target priorities 2) Define sustainable funding needs and commitments by respective partners
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Do what is right and not what is politically expedient; lend greater support to HISC, not just monetarily but politically. Significantly increase the number of inspectors of aircraft and ships arriving in Hawaii. Quarantine cargo until it can be properly inspected.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Implementing a biosecurity program similar to countries such as New Zealand for incoming visitors and container shipments would address many new introductions. Prohibit the sale of known invasive plant species. Improve control of plant materials received by mail order. Streamline the process for agencies to prohibit and manage known invasive species. The difficulty in adding organisms to the state invasive species lists indicates political and economic forces may sometimes be a barrier to the management of invasive species.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	See Gordon Tribble
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Propose legislative amendments to HRS chapter 141, Department of Agriculture; chapter 150A, Plant and Non-Domestic Animal Quarantine and Microorganism Import; and chapter 152, Noxious Weed Control, and amendments to related rules and regulations to HAR chapter 4-68, Noxious Weed Rules; chapter 4-69A, Pests for Control or Eradication; chapter 4-70, Plant Import Rules; chapter 4-71, Non-Domestic

SURVEY 2 RESPONSES (Verbatim Excerpts)

(12) What could to be done to address these leaks or gaps?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		Animal Import Rules; chapter 4-71A, Microorganism Import Rules; chapter 4-72, Plant Intrastate Rules; and chapter 4-73, Plant Export Rules, to adequately address the current challenges that the state may have dealing with the introduction, surveillance, eradication, control and management of invasive species.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Consolidation of responsibilities according to the Statutes.
County of Maui		Adopt a Hawaii Biosecurity Plan and insure there is capacity for strong monitoring, inspection, and enforcement.
County of Kauai		Money and personnel. With environmental concerns, especially as it relates to pesticide use, it is becoming more and more difficult and costly to address some of these invasive species with manual labor.
Maui Invasive Species Committee		• More inspections and supportive funding • Detector dog program.
Oahu Invasive Species Committee		HDOA needs more staff and resources. As does DOFAW. Build more of a wall between HDOA's function of supporting nurseries and regulating them so that HDOA can regulate and come down on the guys that don't treat for pests. I think the majority of nursery owners want to do the right thing. Provide money for incentive programs so that nurseries will follow best management practices. A rainy-day fund for emergencies would be great. You write all these grants for what's already here and then by the time you get the money something else has arrived. I think what OISC brings to the table should be taken more seriously. All the state agencies can only work on the land they have whereas OISC works across all land ownerships.
Kauai Invasive Species Committee		A biosecurity law and realistic funding/positions.
Coordinating Group on Alien Pest Species		Prioritize, communicate needs and commitment over 20-year period to fixing biggest gaps, then do it again for the next 20 years.
Hawaii Agricultural Research Center		More funding and personnel.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(13) Please provide any other recommendations to improve the present system of addressing invasive species in Hawaii.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Coordinate all state agencies' authority and responsibilities. Prioritize action for specific invasive species. Conduct education and outreach on prioritization and actions (e.g., eradication). Provide adequate staffing for PQB and PPC branches. Coordinate all functions and activities of nongovernment organizations.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch Registration and Technical Review Unit.
DOA	Animal Industry Division Animal Quarantine Branch	No recommendations.
DBEDT	Office of Planning	The state needs a better understanding of the financial commitment needed annually to maintain operations for invasive species. Current actions are too "reactionary" which is understandable given the fluctuating funding situations. It would be helpful for the State legislature to understand: • Operational budget for existing operations in the State for priority species to include salaries, equipment, leases, utilities, etc... • Project budget for additional needs should also be included as a separate budget. This information should be provided by the respective ISCs.
DBEDT	Hawaii Tourism Authority	• The state needs a better understanding of the financial commitment needed annually to maintain operations for invasive species. Current actions are too "reactionary" which is understandable given the fluctuating funding situations. It would be helpful for the State legislature to understand: ○ Operational budget for existing operations in the State for priority species to include salaries, equipment, leases, utilities, etc... ○ Project budget for additional needs should also be included as a separate budget. This information should be provided by the respective ISCs.
DOH	Environmental Health Services Division Vector Control Branch	No comment at this time.
DOH	Environmental Management Division Clean Water Branch	No comment at this time.
DOT		The DOT defers to the DOA and/or HISC
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	We need a coherent process to address species threats as they arrive. We are still ad hoc. This process must include science and management, and planning. Presently we put out fires. We need to figure out how to fire-proof the place. See Duffy, D. C. and F. Kraus 2006. Science and the Art of the Solvable in Hawai'i's Extinction Crisis. Environment Hawaii 16 (11) May 2006 1, 3-6. Popular version without citations in paper version; The full paper on line at http://www.environment-hawaii.org/eh-xtralineup_more.php?id=163_0_11_0_M
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Better education about the effects and expanse of invasive species in Hawaii and what EVERY person in the State should do on their property to assist with managing the species should be a priority. All people in Hawaii should be shouldering the burden, and there should not be one agency solely responsible for managing invasive species, as this leads to a culture of 'passing the buck' limiting the personal responsibility we all share to help our environment deal with the ecosystem-changing effects of invasive

SURVEY 2 RESPONSES (Verbatim Excerpts)

(13) Please provide any other recommendations to improve the present system of addressing invasive species in Hawaii.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		species. Control for these species must be area-wide when the chance to eradicate or prevent has passed, which means all land managers should have the resources available to manage the pest on a broad scale
U.S. DOA	Natural Resource Conservation Service	Stronger regulation, enforcement and penalties for those who bring in invasive species or who contribute to its spread.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	The ARS research facility in Hilo is happy to continue working with the State of Hawaii and the agricultural community to provide relevant scientific research and expertise. We appreciate any feedback that will help us achieve this goal.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Create a separate unit at DLNR that focuses on this issue, has defined leadership and basic staff funding support to oversee program.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Stricter and more clearly defined laws that support law enforcement and do not hamper or constrain enforcement efforts.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Improve public education about the impacts of invasive organisms on Hawaii's economy and natural resources. A good area to focus might be the numerous airports. Remote airports have little in the way of education materials. Exhibits at larger airports could be improved. At the Oahu airport staff noticed educational materials about invasive species located proximal to a booth selling a range of invasive species including various gingers, wood rose, and other plants considered highly invasive. Include more comprehensive videos about invasive species on all inbound and outbound flights. Formulate a program to focus on prevention. Incoming goods/luggage should be proven invasive species free rather than relying on surveys or an honor system of declaring contraband goods. There is ambiguity in the funding of many invasive species programs – more reliable funding might free up time for work on the ground.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	See Gordon Tribble
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	In addition to legislative authorities and related rules and regulations, there is a pressing need to ensure that adequate resources and capabilities are in place to ensure a sound biosecurity program is established in Hawaii. The state needs the ability to implement a pre-border component that prevents invasive species before reaching Hawaii. This can be accomplished through cooperative agreements and other phytosanitary requirements with producers at the port of departure or origin are met prior to arrival. In Hawaii, the state needs the resources to establish a robust border inspection program that includes adequate inspectional capacity with inspectors and support staff, inspection facilities to quarantine, safeguard, treat and dispose of infested articles, and to conduct a comprehensive surveillance program to detect new invasive species incursions and have the ability to eradicate and control them before they become established in Hawaii. Lastly, a post-border program is also needed to maintain the control and management of established invasive species to prevent their further spread within the state.

SURVEY 2 RESPONSES (Verbatim Excerpts)

(13) Please provide any other recommendations to improve the present system of addressing invasive species in Hawaii.		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Homeland Security	U.S. Customs & Border Protection	It would be helpful to continue to invite those organizations or individuals to meetings that would otherwise not attend, to share their perspective or information on issues or concerns.
City & County of Honolulu		1) When emergency occurs, personnel hiring policies and procedures could be relaxed to permit hiring of employees for quicker response. 2) Petitions for the Governor to declare, if appropriate, state emergency to combat the pests. LFA and CRB should qualify the Hawaii DOA to initiate such request or petition. Unfortunately, this was not done, although it was suggested. 3) Reinstating detector dog program to fill inspectional gaps.
County of Maui		Have DOE add it to curriculum.
County of Kauai		No other suggestions except for what has been stated.
Kauai Invasive Species Committee		I think the idea of an attached agency dedicated to invasive species management is good idea if it is efficient and fully supported.

PART II.

Funding Issues		
(A) In your opinion, does the present system still lack proper funding to provide adequate inspection and control efforts at almost every phase of the present system including pests in vessel ballast water and hull encrustations and microalgae growth on local beaches?		
DEPARTMENT	AGENCY/DIVISION	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Adequate inspection and control efforts at almost every phase of the present system is very important in the prevention of invasive species. Inspections and control efforts are still deficient. Dedicated funding to improve these areas including addressing pests introduced in ballast water and hull encrustations and the control microalgae growth on local beaches should be considered.
DOA	Plant Industry Division Plant Pest Control Branch	Yes, the present system lacks proper funding for adequate inspection and control efforts. Even with proper funding, the system lacks the ability to attract and retain qualified personnel in a timely manner.
DLNR	Division of Forestry & Wildlife	Yes. The present system does not provide for inspections of hull fouling nor regulation of ballast water (both are currently the subjects of a year-to-year research project funded by the HISC). Port inspection is also unfunded, lacking the basic inspection facilities (e.g., deconsolidation, covered inspection areas, reconsolidation) and other infrastructure (manifesting and risk assessments). Post-border control also requires additional funding to adequately survey for and eradicate incipient pests, as well as provide on-going control of widespread pests where warranted.
DLNR	Hawaii Invasive Species Council	Yes. The present system does not provide for inspections of hull fouling nor regulation of ballast water (both are currently the subjects of a year-to-year research project funded by the HISC). Port inspection is also unfunded, lacking the basic inspection facilities (e.g., deconsolidation, covered inspection areas, reconsolidation) and other infrastructure (manifesting and risk assessments). Post-border control also requires additional funding to adequately survey for and eradicate incipient pests, as well as provide on-going control of widespread pests where warranted.
DOH	Clean Water Branch	The Department of Health, Clean Water Branch has no comments/opinion on the funding of the present system. We are not the lead agency and are not aware of the funding situation.
UH-CTAHR		I am not involved with ballast water issues so i cannot comment on that aspect specifically; but there are still inadequate funds for inspections of agricultural products into the state. (A different issue, maybe?)
UH Hilo	CAFRNM CAS, Biology	Yes, the present system still lacks proper funding to provide adequate content. Basic administrative rules for ballast water are not available on-line. Basic reporting information, such as volume of water discharged, previous port(s) of vessels, and first port in Hawai'i, is not available (or at least not easily found) on the DLNR website. It is not clear what information is being collected by the ballast water program, which makes assessing the system impossible.
City and County of Honolulu		Yes, funding for the present system is woefully lacking. The cut backs that were dated back to 1992 have seriously impeded the functions of many state agencies, including HDOA, HDLNR, and HDOH. All these agencies have one way or another involved in preventing invasive species from establishing in Hawaii. Using HDOA as an example, the quarantine inspections at the airports and other ports of entry have been affected by the personnel reduction, since 2000. This problem continues to persist till today. The recent

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(A) In your opinion, does the present system still lack proper funding to provide adequate inspection and control efforts at almost every phase of the present system including pests in vessel ballast water and hull encrustations and microalgae growth on local beaches?		
DEPARTMENT	AGENCY/DIVISION	ANSWER
		spread of the little fire ant, <i>Wasmannia auropunctata</i> , was a good example as HDOA was unable to effectively inspect the movements of agricultural materials, e.g., hapuu, from the Big Island to Honolulu due to the lack of staffing and the much needed legal authority. Any effort to provide sufficient resources to enable the proper state agencies to carry out their inspectional functions would greatly reduce the risks for invasive species to gain their entry into Hawaii.
Maui Invasive Species Committee		Yes. Absolutely.
Oahu Invasive Species Committee		Yes, there is NOT adequate funding for inspection and control at almost every phase of the system.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	ARS does not deal directly with either of these issues, and so we don't have enough knowledge or experience to answer these questions.
U.S. DOA	Natural Resources Conservation Service	Since our agency is about non-regulatory, terrestrial agriculture/forestry resource conservation, we have no experience or knowledge regarding the adequacy of inspection or control efforts for ballast water pests or hull encrustations and microalgae growth here in Hawaii. Therefore we have no opinion to offer.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	The general consensus from folk consulted on Maui, the Big Island, and Molokai is: The present system lacks proper or adequate funding to provide adequate inspection and control efforts at every phase of the transportation system including terrestrial and marine movement of people, goods and materials. Inspection facilities at ports of entry and exit are not able to reliably detect or prevent inadvertent or intentional movement of invasive species. Sanitation capacity at ports is inadequate to prevent re-contamination of cleared goods in many circumstances, as is the specific case of coqui frogs and little fire ants being transported out of Hilo on the Island of Hawaii. Numerous vector pathways receive little or no oversight, such as private boats and aircraft, small commercial operators, and individuals. The request for information about NPS expenditures relating to combating invasives this past year (Weed Survey 2) is not easy to answer. The NPS does have an Exotic Plant Management Team. Individual parks also commonly spend funds combating weeds and pests. Many parks have fenced areas in the landscape where staff actively manage feral animals as an ongoing activity. Most difficult to account for are the funds associated with collaborations between the NPS and the university of Hawaii, other universities, and non-governmental organizations. The totals provided in the appended weed survey include budgets provided by the NPS Exotic Plant Management Team, individual parks with extensive natural resource programs, and the Pacific Island Network Inventory and Monitoring Program.. The expenditures should be considered conservative for the reasons listed above.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(A) In your opinion, does the present system still lack proper funding to provide adequate inspection and control efforts at almost every phase of the present system including pests in vessel ballast water and hull encrustations and microalgae growth on local beaches?		
DEPARTMENT	AGENCY/DIVISION	ANSWER
Coordinating Group on Alien Pest Species		Please note that there appears to be an error: "microalgae" perhaps should be "macroalgae"? And although it doesn't grow on local beaches, it does overgrow & kill the coral and wash up on beaches. In short, yes. Here is the longer answer: DAR has a temporary grant-funded position to coordinate its ballast water and hull fouling "program", consisting of that person. There is a federal and parallel state law requiring ballast water management actions to reduce the chances of pests being introduced in this way, and the law require that the report be submitted to the Coast Guard and DAR. However, with one staff person, all that can be done is a check over the self-reporting form. There is no verification protocol, and no staff to carry this out any testing of ballast water even on a spot-check basis. For hull fouling, there are no federal laws, but the state has a statute allowing them to create rules. The CGAPS legal fellow is assisting DAR with this, using California, Australia, and New Zealand as guides. Again, it is the job of this temporary ballast and hull fouling coordinator to devise, implement, and build a process for verification. Without the State making this position a permanent civil service position and giving them the staff to do the work necessary for getting this program up an running, we have two big gaps in our biosecurity program for the ocean. The second part of the question regarding algae is also a yes, with a longer answer. As the majority of macroalgae affecting nearshore systems were introduced intentionally as aquaculture species, aquaculture deserves a mention as one of the four gaps (along with the two already mentioned and the smuggling of pet trade species). Although many aquaculture species need to go through the Board of Agriculture and a public process prior to importation, the decisions made have not always been protective of the environment--there is a contradictory mandate in HDOA's (and the BOA's) mission to promote and protect Hawaii agriculture (and aquaculture species have a tendency to "escape"). Further, DAR has little or no authority to manage aquaculture facilities for biosecurity purposes. DAR does have is a team (permanent, civil service) to work on some of the worst alien algae infestations in Kaneohe Bay, but not enough to work on multiple species on multiple islands. They also have temporary, grant funded positions to raise native sea urchins to help manage the growth of some infestations, although not at the island-wide or statewide level. I think the last thing I should tie in is that without proper inspection at the airports, some people will continue to smuggle in illegal pet trade species. In one case, a tip led DAR and HDOA to a patch of octocoral (not native to Hawaii) that had been planted in Kaneohe Bay. The individual/s had smuggled it in and were raising it to sell and export black market. Inspection facilities, inspectors, and detector dogs are all needed to reduce this pathway.
Hawaiian Humane Society		As noted in the original survey the only role that we play with respect to invasive species is that we do serve as an amnesty location for people to drop off illegal pets/animals.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(1) In your opinion, does a large portion of the total passenger, cargo, and other traffic entering Hawaii currently go uninspected and, if so, do you think that these uninspected persons and cargo include materials that are known to be a significant source of invasive species that are not established in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, as for passenger, PQB is currently operating on dayshift. Nightshift on Maui and Oahu were curtailed due to the lack of staff. Most cargo are held until inspected. However, other traffic entering Hawaii, which could be significant amount is not inspected and are definite source for introducing invasive species not yet established in Hawaii.
DOA	Plant Industry Division Plant Pest Control Branch	Given staffing issues, inspections need to be targeted in nature. HDOA is shifting in this direction, however, more pathway and commodity risk analysis needs to be conducted to identify priority areas where inspection staff should be focused.
DOA	Plant Industry Division Pesticides Branch	No comment. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	No, regarding program jurisdiction of dogs cats and other carnivores. Possible regarding other smaller species, insects and microorganisms.
DOA	Animal Industry Division Animal Disease Control Branch	For livestock, poultry, other animals, the answer is (No). Typically the incursion of new diseases are emerging diseases that have poor or no tests developed to detect them at the time they enter or entry occurs through non-animal incursions like with feed.
DBEDT	Office of Planning	Yes. Unsure of the significance of invasive species risks.
DBEDT	Hawaii Tourism Authority	Yes. Not sure what the process is but it's definitely important to make sure it's secure.
DLNR	Division of Forestry & Wildlife	Yes, there is likely a large volume of passenger, cargo and other traffic that is uninspected and acts as a pathway for species entry.
DLNR	Hawaii Invasive Species Council (HISC)	Yes, though for commercial shipments HDOA does have a system for risk assessment and prioritization to direct inspections toward higher risk commodities. Passenger traffic is not inspected on arrival unless noted on the state declaration form, which relies on voluntary information.
DOH	Environmental Health Services Division Vector Control Branch	Yes, it is highly possible. But before an invasive species can establish themselves, there must be a breeding pair or a viable colony. Uninspected persons and cargo can bring in invasive species but they may not be able to thrive and procreate.
DOH	Environmental Management Division Clean Water Branch	No response. Not my area of expertise. (for entire Funding Issues section)
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Yes and Yes. Data exist to demonstrate that this is the case (Hawaii Dept of Agriculture have extensive data). This is especially true of commercial and military cargo, and likely the source of several current invasions.
UH - College of Natural	Pacific Cooperative Studies	Yes. Hawaii Ag inspectors are short staffed and cannot cover the waterfront literally.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(1) In your opinion, does a large portion of the total passenger, cargo, and other traffic entering Hawaii currently go uninspected and, if so, do you think that these uninspected persons and cargo include materials that are known to be a significant source of invasive species that are not established in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
Sciences	Unit	
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes, a majority of items goes uninspected upon entry, but that does not necessarily mean increased inspections will help. HDOA has an ongoing study which indicates what venues of recently introduced species came from which entry type (commodity, tourist, building materials, cars, etc.), and this should be used to better manage risk of new invasive species. Additionally, it is undeniable that more new invasive species entered the State after import inspectors were let go en masse in 2009. Office of Maunakea Management inspection records are publicly available for comparative review as the only entity at UHH inspects cargo after entrance in the state looking for invasive species.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	The Kahului Airport research has good information. Similar research may update and focus the data to answer the above question.
U.S. DOA	Natural Resource Conservation Service	Yes. I have to laugh every time I land at Honolulu International Airport and see the “Amnesty Bin” at the bottom of the escalator just before entering the baggage claim area. It’s a bluff. Does it ever actually get used? I have never seen any Hawaii State person of authority check for passengers bringing in uninspected items on the plane. Even the forms we fill out on every return trip to Hawaii seem ineffectual. Who actually checks? There is zero fear of reprisal.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	The answer is clearly yes but the more important consideration is that it is expected that this situation is by choice given limited resources and existing priorities.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Yes, I believe that a significant portion of aircraft and ships arriving in Hawaii goes uninspected. The State of Hawaii has cut a large number of inspectors from their staff and has only rehired a small handful. The current staff is overworked and overwhelmed by the volume of people and materials coming into Hawaii that needs inspecting.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	It is thought that uninspected incoming goods remains a problem, but the NPS does not have the data to quantify the issue. Declaring goods is based on an honor system – it only takes one individual to smuggle in an unwanted pest.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	I have no experience with these issues. (Same applies to whole section.)

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(1) In your opinion, does a large portion of the total passenger, cargo, and other traffic entering Hawaii currently go uninspected and, if so, do you think that these uninspected persons and cargo include materials that are known to be a significant source of invasive species that are not established in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, any passenger, cargo and other traffic entering Hawaii that go uninspected poses a significant risk with the intentional (undeclared) and unintentional (hitchhiking) introduction of invasive species. The prevention of invasive species is a key component of a sound biosecurity program.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	CBP checks all international cargo, conveyance, and passengers in systems and by examination of shipments, passenger baggage, mail, vessels, and aircraft.
City & County of Honolulu		Although agricultural surveys of in-bound passengers are continued on commercial airlines, no actual inspection is conducted. Neither passengers nor visitors on yachts or other vessels are inspected. This may be due to lack of personnel and division of responsibilities. Inspection of yachts falls under DLNR.
County of Maui		Yes
County of Kauai		Absolutely! There is no way (at least presently) that every person and cargo can be inspected for invasive species. I had the opportunity to visit the State Agriculture facility at the Kahului Airport. They've found snakes, piranha and other invasive species in some of the cargo inspected. I feel we were "lucky" that those items were found, but can't help think what isn't being caught. Hawaii has the perfect climate and very few predators for some of these invasive species so it would take much for them to thrive here. Hawaii would be a very different place if piranha were to be established in our rivers and streams, not to mention what it would do to our Visitor Industry.
Maui Invasive Species Committee		Absolutely
Oahu Invasive Species Committee		Yes, I suspect cargo harbors more invasive species in it than people.
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		Yes. CBP/USDA does a pretty good job at inspection, risk assessments to prioritize inspection and assessing efficiency (although it would be better if they could also focus on Hawaii priorities). HDOA does very little of this - lack of capacity, science direction, oversight, and authority to inspect non-ag cargo are all issues.
Hawaii Agricultural Research Center		Without doubt most, if not all, invasive species that have become significant problems in recent years have entered the state via uninspected or missed infested materials.

