Division of Forestry & Wildlife

Invasive Species Info Briefing

Forestry & Wildlife
State Capitol, January 26, 2023

Introduced Mosquitoes & Malaria

Cynthia King, Entomologist
DLNR-DOFAW

Forestry & Wildlife

PC: Zach

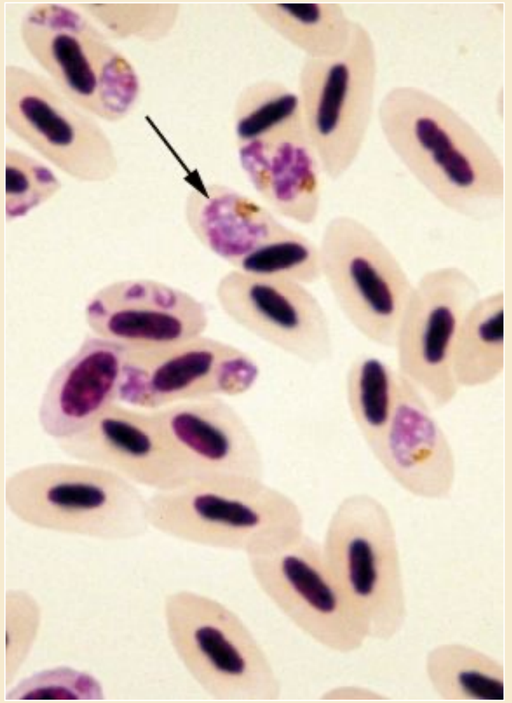
Introduced Mosquitoes and Malaria

- No mosquitoes are native to HI
- Southern House Mosquito introduced in 1826 (Lahaina)
- Avian malaria introduced early 20th century
- Leads to rapid mortality of honeycreepers
- Mosquitoes and malaria parasite are cold intolerant
- Climate change has diminished high elevation refugia for honeycreepers

J. Jeffrey

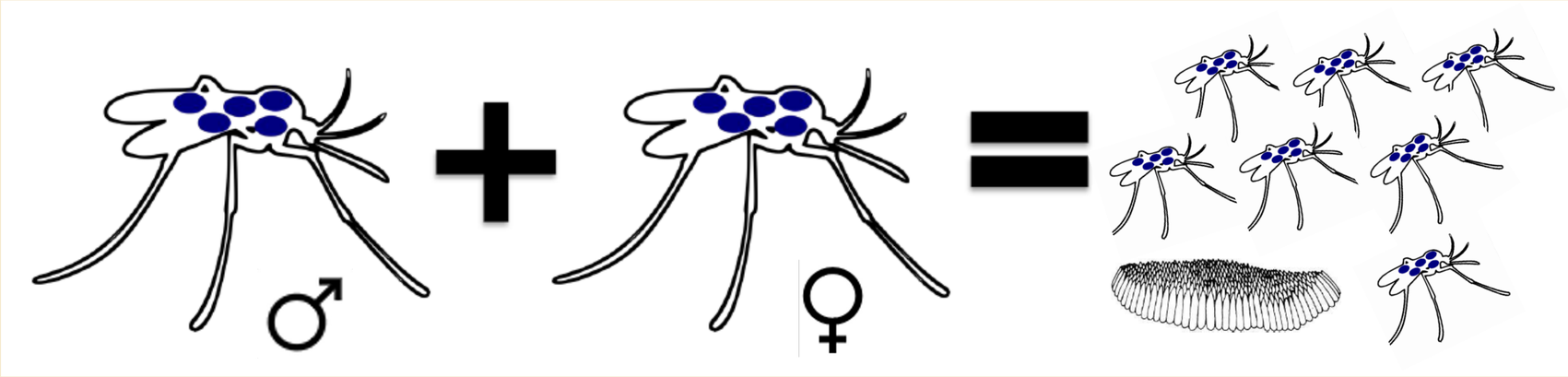
B. Mossman

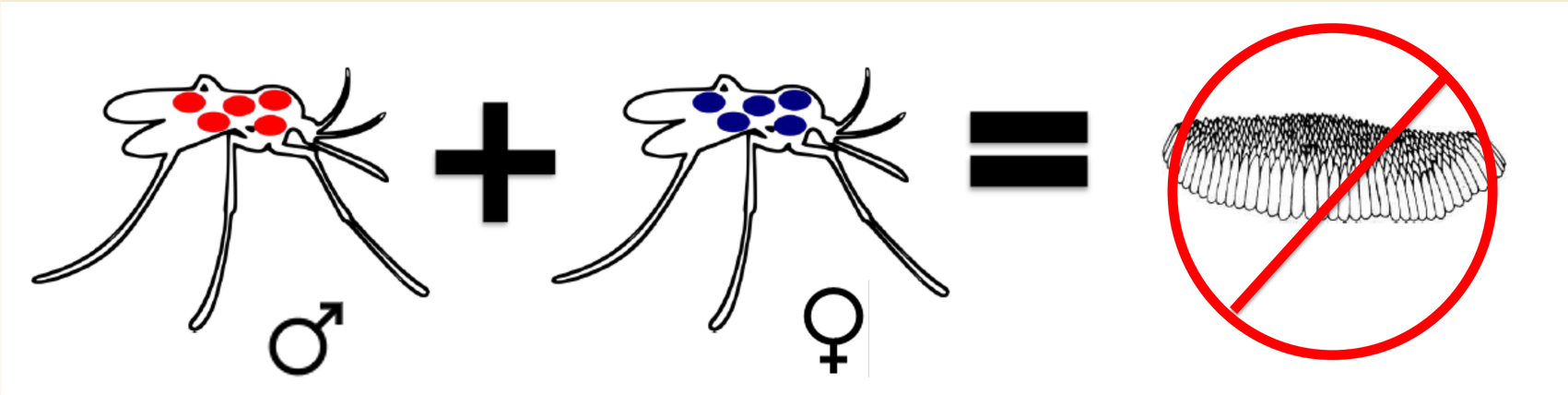
Malaria parasites in red blood cells



C. Atkinson, USGS

What is Incompatible Insect Technique?
("Mosquito Birth-Control")





Progress to date

- East Maui Environmental Assessment – public review and comment ended 23 January, anticipated completion April 2023
- Kauai Environmental Assessment – Currently being drafted
- Statewide environmental assessment
  - RFP closed on 19 January 2023
  - One bid received from reputable contractor
- Hawaii Department of Agriculture Import permit – Approved by BOA and issued to DLNR
- Plan in place to retrofit an existing DLNR insectary to rear/house mosquitoes
- Cultivating public and private partnerships to leverage funds for project implementation

Project Timeline

Research & Community Engagement

2020
Planning, permitting, & community engagement

2021
Planning, permitting, & community engagement
Begin informal & formal EA process

2022
HDOA import permit
Submit EPA Sect. 18
Publish draft East Maui EA
Initiate drafting of Kauai EA

2023
Finalize East Maui and Kauai EAs
Initiate statewide EA
Conduct MRR to inform control program
DLNR Facility permitting

