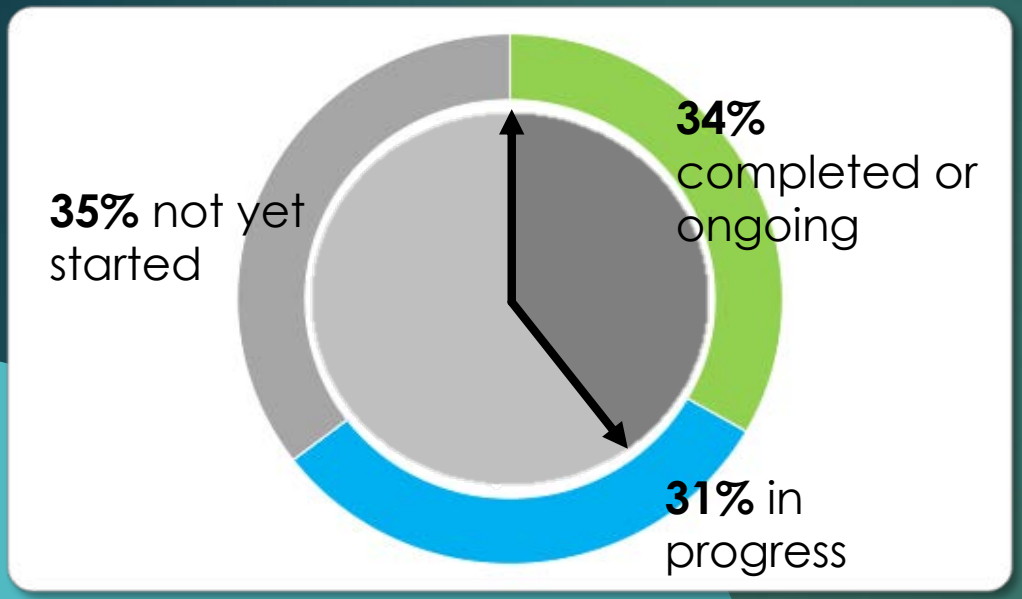
147 actions in **Hawai‘i Interagency Biosecurity Plan (HIBP)** provide a roadmap to a safer, more sustainable Hawai‘i. Implementation is underway and ahead of schedule.



65% of HIBP actions have been initiated, are ongoing in perpetuity, or have been completed.

Completed

- Domestic restriction on imported myrtles that threaten ‘ōhi‘a
- Extension agent positions at UH CTAHR
- Funding for an electronic manifest for HDOA PQ
- HDOA hosting post-incident meetings for rapid response to LFA

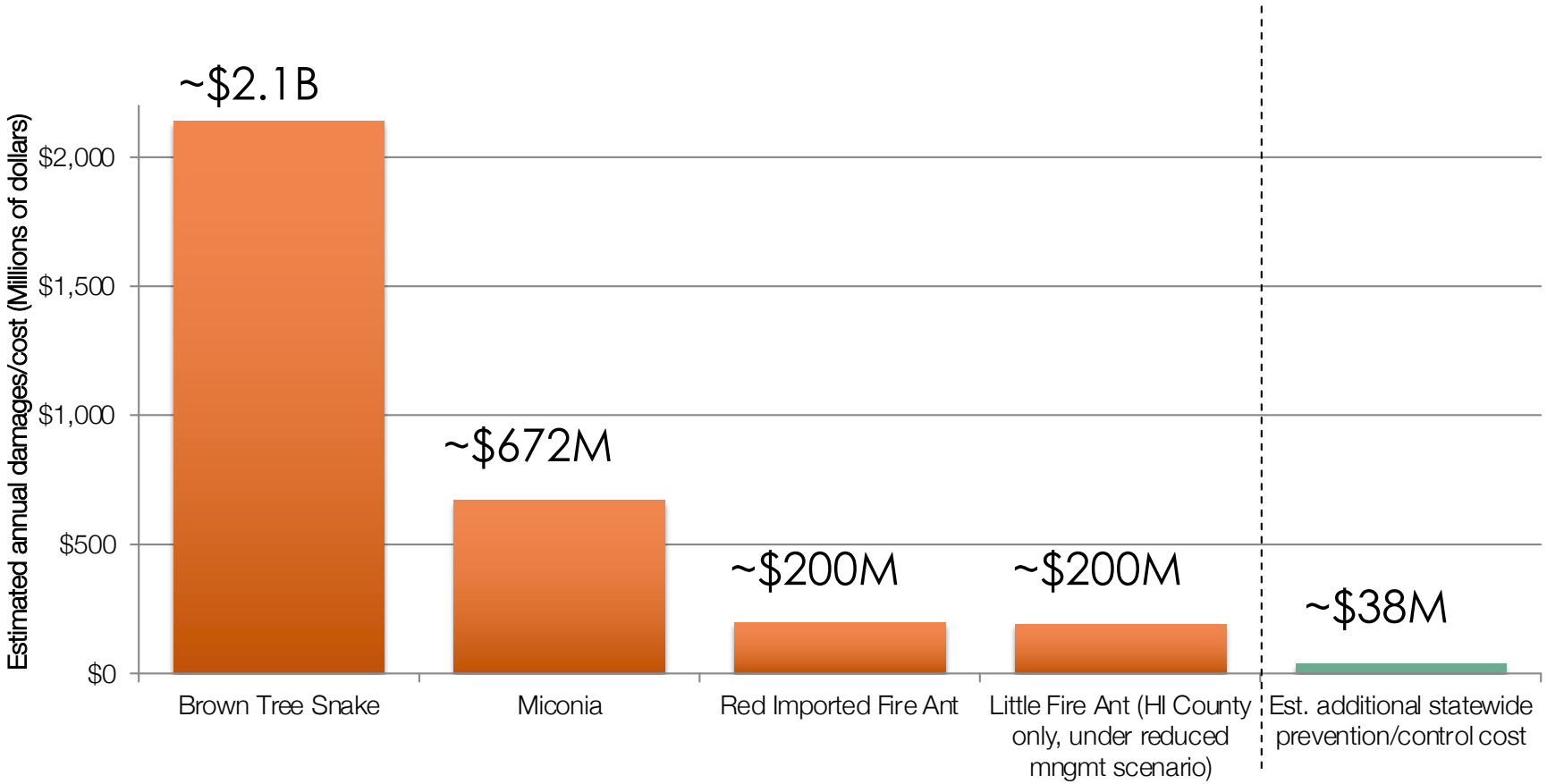
In Progress

- Ongoing biocontrol facility discussions with federal and state partners
- Working on federal restriction on the import of all myrtle species into Hawai‘i
- HDOA partnering with UH CTAHR to develop diagnostic tools for inspections

