

DAVID IGE
GOVERNOR OF HAWAII

JOSH GREEN
LIEUTENANT GOVERNOR



HAWAII INVASIVE SPECIES COUNCIL

1151 PUNCHBOWL ST, #325
HONOLULU, HAWAII 96813

VOTING MEMBERS

SUZANNE CASE
DEPARTMENT OF LAND & NATURAL
RESOURCES

PHYLLIS SHIMABUKURO-GEISER
DEPARTMENT OF AGRICULTURE

KEITH KAWAOKA D.Env
DEPARTMENT OF HEALTH

NICHOLAS COMERFORD, Ph.D.
UNIVERSITY OF HAWAII

MARY ALICE EVANS
DEPARTMENT OF BUSINESS, ECONOMIC
DEVELOPMENT & TOURISM

DAVID RODRIGUEZ
DEPARTMENT OF TRANSPORTATION

PUBLIC MEETING NOTICE

Hawaii Invasive Species Council

November 22, 2019, 10:00 AM

Hawaii Department of Land and Natural Resources, Board Room (Rm 132)

1151 Punchbowl St, Honolulu, HI, 96813

AGENDA

1. Call to order
2. Introductions
3. Approval of minutes from August 30, 2019 meeting
4. Presentation: Draft strategies for a joint HISC and Coordinating Group on Alien Pest Species 2025 Strategy in Support of Implementing the Hawaii Interagency Biosecurity Plan
5. Council member discussion of presented draft strategies
6. Public Comments
7. Adjournment

The Council may go into Executive Session pursuant to Section 92-5(a) (4), Hawaii Revised Statutes, in order to consult with its attorney on questions and issues pertaining to the Council's powers, duties, privileges, immunities and liabilities.

Testimony may be provided in person or in writing, submitted electronically to Randal.T.Bartlett@hawaii.gov. To give Board members sufficient time to consider written testimony, please submit the testimony no later than 24 hours prior to the Board Meeting. Any late written testimony will be retained as a part of the record, but we cannot assure that Board members will receive it with sufficient time for review prior to decision-making.

Individuals requesting special accommodations (e.g., large print materials, sign-language interpreters) are asked to contact the staff below at least three days prior to the meeting.

For information, contact:

HISC Support staff: 1151 Punchbowl St, #325, Honolulu, HI 96813; Fax: 587-0160

Josh Atwood, Program Supervisor: 587-4154, Joshua.P.Atwood@hawaii.gov

Randy Bartlett, Interagency Coordinator: 870-6443, Randal.T.Bartlett@hawaii.gov

Leyla Kaufman, Mamalu Poepoe Project Coordinator: leyla@hawaii.edu

Chelsea Arnott, Planner: Chelsea.L.Arnott@hawaii.gov

Elizabeth Speith, 643pest.org Report Facilitator: speith@hawaii.edu

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Hawai'i Invasive Species Council

Public Meeting Notes

August 30, 2019, at 1:00 pm

Department of Land and Natural Resources, Rm 132

1151 Punchbowl Street, Honolulu, HI, 96813

Agenda Item

1. Call to order at 1:03pm (Chair Case)
2. Introductions:
 - a. Council members in attendance: Nicholas Comerford and Walter Bowen, UH; Suzanne Case, DLNR; Morris Atta, HDOA; Keith Kawaoka, HDOH; David Rodriguez, HDOT
 - b. Legislative participants in attendance: Rep. Nadine Nakamura, Rep. Nicole Lowen, Sen. Mike Gabbard
3. Approval of minutes from January 29, 2019 meeting (Members Comerford, Rodriguez)
4. Submittal: Requesting approval of a recommended budget for Fiscal Year 2020 (Josh Atwood, DOFAW & Justine Nihipali, DBEDT)
 - a. See presentation at hisc.hawaii.gov.
 - b. Council discussion:
 - i. Chair Case: How do you deal with the funding gap between what's proposed and what is awarded
 1. Josh Atwood: Applicants are aware that we typically award partial funding, and they have the opportunity to adjust their deliverables to match the amount of available funds that are offered. We assist where possible in finding alternative funding sources that can be leveraged by HISC funds and help meet total project need.
 - ii. Rep. Lowen: How are the funds for rapid ohia death from the Legislature handled? By HISC or by DOFAW?
 1. Josh Atwood: Those funds are coordinated by Rob Hauff at DOFAW.
 - iii. Suzanne Case: How are managers currently controlling the mosquitoes on Kauai?
 1. Josh Atwood: They're using a product called dunk, which contains a bacterial agent.