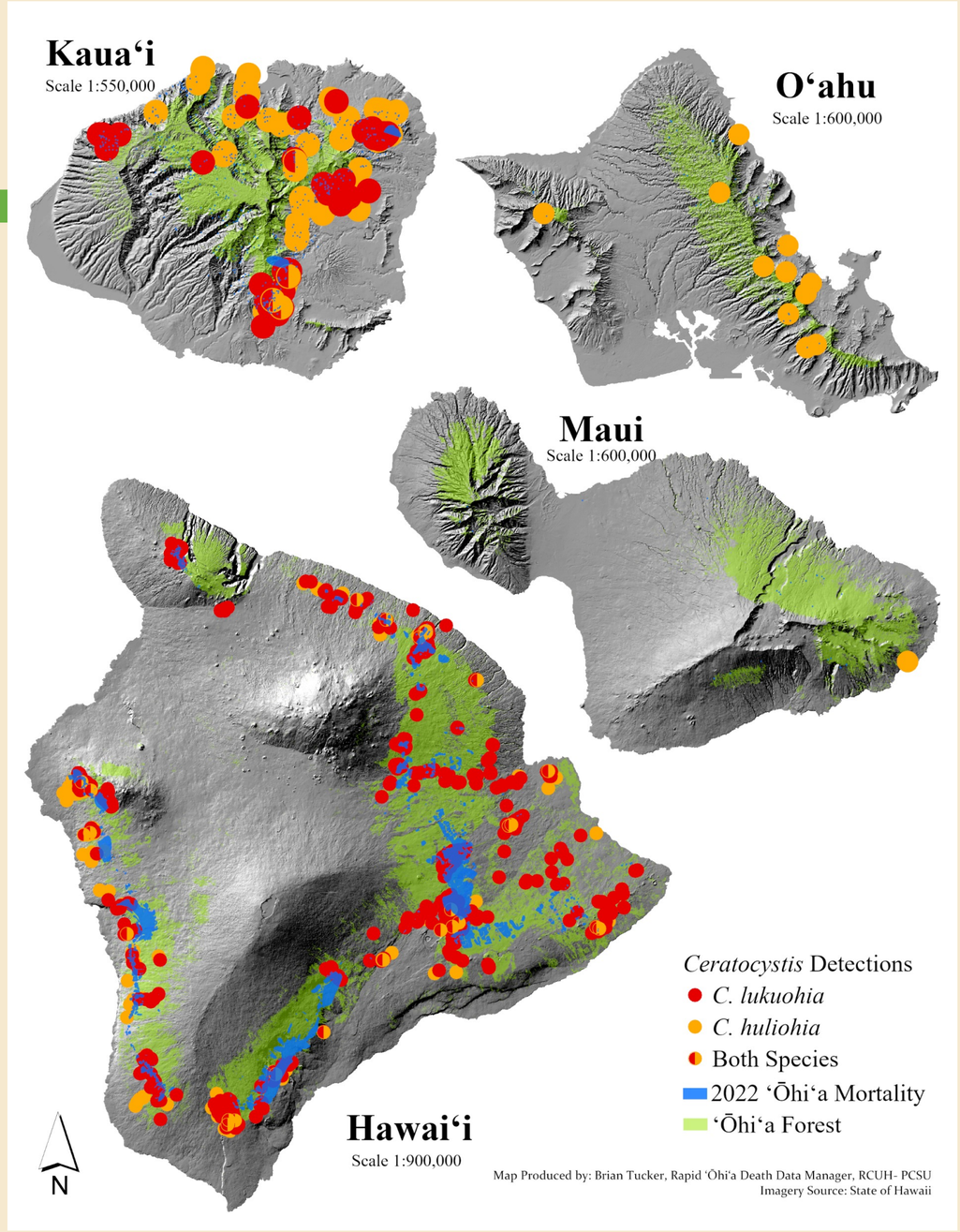
2024
Landscape-Scale Releases on East Maui & Kaua‘i
Planning, permitting, & community engagement for other islands





Rapid ʻŌhiʻa Death

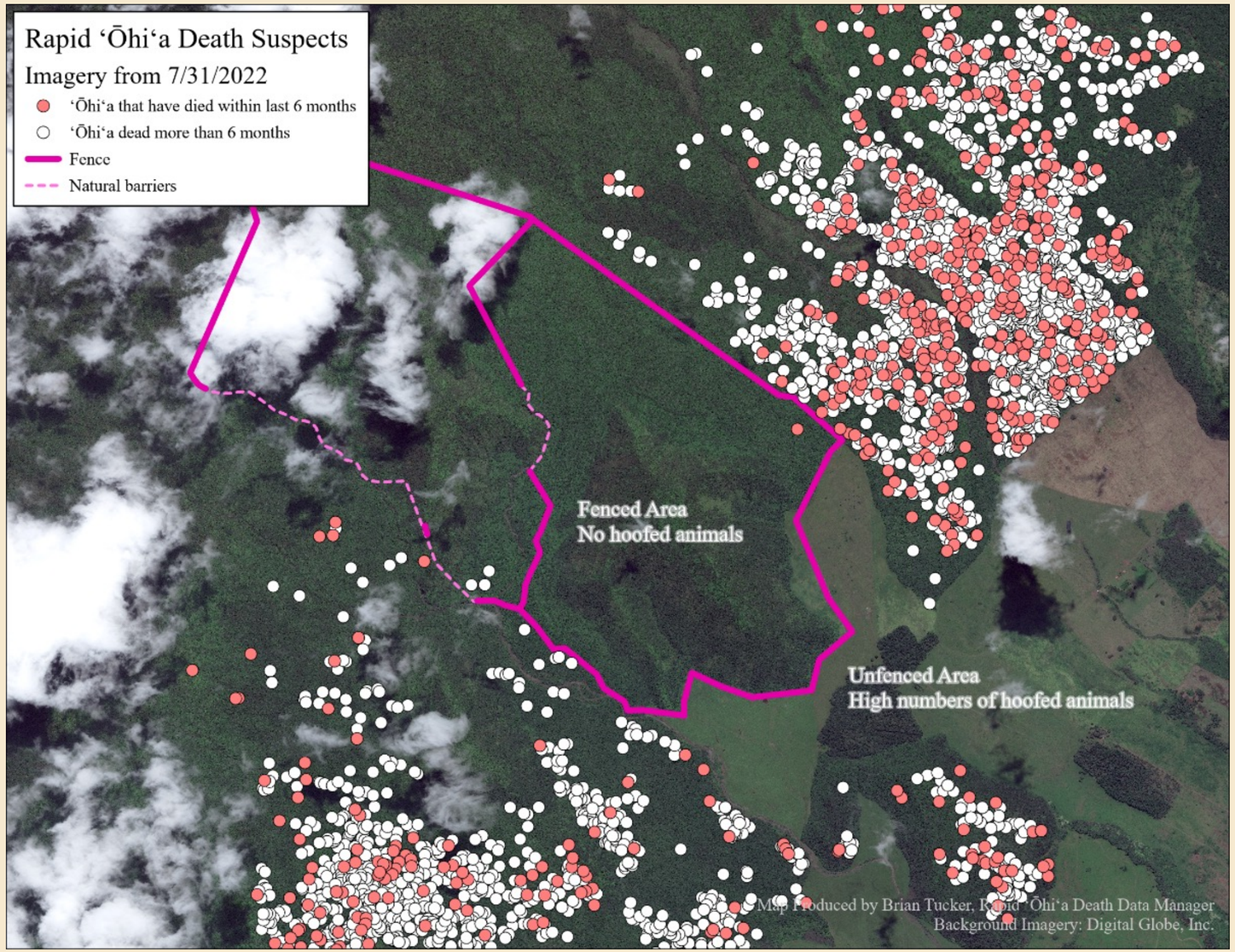
Rob Hauff, State Protection Forester
DLNR-DOFAW



ROD Research

- 42 scientific publications
- UH and federal agencies; ISU; University of Arizona; international collaborators

Long-term Forest Health Management Tools



Community Outreach

ATTENTION!

Please brush your shoes before & after you hike.

Disease and invasive plant seeds can stick on shoes and gear.