Needed

- Planning funds for a Pacific Regional Biocontrol Center
- Capacity to co-manage vessel biofouling & ballast water discharge
- Biosecurity Emergency Response Fund
- Ability for HDOA to inspect non-ag commodities

Biosecurity saves money



Refs & context details available in annual legislative report at hisc.hawaii.gov

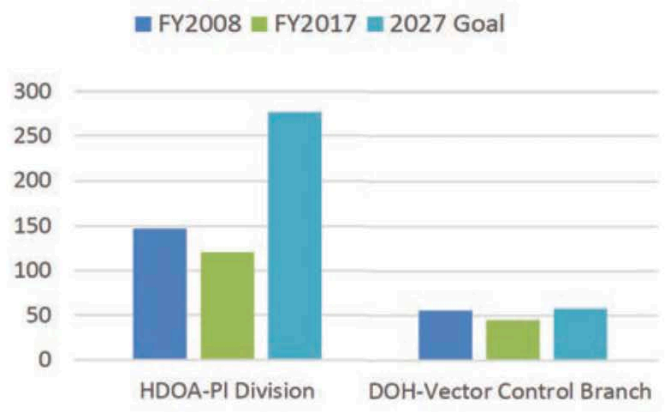

Photo: CRB Response Team


Photo: CRB Response Team

Lessons from the past

Hawaii's biosecurity capacity is still recovering from the 2008 economic downturn.

A Reduction-in-Force (RIF) was implemented due to the 2008 economic downturn. Biosecurity programs like the HDOA Plant Quarantine Branch and the DOH Vector Control Branch were hit particularly hard with cuts to positions and funding. When the Biosecurity Plan was written **nine years later, these programs still had not rebounded from the Reduction-in-Force.**



Below are examples of subsequent detections / outbreaks. These items are not *caused* by the RIF, but additional capacity may have helped with prevention, earlier detection, and/or reduced control costs.

- Coconut rhinoceros beetle
- Little fire ant on O'ahu
- Asian horntail wasp
- Naio thrips on multiple islands
- Rapid 'ōhi'a death
- Dengue fever