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- iv. Rep. Lowen: What is Rubus?
 - 1. Josh Atwood: It is a genus of blackberry/raspberry plants, some of which are invasive. (e.g., Himalayan blackberry)
- v. Rep. Lowen: Were there any other proposals addressing rat lungworm disease other than the outreach project that wasn't funded?
 - 1. Josh Atwood: No, no other proposals this year, but the HISC has funded Susan Jarvi's lab at UH Hilo in the past. That lab received a specific legislative appropriation in recent years, and appropriations for rat lungworm work also went directly to DOH and HDOA.
- vi. Sen. Mike Gabbard: Is the citric acid spraying system not working in Maliko Gulch on Maui?
 - 1. Josh Atwood: The system is working, but MISC doesn't have the capacity to control the coqui population with the citric acid program alone. Additional tools, including a barrier fence, are needed.
- c. Josh Atwood discussed the additional expenditure restrictions imposed by the Department of Budget and Finance this year and how to account for the potential release of restricted funds at the end of the fiscal year (see submittal at hisc.hawaii.gov).
- d. Submittal recommendation to approve (Rep Nakamura, Member Atta)
- 5. Presentation: Update on planning for new biocontrol research facilities (Dr. Kevin Haufman, Plant Industry Administrator, HDOA)
 - a. Discussed possibility of developing a new federal facility in addition to the HDOA facility that is being assessed. A cost benefit analysis would be needed in order to justify both a state and a federal facility, versus a single facility that state and federal programs could use.
 - b. HDOA facility: The legislature awarded \$180,000 to begin planning for a biocontrol facility. HDOA has been working on a site selection process and has developed a request for proposals to begin the planning process.
- 6. Presentation: Summary of Hawai'i Interagency Biosecurity Plan implementation progress and remaining needs requiring legislative approval (Josh Atwood)
 - a. See presentation and progress report at hisc.hawaii.gov
 - b. Rep. Lowen: Part of the question surrounding the 2019 request for invasive species technicians at DOFAW was the position vacancies in the NARS program.

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7. Presentation: Summary of 2020-2025 Joint Strategic Planning Process for HISC and the Coordinating Group on Alien Pest Species (Josh Atwood & Christy Martin, CGAPS)
 - a. A broad stakeholder input process has been initiated to get comments and guidance on developing draft strategies and objectives, which will be presented to the Council at a later date. Because HISC and CGAPS share a similar vision but use different networks and tasks to approach that vision, the two groups have elected to conduct a joint planning process that will result in tasks that are assigned to HISC, CGAPS, or are considered joint tasks.
8. Public Comments: None.
9. Adjournment at 2:10pm (Chair Case)

HISC & CGAPS 2025 Joint Strategy:
In Support of Implementing the Hawai'i Interagency Biosecurity Plan
Revised: 5 November 2019

The following 2025 Joint Strategies were identified at the statewide Invasive Species Strategy Workshop on August 29th (#1-7) and meetings with the HISC Planning Team (#8) and CGAPS Steering Committee (#9-10). An overview of all ten strategies (objectives only) is presented first, followed by the full detail for each strategy - objective, key actions, tasks, lead network(s) and HIBP references, where appropriate. These strategies have been reviewed and refined by the Core Team with group and individual input from the Steering Committee, Planning Team and individual partners. They are now ready for broad partner input from both the HISC & CGAPS networks. When finalized and approved, these 2025 strategies will be documented in a shared five-year plan titled: ***HISC & CGAPS 2025 Joint Strategy: In Support of Implementing the Hawai'i Interagency Biosecurity Plan.***

CGAPS & HISC Vision

Hawaii's natural environment, agriculture, economy, and the health, lifestyle, and culture of its people are protected from the impacts of invasive species.

HISC Mission

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

CGAPS Mission

To coordinate and catalyze action among government and non-government partners to prevent and manage invasive species in Hawai'i, as well as communicate key issues to the public.

2025 JOINT STRATEGIES FOR HISC & CGAPS*

**NOTE: All Strategy Leads & Teams listed below will be confirmed before this becomes a public document. Additional partners are welcome to add their agency to these Strategy Team lists.*

STRATEGY 1: PREVENTION & EARLY DETECTION/RAPID RESPONSE (Terrestrial)

Keep Hawaii's top invasive species threats¹ from arriving and establishing in the state, by identifying and addressing high-risk pathways and major modes of introduction, and by improving early detection/rapid response.
Strategy Leads & Team: HDOA*, USDA*, CBP*, OISC, HDOT-MP*

STRATEGY 2: PREVENT MOVEMENT OF INVASIVE SPECIES WITHIN HAWAII (Terrestrial)

Keep Hawaii's top inter/intra-island invasive species threats² from spreading within Hawai'i (between and across islands), by identifying and addressing high-risk sources, pathways and major modes of introduction and spread, and by improving early detection/rapid response for new populations.
Strategy Leads & Team: HDOA*, OISC/ISCs, FWS, HDOT-MP*

¹ HDOA (Kevin Hoffman) is compiling a new **Hawai'i Prevention Priority List** of highest risk species not yet known in the state (terrestrial & aquatic) in coordination with other agencies. This informational, non-regulatory list will guide this Strategy.