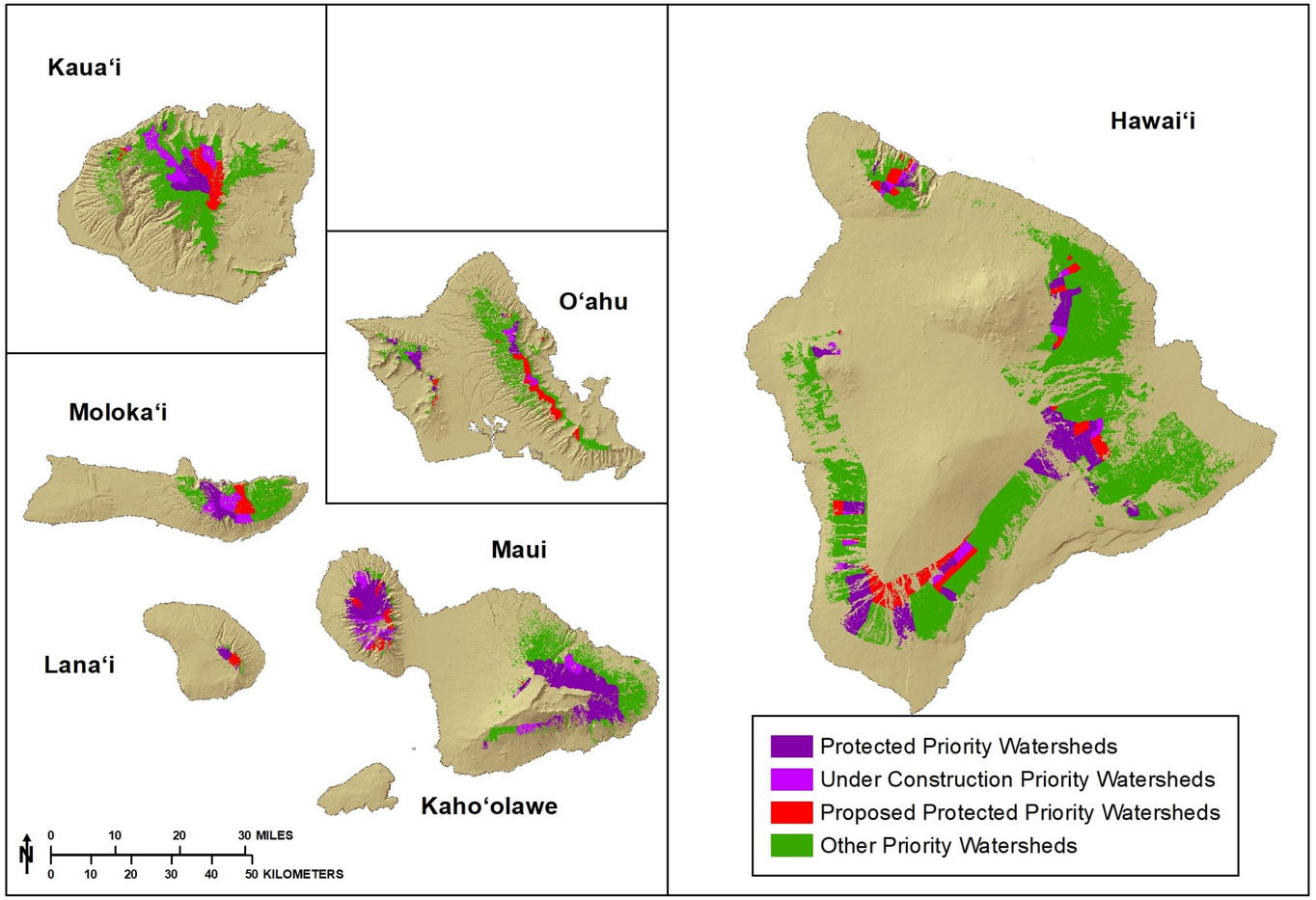
ʻŌhiʻa Love
www.rapidohiadeath.org

Department of Land and Natural Resources
Division of Forestry and Wildlife

30x30 Watershed Initiative

Emma Yuen, NEPM Program Manager

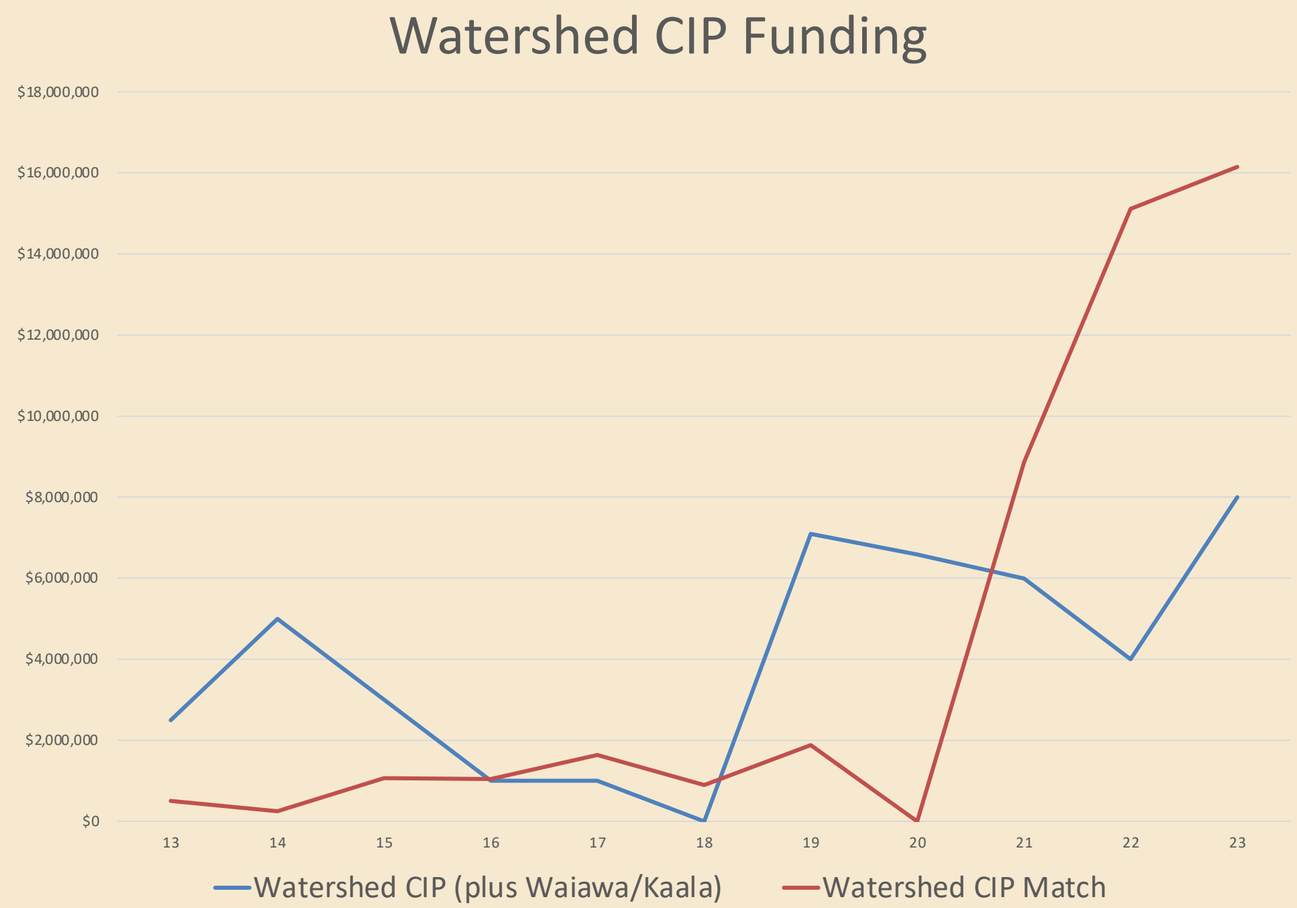
30x30 Watershed Plan



Features approximate and subject to change. DOFAW 587-4170.

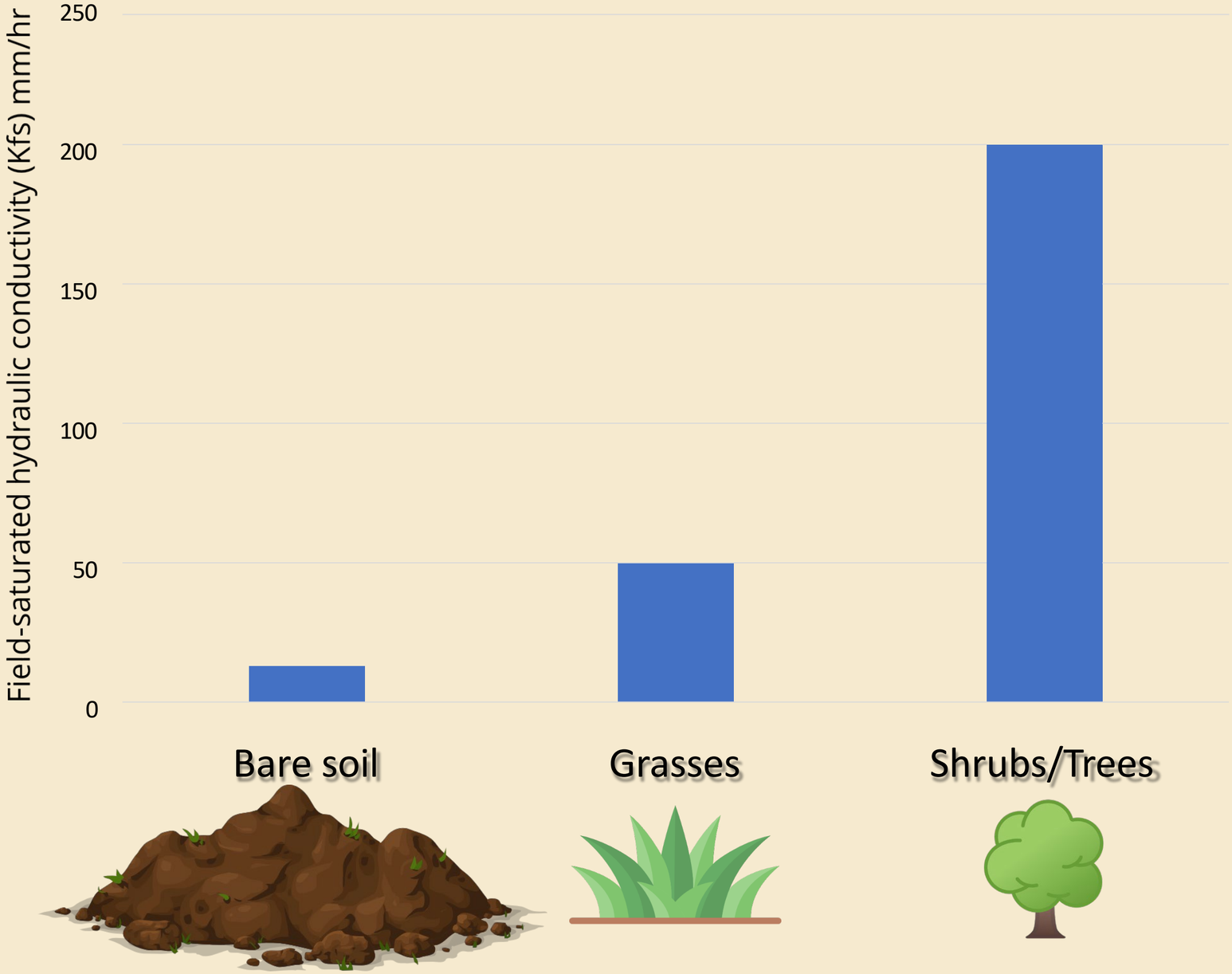
Watershed CIP Attracts Matching Funds

- The Watershed CIP has enabled DOFAW to get over $40m in matching Federal funds since FY13.
- DOFAW is aggressively seeking BIL and IRA funds