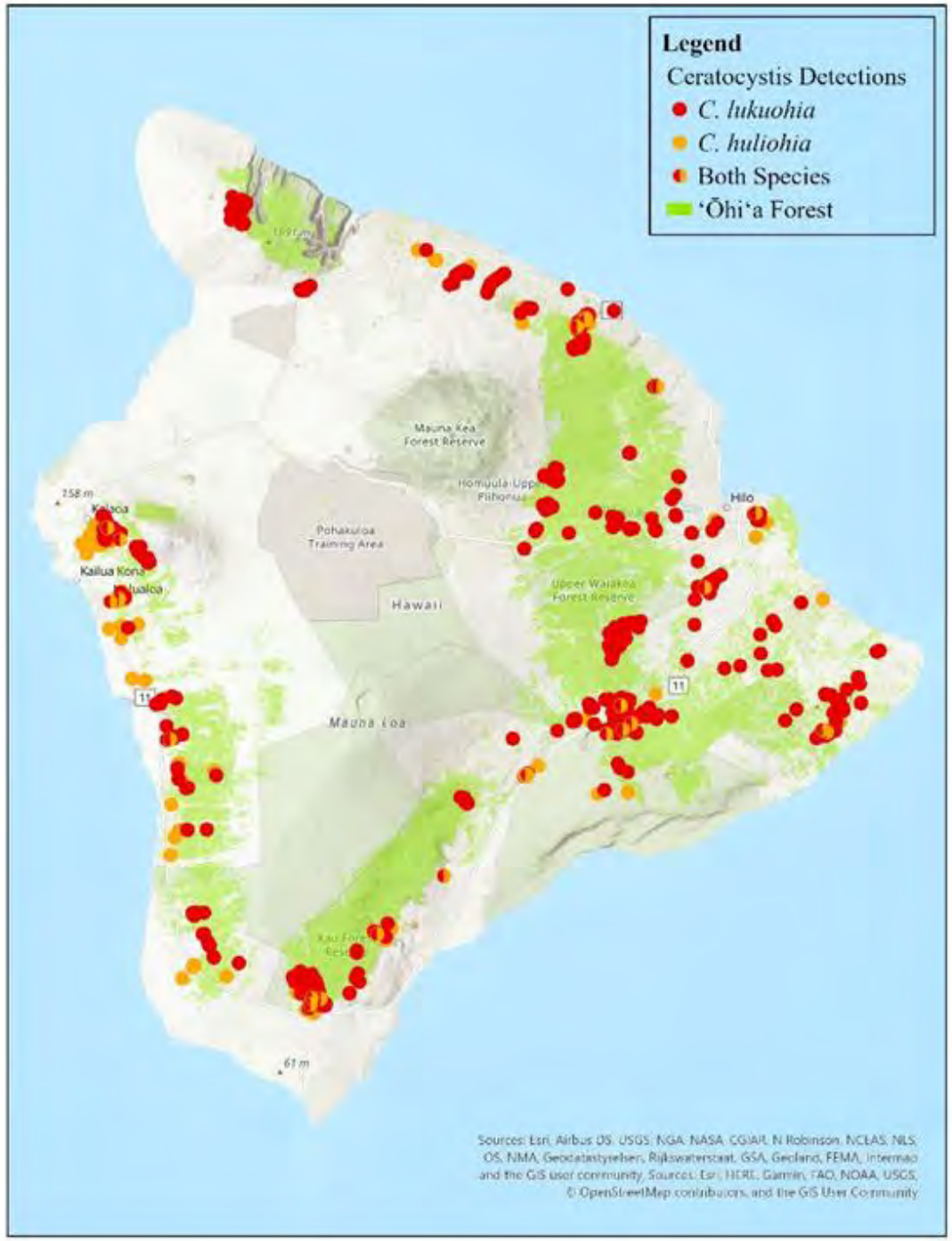
2021

- 17 DOFAW positions could potentially be removed
- Tradeoffs with operating funds proposed for 3 positions in LNR 402:
  - Wildlife Biologist V (Inv Species Coord)
  - Wildlife Management Program Specialist (Statewide Wildlife Program Manager)
  - Secretary (Maui Branch)

Rapid Ohia Death Response

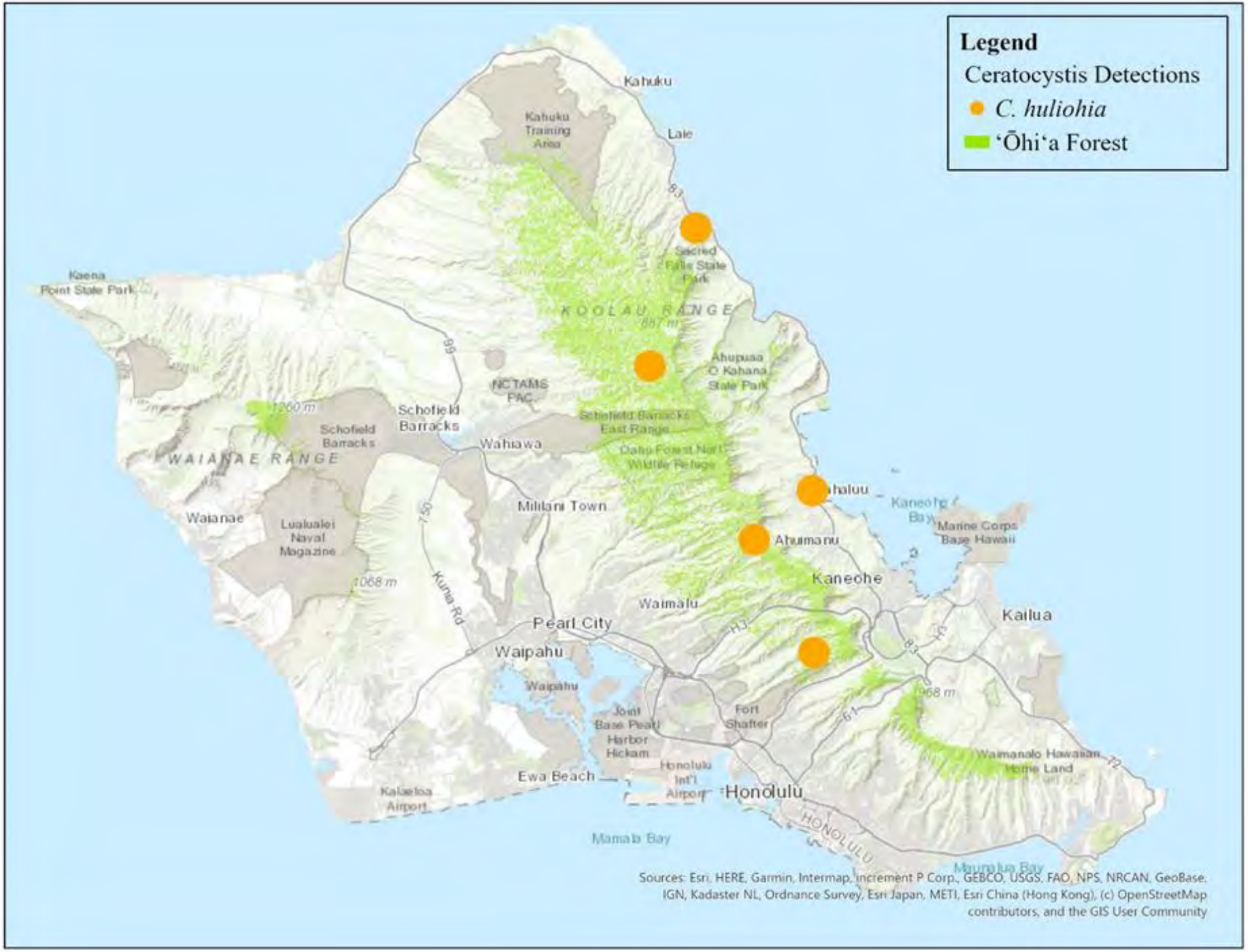
- No FY21 Funds for ROD Response in DLNR Budget
- Funded through HISC, federal, and private grants
- Survey and response, diagnostics, research, and public outreach continued

