

Hawaii's Interagency Biosecurity Strategy

Protecting What Matters in a Global Invasion Hotspot



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Hawaii Invasive Species Council





Google earth



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
US Dept of State Geographer
© 2013 Google
Image Landsat



Polynesian Introduction

Approx. 1500 y.a.

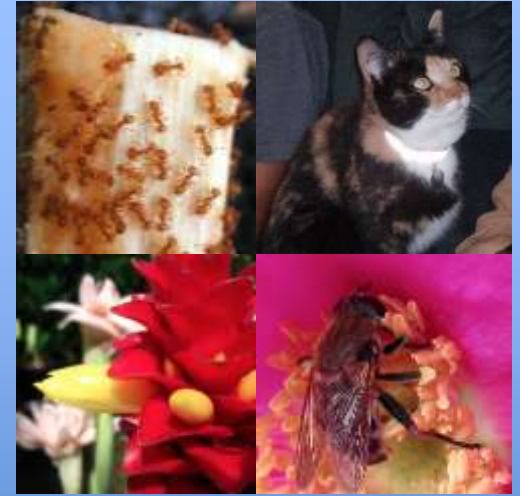
Approx. 34 spp.



Western Contact

Approx. 220 y.a.

Approx. 500 spp.



Today

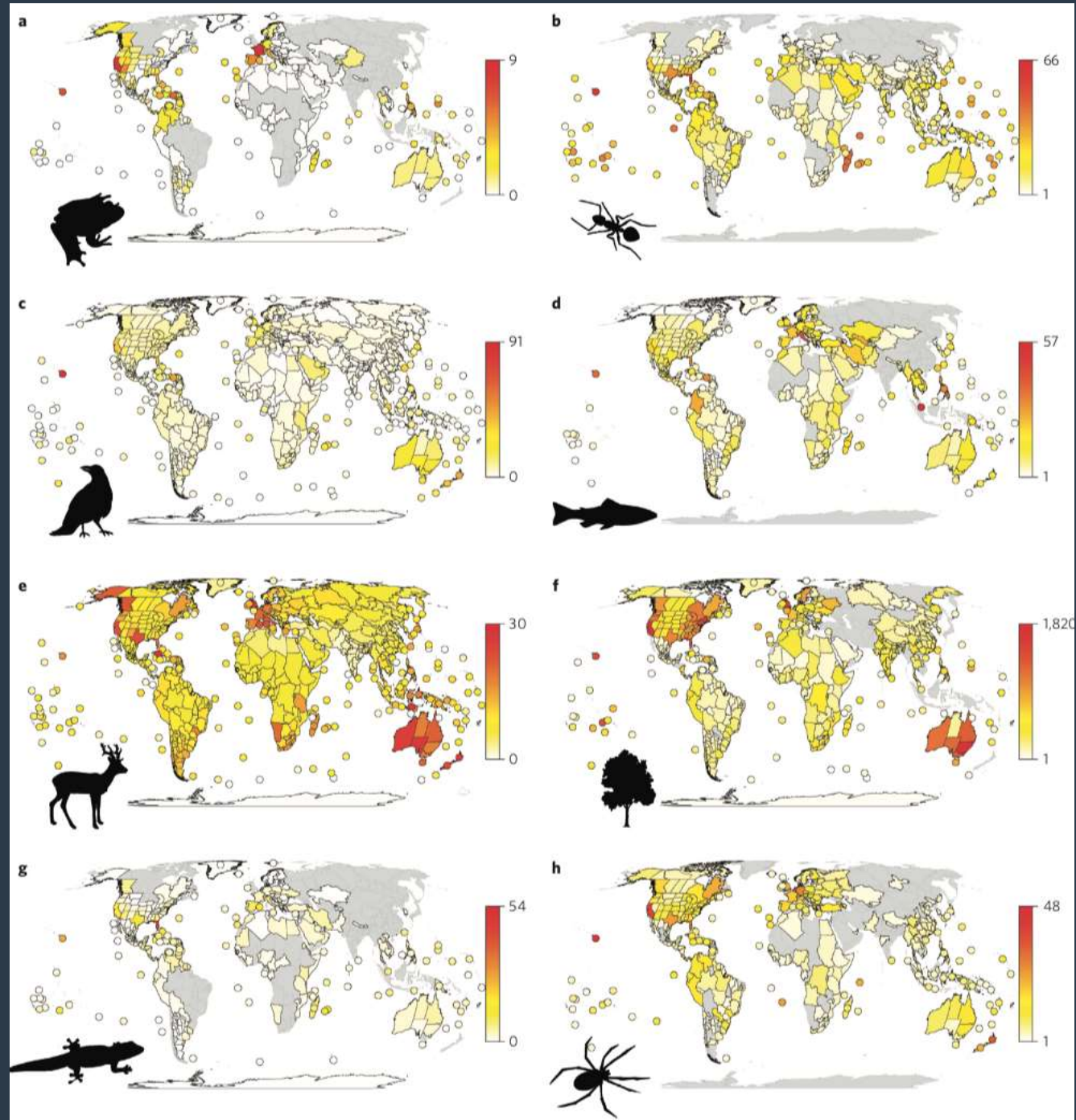
Hawaii as a global
tourism & trade hub

10000 spp?