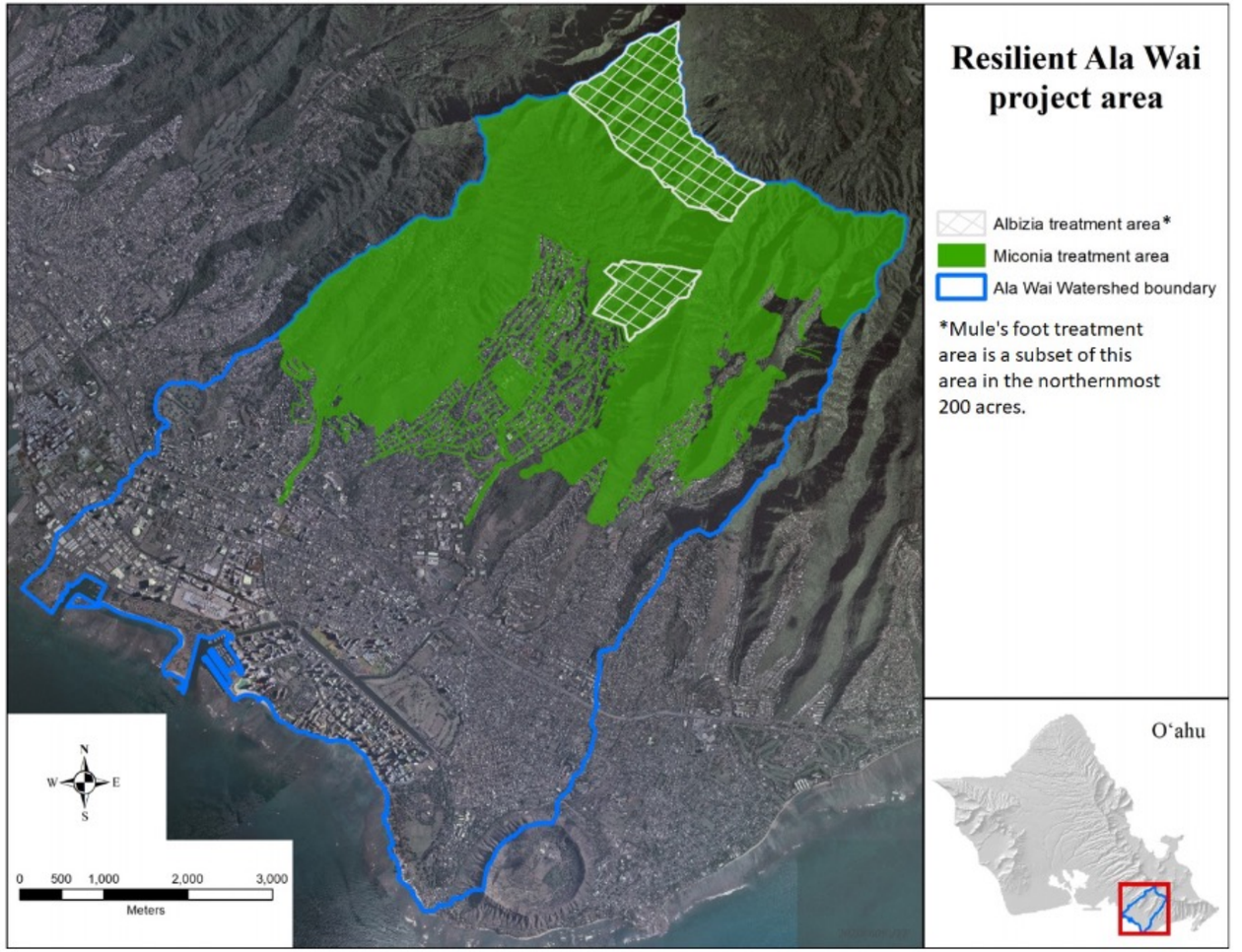
Forests Reduce Flooding

Infiltration Rates



Perkins, K., J. D. Stock, J. R. Nimmo. 2018. Vegetation Influences of Infiltration on Hawaiian Soils. Ecohydrology. https://onlinelibrary.wiley.com/doi/abs/10.1002/eco.1973

$1.64m Grant from NFWF for Coastal Resilience to reduce flooding in Ala Wai watershed



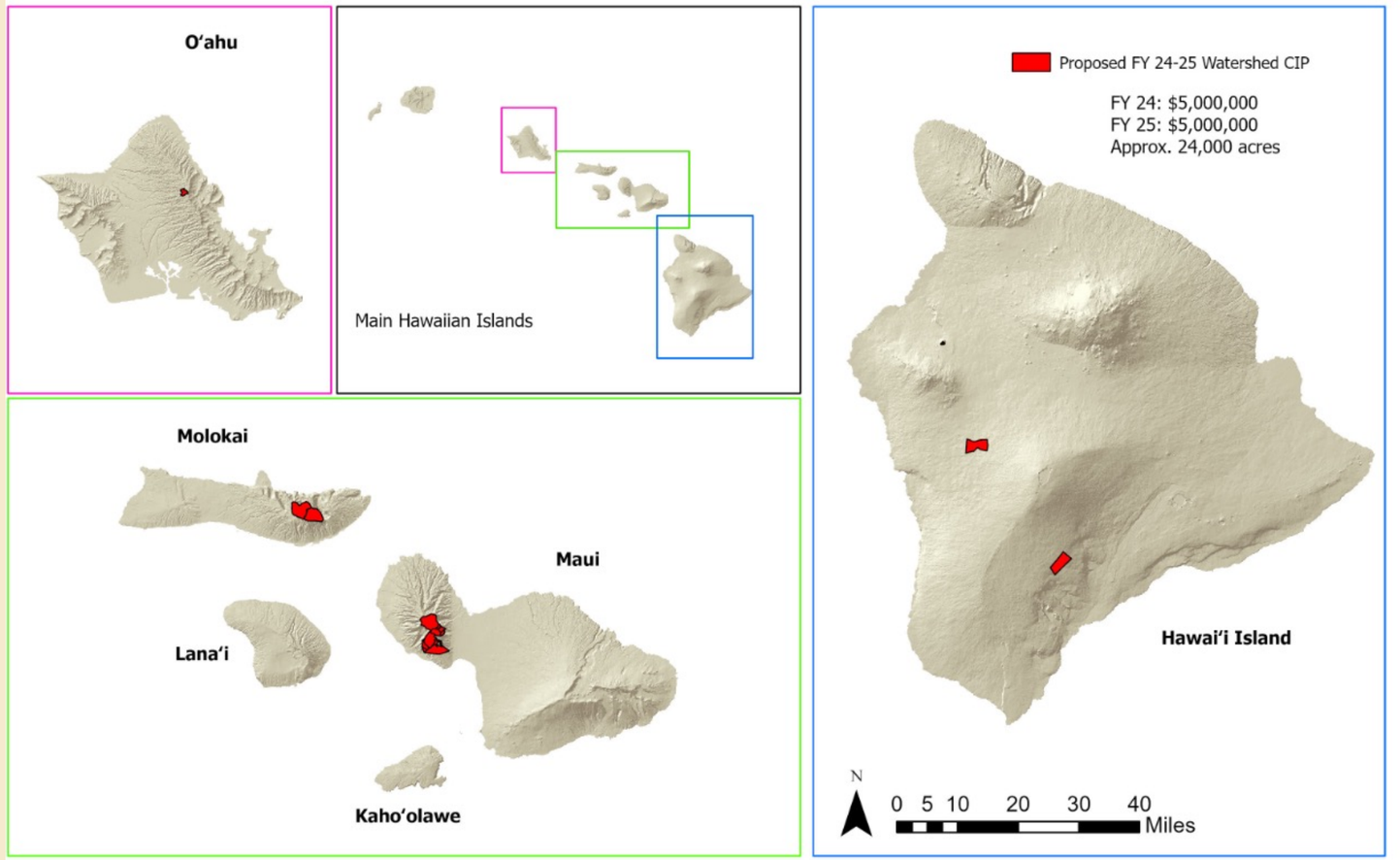
Carbon Sequestration

- Forest protection is the top recommended land use action for greenhouse gas sequestration in Hawaii
- $5.3m grant from NRCS for climate change resilience, partnering with Ranches and others to remove invasive species and plant trees.
- Cooperative projects with ranches