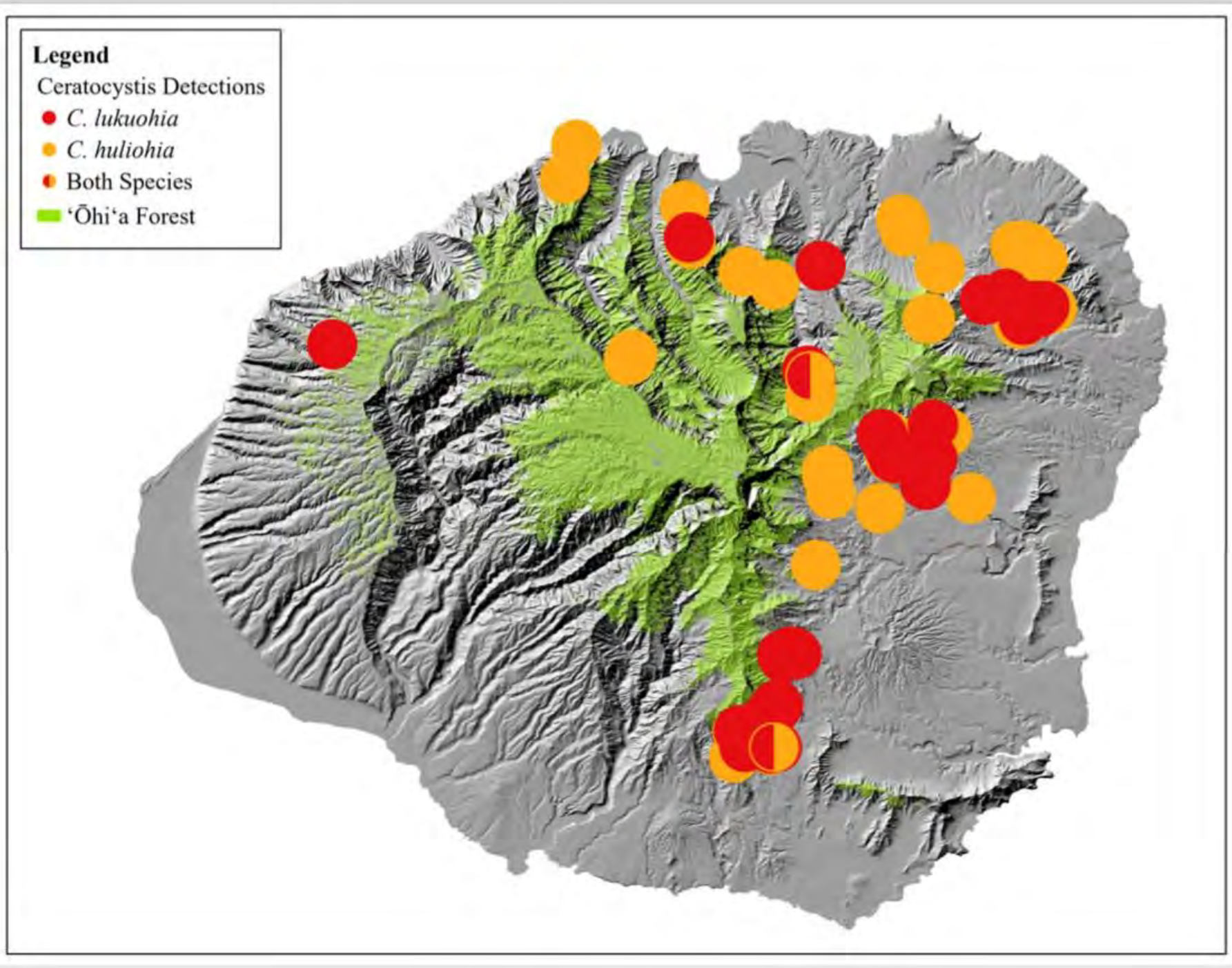
ROD tree recently detected on Kauai through aerial surveys



Hawaii Island ROD Detections September 2020

Oahu Detections September 2020





Kauai Detections December 2020

Public Outreach Activities

Healthy, Resilient Ohia Forests

- Long-term management strategies needed for ROD
- Fencing and Ungulate Control
- Invasive Plant Control
- Increased Biosecurity Capacity