² HDOA is also compiling a non-regulatory **Hawai'i Limited Distribution Priority List** of high-impact incipient or localized invasive species in coordination with other agencies to guide actions preventing inter-island and intra-island spread.

STRATEGY 3: AQUATIC BIOSECURITY

Prevent the introduction and spread of aquatic non-native species (ANS) into, between, and around the Hawaiian Islands by reducing species movement through ballast water, biofouling, intentional import and release, and other unintentional modes of introduction.

Strategy Leads & Team: DAR*, OISC, NOAA, HDOT, HDOH*

STRATEGY 4: LARGE-SCALE CONTROL OF HIGH-IMPACT INVASIVE SPECIES

Implement **at least one new large-scale control or eradication project** for an invasive species population with highly significant ecological, economic, and/or health impacts in Hawai'i, and build momentum for action on other widespread high-impact species (e.g. mosquitoes, rats, marine algae).

Strategy Leads & Team: DLNR*, HDOA**

STRATEGY 5: PACIFIC REGIONAL BIOCONTROL & CONTAINMENT CENTER

Increase the capacity and scope of biocontrol work in Hawai'i by creating a **Pacific Regional Biocontrol & Containment Center with core staff, planning for a new containment facility and base funding in place.** Release biocontrol agents for at least three top priority established invasive species (invertebrates, weeds, and/or pathogens) and annually assess, prioritize, and advance critical biocontrol projects.

Strategy Leads & Team: HDOA*, USFS*, DLNR**

STRATEGY 6: INCREASED & DIVERSIFIED FUNDING for INVASIVE SPECIES PRIORITIES

Increase & diversify funding for invasive species priorities to **provide at least \$100M annually through county, state, federal, regional, and private sources**, including \$90M for operational and personnel requirements and \$10M for essential facilities.

Strategy Leads & Team: TNC*, HISC*, MISC, DAR*

STRATEGY 7: ENGAGED & SUPPORTIVE COMMUNITY

Raise or maintain **strong awareness and support (70%+ in polls)** for key invasive species issues and expand, diversify and mobilize a **network of allies to achieve 2025 Joint Strategies.**

Strategy Leads & Team: CGAPS*, DAR*

STRATEGY 8: INCREASE HISC ENGAGEMENT ACROSS SECTORS

Improve **HISC's engagement and support across key sectors (agriculture, conservation, economy, health, tourism, transportation, and culture/way of life) and systems (terrestrial and aquatic)**, as measured by engagement in HISC activities and effective use of HISC tools (e.g., funding, policy resolutions, testimony).

Strategy Leads & Team: HISC*, Council Members*

STRATEGY 9: STRENGTHEN & EXPAND CGAPS NETWORK

Include **representatives across the diverse invasive species community of practice** in the CGAPS Network and actively engage **all partners needed to implement this 2025 Joint Strategy statewide.**

Strategy Leads & Team: CGAPS*, Steering Committee Members*

STRATEGY 10: STABLE CGAPS FUNDING & STAFFING

Secure **committed consistent annual contributions from CGAPS partners** to provide core support for two staff and core operations (est \$250K per year, excluding project funds).

Strategy Leads & Team: CGAPS*, Steering Committee Members*

STRATEGY 1: PREVENTION & EARLY DETECTION/RAPID RESPONSE for NEW TERRESTRIAL INVASIONS

Working Draft: 5 Nov 2019

Strategy Leads* & Team: HDOA*, USDA*, CBP*, OISC, HDOT-MP

2025 Objective 1:

Keep Hawaii's top invasive species threats³ from arriving and establishing in the state, by identifying and addressing high-risk pathways and major modes of introduction, and by improving early detection/rapid response.

NOTES: The Strategies for Prevention/EDRR (#1) and Movement (#2; which includes local EDRR) of high-priority terrestrial invasive species can be closely related. However, Prevention is a joint federal/state responsibility and requires close collaboration between federal and state agencies wherever possible. High-risk pathways include passengers, luggage, ships, packages, etc. Key terms include:

- Pathway is a mode of transportation, how a pest gets to Hawaii. Certain pests have a variety of types of commodities or conveyances that they arrive in—how can we combine the air, mail, sea pathway with the details needed.
- Addressing is putting in place mitigations.
- To keep out the pests, you have to be addressing the pathways by which they enter.
- Feds have smuggling, interdiction & trade. They will find what's going on and look at the pathway to enable us to follow up.

This list can be a detailed species list AND a shorter list by major threat group (e.g. ants, birds, Melastomes, etc). It will be used to assess success in preventing new problematic species from getting established in the islands. It can also be used as a communications tool (e.g. Hawaii's Least Wanted).