Civil Service Positions Needed

- Existing positions are overseeing many multi-million $ grants and projects.
- Need more capacity to take on additional Federal funding opportunities
- Full-year funding for existing positions
- Additional Natural Resource Management Specialists are critically needed

Watershed Protection & Initiatives, SW
FY 24-25 CIP Request - LNR 407



DLNR's top priority CIP Request
FY24: $5m
FY25: $5m
Lump Sum CIP

MAUI AXIS DEER

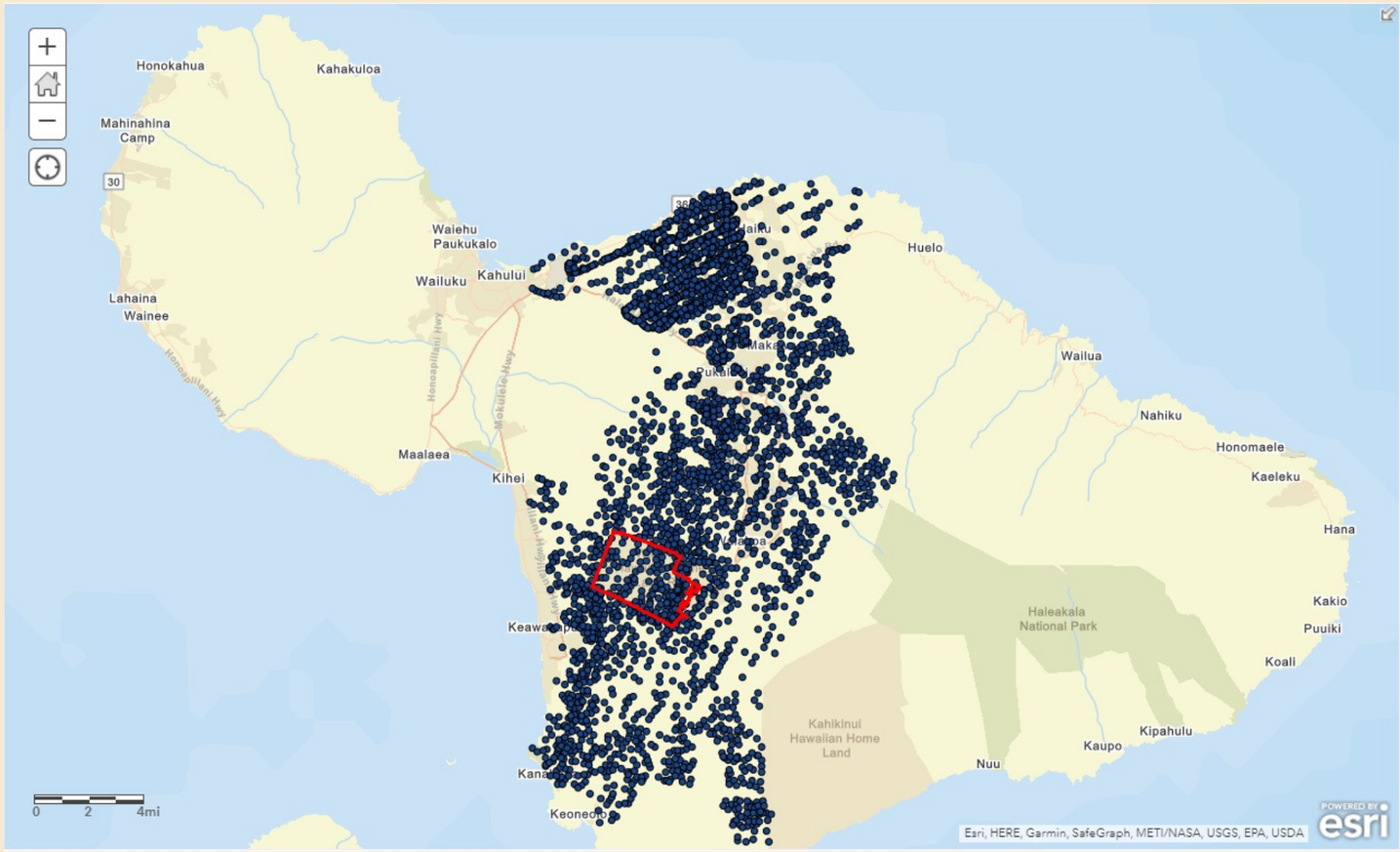
David Smith, Administrator
DLNR-DOFAW

Inside fence

Outside fence

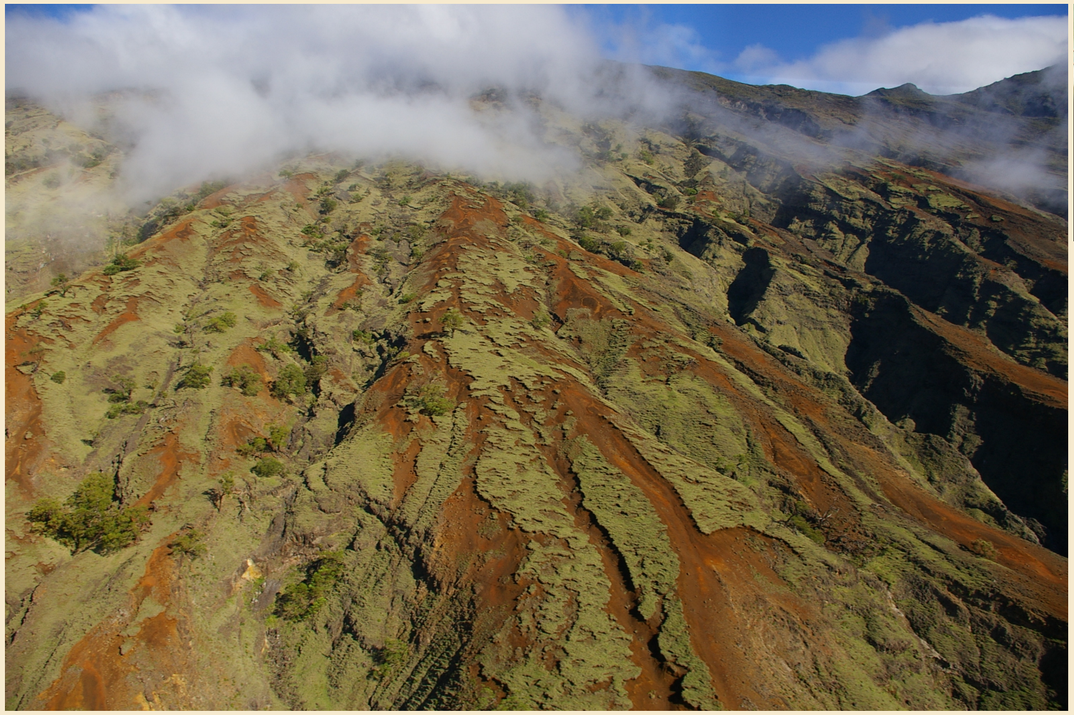
Population Growth

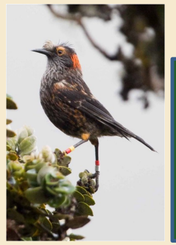
- Core area survey: >46,000 on Maui in 2021
- No natural predators
- Rapid population growth
- Rate of harvest insufficient for effective control
  - Year-round, daily, no bag limits
  - Private lands