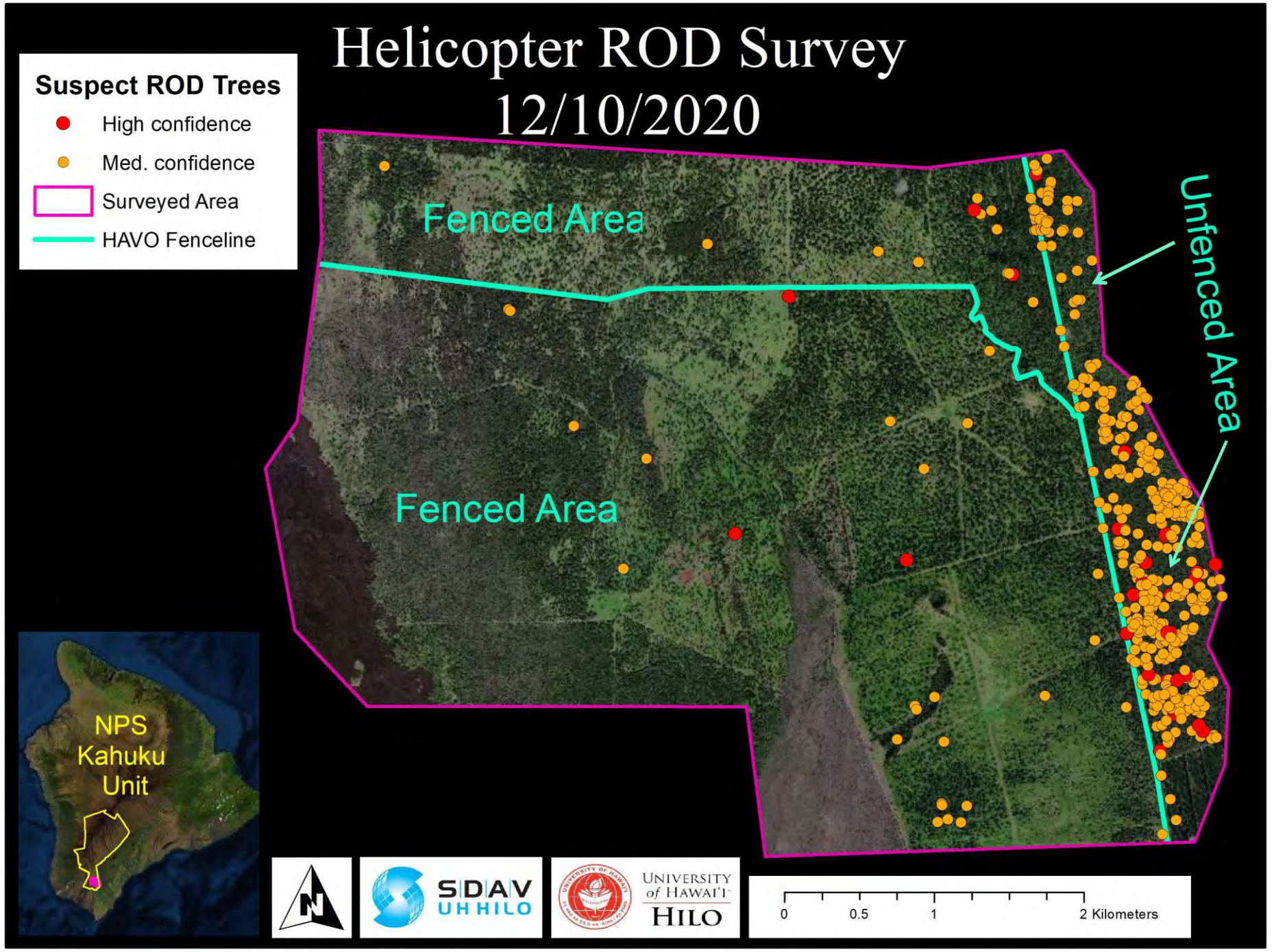
Biological Control

- Best strategy for long-term invasive species control
- Safe for the environment
- DLNR, HDOA, and federal partners formed a Biological Control Working Group
- Focus on new joint facilities to meet demand
- Working closely with congressional delegation to pursue federal funding opportunities for new facilities

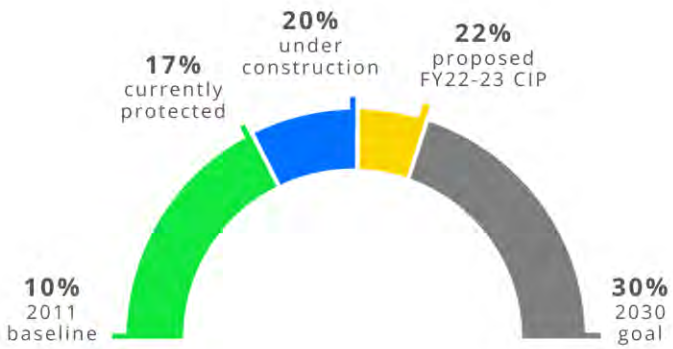
Biocontrol Insect on Invasive Strawberry Guava Seedlings

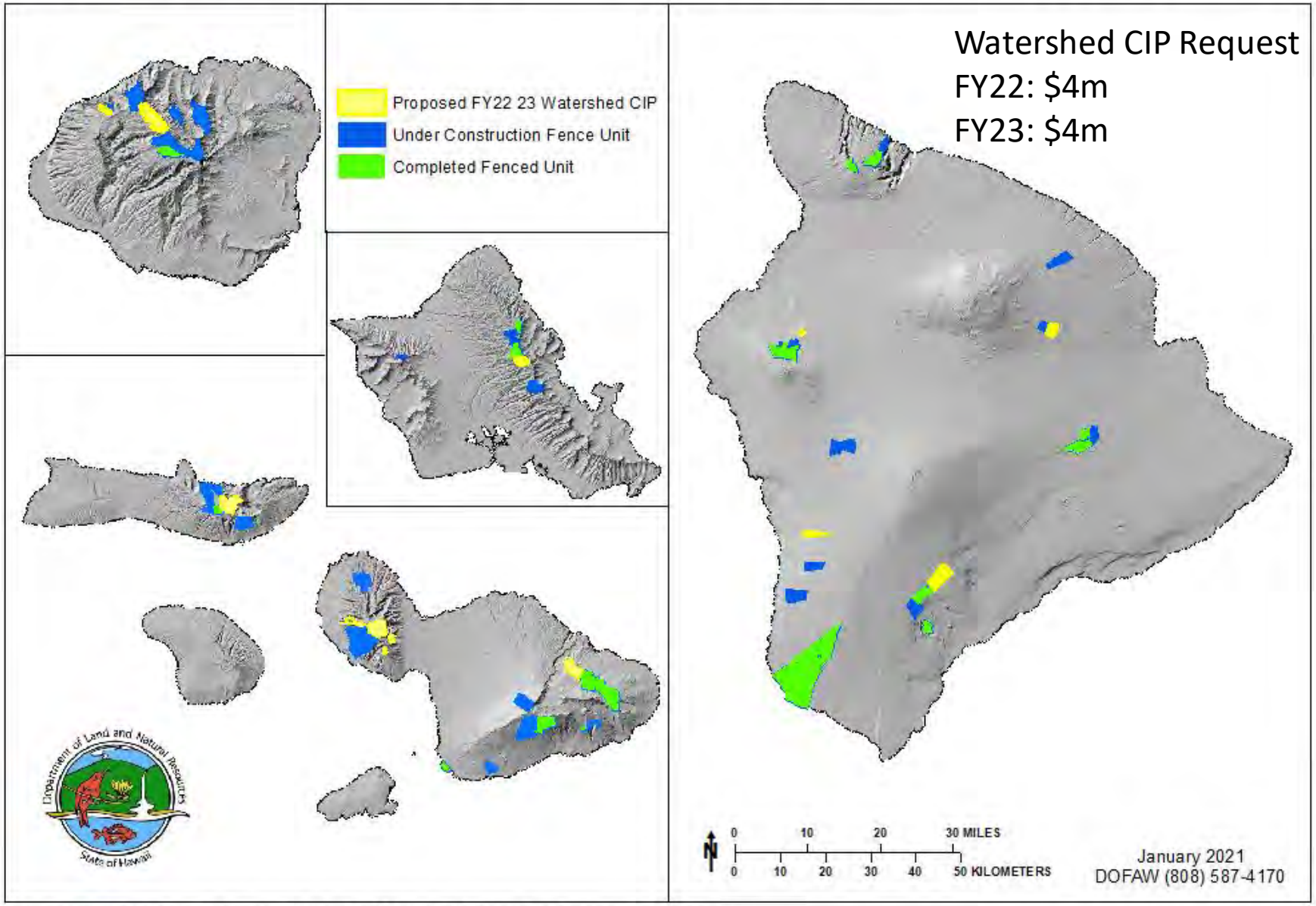
Dying ‘Ohi’a trees mapped in aerial surveys
(Photo: Dr. Ryan Perroy)