Key Actions

1. HDOA, HISC, and other partners collaborate on generating a **non-regulatory Hawaii Prevention Priority List** to guide prevention and rapid response.
2. Assess **capacity to detect, mitigate and/or treat each species on the HI Prevention Priority List**, including procedures, training, and technology.
 - a. Identify pathways and feasible mitigations for the HI Prevention Priority List species.
3. Conduct **risk analyses and risk assessments** along known & high potential pathways for invasive species introductions.
4. Address **regulatory gaps** for terrestrial invasive species in Hawai'i to address high-risk pathways and other modes of introduction.
5. Continue to support adoption and implementation of **Myrtaceae import restriction** (domestic and foreign) and apply this approach for the protection of additional key native plant species.

³ HDOA (Kevin Hoffman) is compiling a new **Hawai'i Prevention Priority List** of highest risk species not yet known in the state (terrestrial & aquatic) in coordination with other agencies. This informational, non-regulatory list will guide this Strategy.

6. Fund and **fill key positions in HIBP** to enforce existing and new Administrative Rules & Hawai'i Revised Statutes. *[link to Obj 6]*
7. Support HDOT to make the **Māmalu Poepoe airports pilot project** permanent to enhance monitoring and detection of the Federal Aviation Administration approved list of invasive species (disease spreading mosquitos, fire ants, coconut rhinoceros beetle, and Africanized bees). *[link to Obj 2]*
8. Identify and provide **Best Management Practices** (BMPs) for reducing pest risk at critical control points in systems, such as airports, harbors, and procurement contracts.
9. Strengthen **early detection and rapid response capacity** on each island for regulatory agencies and partnership projects, including mobilizing species-specific teams for high-risk terrestrial incursions.
10. Support HDOA in implementing **transitional inspection facilities** and opportunities to inspect other high-risk commodities.
11. Support HDOA to promote and achieve **clean nursery operations** (e.g., treatment requirements, incentives). *[link to Obj 2 & 7]*
12. Maintain and strengthen Pest Risk Committee and other mechanisms for **federal and state agencies to share data, effective practices, lessons learned** and informal observations.
13. Track and **report annually on status of HI Priority Prevention List species** (e.g. not established, prevented at source; detected & intercepted, established). *[link to Obj 2]*

HIBP Linkages: *This Strategy addresses over 30 HIBP tasks for Pre-border Policy (PrePol), Process (PrePro), and Technology, Infrastructure, and Funding (PreTifs). Some of the highlights include addressing high-risk packaging material, expanding inspections to include non-ag commodities, developing pre-screening requirements for horticultural and agricultural products, conducting risk analysis, enhancing early detection with working groups, action plans, and utilizing detector dogs and other technologies, as well as creating ballast and hull fouling regulations and treatments for Hawai'i. See detailed list of all linkages in Appendix X.*

STRATEGY 2: PREVENTING INTER/INTRA-ISLAND MOVEMENT OF TERRESTRIAL INVASIVE SPECIES

Working Draft: 5 November 2019

Strategy Leads* & Team: HDOA*, OISC/ISCs, FWS, HDOT-MP

2025 Objective 2:

Keep Hawaii's top inter/intra-island invasive species threats⁴ from spreading within Hawai'i (between and across islands), by identifying and addressing high-risk sources, pathways and major modes of introduction and spread, and by improving early detection/rapid response for new populations.

Key Actions

1. HDOA, HISC and other partners collaborate on generating a **Hawai'i Limited Distribution Priority List** of high-impact localized invasive species to address inter-island and intra-island movement.
2. Include an assessment of the HI Limited Distribution Priority List in supporting HDOA in developing and executing a **clean nursery program** to reduce inter/intra-island of invasive species. *[link to Obj 1]*
3. Conduct **risk analyses and assessments** to identify and prioritize pest pathways and high-risk gaps for movement of terrestrial invasive species within Hawaii.
4. Identify and implement **cost-effective tools, technologies, and methods** that improve management of priority pathways by state agencies and private companies.
5. Clarify HDOA authority and determine capacity needed to assess, inspect **high-risk non-agricultural commodities and cargo** and develop voluntary initiatives to mitigate risk.
6. Work with ISCs to increase **County** support for prevention and rapid response of invasive species not known to occur on their island(s). *[link to Objective 6]*
7. Support **HDOT** implementation and 2022 update of the Statewide Noxious and Invasive Pest Program Strategic Plan in cooperation with public and private stakeholders.
8. Create standardized contract language for BMPs to minimize the spread of invasive species and incorporate into contracts by state agencies and other partners.
9. Promote the use of the State Pest Reporting System. *[link to Objective 7]*
10. Track and **report annually on status of species on the HI Limited Distribution Priority List** (e.g. prevented at source, detected & removed, established, other).