Impacts

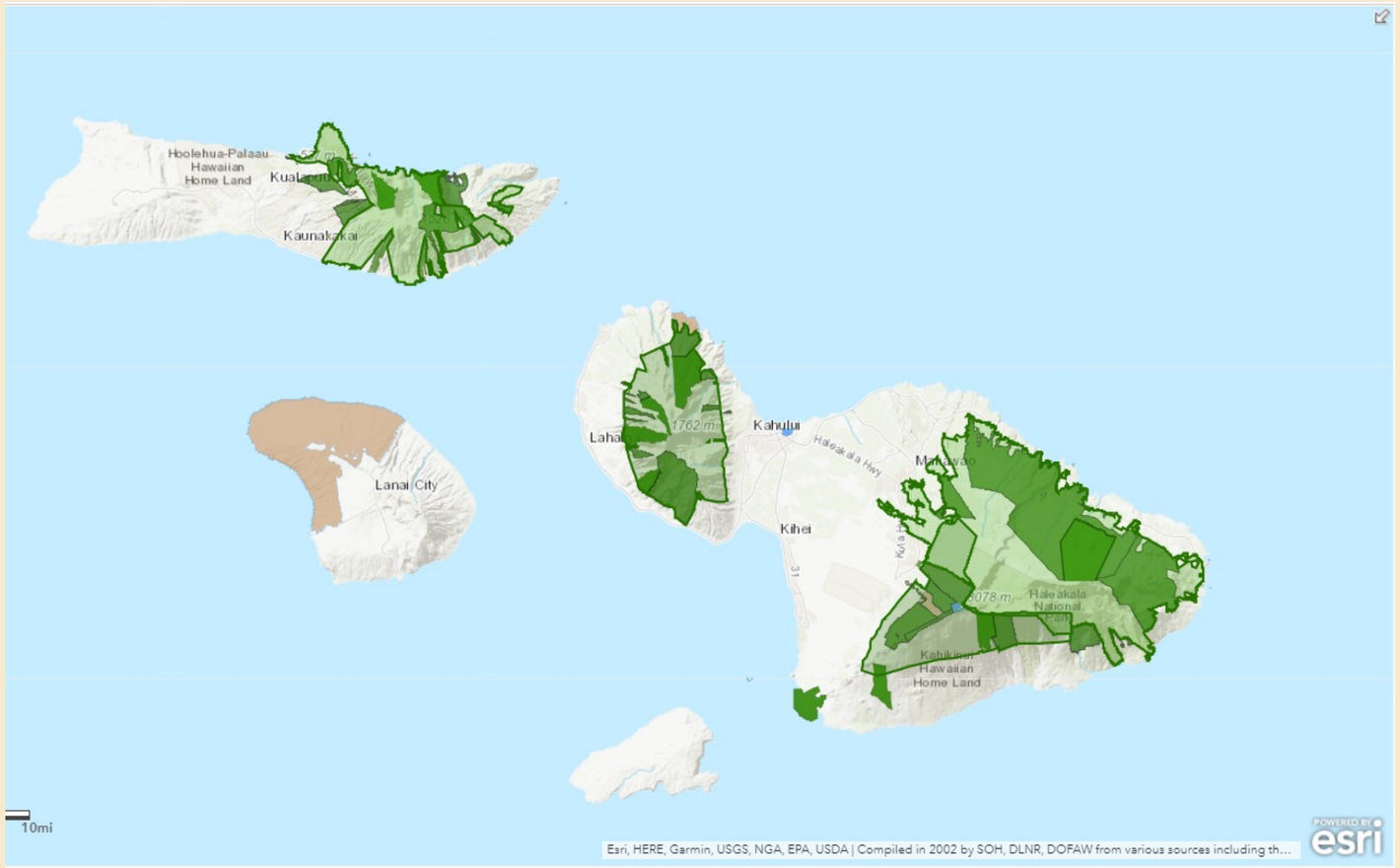
- Native Ecosystems
- Watersheds
- Erosion, coral reefs
- Farms, ranches
- Residential areas
- Roadways, runways





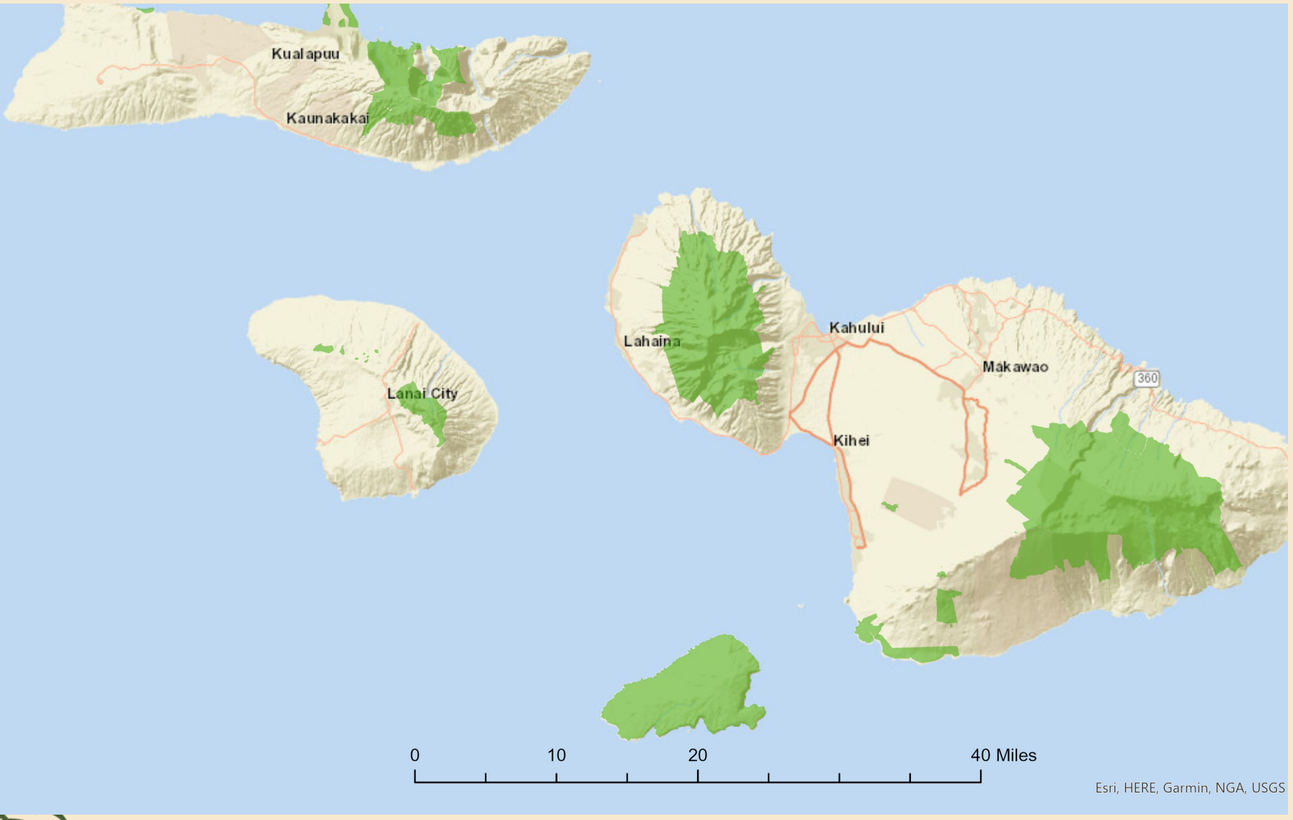
Forestry & Wildlife's Core Mission

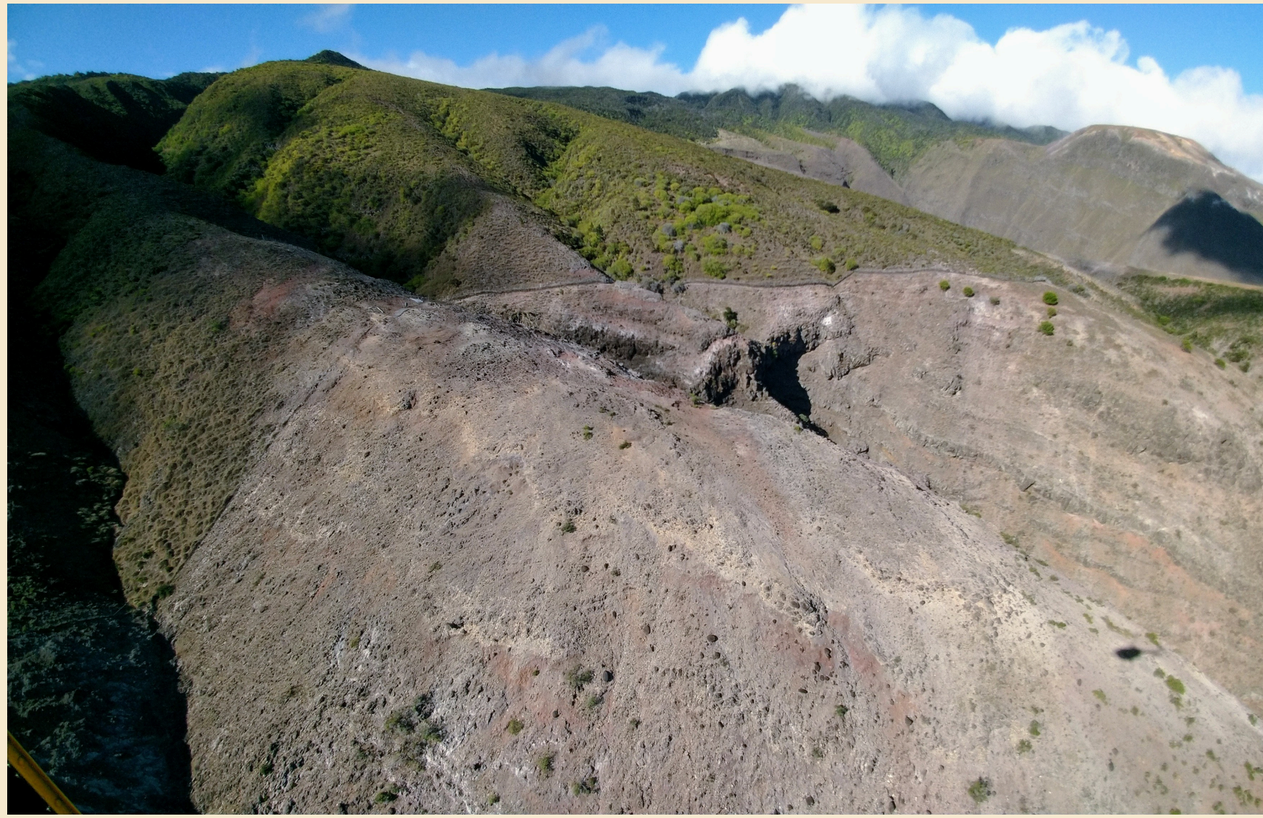
- Native Ecosystems
- Biodiversity
- Endangered Species
- State conservation reserves
- Partner agency & NGO reserves
- Landowner partnerships
- Promote public access and hunting