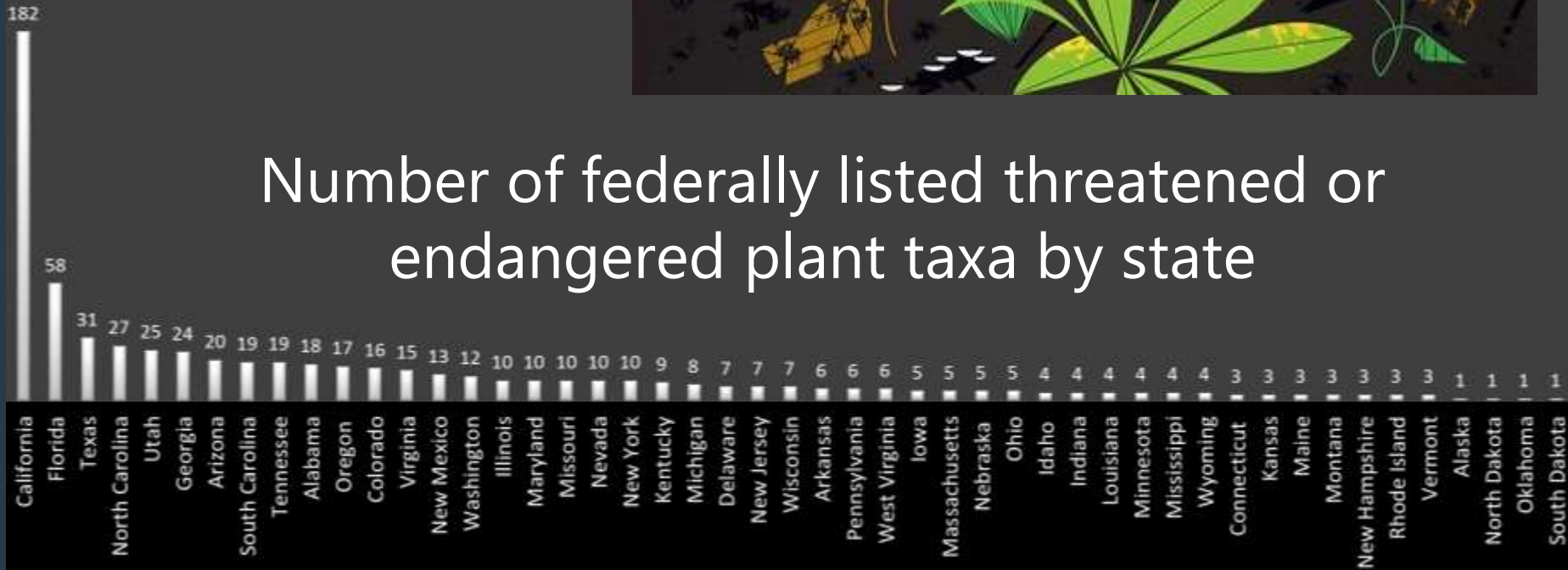
Global hotspots and correlates of alien species richness across taxonomic groups

Dawson et al. 2017,
Ecology & Evolution,
1(186)