HIBP Linkages: *This Strategy addresses over 10 HIBP tasks for Border & Post-Border Policy (Pol), Process (Pro), and Technology, Infrastructure, and Funding (Tifs). Some of the highlights include increasing HDOA staff at PPC, implementing an electronic manifesting system for interisland transport of commodities, minimizing the movement of pest and pest-pathogens interisland with rule changes, utilizing detector dogs to intercept high-risk*

⁴ HDOA is also compiling a non-regulatory **Hawai'i Limited Distribution List** of high-impact incipient or localized invasive species in coordination with other agencies to guide actions preventing inter-island and intra-island spread.

species, expanding interisland inspections to include non-ag commodities, and promoting the statewide pest hotline. See detailed list of all linkages in Appendix X.

DRAFT

STRATEGY 3: AQUATIC BIOSECURITY

Working Draft: 5 November 2019

Strategy Leads & Team: DAR*, OISC, NOAA, HDOT, HDOH*

Background: For aquatics, it is important to prevent aquatic non-native species (ANS) from being inadvertently transferred, even if they are not currently known to be invasive. There are more than 350 established ANS in Hawaii's coastal waters, which may proliferate under the right conditions, including potential climate change effects. For example, it is possible that a ANS could be inert within Honolulu Harbor, but if it gets transferred to Nawiliwili Harbor and a hurricane affects the nearby reefs, this ANS could invade the impacted area. Through multiple studies, ballast water and biofouling on both commercial and recreational vessels are identified as the top two vectors of ANS introductions and transfer among islands. Increased vessel traffic (e.g. planned military relocation to Guam) will inevitably increase ANS movement (Figure of Pacific vessel traffic). Fortunately, clean hulls increase fuel efficiency and reduce emissions.

Harbors are significant pathways. HDOT works in partnership with DLNR to manage invasive species risks associated with ballast water and biofouling. While goods are inspected by the U.S. Department of Agriculture to safeguard the State from invasive species, the absence of a State harbor inspection program presents an opportunity to establish partnerships with the maritime industry to better address gaps in the mitigation of invasive threats.

Based on feedback, this Aquatic Biosecurity Strategy reflects the parallel work needed for prevention, EDRR & movement between islands and within individual islands. Currently work focuses on marine biosecurity; action on freshwater invasives may be added in the future.

Useful References:

- Federal ANS Task Force (national authority for aquatics).
- NIWA, the National Institute of Water and Atmospheric Research, for possible development of an aquatic weed risk assessment: <https://www.niwa.co.nz/freshwater-and-estuaries/tools/biosecurity/weed-risk-assessment>

2025 Objective 3:

Prevent the introduction and spread of aquatic non-native species (ANS) into, between, and around the Hawaiian Islands by reducing species movement through ballast water, biofouling, intentional import and release, and other unintentional modes of introduction.

Key Actions

1. Conduct **risk assessments** to identify and prioritize aquatic pest pathways and risks into and within Hawaii.
2. Develop aquatic rapid response plans to address high-risk vessels.
3. Establish a vessel inspection program in State harbors in partnership with the maritime industry, including a framework for the State to **co-regulate commercial vessels** related to ANS as incidental discharges regulated under VIDA.
4. Develop framework and associated rules to manage AIS risks from **non-commercial vessels** (those not exempted and not covered under VIDA).
5. Fund and establish an **aquatic biosecurity team** to perform vessel ballast water and biofouling risk assessments within Hawaii. *[link to Obj 6]*
6. Identify and implement **tools, technologies, and methods** that improve detection and/or management of priority species and pathways. *[link to Obj 1 & 2]*

- a. Continue to support the development and use of tools and techniques, including surveys, to assess and monitor established AIS in areas of high vessel frequency.
7. **Increase awareness of** key private stakeholders of their role and opportunities to help address aquatic invasive species introduction and spread. *[link to Obj 7]*
8. Research and develop a ***list of high-risk aquatic animals*** and prohibit their introduction to HI.
9. Establish a **baseline** for aquatic biosecurity and initial measures for **tracking** effectiveness at preventing introduction and spread of ANS.

HIBP Linkages: *This Strategy addresses over 20 HIBP tasks for Pre-Border, Border & Post-Border Policy (Pol), Process (Pro), and Technology, Infrastructure, and Funding (Tifs). Some of the highlights include adding high-risk AIS to prohibited/restricted lists, creating procedures to managed ballast water and hull fouling, standardizing state and federal language regarding ballast water, increasing DAR's capacity, testing and implementing new technologies for in-water cleaning for hulls of ships, and conducting risk assessments. See detailed list of all linkages in Appendix X.*

Strategy 4: LARGE-SCALE CONTROL of HIGH-IMPACT INVASIVE SPECIES

Working Draft: 5 November 2019

Strategy Leads* & Team: DLNR*, HDOA*

2025 Objective 4:

Implement at least one new large-scale control or eradication project for an invasive species population with highly significant ecological, economic, and/or health impacts in Hawai'i, and build momentum for action on other widespread high-impact species (e.g. mosquitoes, rats, marine algae).