Status of Managed Areas

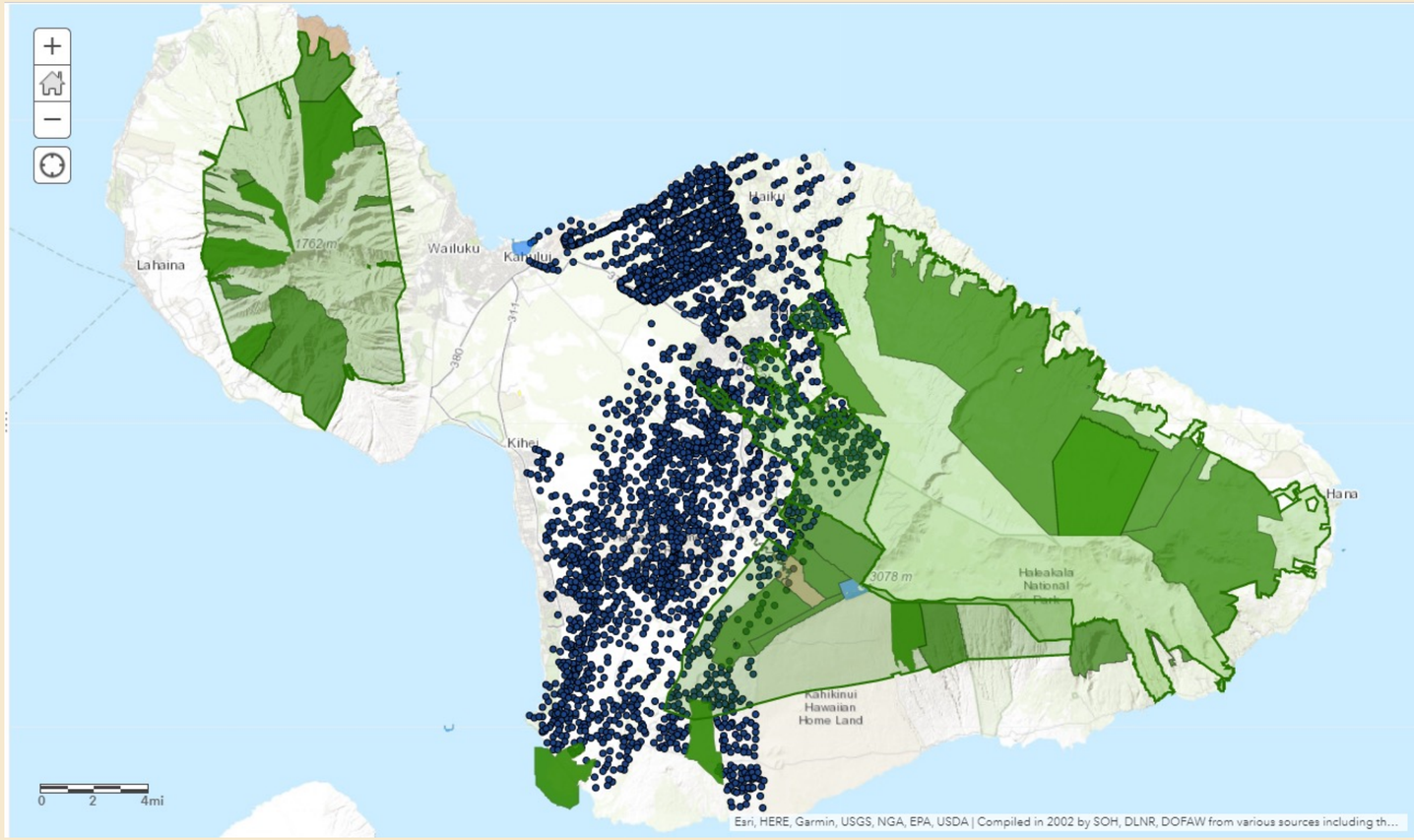
- >110,000 acres fenced
- Maintain ungulate control within the fences
- Identify which additional areas need fencing





Island-wide Impacts

- Private lands
- Farms
- Ranches
- Residential
- Resort
- Roads
- Airports
- Public safety



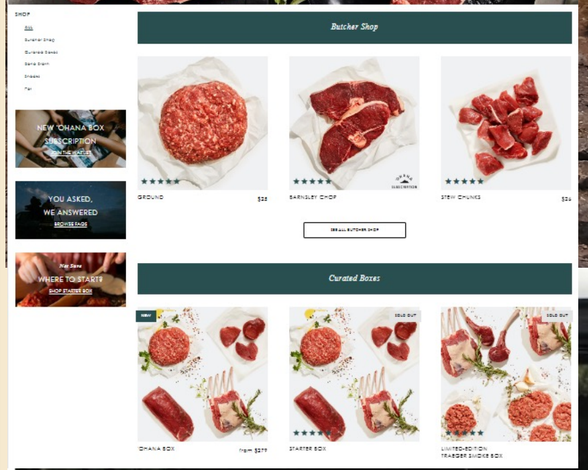
Maui Axis Deer Task Force

Collaboration and Stakeholder Engagement

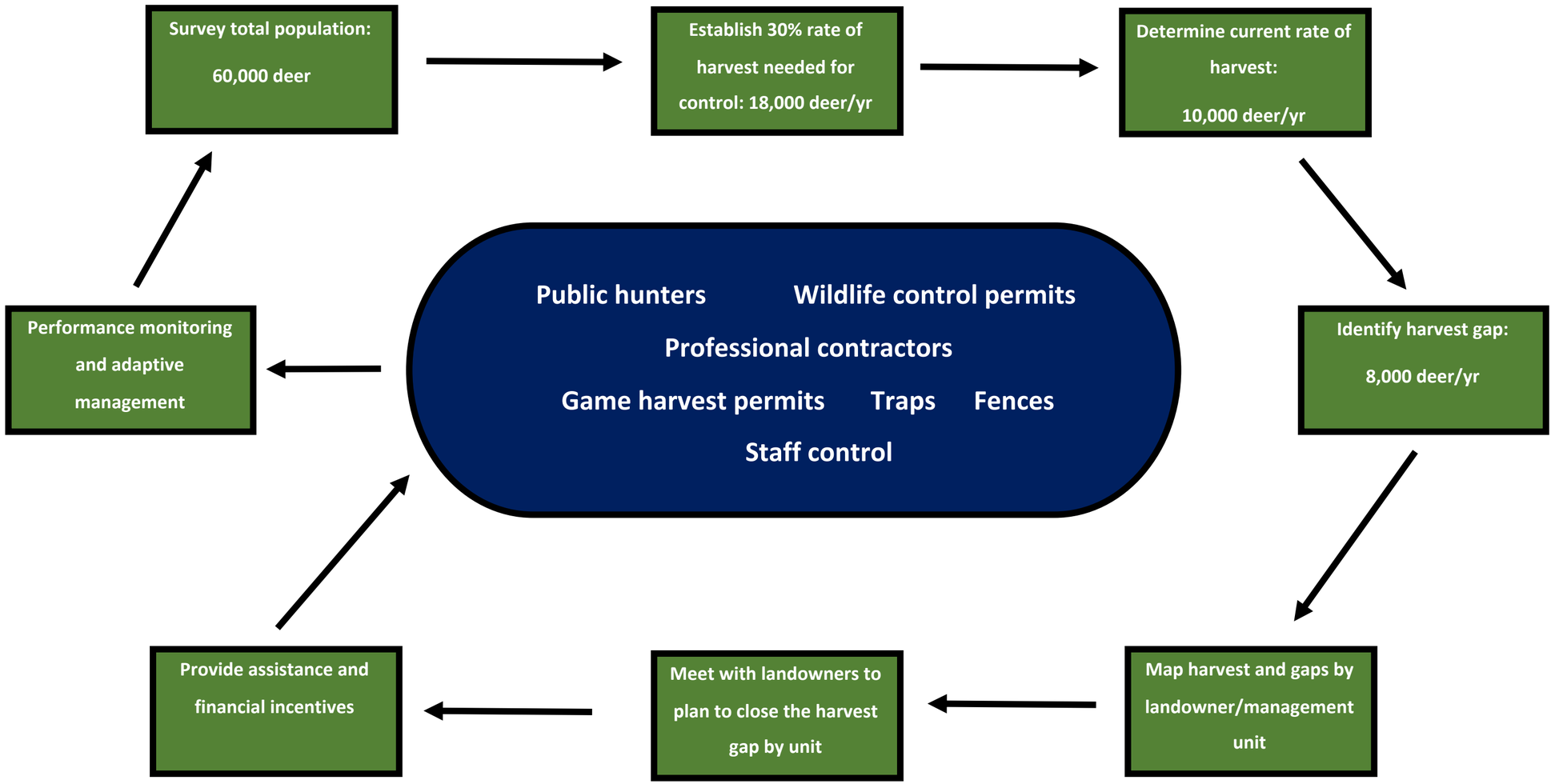
- 1990s Maui axis deer working group
- 2012 Management strategy
- 2020 Maui Axis Deer Task Force
- Action Plan (in prep)