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Funding Issues		
(2) Do you agree that the interisland spread of invasive species is a major, largely unregulated area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Disagree: There are administrative rules to regulate plants and certain animals moved intrastate. Agree: Household goods, vehicles and equipment could harbor invasive species, but these materials are not regulated by PQB and do not require agriculture inspections. There are also gaps in notification of regulated materials requiring inspection.
DOA	Plant Industry Division Plant Pest Control Branch	No. Regulations can definitely be improved but changes in regulations and authority must also be reflected in changes in staffing levels to insure all high risk pathways for invasive species movement is adequately addressed.
DOA	Plant Industry Division Pesticides Branch	No comment. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Under regulated.
DOA	Animal Industry Division Animal Disease Control Branch	Not with livestock/ poultry diseases. Quarantines in place are rarely violated.
DBEDT	Office of Planning	Yes. Evident with recent activity for Little Fire Ant (LFA)
DBEDT	Hawaii Tourism Authority	Yes.
DLNR	Division of Forestry & Wildlife	Yes. Though there are regulations in place, inspection and enforcement is lacking.
DLNR	Hawaii Invasive Species Council (HISC)	The issue is not “unregulated,” per se: there are regulations regarding interisland movement of pests. The larger problem is inspection facilities and capacity to conduct inspections.
DOH	Environmental Health Services Division Vector Control Branch	We are unfamiliar with the appropriate rules and regulations that may or may not be in place and therefore defer comment.
DOH	Environmental Management Division Clean Water Branch	The CWB is not directly involved with invasive species.
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		This has improved in recent years, but remains a problem in some situations.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes: coqui, little fire ants, and miconia clearly demonstrate that we have a problem.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Agreed. Every port should have facilities available for chemical or heat treatments of materials that may contain invasive species. In this way, there can be better decision making regarding bans vs. mitigation methods for invasive species transport. Every person entering with illegal invasive species items should be prosecutable.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(2) Do you agree that the interisland spread of invasive species is a major, largely unregulated area?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Natural Resource Conservation Service	Yes, it would seem that way. The recent need for Ohia plant-part quarantine is a good thing but is an example of the need for greater regulation on the interisland transport of plants and/or soil.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	It is a major issue. It is regulated but present measures are not adequate to protect the islands.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Yes
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes, Islands not yet impacted by fire ant and coqui frog think it is only a matter of time – largely because of the continued transport of agricultural and construction products. Inter-island biosecurity is poorly enforced, and most of the public is unaware of existing regulations.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, currently there is no formally established or mandated inspection program in place for the interisland movement of passengers, cargo and other traffic in Hawaii. Interisland transportation carriers, both air and sea, are aware of certain inspectional requirements for restricted articles, such as live plants and propagative plant parts, media and soil, and non-domestic animals, that are declared by shippers upon conveyance; however, the current system does not address or prevent the shipment of undeclared articles.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Yes, little fire ant is a good example.
County of Maui		Yes
County of Kauai		Yes. I don't believe inspections are conducted at the harbors with Young Brothers and other shipping vessels when traveling inter-island. There's no Department of Agriculture inspections at the airports when traveling inter-island. Some items may be caught during TSA inspections.
Maui Invasive Species Committee		It's not "un-regulated" exactly, but it has inadequate HDOA staff capacity and no or little incentive for business to prevent movement of species.
Oahu Invasive Species Committee		Yes
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		Yes
Hawaii Agricultural Research Center		Interisland transport of unwanted invasive species is regulated, but it is apparent that these regulations have been ignored by individuals in many instances.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(3) In your opinion, could federal reimbursement be better utilized for state funds generally, and specifically, for funding to subsidize the protection of the U.S. mainland from pests in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes
DOA	Plant Industry Division Plant Pest Control Branch	No. Significant amount of monies is already routed to protect the U.S. mainland from pests established in Hawaii with more inspection staff dedicated to material outbound from Hawaii to inbound to Hawaii.
DOA	Plant Industry Division Pesticides Branch	No comment. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes federal reimbursement for export to continental US activities; and federal support for protecting HI from importing pests is needed.
DBEDT	Office of Planning	Perhaps, it depends on the specific purpose for the funding. Would this funding be able to be utilized to protect Hawaii from pests on/from the U.S. mainland?
DLNR	Division of Forestry & Wildlife	Yes
DLNR	Hawaii Invasive Species Council (HISC)	Yes
DOH	Environmental Health Services Division Vector Control Branch	We are unfamiliar with the ramifications of federal assistance and therefore defer comment.
DOT		DOT defers to the United States Department of Agriculture Animal and Plant Health Inspection Service (APHIS).
UH - College of Tropical Agriculture and Human Resources		No – funds should be directed at reducing invasive species impacts in Hawaii, thus providing local benefit, and reducing the likelihood that HI will act as a source of invasive species for the continental US. Hawaii needs improved protection from foreign sourced imports. Once they are in Hawaii, it is increasingly difficult to prevent their spread to the US Mainland.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Not sure I understand. I do think federal funds should be used to protect Hawaii from mainland US introductions.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Unknown, but any additional funds for invasive species management would be welcome and useful.
U.S. DOA	Natural Resource Conservation Service	It would seem so but I don't know much about this.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine	Not really clear on the request so unable to provide a response.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(3) In your opinion, could federal reimbursement be better utilized for state funds generally, and specifically, for funding to subsidize the protection of the U.S. mainland from pests in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
	Fisheries Service, NOAA	
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Federal reimbursement can help, but mainland ports should do a better job of inspecting cargo shipped to Hawaii.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes. The honor system of declaring potentially harmful materials/pests/pathogens is insufficient, and state Department of Agriculture is too underfunded and understaffed to carry out more extensive work objectives.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	No recommendation and will defer to the U.S. Department of Agriculture (USDA). Under 7 CFR 318.13 the Secretary of Agriculture has determined that it is necessary to prohibit the interstate movement of cut flowers, fruits and vegetables, and plants and portions of plants from Hawaii, except as provided, to the U.S. mainland. This federal quarantine is strictly enforced by USDA and would be best to provide proper guidance on this question.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
County of Maui		Unclear
County of Kauai		I am not familiar with the federal reimbursement, and would like to learn more about this program.
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		I'm not sure what this question means, but if you mean should there be Feds at California airports protecting Hawaii from Californians instead of how it is now with federal money protecting California from Hawaii residents and no consideration for Hawaii then yes. I get that the fruit fly is a big deal, but we've gotten plenty of stuff from California. Naio thrips for example and we deserve to be protected too.
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		I don't know about federal reimbursement. However, I think the effort and expense is better used in keeping pests out of Hawaii, so inspection on incoming passengers and cargo, regardless of origin (foreign goods can be sent and cleared on the continent, then to Hawaii).
Hawaii Agricultural Research Center		No. Hawaii is more isolated and its agriculture and endemic ecosystems more vulnerable to serious damage from introduced invasive pests than the mainland generally is.

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Funding Issues		
(4) Do you believe that the present laws and penalties for illegal introductions are inadequately enforced?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No, chapter 150A, HRS, and penalty section should be reviewed to determine if all penalties should be criminal. PQB should review the possibility of administrative penalties versus criminal penalties. PQB should also determine if chapter 150A, HRS, violations can be processed through Hawaii's environmental court.
DOA	Plant Industry Division Plant Pest Control Branch	Unknown.
DOA	Plant Industry Division Pesticides Branch	No comment.
DOA	Animal Industry Division Animal Quarantine Branch	Enforced with this agency's jurisdiction activities of animal inspection, investigation of non-compliance, issuing citations, etc. However cases may be inadequately prosecuted at court.
DOA	Animal Industry Division Animal Disease Control Branch	We enforce violations routinely. Penalties could be higher and courts more serious about penalties.
DBEDT	Office of Planning	Present laws and penalties seem unclear on how the line is drawn between negligence and/or intentional transfer or species and accidental introduction even when utilizing best practices.
DBEDT	Hawaii Tourism Authority	Not sure if the public is aware of what these laws are.
DLNR	Division of Forestry & Wildlife	Strong laws and penalties are in place, but staffing for detecting illegal introductions is insufficient.
DLNR	Hawaii Invasive Species Council (HISC)	Strong laws and penalties are in place, but staffing for detecting illegal introductions is insufficient.
DOH	Environmental Health Services Division Vector Control Branch	The Vector Control Program rules does not address the introduction of "invasive vectors" and we are not familiar with the appropriate rules and regulations and therefore defer comment.
DOT		DOT defers to the DOA
UH - College of Tropical Agriculture and Human Resources		No. Most pest introductions are accidental on smuggled or inadequately inspected commercial produce and equipment. This is where funding should be focused.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	No. Lack of personnel limits what agencies can do. Looking at actual penalties for having snakes would be a good indicator of how serious judgment is once introductions are intercepted. Light penalties would send the message to staff that enforcement is not taken seriously and is not a priority
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Enforcement is lacking.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(4) Do you believe that the present laws and penalties for illegal introductions are inadequately enforced?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	If so, why does that happen. There may be some remedies within easy reach, while the longer term solutions are being worked upon. For example, <i>if</i> there is authority for initial inspection on a broader range of articles and conveyances of risk, getting that authority better defined by the proper and recognized state authority may resolve some of the “problem”. In the process of doing that, it will help identify what more needs to be done.
U.S. DOA	Natural Resource Conservation Service	They don’t seem to be (see my answer to #1 above) but we have little experience or knowledge in this area. I recall recently talking to the two HDOA staff charged with checking for illegal importation of wildlife. They told me their funding had been cut and they were now down to just two staff (yes, just two!!) for all of Hawaii (or perhaps it was all of Oahu). That tells me that it’s not if a species like the Brown Tree Snake gets to Hawaii, it just when. Politicians don’t seem to appreciate the seriousness of this issue so penalties are weak and enforcement lax.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Don't know.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	These are two very different questions. In some cases, laws are adequate but insufficient resources are available to uphold them. In some cases the laws are in my opinion inadequate. The reference to penalties is again a tiered consideration. In most cases introductions are not intentional so in those cases it could be seen as an education problem and detection limitation.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	I think current federal laws governing invasive species need to be stronger with some teeth in the law that better supports enforcement actions - from the ability to seize detrimental invasive species to stronger penalties for violating the law. The process to list and prohibit economically detrimental plants and animals is an agonizing long process.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes -- the state DOA does not have adequate resources.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	It is believed that federal enforcement dealing with illegal introductions is adequately enforced; however, state enforcement may possibly lack the resources and capacity to properly address this important issue.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		I do.
County of Maui		Yes
County of Kauai		I have to say “yes” and it’s based on what continues to happen. It is apparent that some people aren’t deterred from bringing snakes, spiders, piranha and other invasive species into the State. I also understand that “exotic animals” market is very lucrative for those involved.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(4) Do you believe that the present laws and penalties for illegal introductions are inadequately enforced?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Absolutely yes. They are difficult to enforce for HDOA and DOCARE and the State Attorney and the US Attorney ought to be more responsive about these issues. They don't prioritize it as an issue, but it should be. I hope the new environmental court might help that. There's a guy in Manoa that introduced Tokay geckos to the valley and everyone knows it, but he's never been prosecuted. That guy in Palolo that likes to threaten the field crew told them he planted Himalayan blackberry on Forest Reserve land and DOCARE said they couldn't do anything about it.
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		No.
Hawaii Agricultural Research Center		We believe that the present laws and penalties are adequate. The difficulty lies more with catching persons that disregard them.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(5) In your opinion, does funding for vertebrate-control research (such as developing techniques to control mongooses, rats, and other rodents) need to be increased because current levels are insufficient to cover more than a couple species, despite the wide range of pests in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, because of the current population of these animals and occasional findings of mongoose on Kauai, where it is not known to be established. Lanai is also not known to have mongoose.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. Unaware of such funding.
DOA	Plant Industry Division Pesticides Branch	No comment.
DOA	Animal Industry Division Animal Quarantine Branch	Not sure if funding will yield adequate return on costs.
DBEDT	Office of Planning	Perhaps, it depends on the location. Vertebrate control for these species should be focused on areas where native species are vulnerable and at levels where populations can be controlled, but not in areas where they are established beyond control or eradication.
DBEDT	Hawaii Tourism Authority	Not sure what species is the most threat. Start at the highest level then work down.
DLNR	Division of Forestry & Wildlife	Yes. Currently DOFAW funds a temporary position to work on rodent issues and provides some support on Hawaii Island to assist with response to detection of axis deer. Other vertebrate control research is at this time is very limited.
DLNR	Hawaii Invasive Species Council (HISC)	Yes. The state has limited resources to engage in vertebrate control research or planning.
DOH	Environmental Health Services Division Vector Control Branch	Yes, from a vector control perspective many rodents are known vectors.
DOT		DOT defers to the DOA and/or HISC
UH - College of Tropical Agriculture and Human Resources		Almost certainly, but this is likely true for all groups of pests.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes. Better techniques applied according to scientific principles would be much more efficient and thus much cheaper in the long run. We need to understand the pests and their weaknesses and we need to avoid thinking we can just import solutions from elsewhere. We have to be able to measure our effectiveness.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(5) In your opinion, does funding for vertebrate-control research (such as developing techniques to control mongooses, rats, and other rodents) need to be increased because current levels are insufficient to cover more than a couple species, despite the wide range of pests in Hawaii?

DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	If the State chooses to act, it should ensure that its actions are efficacious. Or choose not to act. For example, if the action is to simply be education, measure results to ensure its education efforts are working. Currently established vertebrate pest control through trapping and poisoning will be a long-term population reduction necessity in high-risk areas depending on the effects of the vertebrate species. Better strategies for the control is always recommended, but only if there is a real possibility of the long-term use of these strategies.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	Provide data that is recognized as legitimate statistics so that there is good evidence to present/persuade those who can give or persuade others to give further support.
U.S. DOA	Natural Resource Conservation Service	Yes, absolutely. Birds are the most threatened species in Hawaii. Mongooses, rats, and cats are a huge threat to this yet there seems little political will to combat this. I love cats (in their proper place and declawed) but it breaks my heart to see people feeding cats in parks all over Hawaii. They are devastating Hawaii's wildlife right under our noses.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	There is no doubt that the interdiction of mongoose, rats and other rodents is an ongoing problem, however again this comes back to prioritizing use of limited funding and staff. Either more capacity is needed and/or changes in priorities.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	No. There are a variety of methods to control vertebrate species; funding should be used to develop better detection capabilities.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Most of the techniques for controlling vertebrates are established. What is lacking is an aggressive control program. In some cases the lack of trade agreements prevent the import of new technology and herbicides that would otherwise improve the efficiency of programs – for example, the import of carbon dioxide driven self-resetting rat and mongoose traps New Zealand.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Federal funding support that has been directed towards vertebrate-control research has been slightly reduced due to other Service priorities within the Pacific Islands Fish and Wildlife Office. As a result it would be beneficial if funding support is increased at either the federal or state level.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(5) In your opinion, does funding for vertebrate-control research (such as developing techniques to control mongooses, rats, and other rodents) need to be increased because current levels are insufficient to cover more than a couple species, despite the wide range of pests in Hawaii?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
City & County of Honolulu		I believe the deficiency is not on research, although it is important to developing new technologies with techniques to control the pests mentioned. The biggest deficiency is in the area of personnel who would carry out the control.
County of Maui		Yes
County of Kauai		Again, I'm not familiar with this, and would like more information.
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Yes, we keep using snake traps built for Brown Tree Snakes when snake sightings are often of Boa constrictors (who couldn't fit in a brown tree snake trap). Trapping would be good. Some kind of bait system to control snakes would be good to develop now so its ready when we need it. OISC doesn't control rodents so I can't speak to the techniques used there. It would also be good to continually investigate making traps and bait as humane as possible. I don't mind killing stuff if it's necessary, but we should always be thinking about how to do it as painlessly as possible.
Kauai Invasive Species Committee		Yes - we are currently working on a mongoose assessment for Kauai. We also were unsuccessful getting funding to modify a resetting rat trap for mongoose.
Coordinating Group on Alien Pest Species		Yes. Rodent and mongoose impacts in natural/conservation areas are significant. However, it is important to remember that you can't just focus on single species, especially when they are established. Must focus on systems, too.
Hawaii Agricultural Research Center		Does funding need to be increased??

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(6) Is the Department of Health's revised Port-of-Entry Program inadequately funded to provide an effective amount of rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance, and other alien vector activities at ports-of-entry?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, new mosquito species, especially the species that can transmit malaria, can be introduced through activities at our air and sea ports.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. Duties previously assigned to Vector Control have now been assumed by Sanitation within DOH. While this staff may allow for adequate coverage of routine programmatic activities, vector related emergence issues (detection of a new mosquito species or outbreak of a disease such as Dengue fever or malaria) is not adequately supported.
DOA	Plant Industry Division Pesticides Branch	No comment.
DOA	Animal Industry Division Animal Quarantine Branch	Inadequate funding.
DBEDT	Office of Planning	Yes. The DOH should have a stronger presence for vector control. Recent funding from the legislature to fund a position in the vector control branch is a positive step forward, however funding needs to be maintained as a critical function to reduce invasive species.
DBEDT	Hawaii Tourism Authority	N/A
DLNR	Division of Forestry & Wildlife	Yes, it is inadequate following the 2009 Reduction in Force. DOFAW staff are assisting DOH in developing an airports monitoring plan under coordination by the HISC, but ideally the DOH program would be adequately funded.
DOH	Environmental Health Services Division Vector Control Branch	At the present time there is sufficient funding for the items listed above. However, as we gain additional statewide staffing through legislative allocations and increase the surveillance net beyond the ports-of-entry, we may run into a funding shortfall.
DOT		DOT supports appropriate State funds to the DOH Vector Control Section.
UH - College of Tropical Agriculture and Human Resources		Probably not.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes. This is our last defense and it has to be fail-safe, not budget dependent. Sort of like metal detectors at TSA checkpoints.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Access to what the level of funding is and what the staffing level is would be helpful to answer this question. The vector control branch used to have many more staff, but they should not be wholly responsible for port-of-entry invasive species monitoring. There should be constant and diverse methods of general trapping efforts for invertebrates and vertebrates around ports-of-entry, as well as ongoing invasive plant species surveys around plant nurseries funded as permanent positions. Temporary staff from multiple agencies (UH, HISC, Bishop Museum, etc.) doing sub-components of the work should not be the method of port-of-entry monitoring without better communication of scope and purpose of the surveys and monitoring.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues

(6) Is the Department of Health's revised Port-of-Entry Program inadequately funded to provide an effective amount of rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance, and other alien vector activities at ports-of-entry?

DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	If so, what other state/county entity works in the areas where traps can be serviced, and possibly perform initial identification "triage" which would add a bit more work, but reduce the overall costs to the state.
U.S. DOA	Natural Resource Conservation Service	Sorry, no opinion, due to no knowledge of this program.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Don't know.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	I do not have enough information or knowledge of the costs of a reasonable management program to provide such feedback.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	I have no idea what their funding level currently is or how much is needed to meet this need to provide an opinion one way or the other.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Consulted staff do not consider themselves knowledgeable enough to answer this question.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, due to the state's reduction-in-force process in late 2009 into early 2010, the Department of Health's Vector Control Branch was reduced to a mere handful of personnel to maintain minimal surveillance for mosquitoes at the various ports-of-entry. This program is vital in the detection of newly arriving disease-borne vectors at the ports as well as the resulting response activities to curtail any newly discovered incursions related to human and animal health safety. Early detection and rapid response to newly discovered invasive species is the second-line of defense of a sound biosecurity program in Hawaii.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Yes, I strongly agree.
County of Maui		Yes
County of Kauai		Again, I'm not familiar with this, and would like more information.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Funding Issues		
(6) Is the Department of Health's revised Port-of-Entry Program inadequately funded to provide an effective amount of rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance, and other alien vector activities at ports-of-entry?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		I don't know anything about the revised Port-of-Entry Program, but I would suspect it is not adequately funded as vector control was completely wiped out during the furloughs in 2008-2009. Hawaii is definitely not set up to handle an incursion of the mosquito species that carries malaria. That seems like a good thing to prevent.
Kauai Invasive Species Committee		Yes. The DOH needs more support.
Coordinating Group on Alien Pest Species		There is completely inadequate vector control/monitoring activities statewide and appears to be little coordination/info sharing or even strategizing for an effective monitoring network.
Hawaii Agricultural Research Center		The current program is underfunded.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(1) Do you agree that response to new infestations is frequently delayed by jurisdictional, organizational, or procedural problems, allowing pests to become established and, in some cases, spread beyond control?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No.
DOA	Plant Industry Division Plant Pest Control Branch	No, unless it means that HDOA is understaffed then yes, response is delayed due to lack of manpower and mechanism to rapidly hire temporary work force to handle responses. Issues such as jurisdictional, organizational or procedural appear to become an issue the longer a response runs.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Can be depending on location of the index case.
DOA	Animal Industry Division Animal Disease Control Branch	Has not been an issue with animal diseases. Authority with the Hawaii Department of Agriculture and USDA-Veterinary Services is clear.
DBEDT	Office of Planning	Yes.
DBEDT	Hawaii Tourism Authority	Yes
DLNR	Division of Forestry & Wildlife	Yes, most likely. The coconut rhinoceros beetle response has been a strong example of success by Hawaii standards, but even this response took some time to figure out which agencies could contribute staff and resources, what authorities were available, and what procedural roadblocks would be encountered.
DLNR	Hawaii Invasive Species Council (HISC)	Yes, though an underlying problem exists in the natural of invasive species biology: when present in small, controllable numbers, invasive species populations often go unnoticed. By the time populations are detected, they may be too large to feasibly contain or control. That being said, a standing response plan and clearer jurisdictional responsibilities would assist in increasing the speed for a response, when one is feasible.
DOH	Environmental Health Services Division Vector Control Branch	Yes, we believe that although the stakeholders (DOA, DNLR, DOH, Military, etc.) all acknowledge the benefits of a rapid response and are willing to cooperate but as indicated above there are problems that may impede a coordinated effort or the creation of an action plan.
DOH	Environmental Management Division Clean Water Branch	No response. Not my area of expertise (applies to entire State Administration Issues section)
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Yes
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes, but it varies by species. There is sometimes a desire to 'control' the situation by not telling the public or to control information. In public health during disease "outbreak" situations, this has proved to be unproductive and to help the spread of rumors. A standardized response procedure, developed in advance, with assigned roles, would be best.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(1) Do you agree that response to new infestations is frequently delayed by jurisdictional, organizational, or procedural problems, allowing pests to become established and, in some cases, spread beyond control?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes, jurisdictional borders and lack of communication and/or duplicative efforts have played a role in invasive species establishment. However, a single authority is not necessary for agencies to accept and assume responsibility, nor to be held accountable. Comprehensive buy-in from all land managers (including private) will greatly enhance rapid detection and control efforts. Amnesty programs to encourage efficacious control/eradication response should be a viable method of buy-in, instead of fines/inspections in all cases except for the most neglectful or grossly willful moving of invasive species to new locations into or within and around the State.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	Identify what causes delays. Concentrate on solutions that can provide even a little improvement. Move the dial in the right direction. One of the tools many states, and federal quarantine officers have, is an Emergency Action Notification. This document is used, for example, to stop sale of and isolate plants that may be exposed to plants infected or infested with a new pest. It is a tool to quickly stop the spread of a newly discovered pest, particularly if the pest is already identified as high risk. EAN's can also require certain actions be taken to address the pest risk by the owner. This is helpful in emergency pest response situations, and in addressing infected/infested commodities that are discovered after entry into the state.
U.S. DOA	Natural Resource Conservation Service	Don't know. The response to the Rhinoceros coconut beetle seems pretty robust.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Clearly the answer is yes, but again this is something that can be overcome by partnering and standardizing protocols.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	All the aforementioned, as well as weak current laws that have little enforceable penalties for noncompliance.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	There are many examples of the above-described situation being true. For example, fire weed on the island of Molokai has recently spread to the point where it can no longer be controlled, and that is despite having an awesome MoMISC crew!
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	I have no experience with these issues. (Same applies to whole section.)

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(1) Do you agree that response to new infestations is frequently delayed by jurisdictional, organizational, or procedural problems, allowing pests to become established and, in some cases, spread beyond control?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes. Oftentimes the discovery of a newly established pest may be reported to an agency or organization that lacks the jurisdictional control whereby slowing the response time to the new incursion. Once the proper agency is notified there may be a time lag to delimit the extent of the infestation before any action is taken including the implementation of proper control and eradication techniques, should they be available at the time; research potential methodologies to address the new invasive species threat; establishing outreach to inform the general public and the overall communities; and lastly, having adequate capacity to address the issue. Related procedural challenges may also come into play since there may not be any clear and comprehensive response plans developed by the state to address future invasive species risks.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Agree. One agency, such as DOA, should be delegated with this responsibility as it was done before.
County of Maui		Yes
County of Kauai		Yes, absolutely. Being in government myself, I see more time spent on trying to see how this important work and kuleana can be avoided, instead of taking it seriously, embracing the problem and working diligently as partnerships to address the problem. A good example is Kaua'i County's support of KISC, but it did not come without the discussion of it being the State's responsibility and not the County's. Bottom line...it's Our 'Aina, it's Our Kuleana!
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Yes—LFA should never have been allowed to become established on Hawaii Island. Same with coqui. I will say that the response to Coconut Rhinoceros Beetle on Oahu gives me hope—they seem committed to eradicating that.
Kauai Invasive Species Committee		Not really. CRB had a large coordinated response. Ohia wilt may result in an island-wide quarantine. We work well across agencies.
Coordinating Group on Alien Pest Species		I think the CRB and LFA responses in 2014 were great improvements, and there is a response plan in place. However, there were and will continue to be political, funding, and organizational issues, as we saw in 2014. There's always a chance that a response will not be launched at the appropriate level.
Hawaii Agricultural Research Center		Respondent did not answer the rest of the survey.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(2) Do you believe that there are still jurisdictional problems that reflect the absence of a single authority solely responsible for fighting invasive species that can adequately represent the State regarding federal issues and concerns?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes.
DOA	Plant Industry Division Plant Pest Control Branch	No. The Plant Industry Administrator also known as the State Plant Regulatory Official fulfills this role. However, more staff needs to be focusing on working to address Federal-State issues needs to be increased, perhaps dedicated in nature, needs to be created to help move these issues along.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Scope of invasive species problem too large for a single authority to manage.
DOA	Animal Industry Division Animal Disease Control Branch	HDOA - Animal Industry and USDA-Veterinary Services work very well together.
DBEDT	Office of Planning	Coordination can always be better in order to more efficiently utilize funding to address projects. However, placing such an extensive issue with a single authority without the funding to support it will not lead to the desired outcome either. For example, funding for the DLNR, which has responsibility over the majority of the State's land is a minimal amount of the state budget. Progress is better seen when partnering with agencies such as DOA, DOH, and other organizations.
DBEDT	Hawaii Tourism Authority	YES
DLNR	Division of Forestry & Wildlife	DOFAW works well with its federal partners on issues regarding native species protection and invasive species control, but yes, having a single authority able to represent the State regarding federal issues would likely be beneficial.
DLNR	Hawaii Invasive Species Council (HISC)	Yes. Though the HISC was created in part to coordinate the State's position on federal issues, there is no staff capacity under the HISC to represent the State in discussions regarding federal issues and concerns.
DOH	Environmental Health Services Division Vector Control Branch	Yes, we believe without a single authority advocating for specific goals and objectives dedicated to the control of invasive species, the State's position on various federal issues may become unfocused or unclear as it tries to accommodate the multiple concerns from several different stakeholders.
DOT		DOT defers to the HISC.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Right now things are too scattered. Is it an agricultural or wildlands species, is it on DLNR land, or federal land or DOE or....? One entity needs to be in charge, a permanent incident commander, a planning/research entity, with institutional knowledge and a route to funding necessary for a response. Sort of like fire-fighting in the Western US.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	A single authority is not necessary for agencies to accept and assume responsibility, nor to be held accountable. However, a single authority to implement better prevention and response may be needed to start the process effectively. A central authority as the best resource for assistance in managing invasive species would be helpful, but they should not be the only agency responsible for invasive species research or control efforts.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(2) Do you believe that there are still jurisdictional problems that reflect the absence of a single authority solely responsible for fighting invasive species that can adequately represent the State regarding federal issues and concerns?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	The jurisdictional authority needs to be accurately identified. Define how the actual (versus perceived) problems that are supposedly due to jurisdictional authority, and take a look at the actual solutions. Perhaps there are advantages to [having] state authority and the federal authority.
U.S. DOA	Natural Resource Conservation Service	Seems like it, but no direct knowledge.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Because this issue spans many sectors of Government, it is not likely to have a single authority. However, it seems reasonable to have a point of contact or Government leader.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	No. CGAPS and HISC appear to be doing a good job coordinating a response to State and Federal issues.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	A single authority may not be able to develop the contacts and knowledge of sister organizations to work effectively across the landscape. The collaborative approach working with ISC groups is a better strategy to follow.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	No, to a certain extent. The Hawaii Department of Agriculture (HDOA) is clearly the first-line-of-defense against the introduction of invasive species that are detrimental to the agricultural, horticultural and aquacultural industries, natural resources and environment of Hawaii. However, HDOA may lack the ability to properly address these issues due to federal preemption laws, resource capacity and funding shortfalls, available tools and methodologies, and legal quarantine rule requirements and enforcement actions.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		I strongly believe so. See comment (1)
County of Maui		Yes. HISC has been a positive step towards addressing that, but more help is needed.
County of Kauai		It boils down to the leader. The Governor needs to direct the various agencies to work together to work together to solve the problem. The top person needs to drive the initiative.
Maui Invasive Species Committee		No- not sure a "single authority" approach is the only or best answer.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(2) Do you believe that there are still jurisdictional problems that reflect the absence of a single authority solely responsible for fighting invasive species that can adequately represent the State regarding federal issues and concerns?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Oahu Invasive Species Committee		I don't think the jurisdictional problems between the feds and the state would be solved by a single authority. The feds don't listen to the governor (USFWS caved to the snake lobby and did not put boa constrictors on the federal injurious species list, even after the governor signed a letter asking them too), I don't think they would they listen to a single authority responsible for fighting invasive species. I think a full-time staff member whose job it was to lobby congress and work on these issues might help.
Kauai Invasive Species Committee		Not sure
Coordinating Group on Alien Pest Species		Yes, to some extent (particularly when it can "harm" local ag sales, as HDOA has competing mandate). However, I worry about creating a silo where there may be less ability to address pests, due to conflicts between agencies.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues

(3) In your opinion, is better involvement of county governments needed in the island invasive species committees and in the prevention of the spread of invasive plants through state and county endorsed or sponsored nurseries, such as the Big Island Invasive Species Committee Plant Pono Endorsement Program nurseries on the island of Hawaii, which focuses on early detection of the nursery import trade of plants, and the Division of Forestry and Wildlife of the Department of Land and Natural Resources state tree nursery?

DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No.
DOA	Plant Industry Division Plant Pest Control Branch	No
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	No position.
DBEDT	Office of Planning	Yes. It is always beneficial to include county agencies in the discussions since they often are more "on the ground". Currently, it appears that the individual ISCs are the primary liaisons to the counties, to which communication may vary.
DBEDT	Hawaii Tourism Authority	Yes
DLNR	Division of Forestry & Wildlife	Yes, more engagement with the counties would be beneficial, though it depends by county how involved they currently are. On O'ahu and Maui, the county Board of Water Supply sits on their local ISC, along with representation from DOFAW.
DLNR	Hawaii Invasive Species Council (HISC)	Yes, more involvement from county governments would be most welcome, both in terms of an organizational resource (e.g., Civil Defense as part of an emergency response) and a funding source for the Invasive Species Committees in each county.
DOH	Environmental Health Services Division Vector Control Branch	The control and eradication of an invasive species must be coordinated effort between all levels of government (county, state, federal) and should include the military, private sector and the general public.
DOT		DOT defers to the HISC.
UH - College of Tropical Agriculture and Human Resources		Improved involvement would be useful.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Varies by county, but yes they should be involved and perhaps best through the Invasive Species Committees which are county based and essentially informal, avoiding all the protocol and bureaucratic problems of government to government agreements.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues

(3) In your opinion, is better involvement of county governments needed in the island invasive species committees and in the prevention of the spread of invasive plants through state and county endorsed or sponsored nurseries, such as the Big Island Invasive Species Committee Plant Pono Endorsement Program nurseries on the island of Hawaii, which focuses on early detection of the nursery import trade of plants, and the Division of Forestry and Wildlife of the Department of Land and Natural Resources state tree nursery?

DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Better involvement with County governments in State-wide rules and invasive species plans and responsibilities would be helpful to have everyone involved in invasive species control. However, splintering of State and Federal programs and responsibilities is a possibility when authority is delegated to the County level in matters that affect the State as a whole, as invasive species can and do. County governments need to be subject to full compliance with and enforcement of the law, as do all other commercial, private, and public entities. Programs like Plant Pono should be mandatory, and the public should be educated in what the program means.
U.S. DOA	Natural Resource Conservation Service	Yes, to fight a war, which this is for invasive species, one needs all resources coordinated and allied to attack the invader.
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Yes. The success of such an effort depends on strong partnerships. It should be emphasized that this issue is equally a marine resource problem and the entities identified should also include appropriate marine resource stakeholders.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	I am not familiar with the stated programs. While that could help matters, I think stronger laws are needed to prevent private/commercial nurseries from importing, growing, and selling invasive plants.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Collective NPS staff think this is dependent on the island in question. Despite the examples offered above, consensus is that improved involvement is needed on the Big Island. Maui county has shown very successful involvement on the islands of Maui and Molokai.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	It is the Services' understanding that county governments have been involved with the various island invasive species committees by providing much needed funding support as well as other in-kind services (landfill use, heavy equipment assistance, etc.) to implement various invasive species related activities on their respective islands. In addition, it is believed that a recent Council legislation for the County of Maui had proposed to establish an inspection program at the count level to prevent the introduction of invasive species within Maui Nui.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		HDOA must have a role to play in this structure as it is delegated the responsibility in dealing with invasive species under the Statutes. I believe this is a missing link in the current structure as presented.
County of Maui		Yes

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues

(3) In your opinion, is better involvement of county governments needed in the island invasive species committees and in the prevention of the spread of invasive plants through state and county endorsed or sponsored nurseries, such as the Big Island Invasive Species Committee Plant Pono Endorsement Program nurseries on the island of Hawaii, which focuses on early detection of the nursery import trade of plants, and the Division of Forestry and Wildlife of the Department of Land and Natural Resources state tree nursery?

DEPARTMENT	DIVISION/AGENCY	ANSWER
County of Kauai		County governments definitely need to be involved. It's their 'aina, it's their kuleana. With the State's leadership being on Oahu and totally removed from the problem, not all State agencies work with a sense of urgency that needs to take place. The Counties end up addressing these problems anyway because it's happening in the back and front yard.
Maui Invasive Species Committee		It depends. Maui County is very involved and supportive, way more than other counties in terms of funding and support. But county initiatives to require BMPs is a desirable direction.
Oahu Invasive Species Committee		I don't understand this question. OISC has support and involvement from the Honolulu Board of Water Supply and the City and County of Honolulu Botanical Gardens. We'd like more from the city council.
Kauai Invasive Species Committee		Yes - though Kauai county regularly funds our efforts and is very supportive of our work.
Coordinating Group on Alien Pest Species		I think NGO programs like BIISCs are great for outreach, but it shouldn't have to fill a void where state agencies have a mandate but don't adequately do the job. If a state agency cannot adequately manage pests or compliance, I wonder what the counties could do -- I think of the court rulings on GMO, etc.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(4) Is there a lack of agreement between state agencies on the goals of preserving the agricultural base versus the natural resources of the State?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes.
DOA	Plant Industry Division Plant Pest Control Branch	No
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	To a degree with respect to preserving the agricultural base vs resources, but greater divergence with respect to expanding the agricultural base.
DOA	Animal Industry Division Animal Disease Control Branch	I think it is pretty clear to agriculturalists that our goal is to preserve agriculture and natural resources. I am not so certain that it is clear to environmentalists.
DBEDT	Office of Planning	OP does not believe it is lack of agreement versus differing agency missions and interpretation of "natural resources." For example, preservation of agricultural land is sometimes viewed as preservation of open space, in which open space is considered a natural resource. There is a need to have clear definitions when using terminology, which would drive clearer purpose.
DBEDT	Hawaii Tourism Authority	Not sure.
DLNR	Division of Forestry & Wildlife	Agricultural interests, in terms of crop development or local food production, are not in conflict with DOFAW's mission. Agricultural pests that may infest natural areas come primarily from the nursery trade. There does seem to be a challenge in requiring nurseries to treat their stock prior to shipping, and a reluctance to place a burden on this sector by instituting such requirements. A solution to this problem is much needed.
DLNR	Hawaii Invasive Species Council (HISC)	No, both local agriculture and natural resource management are important goals and are not necessarily oppositional in nature. For example, support for local agricultural development decreases reliance on imported goods, which in turn lowers the risk for introduction of invasive species that may damage natural resources. Careful consideration of the types of crops grown and increasing biosecurity measures to prevent the establishment of agricultural pests should allow these two goals to be supported in tandem.
DOH	Environmental Health Services Division Vector Control Branch	Perhaps as each stakeholder has their own missions, goals and limitations that may not allow for a complete consensus.
DOT		DOT defers to the Office of Planning (OP)
UH - College of Tropical Agriculture and Human Resources		Yes, in the opinion of some colleagues, it seems that agriculturally based agencies are not giving adequate consideration to the importance of protecting natural resources, for example the lack of active protection from pests like Ohia Rust is caused by the priority some agencies have for commerce.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Isn't this less a lack at agency level or more at the Legislative funding level?

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(4) Is there a lack of agreement between state agencies on the goals of preserving the agricultural base versus the natural resources of the State?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes. There is tension between State-wide agricultural resources, and what agency is best able to plan and dictate resource uses for those agricultural lands.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	Whatever the answer, how will the state proceed to determine a common ground and remedy?
U.S. DOA	Natural Resource Conservation Service	Difficult question to answer for us, a Federal agency. To see the 1554 acre Ho`opeli project to build over 11,000 homes on Prime Farmland soil in west Oahu makes me question the state's commitment to preserving the agricultural base, thus leading others to open up other of the state's natural resources for ag development.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Yes. This is not uncommon but there needs to be a process for sorting through potential mandate conflicts. In most cases there are ways to achieve both the business targets with the desired natural resource outcomes.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	I do not know enough about this issue to provide a response.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	This is to be expected -- different agencies have different mandates. Coordination, improved landscape planning, zoning, and a collaborative approach could resolve the above-described issue.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The Service feels that there is a realized consensus and agreement between state agencies on invasive species as it relates to agriculture and natural resource protection; however, there may be a definitive difference or lack of agreement between the state agencies on what is a higher priority to address these issues.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Yes, the problems existed between DOA and DLNR in dealing with plant pests and the problems also existed among DOH, DOA, and DLNR in dealing with pests with health significance.
County of Maui		Yes
County of Kauai		I'm not sure, but the fact that this statement is made, I'd like to learn more about this statement.
Maui Invasive Species Committee		I don't think so. Everyone knows we need both.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(4) Is there a lack of agreement between state agencies on the goals of preserving the agricultural base versus the natural resources of the State?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Oahu Invasive Species Committee		I don't think it's an Ag vs. Enviro thing. The enviros all support local agriculture. The conflict is that the enviros want HDOA to do more and to be more forceful and, if you will forgive the expression, kick ass and take names. But they seem very reluctant to use their regulatory power. I think everyone understands that agriculture and natural resources are connected and deserve equal amounts of protection.
Kauai Invasive Species Committee		Unsure
Coordinating Group on Alien Pest Species		This is currently not a big issue, but it changes with Chairs and top level managers.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(5) Do you agree that agency mandates and commercial interests sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. There can be an argument made that Agriculture or Land and Natural Resources functions that promote should be separated from functions that regulate, control, or enforce invasive species issues.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes, but only for instances of legitimate agricultural production value under defined, specific, measurable conditions determined by the department and monitored by the state.
DOA	Animal Industry Division Animal Disease Control Branch	Livestock, poultry, and aquaculture under the control of agriculture are not destructive alien species. They certainly can be when not under control, and feral populations are allowed to exist.
DBEDT	Office of Planning	No.
DBEDT	Hawaii Tourism Authority	No.
DLNR	Division of Forestry & Wildlife	Yes, species that are used commercially or for game purposes may in some cases fit the definition of invasive species. There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state.
DLNR	Hawaii Invasive Species Council (HISC)	Yes, species that are used commercially or for game purposes may in some cases fit the definition of invasive species. There are also species that fit the definition of invasive species that are considered pets and freely sold at pet stores in the state.
DOH	Environmental Health Services Division Vector Control Branch	Yes, we believe there are instances that potentially destructive alien species are allowed to thrive even if it may not be in best interest of the State as a whole. At times, a delicate balance must be maintained to accommodate commercial and special interests. We acknowledge it is a complex issue and unfortunately we do not have a suggestion to a resolution.
DOT		DOT defers to the DLNR.
UH - College of Tropical Agriculture and Human Resources		Agency mandates are dominated by mandates that preserve damaging invasives over wide areas of state land. This has become worse than it has ever been in the State's history, with larger numbers of damaging ungulates and invasive plants than ever before. If the state agencies do not change their mandates to effectively preserve large portions of the remaining native habitat soon, it will likely all become irreparably degraded. Sport hunting does not bring in nearly as much money as other forms of tourism, yet it is prioritized across most state land, to the detriment of native species. Recreational hunting should be limited to specific, fenced, areas, while ungulates are eliminated from other areas.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes. This is especially problematic for DLNR.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(5) Do you agree that agency mandates and commercial interests sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes, it is undeniable that game management areas and species used as game, when not effectively managed, are invasive as defined at the start of this document. Aesthetic resources on private lands, especially related to invasive plants are known to be counter-productive to invasive species control programs, especially with the State plant import rules being non-selective to pests that may not be on the National Noxious Weed list. There should be a state Noxious Weed List to prevent aesthetic plant species introductions to Hawaii that are likely to become invasive. If the question is one of traditional cultural practices and subsistence as inexorably connected sport hunting, aesthetic resources, or other values, the State will need to define "traditional" and "subsistence" to make a determination if this is included in other values.
U.S. DOA	Natural Resource Conservation Service	Yes
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	Yes. This has been a long standing conflict and one that will require political consensus to solve.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Yes. Definitely commercial interests as well as no political will to adversely impact a commercial entity's bottom line even when it will result in harm to the environment.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes. Community values can also come into play, for example, the desire to keep deer, pigs, and goats on the landscape for either meat or trophy defies the principles of native natural resource management.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes. According to their website the mission of the Division of Forestry and Wildlife (DOFAW) under the Hawaii Department of Land and Natural Resources is to responsibly manage and protect watersheds, native ecosystems, and cultural resources and provide outdoor recreation and sustainable forest products opportunities, while facilitating partnerships, community involvement and education. DOFAW is responsible for the management of State-owned forests, natural areas, public hunting areas, and plant and wildlife sanctuaries. In addition, program areas cover (1) watershed protection; (2) native resources protection, including unique ecosystems and endangered species of plants and wildlife; (3) outdoor recreation; and (4) commercial forestry. They are also responsible for the issuance of hunting permits. As a result of these mandates, there is a definite conflict between watershed, native ecosystem and cultural resource protection, and game management for outdoor recreation as it relates to subsistence or sport hunting.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(5) Do you agree that agency mandates and commercial interests sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
City & County of Honolulu		No. I strongly disagree.
County of Maui		Yes
County of Kauai		Yes
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		The agencies mandate it, but I don't agree. I think that feral animals should be fenced out of all forest that is mostly native. If people want to hunt in the lower-elevation disturbed forests, great, have at it. There is enough meat running around the forest to keep hunters happy for a long, long time. I don't think anyone has ever done any numbers on this, but I'd be willing to bet that the current hunting pressure isn't even enough to keep the population stable. My guess is that even with hunting, pig populations are increasing. So, I do think that hunting should be preserved and frankly, axis deer is the tastiest meat I've ever had. But managing the game program needs to be more scientific with preservation of native ecosystems given priority.
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		Yes. Add to the list invasive plants for biofuel.

SURVEY 2 RESPONSES (Verbatim Excerpts)

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State Administration Issues		
(6) In your opinion, does the State lack an invasive species mission statement and, is there a need to mandate that state agencies not assist or promote the introduction or spread of invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, State lack an invasive species mission statement. No, currently the PQB regulates the importation of all non-domestic animals, microorganisms (pathogens) and plants by permit for various uses. Some of those species may be considered invasive.
DOA	Plant Industry Division Plant Pest Control Branch	No, although an encompassing mission statement may facilitate broader awareness and funding.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	No, if such a mandate is in conflict with #5.
DOA	Animal Industry Division Animal Disease Control Branch	That's a loaded question. Deal with this in the "right" way.
DBEDT	Office of Planning	No. The HISC has a mission statement that was developed with its member agencies and constituents. New mandates for state agencies would not likely be effective. Agencies do not need additional laws for compliance, they need resources to be able to manage the problem.
DBEDT	Hawaii Tourism Authority	Not sure about this. It seems as if HISC is this body but maybe the answer is more funding for them so they can increase visibility of that mission statement, coordinate and enforce.
DLNR	Division of Forestry & Wildlife	The HISC has developed an invasive species mission statement as part of its 2015-2020 strategic plan. With regard to a mandate that state agencies not assist or promote the introduction or spread of invasive species, it is important to note that there is no current designation of invasive species in the State, only a definition used for liability purposes (HRS 520A). There are lists for noxious weeds and injurious wildlife, but to my knowledge no species on these lists are promoted or spread by state agencies.
DLNR	Hawaii Invasive Species Council (HISC)	The HISC has developed an invasive species mission statement as part of its 2015-2020 strategic plan. With regard to a mandate that state agencies not assist or promote the introduction or spread of invasive species, it is important to note that there is no current designation of invasive species in the State, only a definition used for liability purposes (HRS 520A).
DOH	Environmental Health Services Division Vector Control Branch	We believe HISC has a clear mission statement and has made substantial efforts to encourage state agencies to prevent, monitor, and control invasive species. However mandating through rules and regulations may provide some stakeholders the needed authority to properly enforce and prevent the spread of invasive species.
DOT		While DOT defers to the HISC, our State motto: "Ua Mau Ke Ea O Ka Aina I Ka Pono" serves an adequate interpretation as Hawaii's mission statement.
UH - College of Tropical Agriculture and Human Resources		Yes, a stronger mission statement covering both agricultural and natural areas pests should be developed and state agencies must be part of the fight against the spread of invasive species.
UH - College of Natural	Pacific Cooperative Studies	Not really and yes.

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues

(6) In your opinion, does the State lack an invasive species mission statement and, is there a need to mandate that state agencies not assist or promote the introduction or spread of invasive species?

DEPARTMENT	DIVISION/AGENCY	ANSWER
Sciences	Unit	
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	This could be the start of a solution to explore the use of state/county personnel already working in key locations, for assistance in survey or emergency pest response.
U.S. DOA	Natural Resource Conservation Service	If Hawaii has an invasive species mission statement, we don't know what it is. Yes, of course there needs to be a mandate that all state agencies not assist or promote the intro and spread of invasive species, if we are serious about this issue.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is outside our purview.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	HISC has a mission statement as does HDOA, they just need to be unhindered to allow them to do their job. The State should have a regulation similar to the federal EO on Invasive Species.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes. The lack of a mission/vision statement is evidenced by the continued introduction of alien organisms to Hawaii and poor interisland bio-security.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, to a certain extent. There may not be a designated or clear invasive mission statement adopted by the state, but this important concept may be conveyed as defined objectives or purposes by the different jurisdictional agencies that address invasive species efforts. Under HRS chapter 194, the Hawaii Invasive Species Council (HISC) was established as a state interdepartmental collaboration to provide 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 already established in the state and to prevent the introduction of other invasives that may be potentially harmful. The establishment and purpose of HISC may be the closest to providing an invasive species mission statement that could be used and adopted by the state.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of		This will help especially establishing penal codes to discourage illegal production in transportation of

SURVEY 2 RESPONSES (Verbatim Excerpts)

State Administration Issues		
(6) In your opinion, does the State lack an invasive species mission statement and, is there a need to mandate that state agencies not assist or promote the introduction or spread of invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Honolulu		invasive species.
County of Maui		Yes
County of Kauai		Absolutely, when do we start?
Maui Invasive Species Committee		Mission statement. Don't know. Mandate might be good.
Oahu Invasive Species Committee		Yes
Kauai Invasive Species Committee		I think HISC acts as a mission statement for the state and does an excellent job.
Coordinating Group on Alien Pest Species		Yes

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(1) Do you agree that international trade agreements and other federal programs do not protect Hawaii from the full range of pests and, in particular, do you agree that Hawaii's fight against invasive species is hampered by federal laws (such as the quarantine preemption problem) that do not recognize the dangers of pests already on the mainland but not established in Hawaii and international trade agreements that do not take into account the issues related to foreign pests?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Agree. While federal risk assessments are done to "satisfy" Hawaii's concerns, the assessments do not take into account pests important to Hawaii and for other quarantine issues important to Hawaii.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. Good examples abound where Federal and State regulations are in disharmony. Palms are regulated very differently and as a result foreign import of a palms is a loop hole for the industry to by-pass Hawaii's stricter quarantines.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes
DOA	Animal Industry Division Animal Disease Control Branch	For livestock/poultry diseases, federal regulations and state regulations work well to protect Hawaii's animal industries.
DBEDT	Office of Planning	OP agrees that there are conflicting federal and state laws and regulations governing invasive species. With the non-recognition of these conflicts, it places Hawaii's invasive species organizations in a "gray area", and in a worst case scenario, introduction of an invasive species from the mainland in Hawaii.
DBEDT	Hawaii Tourism Authority	Most likely.
DLNR	Division of Forestry & Wildlife	Yes, though trade agreements and federal preemption are better addressed by the HDOA.
DLNR	Hawaii Invasive Species Council (HISC)	Yes, as previously noted and as described in HISC Resolutions 13-1, 13-2, and 13-3, available at http://dlnr.hawaii.gov/hisc/reports/resolutions/
DOH	Environmental Health Services Division Vector Control Branch	We are unfamiliar with the appropriate rules and regulations that may or may not be in place and therefore defer comment. (applies to the entire Federal Issues section.)
DOH	Environmental Management Division Clean Water Branch	No response. Not my area of expertise (applies to entire Federal Issues section)
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Yes, federal protections have been devastating for Hawaii as pests from Asia and South America have recently been introduced and are causing major damage
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes. Pre-emption is one of the major problems facing the state in terms of keeping invasive species out.
UH Hilo	College of Agriculture,	Yes – an example is the National Noxious weed list should be expanded or altered to include species that

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(1) Do you agree that international trade agreements and other federal programs do not protect Hawaii from the full range of pests and, in particular, do you agree that Hawaii's fight against invasive species is hampered by federal laws (such as the quarantine preemption problem) that do not recognize the dangers of pests already on the mainland but not established in Hawaii and international trade agreements that do not take into account the issues related to foreign pests?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
	Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	can be defined as Hawaii Noxious weeds with rules regulating these organisms' introduction to Hawaii.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	Articulate this assertion with scientific evidence of risk. Hawaii'i can comment, provide research, to improve regulations before they become rules. For example, what are the species of concern, how are the species not mitigated in the pest management document. Are the species of concern plant pests? If not, does state action for non-plant pests even fall under pre-emption?
U.S. DOA	Natural Resource Conservation Service	Not sure, since we are a non-regulatory Federal agency, but good invasive species protection does seem lacking in Hawaii for whatever reasons.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Yes, I agree. In addition the federal process of identifying and listing prohibited plants and animals needs to be simplified to allow the process to respond more quickly to threats.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes. In many ways, Hawaii is an open state, with the arrival of goods w/o fumigation or even inspection and quarantine. The federal government should create a system allowing the import of goods proved to be invasive plant/animal free, and not just select pests, but all potential hitch-hiking organisms. Staff that have travelled to New Zealand hold their model of combating invasive organisms in high esteem.
U.S. Department of the Interior	Pacific Islands Water Science Center, Geological Survey	I have no experience with these issues. (Same applies to whole section.)
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, to a certain extent. It is the state's responsibility to convey to the responsible federal agency that there is a special need to provide for an exemption from a particular federal preemption to further protect Hawaii from pests that may not yet be established within the state. This request would include the best available scientific information and literature that would accurately describe the risk to Hawaii should a certain commodity that may be infested with a pest already established within the continental United States enter the state, and allow for the proper disposition at the state level. This may include additional quarantine and safeguard requirements, treatment standards, or exclusion authority.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(1) Do you agree that international trade agreements and other federal programs do not protect Hawaii from the full range of pests and, in particular, do you agree that Hawaii's fight against invasive species is hampered by federal laws (such as the quarantine preemption problem) that do not recognize the dangers of pests already on the mainland but not established in Hawaii and international trade agreements that do not take into account the issues related to foreign pests?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
City and County of Honolulu		Indeed, this is a fact. Certain species, e.g. mealy bugs, that are not prohibited from the Federal Quarantine Law are now of major concern to Hawaii.
County of Maui		Yes
County of Kauai		I am not familiar or aware of some of this, but would definitely like more information on this.
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Absolutely yes.
Kauai Invasive Species Committee		Yes - through the offshore incipients program addressing this.
Coordinating Group on Alien Pest Species		Yes. Even the risk assessment process for importing species (like orchids from Taiwan) does not look at the risk, range, and harm of bringing incidental pests -- they only look at risk of bringing pests to the commodity itself.