NOTES:

- Use “Large-scale” (not landscape scale)
- Use “Control or eradication” (not “control towards eradication”)
- Intent of this strategy is to broaden the scale of impact using methods that are not considered “classical biocontrol” (i.e., using proven methods at a larger scale).
- Species and location selection should include climate (e.g. in anchialine pools subject to flooding by sea level rise).

Key Actions

1. Identify and **prioritize at least five established invasive species** (aquatic or terrestrial vertebrates, invertebrates or plants) whose populations have highly significant ecological, economic and/or health impacts and large-scale projects could be implemented in the next 10 years (e.g. mosquitoes, rodents, marine algae).
2. Research and identify **tools, technologies, and methods** that are proven effective (or have high potential) for large-scale control or eradication of at least three priority invasive species by 2021.
3. Select **first pilot/demonstration large-scale eradication project** and identify political, regulatory, funding, social, cultural, and other barriers/opportunities to implementation with possible ways to reduce barriers and leverage opportunities.
4. Develop and implement a **model community engagement plan** (BMP) for the first large scale control or eradication project(s) and make it available for future large-scale projects. *[link to Obj 7]*
4. Work with partners to **implement** at least one large-scale project and initiate planning for at least one more.
5. Ensure the **large-scale impact is sustained**, including regular monitoring and follow-up. *[link to Obj 6]*
6. Assist lead agencies to **evaluate** the large-scale project(s), including model community engagement, evaluation and follow-through.

HIBP Linkages: This Strategy addresses some critical HIBP tasks for Post-Border & Public Awareness Policy (Pol), Process (Pro), and Technology, Infrastructure, and Funding (Tifs). Some of the highlights include funding new technologies for enhanced detection and control of priority species and building community support for large-scale control projects. See detailed list of all linkages in Appendix X.

Strategy 5: PACIFIC REGIONAL BIOCONTROL & CONTAINMENT CENTER

Working Draft: 5 November 2019

Strategy Leads* & Team: HDOA*, USFS*, DLNR*

2025 Objective 5:

Increase the capacity and scope of biocontrol work in Hawai'i by creating a Pacific Regional Biocontrol & Containment Center with core staff, planning for a new containment facility and base funding in place. Release biocontrol agents for at least three top priority established invasive species (invertebrates, weeds, and/or pathogens) and annually assess, prioritize, and advance critical biocontrol projects.

NOTES: This Strategy refers to classical biocontrol methods, (i.e., finding a specific predator and testing it across native taxa). We will build this 21st century facility while continuing to demonstrate the value/effectiveness of biocontrol as a tool for managing widespread, established priority invasives that are big problems for Hawaii's community health, economy and/or ecosystems. (More detail in HIBP)

Key Actions

1. Build a **broad coalition** to support the building and long-term maintenance of the Pacific Regional Biocontrol & Containment Center.
2. Develop a **feasibility assessment** for raising capacity for a new Pacific Regional Biocontrol and Containment Center for Congressional delegates and agency use.
3. Identify and secure lines of potential **funding, site and designs for a climate-resilient containment facility** to house the Pacific Regional Biocontrol Center that can test potential classic biocontrol organisms across the different taxonomic groups. *[link to Obj 6]*
4. Explore feasibility of an **emergency containment facility on Hawaii Island**.
5. Maintain and develop new **regional and international partnerships** to strengthen regional biocontrol capacity and success of exploration missions.
6. Secure funding and increase **biocontrol staff** for both state and federal biocontrol projects. *[link to Obj 6]*
7. Test at least eight **biocontrol agents**, and release five by 2025.
8. Evaluate and harmonize the **biocontrol regulatory process** for greater efficiency.
9. Build and maintain **public support** for 21st century biocontrol practices. *[link to Obj 7]*
10. Measure **effectiveness of released biocontrol agents** over time (>5 years) and track the number of biocontrol agents in pipeline and released annually.

HIBP Linkages: *This Strategy addresses some critical HIBP tasks for Post-Border Policy (Pol), Process (Pro), and Technology, Infrastructure, and Funding (Tifs). Some of the highlights include securing funding for a new state-of-the-art biocontrol/containment facility, increasing the number of biocontrol scientists and support staff and increasing the yearly operating budget. See detailed list of all linkages in Appendix X.*

STRATEGY 6: INCREASED & DIVERSIFIED FUNDING for INVASIVE SPECIES PRIORITIES

Working Draft: 5 November 2019

Strategy Leads* & Team: TNC*, HISC*, MISC, DAR

2025 Objective 6:

Increase & diversify funding for invasive species priorities to provide at least \$100M annually through county, state, federal, regional, and private sources, including \$90M for operational and personnel requirements and \$10M for essential facilities.