Number of federally listed threatened or endangered plant taxa by state

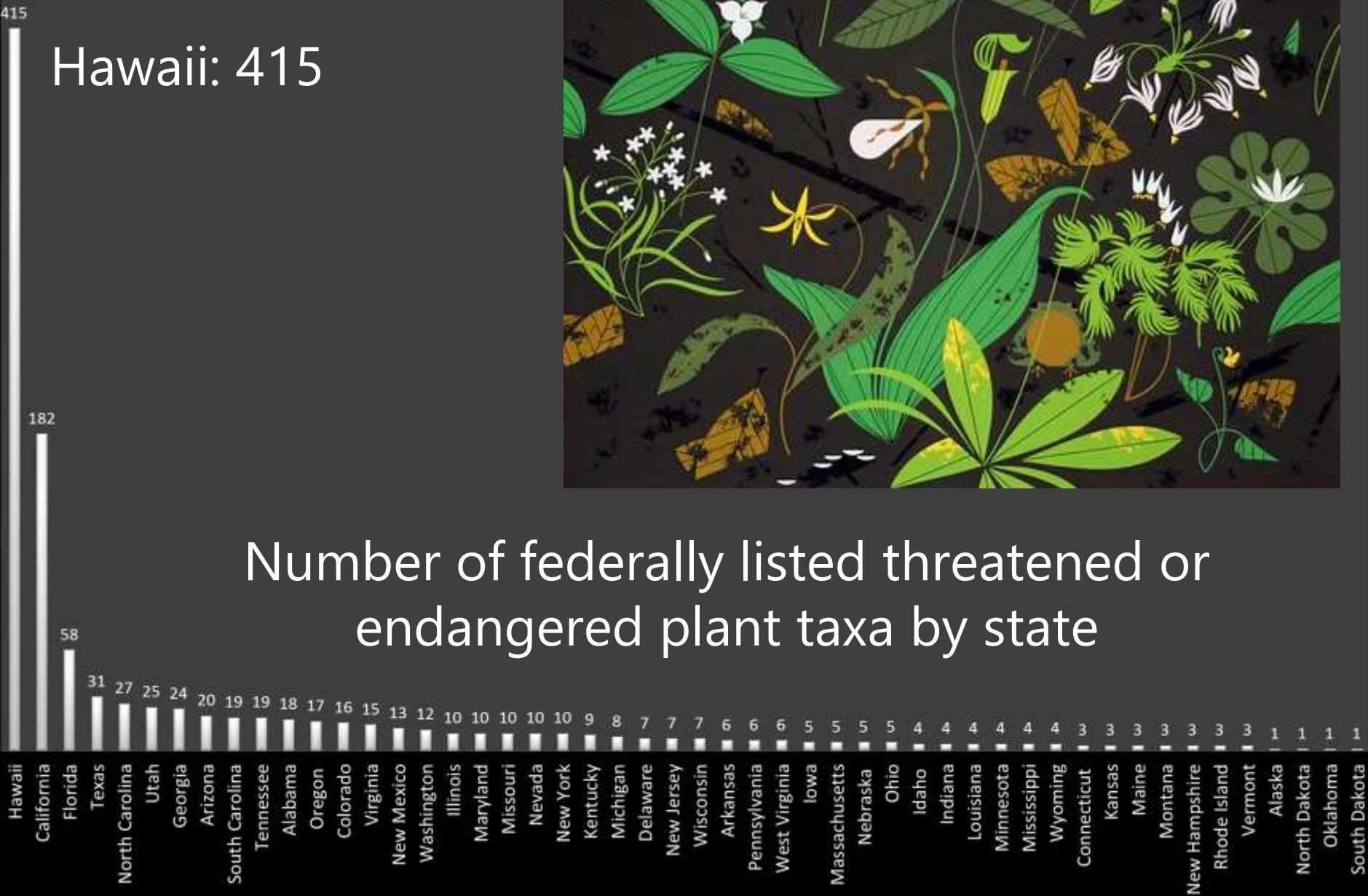


*data compiled from the US Fish and Wildlife Service website on 7/17/2014

Hawaii: 415

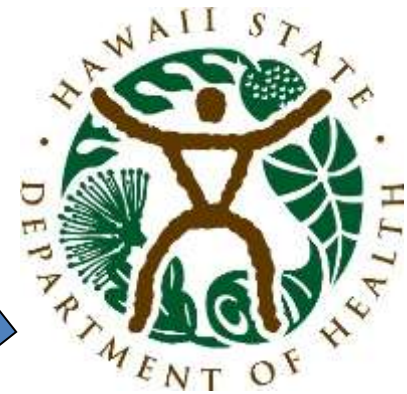


Number of federally listed threatened or endangered plant taxa by state



*data compiled from the US Fish and Wildlife Service website on 7/17/2014

Hawaii Invasive Species Council



HISC COUNCIL

Cabinet-level direction on invasive species prevention, control, research and outreach

DLNR

Protection & management of natural resources

HDOA

Document, prevent, & control agricultural pests.

DOH

Human health, disease vector management, environmental quality

DBEDT

State planning, economic impacts on tourism & other industries

DOT

Manages airports, harbors & highways

UH

Research and education related to invasive species

HISC STAFF

HISC Support Program Administration: DLNR DOFAW Invasive Species Coordinator
Other HISC Staff: *Coordination, planning, and other duties required to carry out Council actions*

FUNDED PROJECTS

Projects that fill gaps between regular agency programs
e.g.: the ISCs, Hawaii Ant Lab, ad-hoc multi-agency responses

Projects that advance our collective knowledge about invasives
e.g.: Research on new ant baits, biological control development

Key Partnerships

Invasive Species Committees



Hawai'i Ant Lab

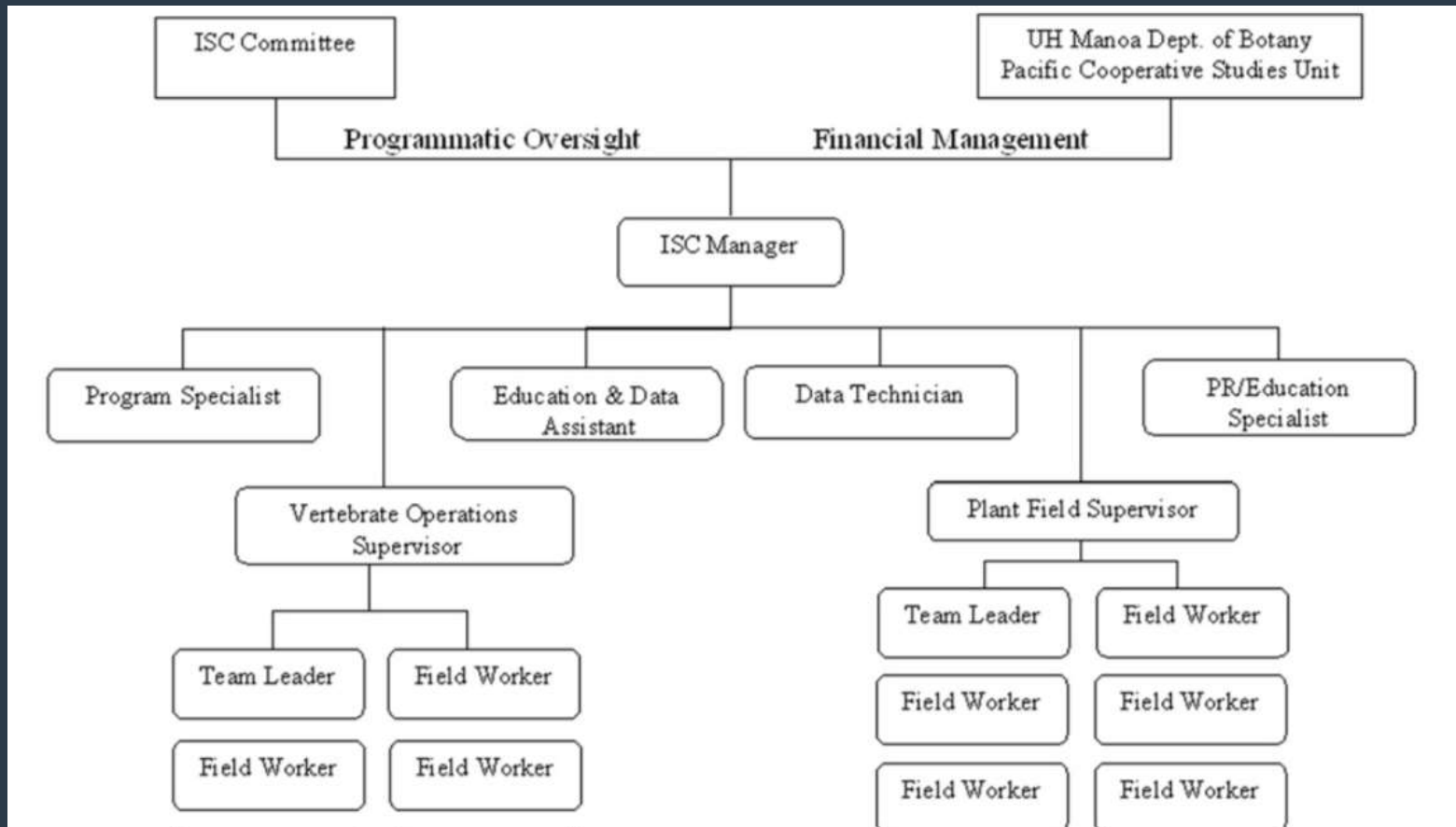


CGAPS



Key Partnerships

- Interagency decision making committee focused on filling a specific gap
- Project is administered by UH Pacific Cooperative Studies Unit
- Dedicated staff through Research Corporation of the University of Hawaii
- Soft funded by HISC and a mix of other state, fed, county, private funds