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Federal Administration Issues		
(2) Do you believe that domestic first-class mail is a pathway for invasive species into Hawaii and is federally protected from inspection, which continues to be a major, unaddressed issue in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes, domestic first-class mail is a pathway for invasive species. Inspections are very limited by federal requirements and due to the lack of proper labeling to identify parcels requiring inspections.
DOA	Plant Industry Division Plant Pest Control Branch	Yes; it is known that first-class mail poses a significant pathway for invasive species movement, especially plants that can be highly invasive. This problem is being proliferated through ecommerce sites. However, first-class mail should not be solely targeted as all parcel services pose similar risks (i.e. FedEx, UPS, DHL)
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Can be.
DOA	Animal Industry Division Animal Disease Control Branch	We addressed the concern when West Nile Virus was moving westward towards Hawaii. USPS discontinued transporting high risk poultry and birds to Hawaii and that has remained in place till today.
DBEDT	Office of Planning	OP does not have adequate information on this topic to provide a response.
DBEDT	Hawaii Tourism Authority	Not enough information to provide a response.
DLNR	Division of Forestry & Wildlife	Yes, first-class mail could be a pathway for invasive species movements.
DLNR	Hawaii Invasive Species Council (HISC)	Yes, this is a potential pathway for invasive species into Hawaii. Whether it is a “major” pathway depends on how frequently this pathway is utilized and for what species. This data is lacking.
DOT		DOT defers to the DOA
UH - College of Tropical Agriculture and Human Resources		It may be, but commercial imports are likely the biggest source of invasive species. Inadequate inspection and mass importation of high risk products like fresh flowers are a much larger problem needing greater attention
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Don't know.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes -- example of poison dart frogs brought into the Manoa area of Oahu.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	The state of California now inspects first class mail through an Act that allows them to address invasive species. Hawai'i can review the Act, and perhaps dialog with the state of California for the requirements, especially if there is a commitment of staff to regularly perform inspections according to the requirements in that Act. Is the problem staffing and commitment to doing so, or an actual legal barrier, or a bit of both? Canines may be the key to probable cause evidence to believe a package contains prohibited material, and therefore open it. If so, the canine program needs to be re-instated and supported throughout state funding cycles. Canines are costly and timely to reinstate due to the training for dogs and handlers,

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(2) Do you believe that domestic first-class mail is a pathway for invasive species into Hawaii and is federally protected from inspection, which continues to be a major, unaddressed issue in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		and the needed infrastructure for proper care and replacement of the canines. Perhaps identify a novel way the canines, kennel, feed, veterinary services, etc., can funded and embed in a different function which has a demonstrated, good-support for sustained funding instead of soley agricultueal funding. In any event, once canines are available, there may be an opportunity to perform first class mail inspection for a year, or if not, especially in some seasons most likely to have a high pest risk (Valentines? Graduation? Mother's Day?) . That would provide data for funding support and continuing the program.
U.S. DOA	Natural Resource Conservation Service	Not sure, perhaps, but I don't suspect it necessarily needs to be categorized as "major".
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Don't know
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	A federal response to this question needs to come from the US Post Office and USFWS.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Yes, as well as packages sent via commercial shipping companies.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes. This certainly a problem with the interisland spread of organisms. Plants themselves a problem and potential hitch hikers can easily be ordered through the mail.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, to a certain extent. Certain jurisdictional federal agencies has the ability to open domestic first-class mail with a federal search warrant under probable cause; however, the use of federal canine detector teams to establish the required probable cause may not be targeting the specific invasive species of particular concern that Hawaii would like addressed in domestic first-class mail.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Yes. A detector dog program can discourage the importation of invasive species via the pathway.
County of Maui		Unclear. Not aware that it is a major vector.
County of Kauai		I was not aware of this, and would like more information.
Maui Invasive Species Committee		Yes

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(2) Do you believe that domestic first-class mail is a pathway for invasive species into Hawaii and is federally protected from inspection, which continues to be a major, unaddressed issue in the fight against invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Oahu Invasive Species Committee		Yes, people smuggle in reptiles that way.
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		Yes. Canine inspection helps. I think CBP does this, so I am not sure how large the gap is. Freight forwarders is also a huge gap. HDOA does not have capacity to inspect, lack canine teams to check.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(3) In your opinion, should quarantine of domestic pests arriving to Hawaii from the mainland be provided by the federal government, similar to the federal government's present practice that protects the mainland from pests originating in Hawaii?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. However, mechanisms currently exist for Hawaii to petition, a on pest basis, for USDA to act upon pests of concern through Federally Recognized State Managed Phytosanitary (FRSMP) program. FRSMP has been used by Florida on the Bagrađa bug. USDA now regulates Bagrađa for Florida despite Bagrađa bugs's status as a non-actionable, non-reportable pest.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes however, federal priorities may not mirror state priorities. For example, rabies virus is endemic on the continental US so the federal government's focus is on control within the continental US compared to Hawaii which does not have rabies virus.
DOA	Animal Industry Division Animal Disease Control Branch	We receive cooperative agreement funding annually from the USDA to prevent, control, and eradicate diseases of domestic concern.
DBEDT	Office of Planning	Yes.
DBEDT	Hawaii Tourism Authority	Yes
DLNR	Division of Forestry & Wildlife	The federal government should only take on quarantine of pests arriving from the mainland if they are the best agency to do so. At the moment, they are only able to act on species of federal, not state, concern.
DLNR	Hawaii Invasive Species Council (HISC)	The federal government has the authority to regulate plants and plant pests in both foreign and domestic commerce, though by practice federal agents focus on foreign commerce while HDOA inspectors focus on domestic commerce arriving in Hawaii from the US mainland. The priority need for Hawaii is for federal inspectors to be able to inspect for and act on pests of concern for Hawaii in foreign commerce, which state inspectors cannot inspect. With regard to domestic commerce, there would be no benefit to having the federal government assume the duties of domestic commerce inspection unless the federal government is able to inspect for and act on pests of concern for Hawaii.
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Yes
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Federal Administration Issues		
(3) In your opinion, should quarantine of domestic pests arriving to Hawaii from the mainland be provided by the federal government, similar to the federal government's present practice that protects the mainland from pests originating in Hawaii?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Not necessarily, but coordination between state and federal quarantine should be better utilized.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	A fact to consider: Current federal regulations cover only a few interstate quarantines pertinent to Hawai'i, generally found in the 7CFR301's. This means federal officers have the authority to do address a very small part of the pest risks in domestic trade. The areas not covered by the 7 CFR 301's give Hawai'i and other states the opportunity to well-regulate interstate commerce under well- constructed state authority.
U.S. DOA	Natural Resource Conservation Service	Yes
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Both State and Federal intervention is necessary.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	No opinion at this time. Establishing federal government oversight of domestic pests arriving to Hawaii from the U.S. mainland would entail congressional authorities and related rules and regulations to be promulgated as well as funding appropriations before a responsible federal agency can establish a similar inspection program that would protect Hawaii from invasive species arriving into the state from domestic origins.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		I would defer this question to HDOA as it has the statutory authority on this issue.
County of Maui		Yes
County of Kauai		Yes. Why is Hawaii different? We're all part of the United States.
Maui Invasive Species Committee		Yes or [at] least cooperate, especially with data share.
Oahu Invasive Species		Yes

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(3) In your opinion, should quarantine of domestic pests arriving to Hawaii from the mainland be provided by the federal government, similar to the federal government's present practice that protects the mainland from pests originating in Hawaii?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Committee		
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		Only if they are restrictive in actionable pests as HDOA. That is, they need to look for pests on HDOA's list.

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Federal Administration Issues		
(4) Is there a lack of coordination between federal agencies to address invasive species in Hawaii, especially between the U.S. Fish and Wildlife Service, the Department of Defense, and the National Park Service?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Not aware.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. While there is good coordination between HDOA and USFWS and HDOA and varying degrees of different Armed Services, there is little coordination between all the agencies listed above.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Can occur.
DOA	Animal Industry Division Animal Disease Control Branch	For livestock and poultry there is only one agency involved, USDA-Veterinary Services.
DBEDT	Office of Planning	Yes. There is a certain amount of coordination that currently exists, especially in regards to individual projects. These agencies sometimes provide funds for project implementation or provide "match" in services/materials/helicopter time. However, there is room for better coordination at the program level.
DBEDT	Hawaii Tourism Authority	Not enough information to provide a response.
DLNR	Division of Forestry & Wildlife	Similar to state agencies in Hawaii, federal agencies develop plans for addressing invasive species specific to their jurisdiction. Engagement of federal agencies in the development of a comprehensive biosecurity plan for Hawaii would assist in coordination among all partners, both state and federal.
DLNR	Hawaii Invasive Species Council (HISC)	Similar to state agencies in Hawaii, federal agencies develop plans for addressing invasive species specific to their jurisdiction. Engagement of federal agencies in the development of a comprehensive biosecurity plan for Hawaii would assist in coordination among all partners, both state and federal.
DOT		DOT defers to the HISC.
UH - College of Tropical Agriculture and Human Resources		Yes, it seems that some of these agencies do very little in that regard.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	They coordinate through the invasive species committees and watershed partnerships at the action level, but at the planning level I am not sure how this works.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes. These agencies are burdened with many of the same issues that multiple agencies and jurisdictions suffer from, lack of effective communication of strategies and rules.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(4) Is there a lack of coordination between federal agencies to address invasive species in Hawaii, especially between the U.S. Fish and Wildlife Service, the Department of Defense, and the National Park Service?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. DOA	Institute of Pacific Islands Forestry, Forest Service, Pacific Southwest Research Station	Whatever the answers are to this question, please share with the pertinent agencies, and define which entities within large agencies such as the DOD are involved in the specific area of concern.
U.S. DOA	Natural Resource Conservation Service	Perhaps, but we don't know. We coordinate with other Federal agencies, including those three and others, when we address invasive species if the lands adjoining our project belongs to those Federal agencies.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Marine Corps Base Hawaii has not had an issue with lack of coordination with any of the agencies identified.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	While there is limited interaction between federal agencies, coordination on combatting invasive species is not a prime goal. Hawaii Volcanoes has had limited interactions with the department of defense. Most parks have worked with U.S. Fish and Wildlife Service on invasive species issues related to endangered species. There are some current examples of favorable cooperation, for example, the preparation of a Draft Programmatic EIS for IPM of rodents & mongooses, an endeavor that includes state and federal agencies.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The Service does not believe there is a lack of coordination between our agency, DoD and NPS. There is semi-informal coordination between these Federal Departments through the Hawaii Conservation Alliance. In a formal sense, there is on-going dialogue between the Service and the DoD and NPS for many on-going actions as Federal regulatory review with the Service is required for many types of actions. Other informal coordination related to control of established pests occurs at a staff / middle management level through Watershed Partnerships and Invasive Species Committees. In early years, the Coordinating Group for Alien Pest Species (CGAPS) provided an excellent forum for communication between State, County, Federal and non-governmental entities working on control and quarantine of invasive species. The formation of the Hawaii Invasive Species Council strengthened communication between State agencies related to invasive species. Due to the current manner the Hawaii Invasive Species Council is composed the role of Federal Partners is limited to non-voting membership / participation on committees. This has likely lead to a shift in participation of certain Federal Agencies working on land management to other forums. The Service has supported and continues to attend Hawaii Invasive Species Council meetings when staffing is available. The Coordinating Group for Alien Pest Species has remained an excellent forum for

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(4) Is there a lack of coordination between federal agencies to address invasive species in Hawaii, especially between the U.S. Fish and Wildlife Service, the Department of Defense, and the National Park Service?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		communication between State, County, Federal and non-governmental entities working on biosecurity / quarantine issues. In fact, it is a key forum for the Service, Department of Homeland Security - Customs and Border Protection, USDA – Animal Plant Health Inspection Service – Plant Protection and Quarantine and the U.S. Forest Service to share information with partners. Similarly, discussions occur between State and Federal quarantine and land management agencies thru CGAPS as a vehicle.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Recent experience in LFB showed that USDA-PPQ and HDOA worked well in consideration of the eradication
County of Maui		Not so much.
County of Kauai		I believe this is a true statement. I am of the impression that as a federal agency, there's a feeling of entitlement and autonomy. In working with U.S. Fish & Wildlife on Kaua'i, their protection of an "endangered species" (Nene) is actually an invasive species for the taro farmers where the Nene have development an appetite for taro and cause hundreds of thousands of dollars each year for taro farmers. I feel that Kaua'i is punished by controlling its mongoose population and designated as the place to grow endangered bird populations.
Maui Invasive Species Committee		Could be improved.
Oahu Invasive Species Committee		Actually, those three agencies are pretty good. USFWS makes DOD spend a lot of money on invasive species control and it has helped stop and/or contain introductions of new species. The National Park Service is pretty good about managing its lands for invasive species, I don't know if they have issues with DOD and NPS. Its APHIS and Customs that are the problem (although to be fair the local representatives of APHIS and Customs in Hawaii try their best to partners and help us navigate the federal system, it's the Washington folks that seem to not care about us)
Kauai Invasive Species Committee		Unsure - there seems to be fairly strong coordination on Kauai.
Coordinating Group on Alien Pest Species		I think this is getting better.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(5) Do you agree that the federal Lacey Act should be amended to include possession of prohibited alien wildlife that is consistent with the State's injurious wildlife list to improve state-federal coordination in enforcing smuggling and black market violations involving injurious alien species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No. Some of the State's injuriuous wildlife (e.g., turtles, frogs, various pet birds are allowed import into Hawaii under PQB permit for individual possession and pet trade.
DOA	Plant Industry Division Plant Pest Control Branch	Yes
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes
DBEDT	Office of Planning	OP does not have adequate information on the Lacey Act to provide a response.
DBEDT	Hawaii Tourism Authority	Not enough information to provide a response.
DLNR	Division of Forestry & Wildlife	Yes. Because the federal government has authority to regulate movement across state boundaries, they should take Hawaii's needs as a state into consideration in their regulations.
DLNR	Hawaii Invasive Species Council (HISC)	Yes. The HISC requested this action with specific regard to constrictor snakes in HISC Resolution 13-3.
DOT		DOT defers to the DOA.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes, if possible. But it would have to be enforced.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	This should be explored with FWS, and any other federal agencies concerned, to get the facts on current regulations on injurious wildlife and the species of concern for Hawai'i. The definitions for injurious wildlife may be different, or some other factors may be evident.
U.S. DOA	Natural Resource Conservation Service	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues

(5) Do you agree that the federal Lacey Act should be amended to include possession of prohibited alien wildlife that is consistent with the State's injurious wildlife list to improve state-federal coordination in enforcing smuggling and black market violations involving injurious alien species?

DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Absolutely
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes, the lack of agreement results in confusion and enforcement difficulty.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	As the federal Lacey Act is a Service regulation and this survey could be used to support future changes in Service policy it would be better to hold off answering this question at this time.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Yes, I do. In fact, I strongly recommend that the amendment be proposed.
County of Maui		Yes. We haven't even prohibited the sale or transport of ivory in Hawaii.
County of Kauai		This sounds good, but I am unfamiliar with the Lacey Act and need to learn more about this.
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Absolutely yes.
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		The Lacey Act can be used to enforce state wildlife laws. However, they are also stretched thin on inspectors and the ability to build cases and prosecute. The Lacey Act does need other amendments, including a risk assessment on wildlife in pet trade, etc.

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Federal Administration Issues		
(6) In your opinion, has the blending of the quarantine mission of the U.S. Department of Agriculture with the Department of Homeland Security resulted in the enhanced interdiction of invasive species for international airline arrivals?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No. We have concerns thef not disclosing information to State agriculture for inspection.
DOA	Plant Industry Division Plant Pest Control Branch	Unknown. A comparison must be made of statistics before and after the split in functioning. It appears that DHS has been adequately enforcing USDA authorities.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	No
DOA	Animal Industry Division Animal Disease Control Branch	It has taken some adjustment, but it seems to be working well.
DBEDT	Office of Planning	OP does not have adequate information on this topic to provide a response.
DBEDT	Hawaii Tourism Authority	Not enough information to provide a response.
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		No
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	It is my understanding, not based on direct knowledge, that DHS is less interested in invasive species, but that locally Customs has continued to maintain its efforts.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	No
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	The DHS-CBP arrangement allows for both agricultural officers and non-agricultural officers to be aware of pest risk. This provides the opportunity for more inspectors than just agricultural officers to find and respond to pests. This happens, though I do not know to what extent. Hawai'i CBP's mail branch interceptions are high, as well as their inspections of household goods from Guam, and they have intercepted federal noxious weed seeds on items such as poolside furniture which were made of thatched roofs in which airborne seeds could easily lodge. Hawai'i CBP also collaborates with PPQ and other federal (and to some extent, state agencies), which perform functions for both invasive species and endangered species.
U.S. DOA	Natural Resource Conservation Service	Not sure. This is a USDA-APHIS responsibility, not ours.
U.S. DOA	USDA Agricultural Research	Yes

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues

(6) In your opinion, has the blending of the quarantine mission of the U.S. Department of Agriculture with the Department of Homeland Security resulted in the enhanced interdiction of invasive species for international airline arrivals?

DEPARTMENT	DIVISION/AGENCY	ANSWER
	Service, Pacific West Area	
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	I do not have enough knowledge of this issue to provide an opinion.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Not known by any consulted.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes. The establishment of the U.S. Customs and Border Protection (CBP) in 2003 combined specific parts of three border clearing federal agencies (U.S. Customs, Immigration and Naturalization Service, and U.S. Department of Agriculture's Animal and Plant Inspection Service (USDA)) to serve as a single border inspection agency. Its agriculture-related work include the enforcement of USDA laws and regulations pertaining to border clearance of cargo, passengers, conveyance, mail, and military, and works closely with USDA under a memorandum of agreement to identify certain operational procedures, identification, enforcement, compliance, and coordination. In addition, other biosecurity-related work include the enforcement of certain laws and regulations for other agencies at the border including Centers for Disease Control, Food and Drug Administration, Fish and Wildlife Service, Food Safety and Inspection Service, and the National Marine Fisheries Service.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Yes, the use of technology, information exchange, systems, and force multiplier of additional inspectors monitoring international movement has been beneficial.
City & County of Honolulu		No, I think the integration has put the quarantine inspection with the back seat, although the emphasis of port security is important.
County of Maui		I wish I could say that has been the case, but I really doubt it. TSA has the big money and the crumbs to go to the DOA.
County of Kauai		I'm not sure and would like more information on this.
Maui Invasive Species Committee		No
Oahu Invasive Species Committee		I'm not sure.
Kauai Invasive Species Committee		Unsure
Coordinating Group on Alien Pest Species		Hard to tell.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(7) Do you believe that federal policy is needed to inspect domestic airline passengers, baggage, and cargo specifically for invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No. State has the current authority. Two agencies having inspection authority will cause confusion among importers.
DOA	Plant Industry Division Plant Pest Control Branch	Yes - US Mainland to Hawaii
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes if necessary positions and funding is provided with any associated policy implementation. Should include plant and animal species whether invasive or not as they could harbor/transport invasive species. Inspection should also occur prior to departure from continental US to Hawaii.
DOA	Animal Industry Division Animal Disease Control Branch	For our purposes, state laws and regulations have been effective.
DBEDT	Office of Planning	Yes. However, the policy must also have adequate resources for implementation.
DBEDT	Hawaii Tourism Authority	Yes. However, the policy must also have adequate resources for implementation.
DLNR	Division of Forestry & Wildlife	Yes, this would be helpful, provided that the federal inspectors are able to search for an act on species of concern to Hawaii.
DLNR	Division of Aquatic Resources	
DLNR	Hawaii Invasive Species Council (HISC)	The HISC reviewed a draft resolution in 2013 relating to this issue. The language would have supported agricultural inspections being considered a core airport function that could be supported using federal funding. The HISC did not adopt the resolution.
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Cargo specifically, commercial importation. Most of the damaging invasive species that arrive are hidden in permitted commercial imports. There is no reasonable reason to permit the importation of soil, or plants IN soil from outside of the state. This is incredibly risky and is virtually certain to lead to the invasion of serious pests like Fire Ant.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Whether state or federal, there has to be an effective policy.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health	The state would perform inspection of airlines coming into Hawai'i from the mainland. The Kahului Airport research probably explored the risk presented by passengers versus cargo and may have made some important conclusions. Those conclusions may need to be further evaluated and tested. Are there

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Federal Administration Issues		
(7) Do you believe that federal policy is needed to inspect domestic airline passengers, baggage, and cargo specifically for invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
	Inspection Service	ways to increase the participation in, and accuracy of, the passenger declarations (wording, or delivery/training of airline personnel, etc)? Could a study identify which airlines from which origins are highest risk? Maybe some flights are higher risk than others.
U.S. DOA	Natural Resource Conservation Service	Perhaps, if that is identified as the key or major source of invasive species reaching the state.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Not only federal policy, but adequate personnel and funding to be able to effectively inspect not only airliners, but also commercial shipping and cruise lines.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes. Such inspections would constitute a good preventative action. Right now the honor system of declaring goods can be subverted by the dishonest. Shoes, camping equipment, and goods part of household moves should all be sanitized and inspected.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	No. Without the proper authorities and related rules and regulations enacted, as well as funding appropriations are provided by congress, federal policy would not provide for the proper authorities that would be necessary to utilize federal enforcement to inspect domestic arrivals for invasive species.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Although it may not be consistent with federal policy, it would help minimize the risk of introducing invasive species into Hawaii if inspections can be done at the ports where domestic airlines are destined to Hawaii.
County of Maui		Yes
County of Kauai		Yes. Everyone leaving Hawaii is inspected, why not everyone coming into the state?
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Yes, definitely cargo
Kauai Invasive Species Committee		Yes
Coordinating Group on Alien Pest Species		I believe that inspection is a core airport function and should be given the rights and consideration in all port operations.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(8) In your opinion, has the National Park Service taken an active role in fighting invasive species far beyond the boundaries of their parks?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	No.
DOA	Plant Industry Division Plant Pest Control Branch	Yes. What authority does NPS have beyond their property borders. What can be improved is how NPS responds to issues on their properties as they do not fully utilize all tools available to them (i.e. biocontrol)
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	No position.
DBEDT	Office of Planning	OP does not have adequate information on this topic to provide a response.
DBEDT	Hawaii Tourism Authority	Not sure but they should be involved.
DLNR	Division of Forestry & Wildlife	In some cases, yes. They have taken on a role of preventative work to keep invasive species out of parks, including miconia on Maui and axis deer on Hawaii Island.
DLNR	Hawaii Invasive Species Council (HISC)	The National Park Service has at times been active outside of park boundaries. An example includes working with partners on the control of miconia on Maui outside the boundaries of Haleakalā National Park, in order to prevent it from entering the park.
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Not far enough.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Yes, especially on Maui.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	The NPS is active in advising roles relating to invasive species management outside their borders, such as partnerships with Watershed Alliances, but their hands-on control work is generally limited to their lands. More hands-on coordination, similar to the state NARS program funds being used for controlling invasive species far outside its borders to more effectively manage their NARS lands could be valuable from NPS organizations.
U.S. DOA	Natural Resource Conservation Service	In some instances at least, yes. For example, we USDA NRCS, were approached by NPS for collaborative opportunities for the control of albezia on the private lands outside of National Park. Beyond that, not sure.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	Yes
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of	U.S. Pacific Fleet, Dept. of	No comment

SURVEY 2 RESPONSES (Verbatim Excerpts)

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Federal Administration Issues		
(8) In your opinion, has the National Park Service taken an active role in fighting invasive species far beyond the boundaries of their parks?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
Defense	Navy	
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	I do not know the extent of actions the NPS has taken to control invasive species.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Most parks have relations/agreements with other federal and state agencies, non-governmental organizations, or private land-owners that allow collaborative landscape-level work on weed or rare species across ownership boundaries. Hawaii Volcanoes National Park works with the Three Mountain Alliance on a number of invasive species issues. This watershed alliance includes one million acres on the island of Hawaii. Another example is the east Molokai Watershed Partnership on the island of Molokai. An agreement between more than 15 entities allows management across ownership boundaries to protect the islands remaining forest resources.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Yes, over a decade ago leadership within the National Park Service worked to expand park efforts outside of official boundaries. A key challenge has been continuing this effort during a period of time that has had declining Federal budgets for certain types of invasive species work.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
County of Maui		In the case of Haleakala National Park, yes, until budget cuts limited their ability to assist in this fashion.
County of Kauai		I'm not sure. Although we don't have a national park on Kaua'i, I haven't seen anything in the news that would indicate this.
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		Yes, but it depends on the administrator. Haleakala funds invasive species control outside its borders, I don't know if Hawaii Volcanoes does. The research that happens at those parks is really helpful.
Kauai Invasive Species Committee		Unsure - Kauai has no national parks.
Coordinating Group on Alien Pest Species		In limited instances; they try to do what they can to support, but they are limited. Other DOI agencies are better aligned to assist.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues

(9) Do you agree that more involvement is needed by the federal Environmental Protection Agency in public health issues as it relates to invasive species?

DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes.
DOA	Plant Industry Division Plant Pest Control Branch	Unknown. No?
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	No
DBEDT	Office of Planning	Yes.
DBEDT	Hawaii Tourism Authority	Yes.
DLNR	Division of Forestry & Wildlife	One area where the EPA may be able to become more involved is in public education about pesticide and herbicide use. The human health risks associated with these products are poorly understood, and in Hawaii there has at times been great concern over the use of products that, when used according to label requirements, carry very little risk to human health. Legislation drafted in recent years to ban use of glyphosate is an example of this.
DOT		Yes
UH - College of Tropical Agriculture and Human Resources		Yes
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	Don't know.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes
U.S. DOA	Natural Resource Conservation Service	Possibly, at least for the feral ungulates (e.g., feral swine and water quality.)
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(9) Do you agree that more involvement is needed by the federal Environmental Protection Agency in public health issues as it relates to invasive species?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	The more agencies in the fight against invasive species the better, but it has to be a coordinated fight.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	None consulted had the expertise to answer this question.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	The Environmental Protection Agency has certain roles associated with its enabling language. Certain types of invasive species issues may fall within these parameters. It may also be valuable to look at the role of other Federal agencies within a role related to public health to answer this question (e.g. Centers for Disease Control, Animal Plant Health Inspection Service – all three branches, etc.)
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City & County of Honolulu		Agree, particularly in providing funding supports
County of Maui		Yes, but the State DOH would implement those actions, and they are currently underfunded, understaffed, and swamped with other issues.
County of Kauai		Again, I'm not sure what this means? EPA allowing more pesticides to eradicate invasive species?
Maui Invasive Species Committee		Don't know
Oahu Invasive Species Committee		Not really, they have enough problems with pollution I think, but their enforcement arm is bigger and allowed to enforce more than the US Fish and Wildlife Service or DOCARE so it would be cool for them to have more of role in that respect.
Kauai Invasive Species Committee		Yes, especially invertebrates and fungus that can cause diseases such as avian malaria and crop damage.
Coordinating Group on Alien Pest Species		Yes. They have a good track record on aquatic issues through DOH clean water branch, but little else.