NOTE: This Strategy includes state, federal, private and other priority actions. HIBP priorities form the foundation for these funding requests. However, managing invasive species is a highly dynamic process. Funding for priority actions in this Joint Strategy or agreed by the CGAPS & HISC Networks can also be “counted”, even if they are not specified in the HIBP. To ensure cost-effective investments, this Strategy calls for a clear, outcome-oriented programmatic/CIP case to support any monetary ask. The \$90M annual target is based on 1) the HIBP annual cost projections and 2) Legislative Reference Bureau estimate of \$57M/year in 2015 invasive species expenditures (including state and other sources)⁵. An additional \$10M in CIP funding would support initial work on essential facilities – biocontrol, inspection, biocontainment (following HDOA pilot program model).

Key Actions

1. Work with a diverse group of advocates to increase **State general funds** to DLNR, HDOA, UH, HDOH and HDOT for implementing HIBP actions (e.g. staff, electronic databases, adopting new technologies).
2. Secure additional **HISC project funding** to support specific critical new initiatives in the HIBP and 2025 Strategy, including risk assessments.
3. Secure a funding mechanism (public and/or private) to provide **at least \$1 million annually for emergency response** to new terrestrial or aquatic incursions.
4. Increase annual support from **all four counties** to ensure stable and effective Invasive Species Committees (ISCs), ROD response and other priority invasive projects.
5. Double **private discretionary funding** to support CGAPS’ ongoing and new invasive species initiatives. (est. \$700K per year)
6. Build a relationship with **visitor industry** decision-makers and develop mutually beneficial projects.
7. Investigate existing and new lines of **federal funding** for invasive species work.
8. Identify invasive species management as a priority use for **DLNR’s forest carbon offset program** and secure annual commitment in addition to annual appropriations to HISC funds and WPPG.
9. Secure **capital funding** for essential facilities. *[link to Obj 5]*
10. Repeat **funding analysis** conducted by LRB in 2015 to assess progress.

⁵ The LRB baseline is NOT comprehensive (e.g. Farm Bill grants are not included). It’s OK if the baseline and the goal only include major income sources that are easy to track.

HIBP Linkages: *This Strategy addresses some critical HIBP tasks for Border, Post-Border & Public Awareness Policy (Pol), Process (Pro), and Technology, Infrastructure, and Funding (Tifs). Some of the highlights include developing an “emergency response task force”, allocating money to an emergency response fund for new pest incursions, and securing funding for a new biocontrol/containment facility. See detailed list of all linkages in Appendix X.*

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STRATEGY 7: ENGAGED & SUPPORTIVE COMMUNITY

Working Draft: 5 November 2019

Strategy Leads* & Team: CGAPS*, DAR

2025 Objective 7:

Raise or maintain strong awareness and support (70%+ in polls) for key invasive species issues and expand, diversify and mobilize a network of allies to achieve 2025 Joint Strategies.

Notes: Work on this strategy will seek to support implementation of all the Joint 2025 Strategies. In particular, teams working on terrestrial and aquatic invasives at any level (prevention, EDRR, large-scale control, biocontrol or funding) can use this strategy as guidance on how to use communications to effectively support their outcomes. Ideally, there will be opportunities to work across agencies, ecosystems and other “silos” to advance this critical work.

Key Actions

1. Provide **quality, timely, accessible information** to community, decision-makers and allies.
2. Develop **resonant/targeted messages** (related to the core values of the audiences) and use effective methods/channels to help key audiences:
 - **value** Hawaii’s natural environment, agriculture, economy, and the health, lifestyle, and culture of its people
 - **understand the threats** posed by invasive species and related compounding issues, such as climate change, and
 - **respond to a call to action** to address these threats.
3. Increase public awareness at ports of entry, specifically airports. *[link to Objectives 1 & 2]*
4. Identify and engage **influencers in different sectors**, industries, and groups who can champion invasive species priorities.
5. Increase CGAPS & partner understanding and use of social science and raise capacity for the effective use of **social science concepts and social marketing** for invasive species messages.
6. Increase **political will** to support policy and funding needs.
7. **Coordinate statewide or regional strategies and messages** across lead agencies and partners; provide communications/coordination support for agencies and partners for key issues.
8. **Evaluate** effectiveness of communications periodically and use these lessons to improve future initiatives.