Current Threats & Response

Little Fire Ant (*Wasmannia auropunctata*)



Current Threats & Response

Little Fire Ant (*Wasmannia auropunctata*)

- Distribution



Current Threats & Response

Little Fire Ant (*Wasmannia auropunctata*)

- Impacts

\$174,000,000/yr in damages & management costs
Motoki et al, 2013



Current Threats & Response

Little Fire Ant (*Wasmannia auropunctata*)

Response

- Hawaii Island: Community training & empowerment
- Maui: Partnership with Maui ISC and HDOA
- Oahu: 2014 Incident Command System led by HDOA
- Kauai: Partnership with HDOA and Kauai ISC
- Statewide outreach by HAL, ISCs, CGAPS



Current Threats & Response

Miconia (*Miconia calvescens*)



Current Threats & Response

Miconia (*Miconia calvescens*)

- Distribution



Current Threats & Response

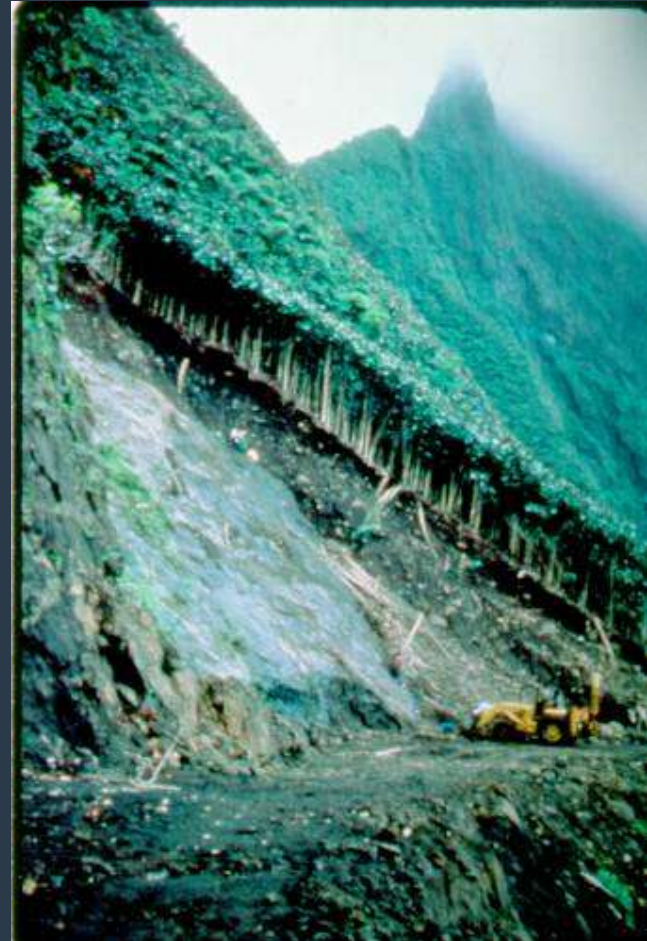
Miconia (*Miconia calvescens*)

Impacts:

- Competition
- Monotypic stands
- Increase in rain drop velocity
- Increase in erosion potential

\$672M/yr in lost water recharge and
bird habitat

(Burnett et al., 2007)



Current Threats & Response

Miconia (*Miconia calvescens*)



Response:

- Invasive Species Committees: ground and aerial detection & control
- Dr. James Leary, UH: Herbicide Ballistic Technology
- Drs. Tracy Johnson and Ken Puliafico, USFS: biological control



Hawaii
Tribune Herald

HOME NEWS SPORTS COMMENTARY OBITUARIES CLASSIFIEDS JOBS HOMES AUTOS E-EDITION

Miconia wins: Experts concede Hawaii Island has lost the war against invasive plant