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(10) Should properly funded collaborative U.S. Department of Agriculture assistance be provided, to in effect, "deputize" the U.S. Department of Agriculture's plant protection and quarantine program to enforce Hawaii's laws?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
DOA	Plant Industry Division Plant Quarantine Branch	Yes. Deputizing federal inspectors for inspection of foreign shipments
DOA	Plant Industry Division Plant Pest Control Branch	This is possible; however, existing systems (FRMSP) exist that give USDA these powers. However, the State must be more proactive.
DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch. This may be better answered by another Branch.
DOA	Animal Industry Division Animal Quarantine Branch	Yes
DOA	Animal Industry Division Animal Disease Control Branch	Yes, having the ability for the local office of the USDA to enforce restrictions for pest entry regulated by the State of Hawaii would be helpful.
DBEDT	Office of Planning	Yes.
DBEDT	Hawaii Tourism Authority	Yes.
DLNR	Division of Forestry & Wildlife	Yes, this would be helpful.
DOT		DOT defers to the DOA.
UH - College of Natural Sciences	Pacific Cooperative Studies Unit	That would help and provide consistency in state efforts that can face oscillations in state budgeting.
UH Hilo	College of Agriculture, Forestry and Natural Resource Management, and College of Arts & Sciences, Biology	Yes. It is apparent that Hawaii is a special case regarding natural resource protections that the USA at large should assist in managing. Like the comparative lack of funds for endangered species recovery that Hawaii receive compared to other states (shared state borders are part of this issue, for which Hawaii has no 'partner State(s)'), our agriculture rules should be better handled outside our state borders with federal assistance.
U.S. DOA	Plant Protection and Quarantine State Plant Health, Animal & Plant Health Inspection Service	This is a "solution", given without stating the underlying multiple problems it is expected to solve, and given without presenting the imagined outcomes with examples of specific applications. For example, which "Hawai'i laws"? i. If Hawai'i laws parallel federal laws, APHIS PPQ enforcement of federal regulations already supports Hawai'i rules. For example, if Hawai'i can regulate federal noxious weeds in domestic commerce, Hawai'i is protected because HDOA can enforce interstate and intrastate parallel rules to keep out federal noxious weeds in domestic commerce, and the federal enforcement agencies enforce the federal regulations for incoming foreign commerce. In this example, the solution for complete protection is the other way around: State enforced rules parallel federal enforced rules so that the instances of intra-state and interstate origin (some mainland states are infested with a federal noxious weed and some are not), complete the circle of protection against federal noxious weeds enforced in foreign commerce. ii. An important point to consider to improve protection for Hawai'i, is that weeds are often found

Federal Administration Issues		
(10) Should properly funded collaborative U.S. Department of Agriculture assistance be provided, to in effect, "deputize" the U.S. Department of Agriculture's plant protection and quarantine program to enforce Hawaii's laws?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
		inside containers, used vehicles, tile, pallets and other non-plant products. For weeds, as well as other pests, (think about ants in household goods), it seems important for states to have authority to inspect and to address pests in any article or conveyance that may carry a pest risk. Additionally, Hawai'i can influence federal regulations. APHIS-PPQ invites comments when new regulations are being made. Recently, APHIS solicits input in order to formulate certain proposed rules prior to publishing proposed rules. APHIS has a stakeholder registry in which anyone can be alerted via e-mail on newly proposed regulations and other topics of interest. APHIS also works with the State Plant Regulatory Officials, (that is the Administrator, Plant Industry Division for the HDOA), through the National Plant Board. At the National Plant Board meetings, common state-federal issues could be discussed and different perspectives/workable solutions shared. iii. If the focus is on certain Hawai'i rules, which extend beyond the scope of, or are contrary to, federal regulations, and, if federal officers can only enforce federal laws, then funding from any source, cannot change that situation. It is generally a fallacy that Memorandums of Understanding or Memorandums of Agreements allow APHIS PPQ to disregard and/or violate federal regulations. There is an existing general MOU between Hawai'i and APHIS PPQ describing how each works together. That MOU may be a good resource to see how, and to what extent the HDOA and APHIS PPQ work together. The HDOA works with APHIS PPQ to ensure changes and insertion of proper language are made prior to the signature of the chair of the Board of Agriculture. The HDOA now has a signed copy of that agreement which has been reviewed by the state's attorney general. iv. Question 10 may not be a broad solution, but it may have merit in specific situations. Those situations may be identified by exploring successes in other states, and countries, particularly other continental countries with islands or isolated geographical areas unlike the flora and fauna of the main continent.
U.S. DOA	Natural Resource Conservation Service	That depends. If native Hawaiians believe invasive species (plant, animal and insect) are a threat to both their cultural heritage and to Hawaii's ecosystems and they want the 'deputize" USDA, then yes, that might prove an effective way to lead this war. What might prove better is the leadership for this fight coming from Hawaiians, the funding coming from tourist dollars, and technical assistance coming from Federal agencies such as USDA. Otherwise it may be viewed as another "take over." Key words are "properly funded" which in today's Federal financial climate is challenging at best.
U.S. DOA	USDA Agricultural Research Service, Pacific West Area	No
U.S. Department of Commerce	Pacific Islands Regional Office, National Marine Fisheries Service, NOAA	This is not a question NMFS can address.
U.S. Department of Defense	U.S. Pacific Fleet, Dept. of Navy	No comment

SURVEY 2 RESPONSES (Verbatim Excerpts)

Federal Administration Issues		
(10) Should properly funded collaborative U.S. Department of Agriculture assistance be provided, to in effect, "deputize" the U.S. Department of Agriculture's plant protection and quarantine program to enforce Hawaii's laws?		
DEPARTMENT	DIVISION/AGENCY	ANSWER
U.S. Department of Defense	Marine Forces Pacific, U.S. Marine Corps	Only if it would support Hawaii DOA's plant protection and quarantine program.
U.S. Department of the Interior	Pacific Islands Office, National Park Service	Yes, but the issue is more than just a plant protection problem. The problem extends to other taxa including vertebrates, invertebrates, fungi, algae, bacteria, and others. The plant protection and quarantine program is too specific – there is a need for an integration of resources rather than a narrow focus.
U.S. Department of the Interior	Pacific Islands Fish & Wildlife Office	Only if the proper authorities and related rules and regulations, as well as funding appropriations established by congress allow for the U.S. Department of Agriculture to enforce Hawaii's state law.
U.S. Department of Homeland Security	U.S. Customs & Border Protection	Defer
City and County of Honolulu		Yes and it has recently been done in a very effective way in a joint combat of coconut rhinoceros beetle infestations on Oahu.
County of Maui		Yes.
County of Kauai		Sounds good, but because I am not totally knowledgeable in the current process I'm unable to comment, but would like to learn more about this.
Maui Invasive Species Committee		Yes
Oahu Invasive Species Committee		I'd rather that HDOA had more enforcement people and state lawyers dedicated to their issue and a state Attorney General that would prioritize these cases. It's our state, we ought to be able to write decent laws (reptile laws are great, plant ones not so much) and enforce them.
Kauai Invasive Species Committee		An interesting idea. I would defer to HDOA on whether this would benefit or not.
Coordinating Group on Alien Pest Species		Yes

APPENDIX H

Survey of State, Federal, County, and Private Agencies Regarding Invasive Species

Please provide the following information for the person we should contact if we have any questions.

Name: Dorothy Alontaga
Title: State Operations Coordinator
Department: United States Department of Agriculture
Division or Agency: Animal Plant Health Inspection Service, Plant Protection Quarantine
Phone: 808-838-2780
E-mail: Dorothy.s.alontaga@aphis.usda.gov

For the purposes of this survey, an "invasive species" is a species that is not native to the ecosystem of Hawai'i and whose presence in Hawai'i does or is likely to cause economic or environmental harm or harm to human health.

PART I

Please respond to the following questions:

- (I) Please briefly describe your agency's current role and responsibility concerning invasive species.

USDA APHIS: Our Mission – see <https://www.aphis.usda.gov/wps/portal/banner/aboutaphis> To protect the health and value of American agriculture and natural resources.

Operational Program Units [link: [Organization](#)¹

Animal Care (AC)

Determines and promotes standards of humane care and treatment of animals through inspections and educational efforts.

Biotechnology Regulatory Services (BRS)

Protects agricultural and natural resources by ensuring safe development of genetically engineered organisms using a science-based regulatory framework.

International Services and Trade Support Team (IS)

Provides international animal and plant health expertise to safeguard American agricultural health and promote U.S. agricultural trade.

Plant Protection and Quarantine (PPQ)

Safeguards agriculture and natural resources from risks associated with the entry, establishment, or spread of pests and noxious weeds.

Veterinary Services (VS)

Protects and improves the health, quality, and marketability of our nation's animals, animal products, and veterinary biologics by preventing, controlling, and/or eliminating animal diseases, and monitoring, and promoting animal health and productivity.

Wildlife Services (WS)

Provides leadership to resolve wildlife conflicts and create a balance allowing people and wildlife to peacefully coexist.

The Unless further qualified, this survey covers the PPQ, [Plant Protection and Quarantine \(PPQ\)](#) program, which

safeguards U.S. agriculture and natural resources against the entry, establishment, and spread of economically and environmentally significant pests, and facilitates the safe trade of agricultural products. Other non-PPQ programs are important for Hawai'i as well. Two examples are: Wildlife Services is involved in brown tree snake and other important actions with invasive species. Veterinary Services addresses animal diseases, such as the recent avian influenza outbreaks on the mainland which could affect other birds, and can be spread by migratory birds.

PPQ:

Establishing Effective Regulations and Policies: By determining which plants and plant products can be imported—and which pose a high risk and should be excluded—the regulations and policies established by APHIS protect the environment and U.S. agriculture. [link: [Plant Health Import Information](#)]

This involves national (see the National Plant Board in survey question (3)) and international organizations: As the National Plant Protection Organization (NPPO) of the United States, PPQ actively participates in international and regional forums for the development of plant health standards (examples: North American Plant Protection Organization - Canada, Mexico and the United States are members; PHQ, The Plant Health Quadrilaterals is a strategic coalition composed of National Plant Protection Organizations (NPPOs) of Australia, Canada, New Zealand, and the United States).

Full participation by the United States in standard setting organizations such as the International Plant Protection Convention (IPPC) increases the consistency, predictability, and scientific soundness of international and regional import requirements. This benefits U.S. industries that export products abroad and promotes cooperation between the United States and other countries to prevent the introduction and spread of invasive pests. International phytosanitary standards are the building blocks of a safe, predictable, and prosperous trade system.

Why this is important for Hawai'i: As the NPPO, PPQ is the one entity considering risk (with input from the public), versus 49 states making their own trade rules based on their own perspective, possibly without due regard for the environmental concerns of other states. Many plant pests cannot be easily detected. Safeguards to prevent spread must be more than visual inspection for many products. This requires a standard system of science based treatments and other safeguards that remove pests from the pathway of foreign trade (including the IPPC's International Standards For Phytosanitary Measures, (ISPM's)). PPQ manuals (most are public), instruct and guide officials in PPQ and in DHS-CBP on how to apply regulations including not just commodities, but inspection of ships and aircrafts, solid wood packaging material (which includes pallets), the shipping containers themselves which may carry hitchhikers regardless of contents, and passengers and baggage, etc.

Safeguarding Through Science: APHIS scientists monitor data from around the world and throughout the country to uncover pathways and develop strategies to both exclude pests before they arrive at our shores and to stop or limit their movement if they enter the country. [Link: [Center for Plant Health Science and Technology \(CPHST\)](#)] This is important for Hawai'i, because CPHST applies scientific rigor to the review of how countries requesting market access for commodities put together systems approaches, CPHST reviews the science on treatments, and CHPSHT analyzes pests and risk for commodity import requests. CPHST also researches hosts and host status. Based on the analysis, Hawai'i can review the data on proposed foreign request for market access of hosts of pests not known to occur in Hawai'i, and comment to improve or change proposed regulations before they are final.

Protecting Agriculture and the Environment from Invasive Plant Pests and Diseases: PPQ gives information

and assistance for certain pests, and sometimes participates with states to address pests of high significance (for example *Phytophthora ramorum*, Asian gypsy moth, emerald ash borer, etc.) [link: [Plant Pest and Disease Programs](#)]

Example of effect on Hawai'i: There was program manual already available for Chrysanthemum White Rust, as a pest for national concern, when a Hawai'i grower, in conjunction with the University of Hawai'i extension service, discovered the disease at his nursery. HDOA and PPQ were quickly notified. Sales were quickly stopped; trace back to florists and removal of remaining plants were done by PPQ; HDOA survey for other nurseries; it was confirmed that the disease was only at the one location. Eradication was achieved with the full cooperation of the grower, the guidance from the PPQ expert, and the Big Island Invasive Species Committee, county and state assistance for allowances for burning, and others who labored and contributed available resources.

- (2) Does your agency focus on a specific invasive species or on a specific area such as control, research, eradication, or prevention with respect to invasive species? If so, what species or area?
- There are situations which are focused on a specific pest, as for the Chrysanthemum White Rust, mentioned above in question (1). Another example is the Incident Command structure which is a standard plan for response to plant health and all hazards emergencies, and applicable to specific pest outbreaks: The initial PPQ response for coconut rhinoceros beetle was to assist the state in the set up of the emergency Incident Command structure specific to the coconut rhinoceros beetle.
 - Through the PPQ Cooperative Agricultural Pest Survey, PPQ helps fund State cooperators to survey and report for high-risk pests interest to the United States as a whole, and some pests of state interest. One possible outcome is that new introductions of harmful plant pests and diseases are detected as soon as possible, before they have a chance to spread and cause significant damage. The University of Hawai'i traps that initially detected coconut rhinoceros beetle was part of the CAPS survey for Hawai'i.
 - Please see the link: [Pest and Disease Programs](#) . Below are lists of pests with program manuals or other information for specific pests:

Insects and Mites

- [Asian Longhorned Beetle](#)
- [Cotton Pests](#)
- *Drosophila* [suzukii \(Spotted Wing Drosophila\)](#) - Pest Alert
- [Emerald Ash Borer](#)
- [European Grapevine Moth](#)
- [Fruit Flies](#)
- [Grasshopper/ Mormon Cricket](#)
- [Gypsy Moth](#)
- [Imported Fire Ant](#)
- [Japanese Beetle](#)
- [Light Brown Apple Moth](#)
- [Mediterranean Fruit Fly](#)
- [Old World bollworm](#)
- [Pine Shoot Beetle](#)

Mollusks

- [Giant African Snails](#)
- [Temperate Terrestrial Gastropods](#) - New Pest Response Guideline

Nematodes

- [Golden Nematodes](#)

- [Pale Cyst Nematode](#)
- [USDA Nematology Lab](#)

Plant Diseases

- [Black Stem Rust/Barberry](#)
- [Chrysanthemum White Rust](#)
- [Citrus Diseases](#)
- [European Larch Canker](#)
- [Gladiolus Rust](#)
- [Karnal Bunt](#)
- [Phytophthora ramorum](#) (Sudden Oak Death)
- [Plum Pox](#)
- [Potato Diseases](#)
- [Ralstonia](#)
- [Soybean Rust](#)
- [Thousand Cankers Disease](#)

Weeds

- [Federal Noxious Weeds Program](#)

Additional Plant Pest and Disease Information

- [Brown Marmorated Stink Bug](#)
- [Elm Seed Bug](#)
- [Holiday Greenery Pest Information](#)
- [Honey Bees](#)
- [Panicle Rice Mite](#)
- [Biological Control Programs](#)
- [Official Control - The Federally Recognized State Managed Phytosanitary Program](#)
- [Crop Biosecurity and Emergency Management](#)
- [Emerging Plant Pests and Diseases](#)
 - [Cherry blossom moth \(*Argyresthia pruniella*\)](#)
 - [Tomato fruit borer \(*Neoleucinodes elegantalis*\)](#)
 - [Tomato leafminer \(*Tuta absoluta*\)](#)
- [Environmental Assessments](#) Plant Protection and Quarantine environmental documents available on these web pages are organized in separate program areas, below. Clicking your mouse on the subject line below will take you to a list of documents under that program area. The documents are in the Adobe Acrobat format.
 - [Argentine Citrus Importation](#)
 - [Asian Longhorned Beetle Programs](#)
 - [Avocado Import Program](#)
 - [Biocontrol of Non-Federal Weeds](#)
 - [Boll Weevil Programs](#)
 - [Bromeliads](#)
 - [Cactus Moth - *Cactoblastis cactorum*](#)
 - [Chile Citrus Importation](#)
 - [Citrus Canker Eradication Programs](#)
 - [Citrus Greening and Asian Citrus Psyllid](#)
 - [Citrus Longhorned Beetle Program](#)
 - [Coconut Rhinoceros Beetle](#)
 - [Emerald Ash Borer Programs](#)
 - [Eucalyptus Importation Programs](#)
 - [European Grapevine Moth](#)

- [Fruit and Vegetables Periodic Amendment](#)
- [Fruit Fly Control Programs](#)
- [Genetic Engineering Control Applications](#)
- [Giant African Snail](#)
- [Giant Salvinia Programs](#)
- [Glassy Winged Sharpshooter Programs](#)
- [Gladiolus Rust](#)
- [Golden Nematodes](#)
- [Gypsy Moth Programs](#)
- [Hemlock Woolly Adelgid](#)
- [Irradiation Treatment](#)
- [Ivy Gourd](#)
- [Japanese Beetle Programs](#)
- [Karnal Bunt Programs](#)
- [Light Brown Apple Moth](#)
- [Melaleuca](#)
- [Methyl Bromide Analyses](#)
- [Mile-a-Minute Weed](#)
- [Phytophthora ramorum](#)
- [Plasticbaled Municipal Solid Waste](#)
- [Old World Bollworm](#)
- [Old World Climbing Fern](#)
- [Onionweed](#)
- [Papaya Importation](#)
- [Penjing Plant Importation](#)
- [Phalaenopsis Importation](#)
- [Pine Shoot Beetle Programs](#)
- [Pink Bollworm Programs](#)
- [Plum Pox Eradication](#)
- [Potato Cyst Nematode](#)
- [Rangeland Grasshopper and Mormon Cricket Programs](#)
- [Saltcedar Biocontrol Programs](#)
- [Schlumbergera and Rhipsalidopsis](#)
- [Sirex noctilio](#)
- [Solid Wood Packing Material](#)
- [Soybean Aphid](#)
- [Spotted Lanternfly](#)
- [Unroasted Coffee into Hawai'i and Puerto Rico](#)
- [Unshu Orange Program](#)

- [Vineyard Snail](#)
- [White Peach Scale](#)
- [Integrated Plant Health Information System](#) (See survey question (3))
- [Risk Assessment: Wood Packaging Material \(May 11, 2011\)](#)
 - [Stakeholder Letter \(July 15, 2011\)](#)
- [National Plant Pest Information System](#) see Hawai'i information at this Pest Tracker site under "States"
- [National Plant Board](#) see survey question (3)
- [North American Plant Protection Organization's Phytosanitary Alert System](#) , (PAS), provides up-to-date information on plant pest situations of significance to North America. This system is intended to facilitate awareness, detection, prevention and management of exotic pest species in North America. The PAS provides this information in

two ways:

- 1) [Official Pest Reports](#) "Official Pest Reports" are provided by National Plant Protection Organizations of Canada, the United States, and Mexico. They serve as official communication from the country of origin and are intended to comply with the International Plant Protection Convention's Standard on Pest Reporting (ISPM 17: 2002).
- 2) [Emerging Pest Alerts](#) "Emerging Pest Alerts" are news items obtained from public sources. They do not serve as official communication from NAPPO. The "Emerging Pest Alerts" is an early warning tool for emerging plant pests that are not present in the North American region. In most cases, information within alerts is not confirmed with the corresponding National Plant Protection Organization. They are provided solely as an early warning to NAPPO countries and should be used with this disclaimer in mind

- d. The mission of the **Biological Control Program** within PPQ is to work with cooperators to import, screen, develop, release, implement, monitor, and transfer biological control technologies to prevent the establishment, slow the spread, and manage pests of significant economic, environmental or regulatory importance, including the development and implementation of biological control technologies offshore against pests that could potentially be introduced into the continental United States and cause damage. This is fulfilled by funding in-house activities of PPQ scientists and external projects through Cooperative Agreements. Biological controls developed for the U.S. continent may not be suitable for Hawai'i. PPQ regulates, with input from the state, and other agencies such as Fish and Wildlife Services, the movement of foreign biological control organisms into the state of Hawai'i, through permitting and biological control research/rearing facility certification. PPQ issues the permits for the field release of such organisms, based on the Hawai'i's request and research data. The permitting and testing of host plants are specific to Hawai'i to ensure protection of the unique environment.

- (3) Please list all of your agency's programs that address some aspect of invasive species and describe briefly.

The Plant Health Programs touching on invasive species into the United States are found are described below with additional information available at the links given.

[PPQ and NPB Strategic Alliance](#)

Together, PPQ and the NPB work to use our respective federal and state authorities, assets, and expertise to safeguard plant health and enable safe trade. The Strategic Alliance documents the nature of the PPQ-NPB relationship and the top priorities to be pursued by the two organizations in 2015.

- **Plant Pest and Disease Programs** [[link: Pests and Diseases](#)]¹ PPQ responds to many new introductions of plant pests to eradicate, suppress, or contain them through various programs in cooperation with state departments of agriculture and other government agencies. These may be emergency or longer term domestic programs that target a specific regulated pest.