Cattle and sheep rubbed off bark, allowing black ROD fungus to infect and kill this ‘Ohi’a tree


Helicopter ROD Survey
12/10/2020
Suspect ROD Trees
High confidence
Med. confidence
Surveyed Area
HAVO Fenceline
Fenced Area
Fenced Area
Unfenced Area
NPS
Kahuku
Unit
SDAV
UH HILO
University of Hawai'i
Hilo
0
0.5
1
2 Kilometers

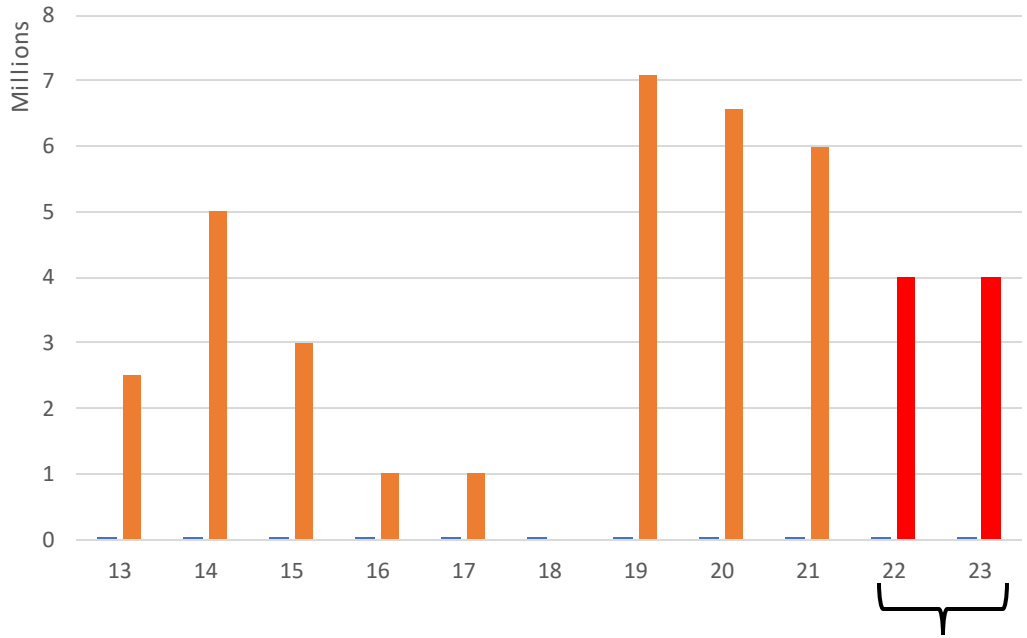
LNR 407 CIP Fences - Watershed Initiatives, SW





Includes the Watershed Initiatives, Statewide; Manuka; Waiawa; Kaala; and Kanaio projects.

Watershed CIP Funding FY13-23



141 miles built

86 miles under construction

$39m

Matching funds since FY13

Watershed initiative CIP and operating funds bring in Federal, County, and private funding

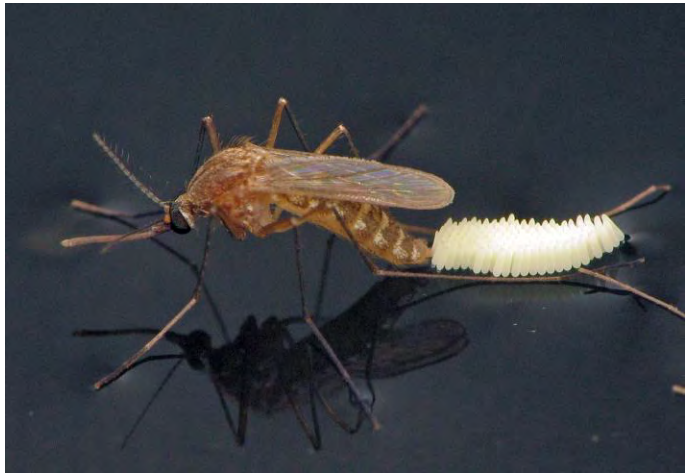

2009


2015


2020

Landscape-level mosquito control

- We are facing an extinction crisis of Hawaiian forest birds if we do not implement landscape-level mosquito control to address avian malaria spread by invasive mosquitoes in the near term
- DOFAW plays a key role in the Birds Not Mosquitoes steering committee which coordinates interagency effort to give mosquitoes a Wolbachia bacteria that makes them unable to breed successfully (referred to as incompatible insect technique).
- Technological, regulatory and logistical path is currently being planned out for Wolbachia mosquitoes to be used in Hawaii
- DOFAW secured federal funds for continued research on the distribution and density of disease-carrying mosquitoes and breeding habitat in endangered forest bird habitat to facilitate control efforts

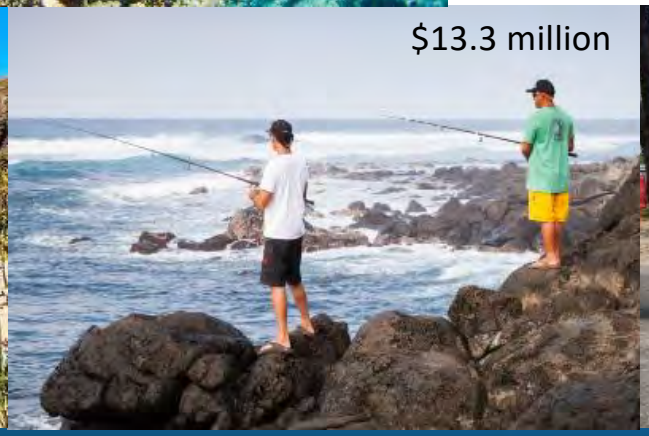


DLNR-DAR
Aquatic Invasive Species (AIS)

January 25, 2021

Hawai'i Division of Aquatic Resources

Hawaii's Aquatic Resources



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Aquatic Invasive Species (AIS)


Upside Down Jellyfish


Stony Coral Tissue Loss Disease


Prickly Seaweed


Smothering Seaweed


Gorilla Ogo

Aquatic Invasive Species:
A non-native aquatic species that, if introduced into an ecosystem, may cause harm to Hawai‘i’s economy, environment, human health, or public safety and welfare.