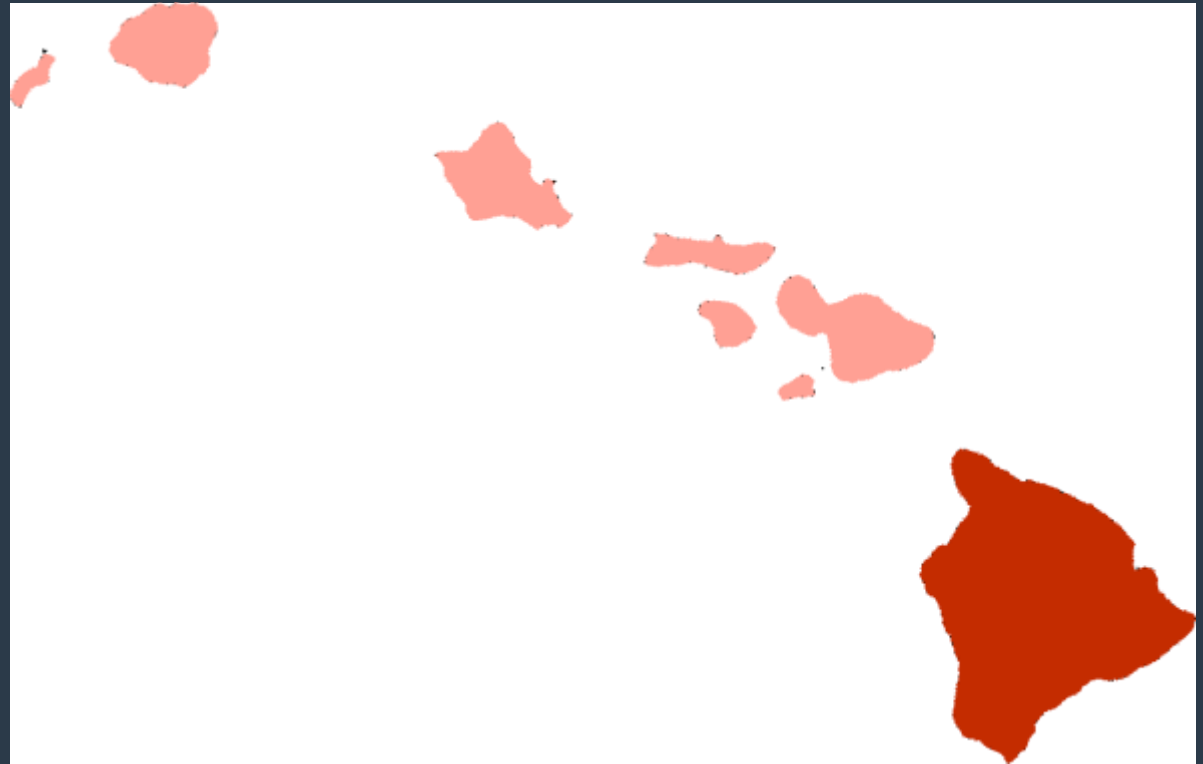
Published May 1, 2017 - 12:06am



Current Threats & Response

Mosquitoes (*Aedes spp.*, *Culex quinquefasciatus*)

- Distribution



Current Threats & Response

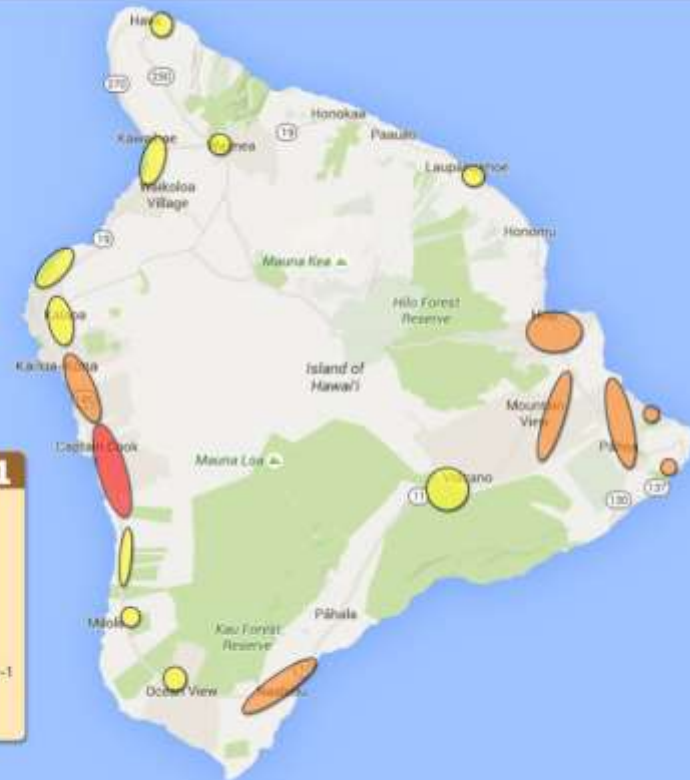
Mosquitoes (*Aedes spp.*, *Culex quinquefasciatus*)

- Impacts



Potential Areas of Infection by Mosquito for Confirmed Dengue Fever Cases

As of November 25, 2015
(HDOH preliminary data - subject to change pending new information)



Map data ©Google

Risk level for potential dengue infection*: High Risk Moderate Risk Some Risk

Current Threats & Response

Mosquitoes (*Aedes spp.*,
Culex quinquefasciatus)

Response:

- Restoration of Dept of Health's Vector Control Branch
- Avian Malaria Working Group
- State Mosquito Working Group
- HISC resolution supporting development of landscape-scale control techniques



The Hawaiian Islands have long been used as a testing ground by the military and the agrochemical and biotechnology industries. Today, the latest and most extreme edition of this technology is being proposed for our sensitive and remote island chain including the testing of the gene drive mosquito and the engineering of 'awa and 'ohi'a trees.

Through presentations from leading experts and thought-provoking exercises, we will discuss the challenges these new genetic engineering proposals pose to the Islands' biodiversity and indigenous Hawaiian cultural practices and sovereignty.

Should we allow our fragile ecosystem to be used for testing unproven, genetic engineering technologies or should we explore how we can develop holistic strategies and responses to environmental crisis built upon indigenous knowledge? Hear from experts and join the conversation!

Complimentary pupus and drinks will be served at the event.