- [Pests and Disease Programs](#) [see expanded list under question (2)]
- [Report a Pest or Disease](#) the public may call the Hawai'i PPQ State Plant Health Director. The information will be passed on to the HDOA
- [Federally Recognized State Managed Phytosanitary Program](#) (FRSMP, pronounced "free-stamp"), establishes a process for granting Federal recognition to certain state-managed plant pest programs. This Federal recognition justifies actions ordered by officials of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) if a pest under the FRSMP program is intercepted at a U.S. port of entry. At the link for this program, there is a list of [Pests no longer regulated at ports of entry](#). Currently, actionable pests that are present in the United States as a whole, but not under official control, are undergoing recategorization to non-actionable status. Clicking on the link, note that the HDOA, working through the cooperation between APHIS PPQ and the National Plant Board, has pests listed that remain actionable to Hawai'i, even though the status has been changed to non-actionable for other parts of the United States.
- [Special Needs Request](#): Under the [Plant Protection Act](#), states or their political subdivisions can ask USDA for permission to impose restrictions beyond what is required by APHIS. These are called special need requests. The formal process for states that want to impose additional restrictions on the

- interstate movement of items that pose a plant health risk is described at: [Process for Special Need Requests](#). Special need requests must be based on sound scientific data. They must include a thorough risk assessment proving that the plant pest or noxious weed does not currently exist in the state, but could cause economic or environmental harm. All requests must be submitted to APHIS through state agriculture departments. Upon receipt of the special need request, APHIS will publish a notice in the Federal Register. The public will have the opportunity to comment for 60 days following the publication. Once the comment period closes, APHIS will review any comments and publish another notice announcing its decision to either deny or grant the request. If the request is granted, the special need exemption will be applicable for two years, after which the state will have to submit a renewal request. If the request is denied, the state may submit additional information for reconsideration.
- [Integrated Plant Health Information System \(IPHIS\)](#) Federally sponsored plant pest, disease and noxious weed survey provide vital information – presence or absence, geographical distribution, population density, etc., which PPQ and cooperating agencies use to 1) ensure prompt response, including eradication projects, for pest outbreaks, 2) ensure sound management strategies for pests that have established themselves in the country and 3) demonstrate to trading partners that agricultural commodities meet import requirements. When fully developed, IPHIS will provide an environment and process to gather quality information from all core functions of PPQ (survey, regulatory, diagnostics, and control) in a timely or “real-time” manner, and make that information available to key regulatory partners and stakeholders. PPQ’s long term vision is to utilize IPHIS as the point of entry for all emergency and domestic program related agricultural activity.
 - [Survey Supply and Procurement Program](#) SSPP strives to deliver quality survey products to all PPQ program areas
- [Cooperative Agricultural Pest Survey \(CAPS\) Program](#) PPQ ensures that new introductions of harmful plant pests and diseases are detected as soon as possible, before they have a chance to cause significant damage. To accomplish this, PPQ and its State cooperators carry out surveys for high-risk pests through a network of cooperators in the Cooperative Agricultural Pest Survey (CAPS) program.
- [Crop Biosecurity and Emergency Management](#) PPQ provides national leadership and coordination in crop biosecurity and emergency management. As the lead Federal agency for plant health emergencies, PPQ works cooperatively with national and international plant protection organizations; Federal, State, tribal, and local agencies; universities; industries; and private entities in developing and implementing science-based framework designed to provide optimum protection against invasive pests and diseases.
- [Biological Control](#) (see also Hawai’i aspects in survey question (2) section “d.”)
PPQ works with cooperators to import, screen, develop, release, implement, monitor, and transfer biological control technologies to prevent the establishment, slow the spread, and manage pests of significant economic, environmental or regulatory importance.
- [Emerging Plant Pests and Diseases](#) See survey question (2)
- [Environmental Assessments](#) See survey question (2)
- There is an international regulation, (ISPM 15 for the IPPC guidelines, and enforced by PPQ own regulations through CBP), which requires use of properly treated wood pallets and wood packing material (WPM), due to the risk of introducing forest pests, and other pests. APHIS PPQ, assessed the risk of domestic WPM similar to the International regulations already in effect. The assessment is found at: [Risk Assessment: Wood Packaging Material \(May 11, 2011\)](#) followed by the decision letter [link: [Stakeholder Letter July 25, 2011](#)] explaining why the implementation of a domestic program was not recommended. However, the letter notes that PPQ continues to have pest specific domestic quarantines regulating the movement of wood products and pallets to prevent the domestic spread of those pests.
- [National Plant Pest Information System](#) see survey question (2)

- [North American Plant Protection Organization's Phytosanitary Alert System](#) see survey question (2)
- **Import Programs** [Link: [Import into the U.S.](#)] Plant Protection and Quarantine (PPQ) regulates the importation of plants and plant products under the authority of the Plant Protection Act. PPQ maintains its import program to safeguard U.S. agriculture and natural resources from the risks associated with the entry, establishment, or spread of animal and plant pests and noxious weeds.
 - [Commodity Import Approval Process](#)
 - [Stakeholder Risk Assessment Consultation](#)
 - Permits [normally, work in conjunction with state input and/or approval]
 - [Organism and Soil Permits](#)
 - [Plants and Plant Products Permits](#)
 - [Transit Permit Information](#)
 - Import Requirements for
 - [Craft Industries](#)
 - [Endangered Plant Species \(CITES\)](#)
 - [Fruits and Vegetables](#)
 - [Plant Growth Enhancers](#)
 - [Plants and Products Covered by the Lacey Act](#)
 - [Plants and Seeds for Planting](#)
 - [Regulated Garbage](#)
 - [Wood Packaging Materials](#)
 - [Federal Import Orders](#) are legal documents issued in response to an emergency when the Administrator of APHIS considers it necessary to take regulatory action to protect agriculture or prevent the entry and establishment into the United States of a pest or disease. Federal Orders are effective immediately and contain the specific regulatory requirements. Plant Protection and Quarantine issues Federal Orders under the regulatory authority provided by the Plant Protection Act of June 20, 2000, as amended, Section 412(a), 7 U.S.C. 7712(a), which authorizes the Secretary of Agriculture to prohibit or restrict the importation or entry of any plant, plant part, or article if the Secretary determines that the prohibition or restriction is necessary to prevent the introduction or dissemination of a plant pest into or within the United States. Federal Orders will remain in effect until they are revised by another Federal Order or until an interim rule on the subject is published. PPQ's Emergency and Domestic Programs also issues Federal Orders to prohibit or restrict interstate movement. Federal Orders for emergency and domestic programs are posted on the APHIS site under the specific plant pest or disease program to which the Federal Order pertains. For example, published research from Brazil identified new hosts of Carambola fruit fly, *Bactrocera carambolae*, (this fruit fly is not known to occur in Hawai'i). PPQ re-evaluated import requirements from countries where this fruit fly occurred, and found that Guyana was previously approved for imports for the "new" hosts. The federal order revoked current import permits and stopped the issue of new import permits for the hosts of carambola fruit fly from Guyana.
 - [Accreditation and Certification Programs for Plant Imports](#)
 - [Greenhouse-Grown Plants from Canada](#)
 - [Plants in Growing Media – Phalaenopsis](#)
 - [Special Foreign Inspection and Certification – Pelargonium](#)
 - [National Clean Plant Network](#) The stakeholder-driven National Clean Plant Network (NCPN) was created to protect U.S. specialty crops such as grapes, nuts, fruit trees, citrus and berries from the spread of economically harmful plant pests and diseases. For more information, visit the Stakeholder Driven [NCPN website](#) hosted by the University of California – Davis.
- [International](#)- See survey question (1) under the paragraphs for **"Establishing Effective Regulations and Policies"**
- [Manuals](#) These describe programs and procedures, and are used for regulating and safeguarding American agriculture and natural resources. The Manuals Unit updates the information, and notifies registered stakeholders (the public), about regulatory changes and significant clarifications.

- Agriculture Quarantine Inspection (AQI)

- Plant Inspection Stations Hawai'i has a PIS in Honolulu. Federal regulations require that most imported plants and seeds enter the United States through certain ports of entry. The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) operates plant inspection stations for the inspection and clearance of those items.

At the plant inspection stations, PPQ Plant Health Safeguarding Specialists inspect imported plants and seeds to insure that they are free from plants pests and diseases that are not known to occur in the U.S. and which could be damaging to either U.S. agriculture or natural resources. These specialists also ensure that the plants and seeds comply with Federal import regulations and permitting requirements. When regulated pests or diseases are detected, PPQ may require that the planting material be treated, exported or destroyed.

At the plant inspection stations, PPQ enforces the rules and regulations that apply to the import, export and re-export of plant species protected by the Endangered Species Act and the Convention on International Traded in Endangered Species of Wild Fauna and Flora (CITES).

USDA-APHIS-PPQ has 16 plant inspection stations in the U.S. located at or near major international airports and seaports. One station is the National Plant Germplasm Inspection Station (NPGIS) located in Beltsville, Maryland. The NPGIS is uniquely designed for the inspection of small amounts of plant germplasm imported or exported for plant breeding and research purposes.

- Predeparture: While the Hawai'i predeparture program is not an invasive species program per se, it is supported by the identifiers at the Honolulu PIS and the PPQ National Identification Services. Interceptions on plant and plant products moving from Hawai'i to the mainland can reveal new pests not known to occur in Hawai'i. PPQ, and/or, HDOA follow up to identify the source and check surrounding areas for evidence of spread. Bamboo rust, *Kweilingia divina* (synonym: *Dasturella divina*) was detected this way.
- Quarantine Treatments USDA APHIS determines type(s) of treatments when a pest of quarantine significance is prevalent in the country and/or for those which are difficult to inspect. Treatments can be chemical or non-chemical. There are various approved chemical treatments: fumigants, dips and spray. The fumigants include methyl bromide, phosphine and sulfuryl fluoride. Non chemical treatments include cold treatment, hot water immersion, vapor heat treatment, steam sterilization and irradiation. Hawai'i's two irradiation treatment facilities were certified by PPQ.
- Quarantine Categorization of Restricted Plant Materials All plants or plant parts of each genus imported for propagation are classified by APHIS-PPQ into one of three risk categories (**restricted**, **postentry** or **prohibited**) based on our ability to detect the regulated pests of that genus in imported plant material.

Restricted plants or plant parts are inspected and treated if necessary for large pests, such as insects, at a port of entry or at an APHIS-PPQ inspection station.

Postentry plants or plant parts are inspected upon entry but must also be grown at an approved site where a state official inspects the growing plants for pests. Both **restricted** and **postentry** genera can be imported in commercial quantities.

Prohibited plants or plant parts for propagation are known to carry small plant pathogens or insects that can not be reliably detected by inspection, because the pests are too small, they occur inside the plant tissue, and/or they do not cause consistent symptoms in dormant or growing plants. **Prohibited** plant material for propagation can only be imported in small quantities through an APHIS-approved quarantine program, unless they originate from an approved source listed in 319.37-5.

Prohibited genera

Relevant laws include The Plant Quarantine Act of 1912 (as amended), The Organic Act of 1944 (as amended), The Federal Plant Pest Act of 1957 (as amended), and the Federal Noxious Weed Act of 1974 (as amended). Regulations promulgated under these laws are found in the Code of Federal Regulations, specifically in CFR 319.

The [Plants for Planting Manual](#) identifies prohibited plants. Prohibited plants include such valuable crops and natural flora as apples, bamboo, citrus, elms, grapes, grasses, maples, peaches, potatoes, rice, sweet potato, and sugarcane. When any plant part capable of vegetative propagation is excised from a foreign plant and then shipped to the United States, these propagules usually carry most, if not all, of the pests present in or on their original foreign plants. Therefore, in order to protect U.S. agriculture from the introduction of foreign pests, small quantities of these plants must be inspected during growth and tested for pathogens while in quarantine at an APHIS approved containment facility. A network of quarantine programs across the United States ensures that all prohibited plant genera can be imported through quarantine. After release from quarantine, these plants or plant parts can be propagated or distributed without federal restrictions. **Special permits must be obtained** by the importer if these plants are genetically modified (genetically engineered), if they are listed on the Federal Noxious Weed list, or **if they are regulated by the importer's state department of agriculture.**

- [Plant Germplasm Quarantine Program](#)
Information about the screening program for the various prohibited crops tested by the PGQP.
- [Search the Germplasm Resources Information Network \(GRIN\)](#)
- [Smuggling Interdiction and Trade Compliance](#) The mission of PPQ's Smuggling Interdiction and Trade Compliance (SITC) Program is to detect and prevent the unlawful entry and distribution of prohibited and/or non-compliant products that may harbor exotic plant and animal pests, disease or invasive species. SITC focuses its anti-smuggling efforts at the Ports of Entry and markets to prevent the establishment of plant and animal pests and diseases, while maintaining the safety of our ecosystems and natural resources. View the above link to learn more about SITC roles in interdicting smuggled agricultural products before and after they reach US markets. Public and state help is solicited through: [Help Protect Agricultural Smuggling](#)

Hawai'i SITC addresses illegal movement into Hawai'i of items presenting foreign pest risk. Any article or conveyance which may transport plant or animal pests can be suspect, for example, used pots, or the stuffing in pet bedding. Hawai'i SITC performs outreach to reduce incidence of smuggling and unintended movement of items of pest risk, they regularly check locations where sales of prohibited plant and animal products (carry avian and other animal diseases) are likely to be found, and help in tracing back outbreaks on the mainland that have sales receipts showing infected material may have reached Hawai'i. Though infrequent, PPQ issues national recalls when foreign origin products are found infested after the legal entry and distribution to retailers in the United States. SITC and other PPQ officers oversee removal and mitigate the risk or oversee destruction of these items.

- Offshore Plant Health Safeguarding Activities

- [Greater Caribbean Safeguarding Initiative](#)
- [Preclearance Activities](#) In conjunction with International Services (IS), Preclearance inspections, treatments and/or other mitigation measures are conducted in foreign countries under the direct supervision of qualified APHIS personnel in accordance with phytosanitary procedures specified by the Agency. These procedures are designed to identify and/or mitigate the risk of exotic pest

introductions through action taken in foreign countries. Integrity checks to ensure compliance with the program guidelines may be conducted at the U.S. port of entry. Proposals for agricultural commodity Preclearance programs are typically developed jointly by the host country's plant protection service and participating industry. If requested, APHIS will provide appropriate host country officials with assistance in work plan development. Preclearance Activities serve to perform the following functions: Conduct offshore agricultural commodity Preclearance inspections, treatments and/or other mitigation measures in foreign countries under the direct supervision of qualified APHIS personnel in accordance with phytosanitary procedures specified by the Agency; Support trade facilitation and pest exclusion by approving and/or proposing new programs; Expedite the movement of commodities and giving additional protection to U.S. Agriculture; Ensure compliance with program guidelines and APHIS Preclearance protocols; and Certify offshore plant production facilities for specific phytosanitary concerns.

Domestic programs, such as the one for *Phytophthora ramorum*, program, require *infested* states to check nurseries. When the disease is discovered outside the quarantined areas, U.S. mainland, trace back and trace forward investigation is done, and Hawai'i is notified if items were sold to retailers here. SITC and other PPQ officers then follow up with retailer visits to investigate further prevent spread. PPQ notified the Hawai'i Department of Agriculture with an updated list of nurseries that are under quarantine. National citrus programs recognize Hawai'i as a citrus growing state; the regulations protecting such states are often more restrictive for commerce in propagative material, and other plant parts from domestic sources of diseases such as citrus canker, and citrus greening, which are not known to occur in Hawai'i. The Hawai'i Department of Agriculture, DHS-Customs Border Protection, and PPQ work together to investigate pathways through blitzes on certain items, checking containers for ants, and other projects of mutual interest. This also happens on a state level, when such products are found in Hawai'i. addressed by Hawai'i was A particular citrus variety was found in a store with a pest not known to occur in the United States. Artificial Christmas tree "trunks" were found with internal pests that bored through the wood and were latter discovered. The recall work

GPPD

Offshore warning system information is shared with authorized regulatory personnel from reports of possible spread of plant pests. The information is mined from around the world from journals and other sources. PPQ maintains cooperation from U.S. and other entities foreign countries to share pest information of possible new pests, new hosts, and new pathways.

- (4) Please provide the citations to any laws, rules, or regulations that your agency administers or implements to address some aspect of invasive species.

Most of PPQ's authority for the prevention of pests in foreign and the domestic regulations as well, are in the Plant Pest Act of 2000, http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/PPAText.pdf which better consolidated most of the weed and other authorities under one Act. Title 7 of the Code of Federal Regulations, and the PPQ manuals carry the information for regulatory authorities (e.g., PPQ and CBP, and inspectors and other persons so authorized by the Secretary of Agriculture). Link to: 1/1/2015 copy of Title 7: <http://www.gpo.gov/fdsys/pkg/CFR-2015-title7-vol5/pdf/CFR-2015-title7-vol5.pdf>

PPQ [Manuals](#) (see survey question (3))

International standards were presented in survey question (3). [International Standards for Phytosanitary Measures \(ISPMs\)](#) are adopted by the [Commission on Phytosanitary Measures \(CPM\)](#). The IPPC is the only international standard setting organization for plant health recognized by the [World Trade Organization \(WTO\)](#) under the [Agreement on the Application of Sanitary and Phytosanitary Measures \(the SPS Agreement\)](#). PPQ is the contracting party to the International Plant Protection Convention (IPPC) and participates in the World Trade

Organization Agreement on the Application of Sanitary and Phytosanitary Measures. Both contracting and non-contracting parties to the IPPC are encouraged to implement these standards. Standards in themselves are not regulatory instruments, but come into force once countries establish requirements within their national legislation.

International Codes and standards for animals: The APHIS Deputy Administrator of Veterinary Services (VS), as the Chief Veterinary Officer (CVO) is charged with managing U.S. animal health standard-setting activities related to the OIE (Office International des Epizooties – World Organisation for Animal Health) codes and standards relating to import and pest risk analyses.

- (5) Does your agency have any major concerns or challenges regarding its role and responsibility in the fight against invasive species? Please explain.

PPQ's major mission is tied to prevention of pest risk, and so are the major challenges: Increased trade volumes; market access for growing numbers of countries; increased volumes of cargo, containers, passengers, and baggage; limited funds to increase staffing and to reconfigure/expand processing areas and design and build new Plant Inspection Stations (including the one in Honolulu); research and identification support for new species and taxonomic challenges in plant pathology, nematology, mollusks, and other disciplines; visual inspection is still a standard used in PPQ risk management for visible pests, for both propagative material and commodities, but it requires time, good eyesight/lenses, experience, and knowledge.

The challenge is to quickly and accurately determine what or who poses significant risk, improving upon selection of higher risk individuals and cargo, while periodically validating those assumptions. Examples of such initiatives are the cargo release authority for commodities of demonstrated low risk from certain origins, expediting of crew members and others under the TSA known traveller programs (but still inspecting those travellers for periodical verification). Permitting and promulgating new regulations is challenged by increased volume of requests. Electronic systems, reducing rule making by notice based regulatory processes and moving CFR listing for specific commodities into manuals, offer better flexibility for change and timeliness. Emergency programs face resistance from increased regulation, environmental concerns and rallying of opposition through social media slowing rapid response to initial new pest finds. Replacements for methyl bromide, that penetrate and work just as well, demonstrate the need to replace the tools for addressing pests in commodities. Products in global trade requires new innovations to streamline the process of identifying plants parts and other articles of risk while not impeding items of low risk. Electronic manifests speed the review of foreign trade, if the descriptors are clear and accurate. In addition, sources for products that used to be low risk can change over time, and new, or possibly overlooked items, that may have been considered low risk, can become higher risk. Hawai'i used volcanic cinder for years as a federally approved media of naturally low risk. Conditions of storage, and supply, changed over time and nematodes were found in volcanic cinder, which then required treatment.

Administrator, Kevin Shea, **National Association of State Departments of Agriculture**

Winter Policy Conference February, 2015 "There is no getting around the fact that certain situations require regulatory action. But it's also true that we now face an anti-regulatory climate in Washington and around the country. In each of the past 3 years, it's taken us 50 percent longer to publish 50 percent fewer regulations. That means less time available for directly assisting our stakeholders.

So, we will continue to look for instances where a nonregulatory solution might be a more effective means of delivering services—while working toward making necessary rules and regulations more flexible, less prescriptive, and more performance-based."

In case APHIS Wildlife Services was not surveyed: Emerging Challenges of Managing Island Invasive Species: Potential Invasive Species Unintentionally Spread from Military Restructuring is found at

http://www.aphis.usda.gov/wildlife_damage/awps/publications/10pubs/nit101.pdf

- (6) Has your agency experienced any state or federal interagency coordination challenges related to invasive species? Please explain.

The various quarantine entities have yet to find effective measures by a responsible federal or state agency to address mosquitos in foreign trade, containers, etc. Malaria infected persons do exist in Hawai'i, but the primary mosquito vector does not. State mosquito survey and trapping for mosquito that was set up years ago, but is no longer supported at its former status.

- (7) In your experience, what strategies have been most effective in the fight against invasive species?

Regulations that give inspection and authority for action of all articles and conveyances of risk.

7CFR 330's use broad language to cover the different articles and conveyances that may present pest risk

§ 330.105 Inspection.

(a) *Inspection of foreign arrivals.* In order to prevent the dissemination into the United States of plant pests and for the purpose of carrying out the regulations in this part, all plant pests; means of conveyance and their stores; baggage; mail; plants; plant products; soil; stone and quarry products under § 330.300; garbage; and any other product or article of any character whatsoever which an inspector considers may be infested or infected by or contain a plant pest, arriving in the United States from any place outside thereof for entry into or movement through the United States shall be subject to inspection by an inspector at the port of first arrival, except that mail will be handled in accordance with the joint customs and postal regulations for inspecting and handling mail.

Ongoing survey and trapping for early detection and programs that allow the university and others to perform research and trapping for new pests likely to arrive and establish in Hawai'i. Active university extension, and a good reporting system for new pests. Good containment facilities. Cooperative work with other invasive species efforts. Collaboration among regulatory entities. Good Smuggling and Trade Interdiction to address smuggling. Canine program to substantiate probable cause in the inspection of First Class mail (going to the U.S. mainland).

- (8) What resources, if provided, or changes in laws, rules, or regulations would most help your agency more effectively combat invasive species?

APHIS PPQ addressed some of these situations fairly recently. Here are a few examples that are previously covered and linked in the first four questions of this survey:

The United States, as well as other countries needed to change the way plants for planting were regulated. NAPPRA (**Not Authorized Pending Pest Risk Analysis**) is solving this problem. Hawai'i invasive species entities can be actively involved to extend the lists of NAPPRA plants. See

[illegible]

Additionally, international agreements required official control for pests in order for those pests to be actionable for border security at ports of entry. Federal control was not funded for the many state concerns. States were taking the equivalent of official control but needed to be recognized federally. APHIS designed the FRSP program to give federal recognition to state control/quarantine programs so that PPQ/CBP could take action on pests for commodities manifested as destined to states granted official control recognition.

Additionally, special needs requests have always been possible, but the procedures were not well presented until a few years ago. Now for federal regulations for **domestic interstate movement**, (mostly the 7CFR301's) there is procedure for states to petition APHIS to take more restrictive action than the federal regulation. See https://www.aphis.usda.gov/plant-health/special_needs_request/downloads/process.pdf

- (9) If applicable, has the Hawai'i Invasive Species Council been effective in assisting your agency in the fight against invasive species? Yes or no. Please explain.
- (10) What changes would you suggest to improve the effectiveness of the Hawai'i Invasive Species Council in the fight against invasive species?

See (9). Regulations that cover articles and conveyances that pose pest risk.

Mosquito and other vector surveillance and prevention.

Use of the federal avenues of NAPPRA, Special Needs Requests where appropriate.

The Plant Protection Act 2000 gave authority to the Secretary of Agriculture to address pest risk. From there, PPQ makes regulations (with public input), without needing to go to Congress for each change. There may be a way the state can analyze the system whereby state rules are made and revamp that system so that rules are written by the state entity responsible for enforcing them, and to identify and fix the resistance/blockage to assigning and clarifying authority and to broaden the scope where needed.

- (11) In your opinion, what, if any, are the primary leaks or gaps in the current system that hurt Hawai'i's efforts in the fight against invasive species?

There seems to be disagreement about whether or not HDOA can initiate inspection and take action on any items/conveyance of agricultural risk, or only agricultural commodities. Significant pests hitchhike on non-agricultural products. Whether or not the argument is legitimate, it might be good to resolve the issue. If the language needs improvement, here is one example of the language APHIS uses in the 7 CFR 330's to have a broad application for quarantine inspection and action:

§ 330.105 Inspection.

(a) *Inspection of foreign arrivals.* In order to prevent the dissemination into the United States of plant pests and for the purpose of carrying out the regulations in this part, all plant pests; means of conveyance and their stores; baggage; mail; plants; plant products; soil; stone and quarry products under § 330.300; garbage; and any other product or article of any character whatsoever which an inspector considers may be infested or infected by or contain a plant pest, arriving in the United States from any place outside thereof for entry into or movement through the United States shall be subject to inspection by an inspector at the port of first arrival, except that mail will be handled in accordance with the joint customs and postal regulations for inspecting and handling mail.

Requirements for survey to be done before interisland quarantines can be enacted, slows down the

action needed for successful eradication. List what could improve the interim rule making. Identify and survey for pests that are predicted to require interisland quarantines. Recognize in whatever statutes are necessary, that those surveys provide sufficient evidence that pests are not known to occur. Look into funding (CAPS where appropriate?) Expand the state, county, and non-profit groups/personnel that can be trained and perform legitimate survey, i.e., the survey acceptable to the standards of the HDOA. Look into different state and county entities that regularly perform work in locations where traps would likely be placed. This might be entities that landscape, work in parks and highways, forested areas, and around entry points (maritime and air commerce).

(12) What could be done to address these leaks or gaps?

See survey question (11)

(13) Please provide any other recommendations to improve the present system of addressing invasive species in Hawai'i.

PART II

State and federal agencies, CGAPS, the Hawai'i Nature Conservancy, and others identified a number of specific gaps and leaks for alien species entry and establishment that were included in the LRB's 2002 study. As part of our update to that study, we are attempting to determine what progress has been made in addressing these gaps and leaks. Please indicate whether, in your experience, these issues remain or have been resolved (yes or no). Please provide any additional updates, information, or comments that may be pertinent:

Funding Issues

(1) In your opinion, does a large portion of the total passenger, cargo, and other traffic entering Hawai'i currently go uninspected and, if so, do you think that these uninspected persons and cargo include materials that are known to be a significant source of invasive species that are not established in Hawai'i?

The Kahului Airport research has good information. Similar research may update and focus the data to answer the above question.

(2) Do you agree that the interisland spread of invasive species is a major, largely unregulated area? Cite the instances of interisland spread, to support this. Look at how the regulations can be improved. Look at innovative use of state, county, or perhaps even commercial entities, with personnel that could be authorized and who are already at the airport and any other places of interisland travel. What about declarations that can be scanned and electronically transmitted in real time? Could commercial shippers be put under compliances that cover interisland shipments?

- (3) In your opinion, could federal reimbursement be better utilized for state funds generally, and specifically, for funding to subsidize the protection of the U.S. mainland from pests in Hawaii?

- (4) Do you believe that the present laws and penalties for illegal introductions are inadequately enforced?

If so, why does that happen. There may be some remedies within easy reach, while the longer term solutions are being worked upon. For example, *if* there is authority for initial inspection on a broader range of articles and conveyances of risk, getting that authority better defined by the proper and recognized state authority may resolve some of the “problem”. In the process of doing that, it will help identify what more needs to be done.

- 5) In your opinion, does funding for vertebrate-control research (such as developing techniques to control mongooses, rats, and other rodents) need to be increased because current levels are insufficient to cover more than a couple species, despite the wide range of pests in Hawai’i?

Provide data that is recognized as legitimate statistics so that there is good evidence to present/persuade those who can give or persuade others to give further support.

- (6) Is the Department of Health's revised Port-of-Entry Program inadequately funded to provide an effective amount of rodent trapping, rodenticiding, mosquito larviciding, mosquito surveillance, and other alien vector activities at ports-of-entry?

If so, what other state/county entity works in the areas where traps can be serviced, and possibly perform initial identification “triage” which would add a bit more work, but reduce the overall costs to the state.

State Administration Issues

- (1) Do you agree that response to new infestations is frequently delayed by jurisdictional, organizational, or procedural problems, allowing pests to become established and, in some cases, spread beyond control?

Identify what causes delays. Concentrate on solutions that can provide even a little improvement. Move the dial in the right direction.

One of the tools many states, and federal quarantine officers have, is an Emergency Action Notification. This document is used, for example, to stop sale of, and isolate plants that may be exposed to plants infected or infested with a new pest. It is a tool to quickly stop the spread of a newly discovered pest, particularly if the pest is already identified as high risk. EAN’s can also require certain actions be taken to address the pest risk by the owner. This is helpful in emergency pest response situations, and in addressing infected/infested commodities that are discovered after entry into the state.