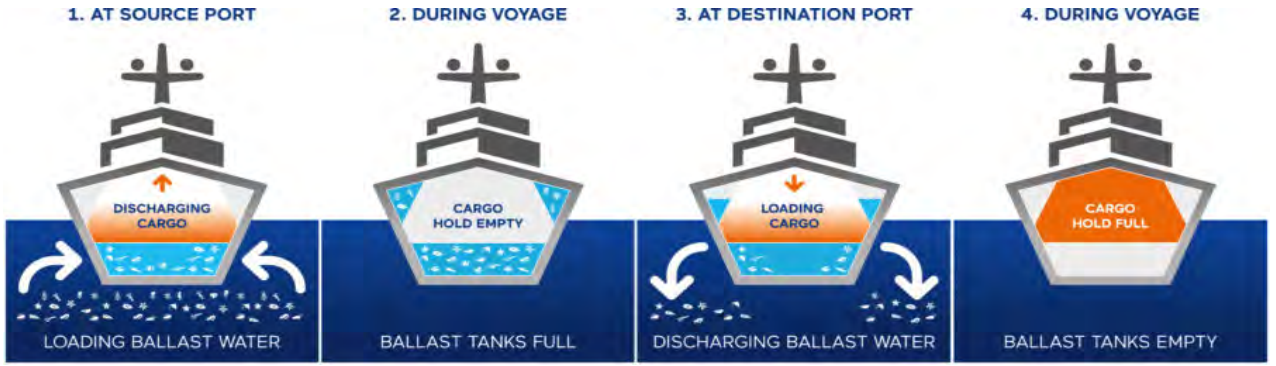
Introduced Aquatic Species in Hawai‘i:

- 463 marine species (inverts, fish and algae)
- 86 freshwater species (inverts, fish, water plants)
- 549 total (underestimate)

Hawai'i Division of Aquatic Resources

Aquatic Invasive Species (AIS)

- Ballast water
- Biofouling
- Intentional release
- Aquaculture escape
- Marine debris



Hawai'i Division of Aquatic Resources

AIS 2020 Highlights

Harbor monitoring

Vessel hull survey

Harvesting sea urchins

Corallimorph rapid response

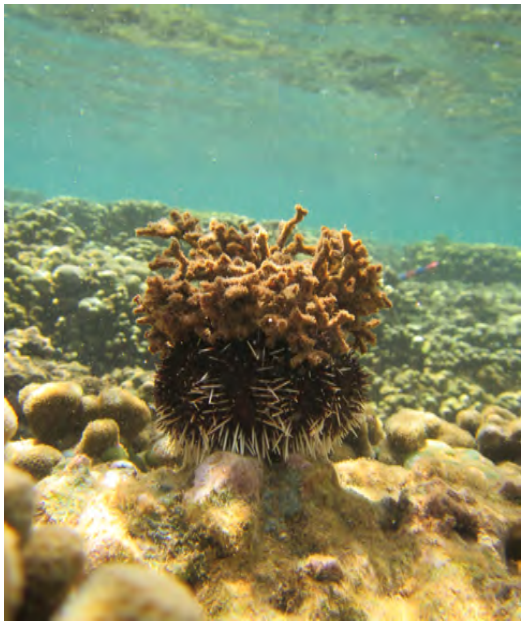
Discosoma

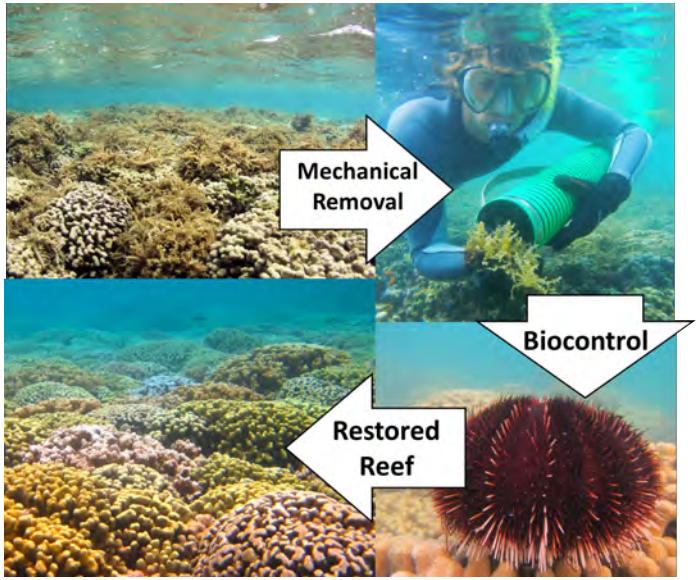
Sorting AIS

Invasive coral removal

Hawai‘i Division of Aquatic Resources

Invasive Algae Management



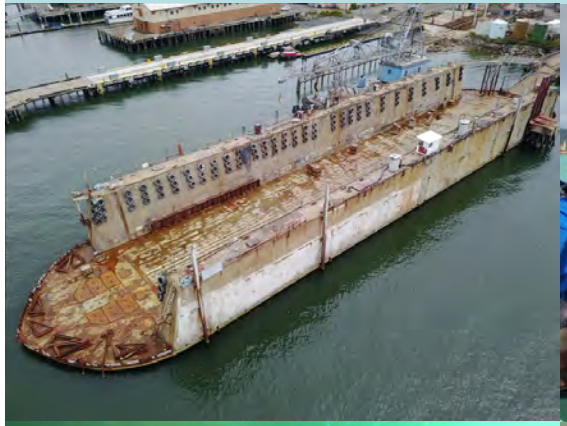


- Urchin hatchery 10-year anniversary
- Approximately 600,000 urchins produced
- Kāne‘ohe Bay Area Treated: 951,132 m^2 (~235 acres)