Current Threats & Response

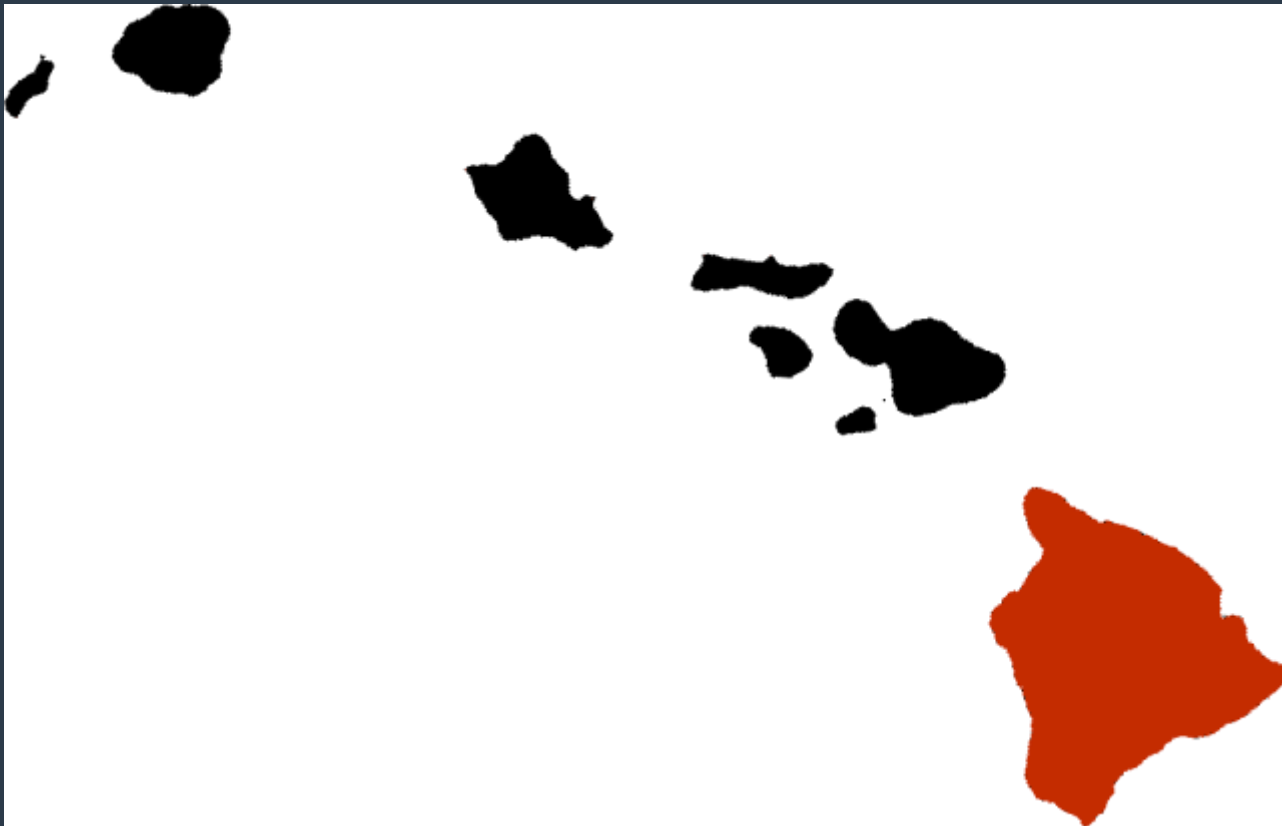
Rapid Ohia Death (*Ceratocystis spp*)



Current Threats & Response

Rapid Ohia Death (*Ceratocystis spp*)

- Distribution



Current Threats & Response

Rapid Ohia Death (*Ceratocystis spp*)

- Impacts



Current Threats & Response

Rapid Ohia Death (*Ceratocystis spp*)

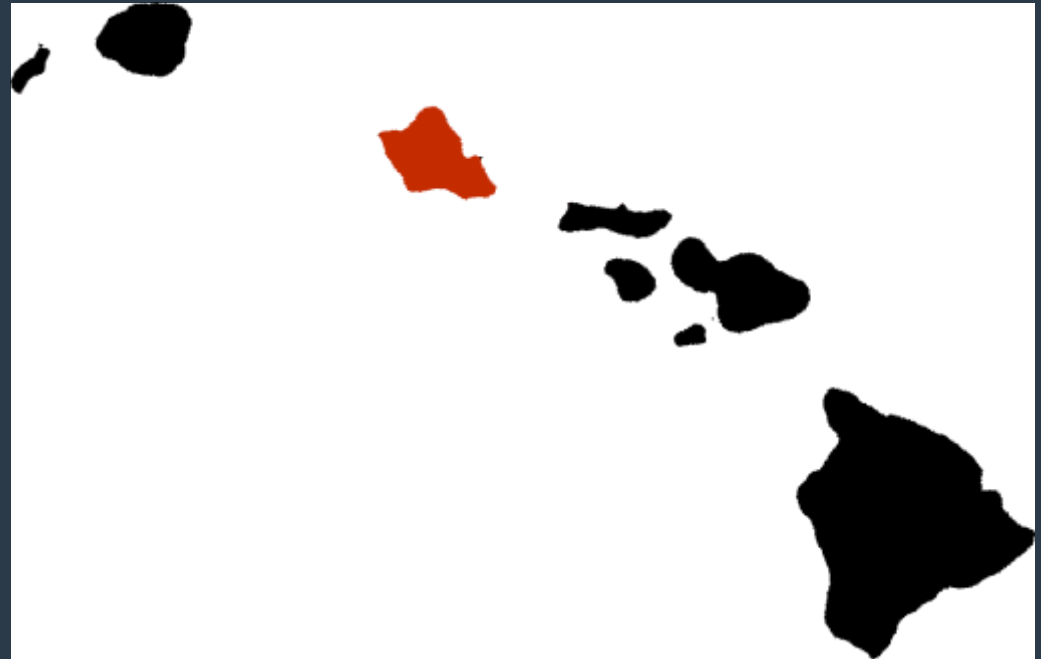
Response:

- HDOA quarantine on ohia products
- Multi-agency advisory group formed to direct management (RODAG)
- RODAG recognized by HISC as coordinating body, consulted for funding
- Research directed by USDA ARS, USFS, and UH
- Aerial mapping and ground response by Big Island ISC, Hawaii DLNR, Watershed Partnerships, and others

Current Threats & Response

Coconut Rhinoceros Beetle (*Oryctes rhinoceros*)

- Distribution



Current Threats & Response

Coconut Rhinoceros Beetle (*Oryctes rhinoceros*)