- (2) Do you believe that there are still jurisdictional problems that reflect the absence of a single authority solely responsible for fighting invasive species that can adequately represent the State regarding federal issues and concerns?

The jurisdictional authority needs to be accurately identified. Define how the actual (versus perceived) problems that are supposedly due to jurisdictional authority, and take a look at the actual solutions. Perhaps there are advantages to have state authority and the federal authority.

- (3) In your opinion, is better involvement of county governments needed in the island invasive species committees and in the prevention of the spread of invasive plants through state and county endorsed or sponsored nurseries, such as the Big Island Invasive Species Committee Plant Pono Endorsement Program nurseries on the island of Hawai'i, which focuses on early detection of the nursery import trade of plants, and the Division of Forestry and Wildlife of the Department of Land and Natural Resources state tree nursery?
- (4) Is there a lack of agreement between state agencies on the goals of preserving the agricultural base versus the natural resources of the State?

Whatever the answer, how will the state proceed to determine a common ground and remedy.

- (5) Do you agree that agency mandates and commercial interests sometimes call for maintenance of potentially destructive alien species as resources for sport hunting, aesthetic resources, or other values?
- (6) In your opinion, does the State lack an invasive species mission statement and, is there a need to mandate that state agencies not assist or promote the introduction or spread of invasive species?

This could be the start of a solution to explore the use of state/county personnel already working in key locations, for assistance in survey or emergency pest response.

Federal Issues

- (1) Do you agree that international trade agreements and other federal programs do not protect Hawaii from the full range of pests and, in particular, do you agree that Hawai'i's tight against invasive species is hampered by federal laws (such as the quarantine preemption problem) that do not recognize the dangers of pests already on the mainland but not established in Hawaii and international trade agreements that do not take into account the issues related to foreign pests?

Articulate this assertion with scientific evidence of risk. Hawai'i can comment, provide research, to improve regulations before they become rules. For example, what are the species of concern, how are the species not mitigated in the pest management document. Are the species of concern plant pests? If not, does state action for non-plant pests even fall under pre-emption?

- (2) Do you believe that domestic first-class mail is a pathway for invasive species into Hawai'i and is federally protected from inspection, which continues to be a major, unaddressed issue in the fight against invasive species?

The state of California now inspects first class mail through an Act that allows them to address invasive species. Hawai'i can review the Act, and perhaps dialog with the state of California for the requirements, especially if there is a commitment of staff to regularly perform inspections according to the requirements in that Act. Is the problem staffing and commitment to doing so, or an actual legal barrier, or a bit of both? Canines may be the key to probable cause evidence to believe a package contains prohibited material, and therefore open it. If so, the canine program needs to be re-instated and supported throughout state funding cycles. Canines are costly and timely to reinstate due to the training for dogs and handlers, and the needed infrastructure for proper care and replacement of the canines. Perhaps identify a novel way the canines, kennel, feed, veterinary services, etc., can be funded and embed in a different function which has a demonstrated, good-support for sustained funding instead of solely agricultural funding. In any event, once canines are available, there may be an opportunity to perform first class mail inspection for a year, or if not, especially in some seasons most likely to have a high pest risk (Valentines? Graduation? Mother's Day?). That would provide data for funding support and continuing the program.

- (3) In your opinion, should quarantine of domestic pests arriving to Hawai'i from the mainland be provided by the federal government, similar to the federal government's present practice that protects the mainland from pests originating in Hawai'i?

A fact to consider: Current federal regulations cover only a few interstate quarantines pertinent to Hawai'i, generally found in the 7CFR 301's. This means federal officers have the authority to do address a very small part of the pest risks in domestic trade. The areas not covered by the 7 CFR 301's give Hawai'i and other states the opportunity to well-regulate interstate commerce under well constructed state authority.

- (4) Is there a lack of coordination between federal agencies to address invasive species in Hawai'i, especially between the U.S. Fish and Wildlife Service, the Department of Defense, and the National Park Service?

Whatever the answers are to this question, please share with the pertinent agencies, and define which entities within large agencies such as the DOD are involved in the specific area of concern.

- (5) Do you agree that the federal Lacey Act should be amended to include possession of prohibited alien wildlife that is consistent with the State's injurious wildlife list to improve state-federal coordination in enforcing smuggling and black market violations involving injurious alien species?

This should be explored with FWS, and any other federal agencies concerned, to get the facts on current regulations on injurious wildlife and the species of concern for Hawai'i. The definitions for injurious wildlife may be different, or some other factors may be evident.

- (6) In your opinion, has the blending of the quarantine mission of the U.S. Department of Agriculture with the Department of Homeland Security resulted in the enhanced interdiction of invasive species for international airline arrivals?

The DHS-CBP arrangement allows for both agricultural officers and non-agricultural officers to be aware of pest risk. This provides the opportunity for more inspectors than just agricultural officers to find and respond to pests. This happens, though I do not know to what extent. Hawai'i CBP's mail branch interceptions are high, as well as their inspections of household goods from Guam, and they have intercepted federal noxious weed seeds on items such as poolside furniture which were made of thatched

roofs in which airborne seeds could easily lodge. Hawai'i CBP also collaborates with PPQ and other federal (and to some extent, state agencies), which perform functions for both invasive species and endangered species.

- (7) Do you believe that federal policy is needed to inspect domestic airline passengers, baggage, and cargo specifically for invasive species?

The state would perform inspection of airlines coming into Hawai'i from the mainland. The Kahului Airport research probably explored the risk presented by passengers versus cargo and may have made some important conclusions. Those conclusions may need to be further evaluated and tested. Are there ways to increase the participation in, and accuracy of, the passenger declarations (wording, or delivery/training of airline personnel, etc)? Could a study identify which airlines from which origins are highest risk? Maybe some flights are higher risk than others.

- (8) In your opinion, has the National Park Service taken an active role in fighting invasive species far beyond the boundaries of their parks?

- (9) Do you agree that more involvement is needed by the federal Environmental Protection Agency in public health issues as it relates to invasive species?

- (10) Should properly funded collaborative U.S. Department of Agriculture assistance be provided, to in effect, "deputize" the U.S. Department of Agriculture's plant protection and quarantine program to enforce Hawai'i's laws?

This is a "solution", given without stating the underlying multiple problems it is expected to solve, and given without presenting the imagined outcomes with examples of specific applications. For example, which "Hawai'i laws"?

- i. If Hawai'i laws parallel federal laws, APHIS PPQ enforcement of federal regulations already supports Hawai'i rules. For example, if Hawai'i can regulate federal noxious weeds in domestic commerce, Hawai'i is protected because HDOA can enforce interstate and intrastate parallel rules to keep out federal noxious weeds in domestic commerce, and the federal enforcement agencies enforce the federal regulations for incoming foreign commerce. In this example, the solution for complete protection is the other way around: State enforced rules parallel federal enforced rules so that the instances of intra-state and interstate origin (some mainland states are infested with a federal noxious weed and some are not), complete the circle of protection against federal noxious weeds enforced in foreign commerce.
- ii. An important point to consider to improve protection for Hawai'i, is that weeds are often found inside containers, used vehicles, tile, pallets and other non-plant products. For weeds, as well as other pests, (think about ants in household goods), it seems important for states to have

authority to inspect and to address pests in any article or conveyance that may carry a pest risk. Additionally, Hawai'i can influence federal regulations. APHIS-PPQ invites comments when new regulations are being made. Recently, APHIS solicits input in order to formulate certain proposed rules *prior* to publishing proposed rules. APHIS has a stakeholder registry in which anyone can be alerted via e-mail on newly proposed regulations and other topics of interest. APHIS also works with the State

Plant Regulatory Officials, (that is the Administrator, Plant Industry Division for the HDOA), through the National Plant Board. At the National Plant Board meetings, common state-federal issues could be discussed and different perspectives/workable solutions shared.

- iii. If the focus is on certain Hawai'i rules, which extend beyond the scope of, or are contrary to, federal regulations, *and, if* federal officers can only enforce federal laws, then funding from any source, cannot change that situation. It is generally a fallacy that Memorandums of Understanding or Memorandums of Agreements allow APHIS PPQ to disregard and/or violate federal regulations. There is an existing general MOU between Hawai'i and APHIS PPQ describing how each works together. That MOU may be a good resource to see how, and to what extent the HDOA and APHIS PPQ work together. The HDOA works with APHIS PPQ to ensure changes and insertion of proper language are made prior to the signature of the chair of the Board of Agriculture. The HDOA now has a signed copy of that agreement which has been reviewed by the state's attorney general.
- iv. Question 10 may not be a broad solution, but it may have merit in specific situations. Those situations may be identified by exploring successes in other states, and countries, particularly other continental countries with islands or isolated geographical areas unlike the flora and fauna of the main continent.

APPENDIX I

ADDITIONAL SURVEY 2 RESPONSES

(Verbatim Excerpts)

QUESTION	DEPARTMENT	DIVISION/AGENCY	ANSWER
Are papaya ringspot virus and the mongoose two of the most notable invasive species regarding harm to agriculture in Hawaii today and, are there any new potentially crippling threats to the State's agricultural commodities?	DOA	Plant Quarantine Branch	No. Papaya ringspot virus (PRSV) and mongoose are regulated by the PQB. New threats include little fire ant, coqui frog, coconut rhinoceros beetle, brown marmorated stink bug, and ohia wilt disease.
	DOA	Plant Pest Control Branch	For the PPC Branch, previously the Papaya Ringspot virus was a devastating disease for the papaya industry. Since that time, however, research has provided the industry with GMO products that allow papaya production to be maintained. Farmers have learned to manage the virus. New threats are constantly occurring. One of the most significant threats currently unfolding is Little Fire Ant and its expansion into agricultural areas. There are numerous pests that are being "watched" for introduction into the state.
	DOA	Plant Industry Division Pesticides Branch	This question would be better answered by other branches within the Plant Industry Division.
	DOA	Animal Quarantine Branch	No position on papaya ringspot virus. Mongoose is of concern and can serve as reservoir host for rabies virus if introduced. Other emerging diseases that may be zoonotic and associated with carnivores or vectors such as ticks.
	DOA	Animal Disease Control Branch	For livestock - current threats: 1) Porcine epidemic diarrhea virus in swine 2) Avian influenza

ADDITIONAL SURVEY RESPONSES (Verbatim Excerpts)

QUESTION	DEPARTMENT	DIVISION/AGENCY	ANSWER
What restrictions that are related to invasive species have been placed on the export of agricultural goods from Hawaii?	DOA	Plant Quarantine Branch	Hawaii is placed under USDA, APHIS quarantine for certain pests such as fruit flies, varroa mite, which are significant to agriculture on U.S. mainland. California, Arizona, Texas and Florida have restrictions to prevent the introduction of unwanted pests such as the burrowing nematode, light brown apple moth, slugs, and snails.
	DOA	Plant Pest Control Branch	Not within PPC Branch responsibilities
	DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch Registration & Technical Review Unit
	DOA	Animal Quarantine Branch	No program restrictions on exported agricultural goods from Hawaii
	DOA	Animal Disease Control Branch	None to date that affect Hawaii alone. National disease outbreaks such as HPIA, BSL, PLDv have all impacted exports from the U.S., Hawaii included.
How has this affected the agricultural economy?	DOA	Plant Quarantine Branch	Nurseries involved in the export of plants to must meet the State's certification requirements, which creates additional costs for the nursery.
	DOA	Plant Pest Control Branch	Not within PPC Branch responsibilities
	DOA	Plant Industry Division Pesticides Branch	Not applicable to the Pesticides Branch Registration & Technical Review Unit
	DOA	Animal Quarantine Branch	Not applicable (refer to 9)
	DOA	Animal Disease Control Branch	Export of livestock and poultry products from Hawaii are not extensive, therefore the impact has been minimal. Aquacultural exports are significant and have not been impacted to date by any significant disease outbreak.

ADDITIONAL SURVEY RESPONSES (Verbatim Excerpts)

QUESTION	DEPARTMENT	DIVISION/AGENCY	ANSWER
Can you describe the fight against invasive species and its effect on agriculture in Hawaii?	DOA	Plant Quarantine Branch	Inadequate staffing to prevent the introduction of invasive species. Lack of staff and coordination to minimize the spread of invasive species between islands and in localities within an island. Lack of political will to take agriculture seriously.
	DOA	Plant Pest Control Branch	Biological Control agents suppressed target pests meant saving crops and businesses by using less pesticides: Erythrina gall wasp decimated valuable landscape and forest Erythrina trees; stinging nettle caterpillars devoured landscaping materials and caused injury to workers; little fire ants infesting fruit trees prevented workers from harvesting the crops, movement of commodities from being transported between islands
	DOA	Plant Industry Division Pesticides Branch	Appears to be lack of resources, including funding and manpower. The threat of invasive species movement can place severe restrictions on shipping of agricultural products from one island to another. Creates the need for more inspections or inspectors dedicated to clear shipments between islands or even from incoming continental mainland and foreign ports.
	DOA	Animal Quarantine Branch	Program related effects on agriculture: no rabies virus or foreign ticks established in Hawaii and the subsequent negative effects on animal (production animals) and public health (production workers.)
What specific products have been most impacted?	DOA	Plant Quarantine Branch	Our local produce (coffee, fresh fruits), all plants (bromeliads, orchids), cut-flowers and foliage (ginger, ti-leaves), and herbs (basil) are impacted by invasive species.
	DOA	Plant Pest Control Branch	Nursery commodities: potted plants, cut flowers,
	DOA	Plant Industry Division Pesticides Branch	Nursery products that contain potting media.
	DOA	Animal Quarantine Branch	None specific; animals, livestock in general.
	DOA	Animal Disease Control Branch	Minimal local disease outbreak impacts have occurred with livestock, poultry, and aquaculture.

ADDITIONAL SURVEY RESPONSES (Verbatim Excerpts)

QUESTION	DEPARTMENT	DIVISION/AGENCY	ANSWER																					
What are the average numbers of flights, passengers, cargo, and parcels that arrived in 2014 per day by air and sea?	DOT		<table><tr><th>Description</th><th>Annual</th><th>Daily</th></tr><tr><td>Flights-</td><td>790,000</td><td>2,000 aircraft operations.</td></tr><tr><td>Air Passengers-</td><td>9,000,000</td><td>25,000 passengers</td></tr><tr><td>Air Cargo-</td><td>200,000</td><td>550 tons</td></tr><tr><td>Air Parcel-</td><td>45,000</td><td>120 tons</td></tr><tr><td>Cruise Passengers-</td><td>190,000</td><td>520 passengers</td></tr><tr><td>Harbor Cargo-</td><td>7,500,00</td><td>21,000 tons.</td></tr></table>	Description	Annual	Daily	Flights-	790,000	2,000 aircraft operations.	Air Passengers-	9,000,000	25,000 passengers	Air Cargo-	200,000	550 tons	Air Parcel-	45,000	120 tons	Cruise Passengers-	190,000	520 passengers	Harbor Cargo-	7,500,00	21,000 tons.
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Cruise Passengers-	190,000	520 passengers																						
Harbor Cargo-	7,500,00	21,000 tons.																						
What is the passenger, cargo, and parcel inspection process to minimize and prevent the introduction of invasive species to Hawaii?	DOT		DOT defers to the DOA																					
How have invasive species affected the health and safety of Hawaii's residents and tourists?	DOH	CWB	If an invasive species causes adverse water quality impacts to a specific State surface water, Hawaii's residents and tourists may not be able to utilize that water body until it is safe.																					
	DOH	EHSD	This is a very big question that is difficult to answer briefly. However, here is a brief summary for just a few of the vectors of human health concern. Chikungunya: http://health.hawaii.gov/epolfiles/2015/07/Chikungunya-Sheet-D011-1-pg3.pdf Nine cases have been confirmed in Hawaii as of June 2015, all from returning travelers. Both mosquito species that can spread the virus are locally abundant. People showing symptoms should see a doctor and avoid any exposure to mosquitoes to prevent infecting others. Leptospirosis: http://health.hawaii.gov/epo/files/2015/07/Leptospirosis-Sheet-DOH-1-pg2.pdf See survey response for full answer.																					

ADDITIONAL SURVEY RESPONSES (Verbatim Excerpts)

QUESTION	DEPARTMENT	DIVISION/AGENCY	ANSWER
Do you have any examples of specific species that have affected or have the potential to affect Hawaii's residents and tourists?	DOH	CWB	Salvinia molesta in Lake Wilson/Wahiawa Reservoir. CWB assisted DLNR-DAR in removing Salvinia molesta from Lake Wilson.
	DOH	EHSD	See response above
Are there any invasive species you are closely following because they may cause potential damage to Hawaii's population?	DOH	CWB	No
	DOH	EHSD	We are closely following vectors that may carry Chikungunya, Dengue Fever, Leptospirosis, Malaria, Rat Lungworm disease, Yellow Fever and others. The DOH, Disease Outbreak Control Division is concerned with these and others. See http://health.hawaii.gov/doc.d/dib/disease/mosquito-transmitted-diseases/

APPENDIX J

ENTITY ACRONYMS

APHIS	U.S. Department of Agriculture; Plant Protection and Quarantine, State Plant Health, Animal and Plant Health Inspection Service
ARS	U.S. Department of Agriculture; Agricultural Research Service, Pacific West Area
CBP	U.S. Department of Homeland Security; U.S. Customs and Border Protection
CGAPS	Coordinating Group on Alien Pest Species
DBEDT HTA	Department of Business, Economic Development, and Tourism; Hawaii Tourism Authority
DBEDT OP	Department of Business, Economic Development, and Tourism; Office of Planning
DLNR DAR	Department of Land and Natural Resources; Division of Aquatic Resources
DLNR DOFAW	Department of Land and Natural Resources; Division of Forestry and Wildlife
DLNR HISC	Department of Land and Natural Resources; Hawaii Invasive Species Council
DOA ADC	Department of Agriculture; Animal Industry Division, Animal Disease Control Branch
DOA AQB	Department of Agriculture; Animal Industry Division, Animal Quarantine Branch
DOA PPC	Department of Agriculture; Plant Industry Division, Plant Pest Control Branch
DOA PQB	Department of Agriculture; Plant Industry Division, Plant Quarantine Branch
DOH CWB	Department of Health; Environmental Management Division, Clean Water Branch
DOH EHSD	Department of Health; Environmental Health Services Division, Vector Control Branch
DOT	Department of Transportation
EPA	Environmental Protection Agency
FHA	Federal Highway Administration
FWO	U.S. Department of the Interior; Pacific Islands Fish and Wildlife Office
HARC	Hawaii Agricultural Research Center
HCA	Hawaii Conservation Alliance
KISC	Kauai Invasive Species Committee
MCBH	U.S. Department of Defense; Marine Forces Pacific, U.S. Marine Corps Base Hawaii
MISC	Maui Invasive Species Committee
NAVY	U.S. Department of Defense; United States Pacific Fleet, Department of the Navy
NMFS	U.S. Department of Commerce; National Oceanographic Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office
NPS	U.S. Department of the Interior; Pacific Islands Office, National Park Service
NRCS	U.S. Department of Agriculture; Natural Resource Conservation Service
OISC	Oahu Invasive Species Committee
PIWSC	Pacific Islands Water Science Center; Geological Survey
RCUH	Research Corporation of the University of Hawaii
UH CTAHR	University of Hawaii; College of Tropical Agriculture and Human Resources
UH PCSU	University of Hawaii; College of Natural Sciences, Pacific Cooperative Studies Unit
UHH	University of Hawaii at Hilo; College of Agriculture, Forestry, and Natural Resource Management; and College of Arts and Sciences, Biology
USDA	United States Department of Agriculture

APPENDIX K

THE SENATE
TWENTY-SECOND LEGISLATURE, 2003
STATE OF HAWAII

S.B. NO. 1505
S.D. 1
H.D. 2
C.D. 1

A BILL FOR AN ACT

RELATING TO INVASIVE SPECIES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. The legislature finds that the silent invasion
2 of Hawaii by insects, disease-bearing organisms, snakes, weeds,
3 and other pests is the single greatest threat to Hawaii's
4 economy and natural environment and to the health and lifestyle
5 of Hawaii's people. Invasive species already cause millions of
6 dollars in crop losses, the extinction of native species, the
7 destruction of native forests, and the spread of disease. Every
8 day the media reports another serious case of an invasive
9 species attacking Hawaii, whether it is the Coqui frog, *Salvinia*
10 *molesta*, *Miconia calvescens*, or dengue fever. Yet there are
11 many more harmful species that threaten to invade Hawaii and
12 wreak further damage. Even one new pest, such as the brown tree
13 snake or the red imported fire ant, could forever change the
14 character of the islands. Stopping the influx of new invasive
15 species and containing their spread is essential to Hawaii's
16 future well-being.

17 Unwanted invasive species are entering Hawaii at an
18 alarming rate--about two million times more rapidly than the



1 natural rate. In 1993, the federal Office of Technology
2 Assessment declared Hawaii's alien pest species problem as the
3 worst in the nation. Hawaii's evolutionary isolation from the
4 continents and its modern role as the commercial hub of the
5 Pacific make these islands particularly vulnerable to
6 destruction by invasive species. Gaps in invasive species
7 prevention systems and a lack of public awareness further add to
8 this serious problem.

9 The present problem is severe. The future, though, may be
10 even more dire. Slow, piecemeal action will not be sufficient.
11 Drastic improvements must be made now to stem the tide of
12 invasive species.

13 Last year, then-Governor Benjamin Cayetano issued Executive
14 Order No. 2002-03, establishing the Hawaii invasive species
15 council in recognition of the urgent need to protect Hawaii's
16 natural resources and economy as well as the health and quality
17 of life of Hawaii's residents and visitors from invasive
18 species. The Hawaii invasive species council's special purpose
19 is to foster coordinated approaches that support local
20 initiatives for the prevention and control of invasive species,
21 such as the coordinating group on alien pest species and the
22 island invasive species committees. The Hawaii invasive species

1 council has since initiated development of coordinated invasive
2 species policy.

3 The legislature finds that the silent invasion of Hawaii by
4 alien invasive species is the single greatest threat to Hawaii's
5 economy, natural environment, and the health and lifestyle of
6 Hawaii's people and visitors. Invasive species cause millions
7 of dollars in crop damage, the extinction of native species, the
8 destruction of native ecosystems, and the spread of many
9 diseases.

10 The purpose of this Act is to:

11 (1) Provide statutory authority to the Hawaii invasive
12 species council to continue its special purpose to
13 foster and organize coordinated approaches among
14 various executive departments, federal agencies, and
15 international and local initiatives for the prevention
16 and control of invasive species; and

17 (2) Affirm the objective of the State to rid Hawaii of
18 invasive species.

19 This Act does not create any new function of government or
20 require additional funding.

21 SECTION 2. As used in this Act, unless the context
22 requires otherwise:

1 "Council" means the Hawaii invasive species council.

2 "Department" means any entity that is a member of the
3 Hawaii invasive species council established under section 3(a).

4 SECTION 3. (a) There is established a temporary invasive
5 species council for the special purpose of providing policy
6 level direction, coordination, and planning among state
7 departments, federal agencies, and international and local
8 initiatives for the control and eradication of harmful invasive
9 species infestations throughout the State and for preventing the
10 introduction of other invasive species that may be potentially
11 harmful. The council shall:

12 (1) Maintain a broad overview of the invasive species
13 problem in the State;

14 (2) Advise, consult, and coordinate invasive species-
15 related efforts with and between the departments of
16 agriculture, land and natural resources, health, and
17 transportation, as well as state, federal,
18 international, and privately organized programs and
19 policies;

20 (3) Identify and prioritize each lead agency's
21 organizational and resource shortfalls with respect to
22 invasive species;

1 (4) After consulting with appropriate state agencies,
2 create and implement a plan that includes the
3 prevention, early detection, rapid response, control,
4 enforcement, and education of the public with respect
5 to invasive species, as well as fashion a mission
6 statement articulating the State's position against
7 invasive species;

8 (5) Coordinate and promote the State's position with
9 respect to federal issues, including:

10 (A) Quarantine preemption;

11 (B) International trade agreements that ignore the
12 problem of invasive species in Hawaii;

13 (C) First class mail inspection prohibition;

14 (D) Whether quarantine of domestic pests arriving
15 from the mainland should be provided by the
16 federal government;

17 (E) Coordinating efforts with federal agencies to
18 maximize resources and reduce or eliminate system
19 gaps and leaks, including deputizing the United
20 States Department of Agriculture's plant
21 protection and quarantine inspectors to enforce
22 Hawaii's laws;

1 (F) Promoting the amendment of federal laws as
2 necessary, including the Lacey Act Amendments of
3 1981, Title 16 United States Code sections 3371-
4 3378; Public Law 97-79, and laws related to
5 inspection of domestic airline passengers,
6 baggage, and cargo; and

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

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

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

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

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

- 1 (10) Advise the governor and legislature on budgetary and
2 other issues regarding invasive species;
- 3 (11) Provide annual reports on budgetary and other related
4 issues to the legislature twenty days prior to each
5 regular session;
- 6 (12) Include and coordinate with the counties in the fight
7 against invasive species to increase resources and
8 funding and to address county-sponsored activities
9 that involve invasive species;
- 10 (13) Review state agency mandates and commercial interests
11 that sometimes call for the maintenance of potentially
12 destructive alien species as resources for sport
13 hunting, aesthetic resources, or other values;
- 14 (14) Review the structure of fines and penalties to ensure
15 maximum deterrence for invasive species-related
16 crimes;
- 17 (15) Suggest appropriate legislation to improve the State's
18 administration of invasive species programs and
19 policies;
- 20 (16) Incorporate and expand upon the department of
21 agriculture's weed risk assessment protocol to the

1 extent appropriate for the council's invasive species
2 control and eradication efforts; and

3 (17) Perform any other function necessary to effectuate the
4 purposes of this Act.