Area Treated (Biocontrol only): 120,000 m^2 (~30 acres)

Hawai'i Division of Aquatic Resources

Rapid Response: High Risk Dry Dock

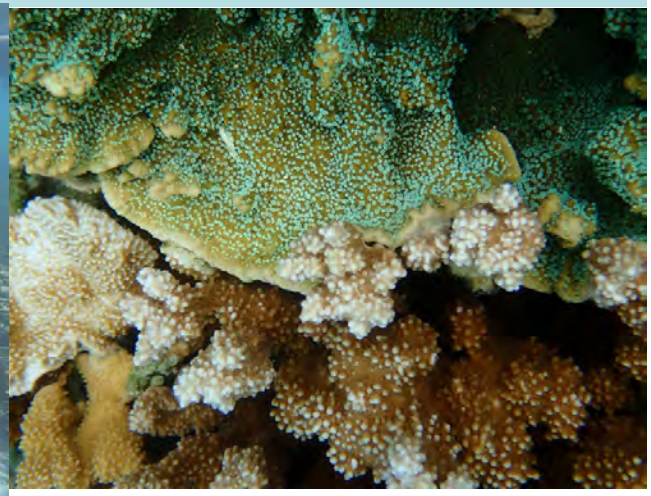


NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

BISHOP MUSEUM

Hawai'i Division of Aquatic Resources

Rapid Response: Invasive Corals in Kāne'ohe Bay



- Kawelo `Ohana initial report
- Approximately 100 ft^2 footprint
- Collaborative effort

Paepae o He'eia

WAIKIKI AQUARIUM

He'eia National Estuarine Research Reserve

NOAA

U.S. FISH & WILDLIFE SERVICE

Hawai'i Division of Aquatic Resources

Vessel Incidental Discharge Act (VIDA), EPA Vessel Incidental Discharge National Standards of Performance

- Preempt states from regulating more stringent ballast water and biofouling rules *(top two vectors of invasive species introductions)*
- Allow the cleaning of vessel hulls in state waters starting Dec. 2022 *(currently restricted)*
- Allow states to enforce/co-enforce new USCG regs that will come into force in Dec. 2022
- Prohibit states from charging shipping companies a fee to support this regulatory work *(no revenue to build a DAR team and inconsistent across states)*

Hawai'i Division of Aquatic Resources

Vessel Incidental Discharge Act (VIDA), EPA Vessel Incidental Discharge National Standards of Performance

To get Hawaii`s invasive species concerns heard and addressed, in collaboration with CGAPS, DLNR:

- Participated in meetings before regulations were proposed
- Collaborated with West Coast States and other agencies
- Submitted comments
- Participated in a multi-state letter
- Supported Governor's objection
- Supported CZM consistency review

Moving forward:

- Legal questions about several aspects of VIDA and the new rules will need to be clarified or resolved
- Assess and amend state regulations to enforce and co-enforce with USCG (reso in 2021, address in 2022 session?)
- Challenges with revenue

Hawai'i Division of Aquatic Resources

AIS 2021 – Challenges

- Challenges with revenue (VIDA)
- COVID
- 3 Unfunded Civil Service Positions: 1- Aquatic Biologist III, 2- AIS Fishery Technicians
  - Civil Service staff: Running on a team of 4 filled positions out of 7 (57%)

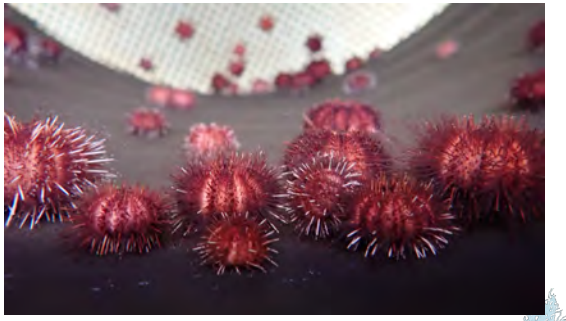



Hawai'i Division of Aquatic Resources

AIS 2021 – Priorities

- Moving forward with VIDA, draft a resolution to work together to propose legislation
- Continue to engage in the rule making process
- Assess status of AIS in harbors (points of entry/new detections and gateway to adjacent reefs, neighbor islands, monument)
- Identify and prioritize species of concern and pathways that could pose the highest risk to our environment, economy, or human health
- Continue invasive algae management with native urchin biocontrol
- Rapidly Respond to AIS threats



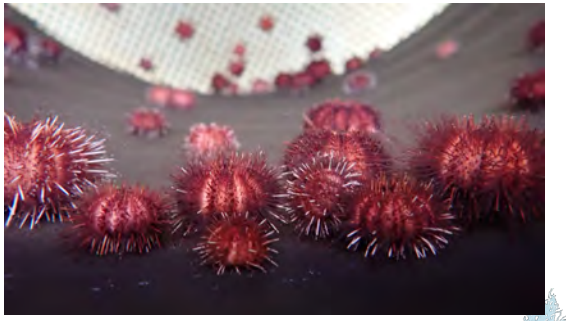




Hawai'i Division of Aquatic Resources

AIS 2021 – Legislative Needs

- Moving forward with VIDA, draft a resolution to work together to propose legislation
- Continued support from HISC which helps fund this program
- Continued support of the Division of Aquatic Resources




Hawai'i Division of Aquatic Resources

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