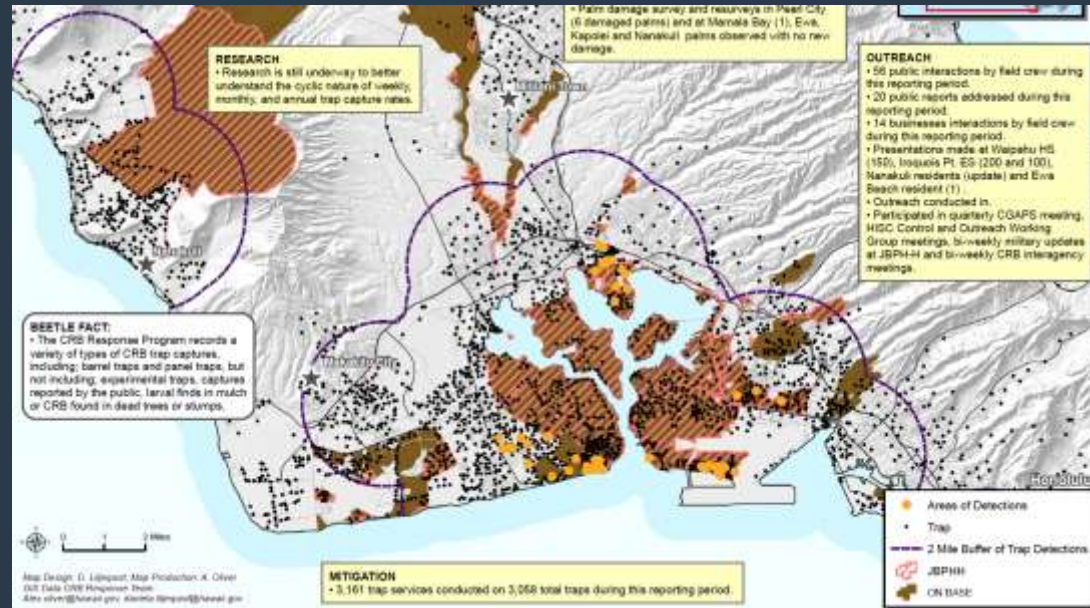
- Impacts



Current Threats & Response

Coconut Rhinoceros Beetle (*Oryctes rhinoceros*)

- Response



What Aren't We Doing?

Known Gaps:

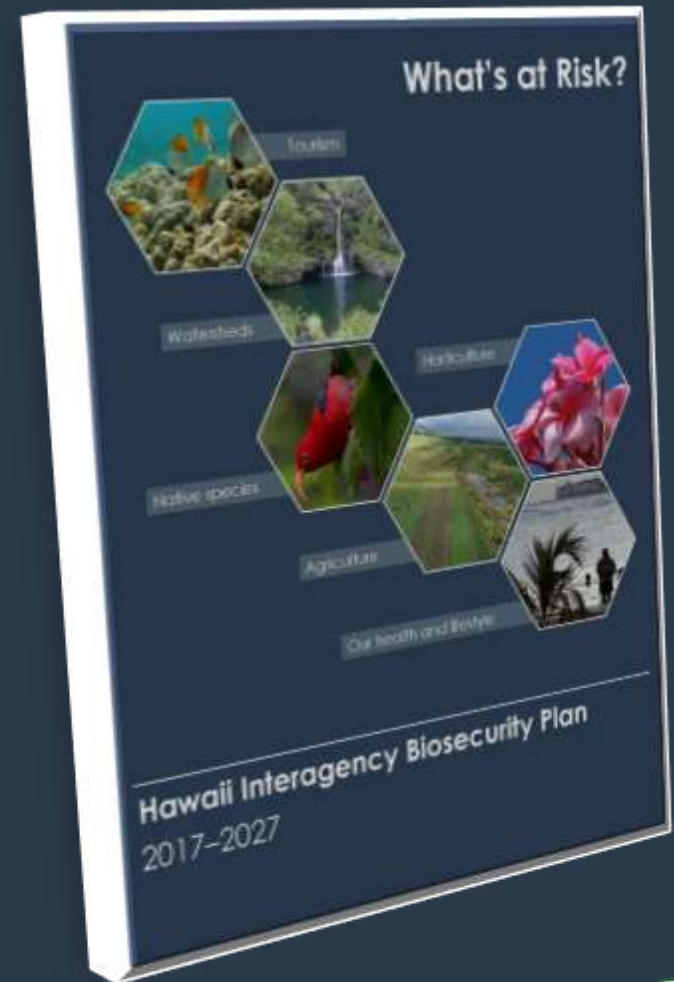
INFORMATIONAL	STAFF	FACILITIES	POLICY	FUNDING
<p>Import database</p> <p>Risk assessments</p>	<p>Fewer staff now than in 2008 at multiple agencies</p>	<p>Inspection facilities</p> <p>Biocontrol lab</p>	<p>Ballast and biofouling</p> <p>Non-ag commodities</p>	<p>Soft funds</p> <p>Shrinking fed grants</p> <p>1.4% of budget to DLNR and HDOA</p>

- Biosecurity *programs, no plan*
- "Piecemeal" legislation



The Hawaii Interagency Biosecurity Plan 2017-2027

- ❖ **Comprehensive in scope**
- ❖ **Multidisciplinary, collaborative approach**
- ❖ **150 action items to address gaps and weakness in our biosecurity system**
- ❖ **A 10-year path forward**



The HIBP: Actions

Task	Implementation Task	Time	Lead Agency	Partnering Org	Budget and Implementation Detail	10 Year Total	FY2018-FY2019	FY2020-FY2021	FY2022-FY2023	FY2024-FY2025	FY2026-FY2027
PreTifs 2.2	Hire three entomologist , two plant pathologists , and one botanist to conduct risk analysis on organisms, commodities, and pathways entering Hawai'i.	2020-2027	HDOA	DLNR UH	Add 6 new positions incrementally as program responsibilities expand. Add 2 new positions in FY2020-2021, add 2 more in FY2022-2023 (4 positions), and add the final 2 positions in FY2024-2025	\$1.98M		\$220k	\$440k	\$660k	\$660k