5 (b) The council members shall be appointed by the governor
6 not later than January 1, 2004. The council shall be
7 administratively attached to the office of the governor and
8 shall be composed of:

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

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

13 (A) Business, economic development, and tourism;

14 (B) Health; and

15 (C) Transportation;

16 and

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

19 (A) Agriculture; and

20 (B) Land and natural resources.

1 (c) Representatives of federal agencies and members of the
2 private sector shall be asked to participate or consulted for
3 advice and assistance.

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

8 (e) The council shall submit a report of its activities to
9 the governor and legislature annually.

10 SECTION 4. A state department that is designated as a lead
11 agency under section 3(a)(7), with respect to a particular
12 function of invasive species control, shall have sole
13 administrative responsibility and accountability for that
14 designated function of invasive species control. The lead
15 agency shall:

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

19 (2) Prepare a biennial multidepartmental budget proposal
20 for the legislature forty days before the convening of
21 the regular session of the legislature in each odd-
22 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 Act.

SECTION 5. 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 Act, 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.

SECTION 6. (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

1 eradicate the invasive species after reasonable notice is given
2 to the owner of the property and, if entry is refused, pursuant
3 to the court order in subsection (d).

4 (b) If applicable, a duplicate of the notice so given
5 shall be left with one or more of the tenants or occupants of
6 the premises. If the premises are unoccupied, notice shall be
7 mailed to the last known place of residence of the owner, if
8 residing in the State. If the owner resides out of the State or
9 cannot be expeditiously provided with notice, notice left at the
10 house or posted on the premises shall be sufficient.

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

18 (d) If the owner thus notified fails to comply with the
19 order of the department, or its agent, within the time specified
20 by the department, or if entry is refused after notice is given
21 pursuant to subsection (a) and, if applicable subsection (b),
22 the department or its agent may apply to the district court of

1 the circuit in which the property is situated for a warrant,
2 directed to any police officer of the circuit, commanding the
3 police officer to take sufficient aid and to assist the
4 department member or its agent in gaining entry onto the
5 premises, and executing measures to control or eradicate the
6 invasive species.

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

10 (f) In no case shall the department or any officer or
11 agent thereof be liable for costs in any action or proceeding
12 that may be commenced pursuant to this Act.

13 SECTION 7. (a) Whenever any invasive species is found on
14 state or county property or on a public highway, street, lane,
15 alley, or other public place controlled by the State or county,
16 notice shall be given by the department or its agent, as the
17 case may be, to the person officially in charge thereof, and the
18 person shall be reasonably notified and ordered by the
19 department to control or eradicate the invasive species.

20 (b) In case of a failure to comply with the order, the
21 mode of procedure shall be the same as provided in case of
22 private persons in section 6.

1 SECTION 8. The invasive species council may adopt rules
2 pursuant to chapter 91, Hawaii Revised Statutes, to effectuate
3 this Act.

4 SECTION 9. Section 150A-6.1, Hawaii Revised Statutes, is
5 amended to read as follows:

6 "**§150A-6.1 Plant import.** (a) The board shall maintain a
7 list of restricted plants that require a permit for entry into
8 the State. Restricted plants shall not be imported into the
9 State without a permit issued pursuant to rules.

10 (b) The department shall designate, by rule, as restricted
11 plants, specific plants that spread or may be likely to spread
12 an infestation or infection of an insect, pest, or disease that
13 is detrimental or potentially harmful to agriculture,
14 horticulture, the environment, or animal or public health. In
15 addition, plant species designated by rule as noxious weeds are
16 designated as restricted plants.

17 (c) No person shall import, offer for sale, or sell any
18 Salvinia molesta or Salvinia minima and pistia stratiotes plants
19 or portion thereof within the State."

20 SECTION 10. Section 150A-9.5, Hawaii Revised Statutes, is
21 amended by amending subsection (c) to read as follows:

1 "(c) Interim rules adopted by the department pursuant to
2 this section shall be effective as stated by such rules;
3 provided that:

4 (1) Any interim rule shall be published at least once
5 statewide within twelve days of issuance; and

6 (2) No interim rule shall be effective for more than one
7 ~~[hundred eighty days.]~~ year."

8 SECTION 11. Statutory material to be repealed is bracketed
9 and stricken. New statutory material is underscored.

10 SECTION 12. This Act shall take effect upon its approval
11 and shall be repealed on July 1, 2008.

THE SENATE
TWENTY-THIRD LEGISLATURE, 2006
STATE OF HAWAII

S.B. NO. 2486
S.D. 2
H.D. 1
C.D. 1

A BILL FOR AN ACT

RELATING TO INVASIVE SPECIES.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Act 85, Session Laws of Hawaii 2003, is amended
by amending section 3 to read as follows:

"SECTION 3. (a) There is established [~~a temporary~~] 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;



1 (3) Identify and prioritize each lead agency's
2 organizational and resource shortfalls with respect to
3 invasive species;

4 (4) After consulting with appropriate state agencies,
5 create and implement a plan that includes the
6 prevention, early detection, rapid response, control,
7 enforcement, and education of the public with respect
8 to invasive species, as well as fashion a mission
9 statement articulating the State's position against
10 invasive species;

11 (5) Coordinate and promote the State's position with
12 respect to federal issues, including:

13 (A) Quarantine preemption;

14 (B) International trade agreements that ignore the
15 problem of invasive species in Hawaii;

16 (C) First class mail inspection prohibition;

17 (D) Whether quarantine of domestic pests arriving
18 from the mainland should be provided by the
19 federal government;

20 (E) Coordinating efforts with federal agencies to
21 maximize resources and reduce or eliminate system
22 gaps and leaks, including deputizing the United

1 States Department of Agriculture's plant
2 protection and quarantine inspectors to enforce
3 Hawaii's laws;

4 (F) Promoting the amendment of federal laws as
5 necessary, including the Lacey Act Amendments of
6 1981, Title 16 United States Code sections
7 3371-3378; Public Law 97-79, and laws related to
8 inspection of domestic airline passengers,
9 baggage, and cargo; and

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

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

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

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

- 1 (9) Identify all federal and private funds available to
2 the State to fight invasive species and advise and
3 assist state departments to acquire these funds;
4 (10) Advise the governor and legislature on budgetary and
5 other issues regarding invasive species;
6 (11) Provide annual reports on budgetary and other related
7 issues to the legislature twenty days prior to each
8 regular session;
9 (12) Include and coordinate with the counties in the fight
10 against invasive species to increase resources and
11 funding and to address county-sponsored activities
12 that involve invasive species;
13 (13) Review state agency mandates and commercial interests
14 that sometimes call for the maintenance of potentially
15 destructive alien species as resources for sport
16 hunting, aesthetic resources, or other values;
17 (14) Review the structure of fines and penalties to ensure
18 maximum deterrence for invasive species-related
19 crimes;
20 (15) Suggest appropriate legislation to improve the State's
21 administration of invasive species programs and
22 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 Act.

(b) ~~[The council members shall be appointed by the governor not later than January 1, 2004.]~~ The council shall be ~~[administratively attached to the office of the governor]~~ 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.

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

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

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

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

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

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

19 (e) The council shall submit a report of its activities to
20 the governor and legislature annually."

1 SECTION 2. Section 12 of Act 85, Session Laws of Hawaii
2 2003, as amended by section 16 of Act 10, Session Laws of Hawaii
3 2004, is amended to read as follows:

4 "SECTION 12. This Act shall take effect upon its approval
5 ~~[and, except for sections 9 and 10, shall be repealed on~~
6 ~~July 1, 2008]."~~

7 SECTION 3. Statutory material to be repealed is bracketed
8 and stricken. New statutory material is underscored.

9 SECTION 4. This Act shall take effect upon its approval.



GOVERNOR OF THE STATE OF HAWAII

Approved this day: MAY 18 2006



THE SENATE OF THE STATE OF HAWAII

Date: May 2, 2006
Honolulu, Hawaii 96813

We hereby certify that the foregoing Bill this day passed Final Reading in the Senate of the Twenty-third Legislature of the State of Hawaii, Regular Session of 2006.



President of the Senate

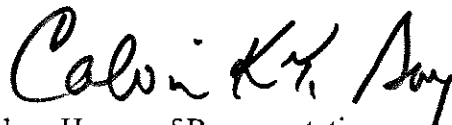


Clerk of the Senate

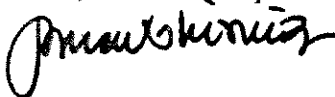
THE HOUSE OF REPRESENTATIVES OF THE STATE OF HAWAII

Date: May 2, 2006
Honolulu, Hawaii 96813

We hereby certify that the foregoing Bill this day passed Final Reading in the House of Representatives of the Twenty-third Legislature of the State of Hawaii, Regular Session of 2006.



Speaker, House of Representatives



Clerk, House of Representatives

APPENDIX M

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

Other Projects in FY14

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

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

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

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

Projects Funded by the HISC in FY15

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

Table 5: Projects funded by the HISC in FY15.

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

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

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

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

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

APPENDIX N

PERTINENT STATE AND FEDERAL LAWS, RULES, AND REGULATIONS

We have formatted this list for uniformity to make it easier to use. However, we have not altered the citation form provided by the entities, even when we have used a different citation form in this Report.

Hawaii Department of Agriculture

Plant Industry Division - Plant Quarantine Branch

- Chapter 150A, HRS.
- Chapters 4-70, 4-71, 4-71A, 4-72, and 4-73, HAR.

Plant Industry Division - Plant Pest Control Branch

- Chapter 141 HRS, Agriculture and Animals;
- Chapter 150 HRS, Hawaii Seed Law; Chapter 4-67 HAR, Seed Rules
- Chapter 152 HRS, Noxious Weed Law, Chapter 4-68 HAR, Noxious Weed Rules
- Chapter 69A HAR, Pests for Control or Eradication

Animal Industry Division - Animal Quarantine Branch

- Chapter 4-29, Hawaii Administrative Rules
- Chapter 142, Hawaii Revised Statutes

Animal Industry Division - Animal Disease Control Branch

- Chapter 142, Hawaii Revised Statutes, (Animals, Brands, and Fences)
- Hawaii Administrative Rules - Hawaii Department of Agriculture (Chapters 16, 17, 20, 21, 23, 27, 28, and 29)

Department of Business, Economic Development, and Tourism

Office of Planning

- §205A-3 establishes OP as the lead agency tasked with the coordination of the implementation of the ORMP
- §225M-2 tasks OP with coordinating the implementation of the ORMP

Department of Land and Natural Resources

Division of Forestry and Wildlife

- HRS 194: Invasive Species Council (Section 194-2(a)(17)(b) places HISC in DLNR for administrative purposes)
- HRS 195: Natural Area Reserves System (does not specify actions relating to invasive species, but mandates protection of natural resources)
- HRS 183D: Wildlife (does not specify actions relating to invasive species, but mandates protection of native wildlife)
- HAR 13-124: Prohibits release of introduced wildlife, prohibits transport/export/release of species designated as “injurious wildlife,” designates by exhibit a list of species as injurious.

Hawaii Invasive Species Council (HISC)

The HISC is responsible for implementing mandates under HRS 194. There are no administrative rules associated with this chapter currently, though the HISC does intend to develop rules in the near future.

Department of Health

Environmental Health Services Division - Vector Control Branch

- HAR Title 11, Chapter 11-26 Vector Control

Environmental Management Division - Clean Water Branch

- The CWB administers HAR, Chapter 11-54. This is Hawaii's WQS that protects human health and aquatic life, regardless if a species is considered invasive. There are no invasive species restrictions/requirements in Hawaii's WQS.

Department of Transportation

- Executive Order 13112- USDA Federal Noxious Weed List and the DOA, HAR 68.

University of Hawaii

College of Tropical Agriculture and Human Resources

We abide by HDOA rules for importation of biocontrol agents.

UH Hilo - CAFNRM, CAS, Biology

The UHH and specifically, Office of Maunakea Management makes every effort to adhere to all relevant Statutes, Policies, rules, etc. These include but are in no way limited to Hawaii Administrative Rules for the Conservation District, Department of Health rules, Department of Agriculture rules, and additional Department of Land & Natural Resources rules. Federal statutes are also applied, and when not legally applicable, are still applied as required best practices.

U.S. Department of Agriculture

Plant Protection and Quarantine State Plant Health, Animal and Plant Health Inspection Service

- Most of PPQ's authority for the prevention of pests in foreign and the domestic regulations as well, are in the Plant Pest Act of 2000, http://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/PPAText.pdf which better consolidated most of the weed and other authorities under one Act.
- Title 7 of the Code of Federal Regulations, and the PPQ manuals carry the information for regulatory authorities (e.g., PPQ and CBP, and inspectors and other persons so authorized by the Secretary of Agriculture). Link to: 1/1/2015 copy of Title 7: <http://www.gpo.gov/fdsys/pkg/CFR-2015-title7-vol5/pdf/CFR-2015-title7-vol5.pdf>
- International Standards for Phytosanitary Measures (ISPMs) are adopted by the Commission on Phytosanitary Measures (CPM).
- The IPPC is the only international standard setting organization for plant health recognized by the World Trade Organization (WTO) under the Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement).
- PPQ is the contracting party to the International Plant Protection Convention (IPPC) and participates in the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures. Both contracting and non-contracting parties to the IPPC are encouraged to implement these standards. Standards in themselves are not regulatory instruments, but come into force once countries establish requirements within their national legislation.

- International Codes and standards for animals: The APHIS Deputy Administrator of Veterinary Services (VS), as the Chief Veterinary Officer (CVO) is charged with managing U.S. animal health standard-setting activities related to the OIE (Office International des Epizooties – World Organisation for Animal Health) codes and standards relating to import and pest risk analyses.

Natural Resource Conservation Service

- Clean Air Act, Criteria Pollutants – Nonattainment area for ozone and/or particulate matter.
- Clean Air Act, Regional Visibility Degradation – Regional haze and poor visibility of scenic areas.
- Clean Water Act, Sections 404, 401, 402, and 303 – Potential discharges of pollutants into waters of the U.S. and State/Territorial TMDLs.
- Coastal Zone Management Areas – Proposed action is inconsistent with CZMA’s of Hawaii and their Coastal Zone Management Plans.
- Coral Reefs, Executive Order 13089 – Nutrient and sediment runoff from near-shore watersheds.
- Cultural Resources, National Historic Preservation Act (NHPA), Section 106 – Potential impacts to cultural resources and/or historic properties (“Undertakings”) and the new 2016 to 2020 Hawaii SHPD Programmatic Agreement.
- Endangered Species Act for Threatened, Endangered, Candidate and Proposed Species, Section 7 – Potential negative impacts to Federal, State and Territorial Species of Concern.
- Environmental Justice, Executive Order 12898 – Disproportionately high or adverse impacts to specific populations.
- Essential Fish Habitat, Magnuson-Stevens Act – Potential negative impacts to essential fish habitat.
- Floodplain Management, Executive Order 11988 – Potential negative impacts to floodplains.
- Invasive Species, Executive Order 13112 – Recognizing and addressing the presence of invasive species as an integral part of NRCS conservation planning and implementation policy and any existing county, State or Federal regulation concerning noxious and/or invasive species. NRCS policy further defines a plant species as “invasive” only when it occurs on the Federal or Hawaii-specific noxious weed list or a list developed by the Hawaii DOA with their partners and approved by the NRCS State Technical and Advisory Committee (STAC).

- Migratory Bird Treaty Act – Proposed action may adversely impact migratory birds.
- Farmland Protection Policy Act, Prime and Unique Farmlands – Proposed farmland conversion.
- Riparian Areas, NRCS General Manual Policy (190-GM, Part 411) – Degraded riparian areas.
- Wetlands, Executive Order 11990 – Wetlands with impaired functions.
- National Wild and Scenic Rivers Act – Proposed action may adversely impact a designated river or river segment.
- All other local, county and/or State laws, regulations and permits – Our policy binds us to follow all laws, rules, guidance coming from jurisdictional entities. We ensure that clients are aware of their responsibility to obtain applicable permits prior to implementation of any practices.

U.S. Department of Commerce

Pacific Islands Regional Office, National Marine Fisheries Service, National Oceanic Atmospheric Administration

- Endangered Species Act
- Magnuson-Stevens Fishery Conservation Management Act, Essential Fish Habitat

U.S. Department of Defense

U.S. Pacific Fleet, Department of the Navy

- JBPHH internal policy memo - green waste quarantine procedures for CRB.
- CNO (Commander Navy Operations) policy letter - prevention of feral cat and dog populations on Navy property.
- Executive Order 13112 Invasive Species
- OPNAV 5090.1D 10 Jan 2014; Ch 12 section 3.10.

Marine Forces Pacific, U.S. Marine Corps

- E.O. 13112 Invasive Species, Base Landscape Manual, Plant Protection Act (2000), Integrated Natural Resources Management Plan

U.S. Department of the Interior

Pacific Islands Office, National Park Service

- National Environmental Policy Act of 1969, as Amended
- Endangered Species Act of 1973, as Amended
- Federal Noxious Weed Act of 1975
- The Federal Noxious Weed Act (7 USC 2801–2814, January 3, 1975, as amended 1988 and 1994)
- National Historic Preservation Act of 1966, as Amended
- Section 106 of the National Historic Preservation Act
- Wilderness Act of 1964
- National Parks and Recreation Act of 1978
- Title 36, Code of Federal Regulations
- Executive Order 13112, “Invasive Species”
- Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds”
- Director’s Order 77: Natural Resources Management Guideline (1991)
- Director’s Order 41: Wilderness Preservation and Management (1999)
- Director’s Order 28: Cultural Resource Management (1998)
- Animal Welfare Act, as Amended (7 USC 2131–2159)
- National Parks Omnibus Management Act of 1998

Pacific Islands Fish and Wildlife Office

The following existing legislation and Executive Orders provides the authorities to address some aspect of invasive species:

- a. The Nonindigenous Aquatic Nuisance Prevention And Control Act Of 1990 (As Amended Through P.L. 106–580, Dec. 29, 2000.) is the Act under which the USFWS Branch of Invasive Species manages the Aquatic Nuisance Species Task Force and its Aquatic Nuisance Species Program.

- b. The Lacey Act of 1900 is the Act under which the Branch of Invasive Species conducts its activities pertaining to listing an organism as Injurious Wildlife. It also regulates the import and transport of species determined to injurious to the health and welfare of humans, the interests of agriculture, horticulture, or forestry, and the welfare and survival of wildlife resources of the United States.
- c. The Endangered Species Act provides a means whereby ecosystems upon which endangered and threatened species depend may be conserved.
- d. The Executive Order 13112, signed by President Clinton on February 3, 1999, created the National Invasive Species Council and the Invasive Species Advisory Committee, mandating that each federal agency whose actions may affect the status of invasive species, shall to the extent practicable and permitted by law to not authorize, fund, or carry out actions to cause or promote the introduction and spread of invasive species in the US, or elsewhere unless pursuant to guidelines, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by the invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.
- e. The Brown Tree Snake Control and Eradication Act of 2004 provides for the control and eradication of the brown tree snake on the island of Guam and the prevention of the introduction of the brown tree snake to other areas of the United States.
- f. The Nutria Eradication and Control Act of 2003 authorizes the Secretary of the Interior to provide financial assistance to the State of Maryland and the State of Louisiana for a program to implement measures to eradicate or control nutria and restore marshland damaged by nutria.
- g. The Alien Species Prevention and Enforcement Act of 1992 makes it illegal to ship plants or animals that are covered under the Lacey Act or the Plant Protection Act through the U.S. mail.

Maui Invasive Species Committee (MISC)

HISC laws

Kauai Invasive Species Committee

Titles 4, 11 & 13

APPENDIX O

David Duffy and Cliff Morden, PCSU, UH Manoa

Projects	Invasive Species	Comments
Big Island Invasive Species Committee (BIISC)	Albizia, Wax Myrtle, Cotoneaster, Rubbervine, Miconia, Photinia, Little Fire Ant, Buddleia, Pampas Grass, Molluccan Raspberry, Poison Devil's Pepper	
Kauai Invasive Species Committee (KISC)	Mongoose, Miconia, Coqui, Little Fire Ant, Long-Thorn Kiawe	
Maui Invasive Species Committee (MISC)/ Molokai Invasive Species Committee (MoMISC)	Miconia, Little Fire Ant, Coqui Frog, Pampas grass	
Oahu Invasive Species Committee (OISC)	Miconia, Devil weed, Little Fire Ant, Cane ti, Coqui frog, Cane ti, Cape Ivy, Coconut Rhinoceros Beetle, Pampas grass, Himalayan blackberry	
Hawaii Invasive Species Council (HISC)	Little Fire Ant, Coconut Rhinoceros Beetle, Miconia, Coqui Frog, Rodents	
Coord Group on Alien Pest Species (CGAPS)	Little Fire Ant, Ceratocystis fimbriata, Miconia, Snakes (all, specifically brown treesnake), Invasive Algae (specifically gorilla ogo)	
Oahu Army Natural Resources Program (OANRP)	Rats, Carnivorous snail, Jackson chameleon, Yellow jackets, Ants, Chromolaena odorata, Toona, Christmasberry, Koa haole, Guinea grass, Strawberry guava, Fountain grass	
Cultural Resources Oahu	Koa haole, Christmasberry	If Cultural Resources (Oahu) comes across Invasive Species then they give the info to OANRP.
Hawaii Ant Lab (HAL)	Little fire ant	
East Maui Watershed Partnership	Pampas grass, Miconia, Himalayan Ginger (Hedychium gardnerianum), Strawberry Guava, Clidemia Hirta	Little fire ant prevention

Projects	Invasive Species	Comments
Koolau Mountains Watershed Partnership	feral pigs (<i>Sus scrofa</i>), feral goats (<i>Capra hircus</i>), manuka <i>Leptospermum scoparium</i> , <i>albizia Falcataria moluccana</i> , octopus tree (<i>Schefflera actinophylla</i>), (<i>Angiopteris evecta</i>) giant fern, mule's foot fern, White Ginger, African tulip	
Leeward Haleakala Watershed Restoration Partnership	Gorse, Australian tree fern, Bocconia, silk oak, Pine species, Strawberry Guava	
Mauna Kea Watershed Alliance	Gorse (<i>Ulex europaeus</i>), Banana Poka (<i>Passiflora mollissima</i>), English Holly, non-native <i>Rubus</i> spp., Strawberry Guava, Fountain Grass	
Waianae Mountains Watershed Partnership	<i>Psidium cattleianum</i> , <i>Schinus terebinthifolia</i> , <i>Shefflera actinophylla</i> , <i>Morella faya</i> , <i>Toona ciliata</i>	
West Maui Mountains Watershed Partnership	Strawberry Guava, Feral pigs, Axis deer, Strawberry Guava, Pampas grass	
Mauna Kea Forest Restoration Project	Sheep, Pigs, Cape Ivy, Fountain Grass, Cats, Banana Poka	
Pacific Missile Range Facility	Long-thorn Kiawe	
DOBOR Harbor Small Coral Project	Invasive algae	
Aquatic Project	Invasive seaweeds (<i>Kappaphycus alvarezii</i> , <i>K. striatum</i> , and <i>Eucheuma denticulatum</i> , <i>Hynea muciformis</i> and <i>Gracilaria salicornia</i> , <i>Acanthophora spicifera</i> , and <i>G. salicornia</i>)	
Plant Extinction Prevention Program	Ungulates, Rats, Slugs, Boring insects, Strawberry Guava, <i>Clidemia</i>	
Hawaii Volcano (HAVO)	Faya, Kahili Ginger, Strawberry Guava, Pigs, Mouflon Sheep	
Three Mountain Alliance (TMA)	<i>Rubus</i> species (blackberry, yellow himalayan raspberry), Faya, Banana Poka, Fireweed, Feral Pigs	
Kauai Forest Birds Recovery Project	Rats, Himalayan Ginger, Strawberry Guava, Australian Tree Fern, Daisy Fleabane	
Kauai Endangered Seabird Recovery Project	Feral cats, Feral rats, Black rats, Barn Owl, Polynesian rats, Kahili Ginger, Strawberry Guava, Australian Tree Fern, Coster's Curse, Lantana	

Projects	Invasive Species	Comments
Maui Forest Bird Recovery Project	Black rats, Feral cats, Small Indian mongoose, Bocconia, Fireweed, Australian Tree fern	
Maui Nui Seabird Recovery Project	Feral cats, Black rats, Small Indian Mongoose, Strawberry Guava, Albizia	
Seabird Habitat Conservation Protection	Mongoose, Rodents, Cats, Pigs, Barn Owl	
Snail Extinction Prevention	Rosy Wolf snail, Jackson's chameleon, Black rat, Polynesian rat, Norwegian rat	
North Kona Game Mammal	Fountain grass, Kikuyu grass, Tree tobacco, Lantana, Fireweed	
NARS Big Island	Ohia wilt, Kahili ginger, Fountain grass, Little Fire Ants, Strawberry Guava	
NARS Kauai	Strawberry Guava, Black berry, Thimble, Budlea, Australian Tree fern	
Native Ecosystem Protection Management - Oahu	Strawberry Guava, Christmas berry, Angiopteris evetica, Tibochina herbaceae, Sphagnum paulstre	
Big Island Wildlife Action Plan	Fire weed, Fountain Grass, Feral Cats, Feral dogs, mongoose	