HIBP Linkages: *This Strategy addresses some critical HIBP tasks for Public Awareness Policy (Pol), Process (Pro), and Technology, Infrastructure, and Funding (Tifs). Some of the highlights include coordinating shared messaging with partners, utilizing existing and new media outlets to disseminate information, providing regular updates to lawmakers on successes. See detailed list of all linkages in Appendix X.*

HISC STRATEGY 8: INCREASE HISC ENGAGEMENT ACROSS SECTORS

Working Draft: 5 November 2019

Strategy Leads & Team: HISC*, Council Members*

2025 Objective 8:

Improve HISC's engagement and support across key sectors (agriculture, conservation, economy, health, tourism, transportation, and culture/way of life) and systems (terrestrial and aquatic), as measured by engagement in HISC activities and effective use of HISC tools (e.g., funding, policy resolutions, testimony).

Key Actions

1. Formalize and establish **liaison roles within each agency** to identify priorities that HISC can actively support (e.g., policies, resolutions, strategies, projects, research questions, communications, joint workday opportunities).
2. Improve engagement and interaction with **HISC Council members**.
3. Submit **HISC testimony** on bills that are important invasive species priorities, as requested by Council members. *(Historically, HISC regularly testified on bills within DLNR's scope. By 2025, the staff hopes to work more closely with all its member agencies on legislative priorities.)*
4. Review and reconvene **HISC Working Groups** to reflect 2025 strategies and address balance amongst sectors.
5. Increase participation in **Hawaii Invasive Species Awareness Month** across all sectors.
6. Develop and use a **tracking system to assess balance across sectors** for HISC tools (e.g., quantifying the number of resolutions, testimonies, funded projects relevant to each sector).

No HIBP Linkages

CGAPS STRATEGY 9: STRENGTHEN & EXPAND CGAPS NETWORK

Working Draft: 5 November 2019

Strategy Leads* & Team: CGAPS*, Steering Committee Members

2025 Objective 9:

Include representatives across the diverse invasive species community of practice in the CGAPS Network and actively engage all partners needed to implement this 2025 Joint Strategy statewide.

Notes: This objective is founded on the goal to maintain and deepen CGAPS' recognition and reputation as a valuable source of information, respected catalyst for action on critical gaps in invasive species management, and convener of the invasive species community of practice. The CGAPS Network includes...[add definition]. A list of active CGAPS members in 2019 is in Appendix X.

Key Actions

1. Continue to engage and support CGAPS partners by assessing and improving current **network communications**, including general meetings, listserve, website, information sharing and other Network activities.
2. Provide and socialize a simple description of **what CGAPS does** and how it relates to HISC with all CGAPS Network participants, especially Steering Committee members.
3. Challenge the **CGAPS Steering Committee** to actively lead, implement and/or support elements of the 2025 Joint Strategies (Objectives and/or Key Actions) most relevant to their positions and agencies.
4. Identify and **recruit additional public and private sector partners** needed to implement the 2025 Joint Strategies, using various meeting formats, venues and other engagement mechanisms. Potential additions identified by partners include:
 - HTA & visitor industry (key partners for Prevention & Movement)
 - Nursery, horticulture & food industries (key partners for Prevention & Movement)
 - NOAA & USCG (key partners for Aquatic Biosecurity)
 - Department of Defense (strengthen partnership)
 - Governor's Cabinet (strengthen partnership)
 - Watershed Partnerships & private landowners (strengthen partnership, especially for Movement & Large-Scale Management)
 - County governments (key partners for Movement, Aquatics & Large-Scale Management)
 - Micronesia & Pacific islands (key partners for Prevention)
5. Track member participation and periodically gather input on their satisfaction with the CGAPS Network and opportunities for adaptive management.

No HIBP Linkages

CGAPS STRATEGY 10: STABLE CGAPS FUNDING & STAFFING

Working Draft: 5 November 2019

Strategy Leads* & Team: CGAPS*, Steering Committee Members

2025 Objective 10:

Secure committed consistent annual contributions from CGAPS partners to provide core support for two staff and core operations (est \$250K per year, not including project funds).

Key Actions

1. Review CGAPS funding needs with **Steering Committee** and request/secure annual contribution commitments from all SC members.
2. Work with the CGAPS Steering Committee to **assess the potential core funding mechanisms**, contributors, and amounts to ensure CGAPS financial security and continuity after 2021 (when HMLF 10-year commitment ends).
3. Secure additional annual commitments from **active CGAPS partners** outside the Steering Committee.
4. Present CGAPS “value proposition” and funding needs to the **Environmental Funders Group** to seek core funding and/or project support. *(discuss with HMLF)*
5. Explore feasibility of **permanent funding for one CGAPS position** in a partner institution’s budget (e.g. as a faculty specialist at UH).
6. Provide **annual CGAPS financial report** to Steering Committee, especially tracking core support from partners.

No HIBP Linkages