Biosecurity in 2027

- ❖ Agricultural Loan Program
- ❖ Risk assessments and electronic manifesting
- ❖ Regulation of ballast and biofouling
- ❖ Inspection facilities
- ❖ Doubled inspection staff, for both imports and interisland shipments
- ❖ Field capacity at DLNR & DOH



Biosecurity in 2027

- ❖ Stable funding for the ISCs
- ❖ HDOA biocontrol facility
- ❖ New statewide and local outreach tools, including 643pest.org
- ❖ Hawaii Invasive Species Authority



Hawaii Invasive Species Authority



- HISA would be an external agency with dedicated staff
- New board seats: Cultural Practitioner, Ag Industry, Conservation NGO
- HIBP Responsibility
- Enhanced policy, outreach, and data functions



Costs in Context

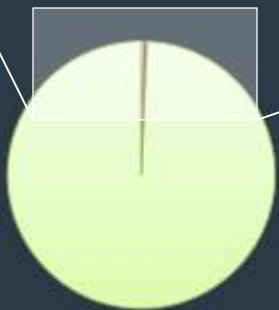


\$378,000,000

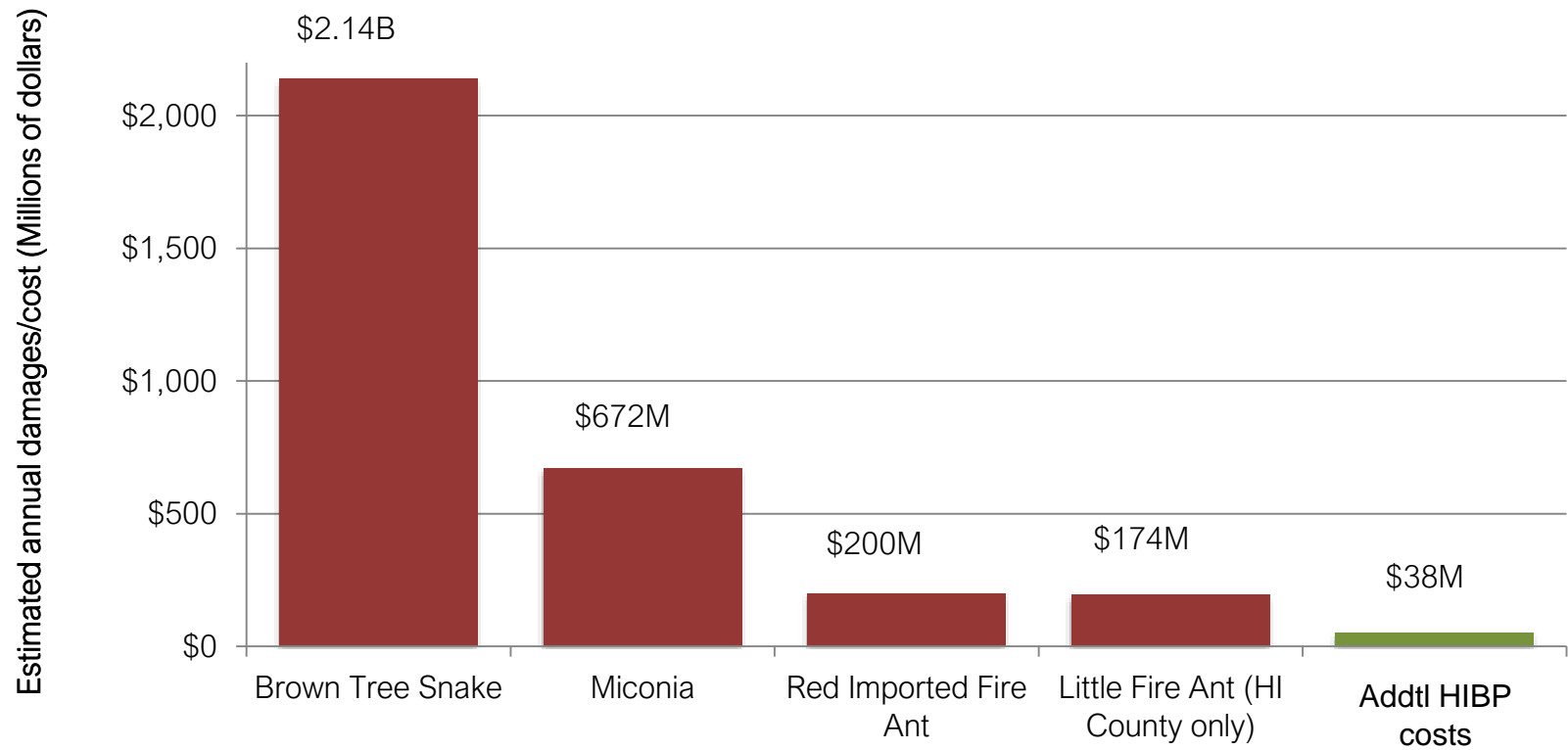
10-year cost of all HIBP actions

0.3%

Additional portion of the state budget required to achieve all actions



Costs in Context



Costs in Context



\$600 million agriculture industry



\$14.9 billion tourism industry



Trillions in Natural Capital

The Koolau Mountain forest watershed alone is estimated at \$14 billion in economic and ecosystem services.



Our way of life in the islands ...



Outcomes

- ❖ Annual legislative package
- ❖ Working Group Directions
- ❖ HIBP tracking by HISC/HISA
- ❖ Governor's dashboard
- ❖ Annual report card
- ❖ Annual Conference Update



Political Support

- ❖ Aloha+ Challenge
- ❖ Sustainable Hawaii Initiative
- ❖ Legislative education (human or otherwise)

Aloha+ CHALLENGE



Questions?



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