Current Maui Harvest
>10,000 deer/yr

- Landowner incentives
- Public hunting
- Commercial version harvest
- Wildlife control permits (night)
  - Landowner
  - Contractor
- Trapping
- Fences
- Staff control



Maui axis deer management strategy: Annual workflow, concept draft only



Cynthia.b.King@Hawaii.gov
Robert.d.Hauff@Hawaii.gov
David.g.Smith@Hawaii.gov

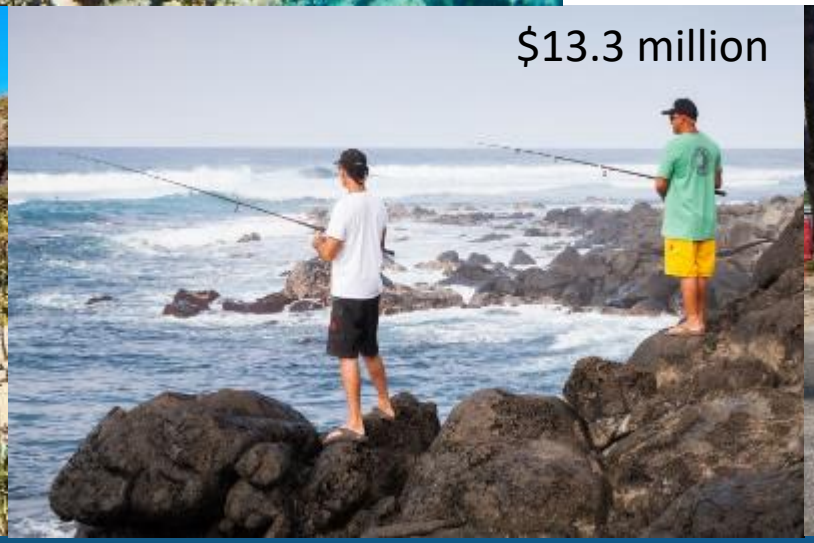
E mālama kākou i ka ʻāina

dlnr.hawaii.gov/dofaw

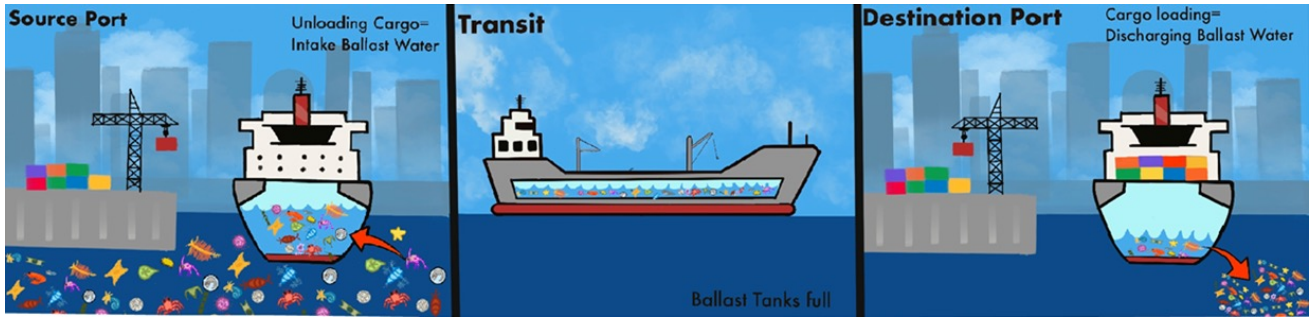

Hawai'i Division of Aquatic Resources
DLNR-DAR
AQUATIC INVASIVE SPECIES
January 26th, 2023
Elizabeth Monaghan
Aquatic Biologist IV, Ballast Water and Hull Fouling Coordinator

Hawai‘i Division of Aquatic Resources

Hawai‘i’s Aquatic Resources



Aquatic Invasive Species (AIS)



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.

- Vectors:
  - Ballast Water and Biofouling
  - Release (Aquarium and Aquaculture)

- Strategy to minimize adverse impacts
  - 1. Prevention
  - 2. Early Detection and Rapid Response
  - 3. Management and Control

Structure of the AIS Team

Aquatic Restoration and Environmental Program

Aquatic Invasive Species Team

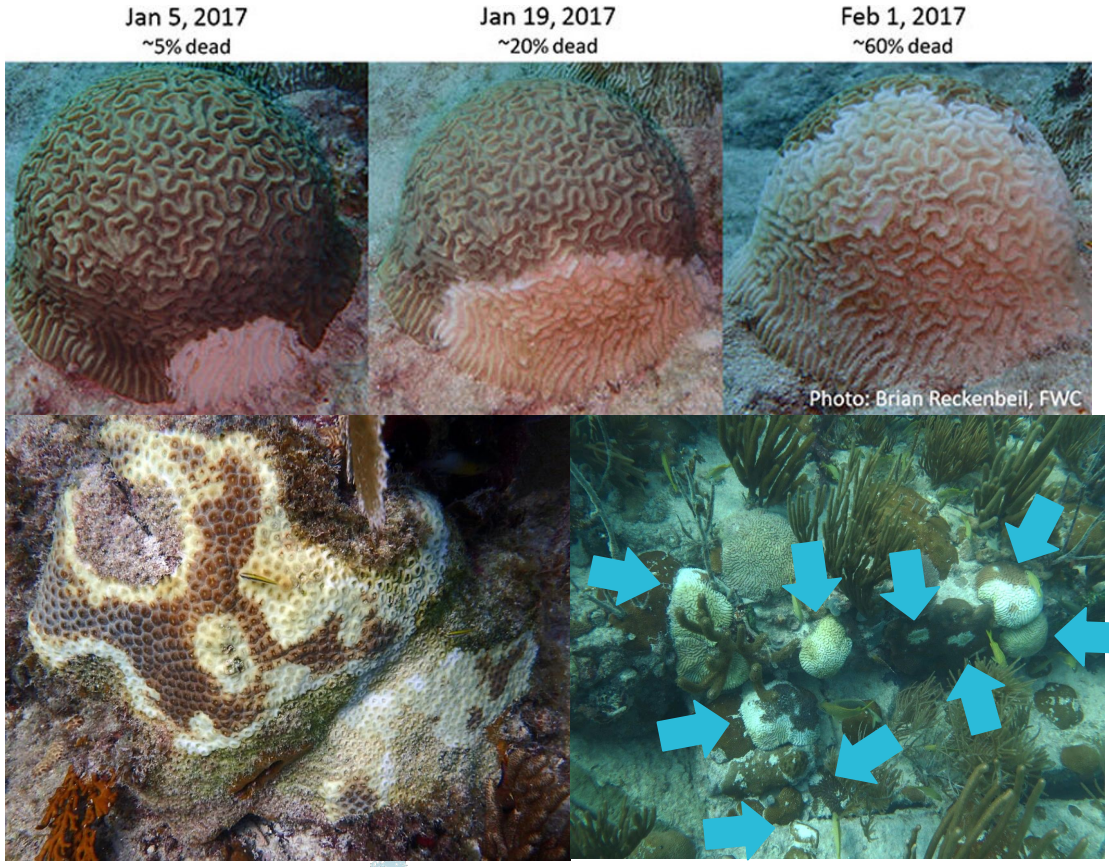
Urchin Hatchery (Contract)

- AIS Field Team Staff:
  - Civil Service
    - 1 Aquatic Biologist IV
    - 1 Aquatic Biologist III
    - 4 Fisheries Technicians IV
  - Contract
    - 1 Monitoring Coordinator
    - 1 Habitat Monitoring Technician

- Ballast Water and Biofouling Staff:
  - Civil Service
    - Aquatic Biologist IV
  - Contract
    - 1 Planning Associate
    - 1 Kupu AmeriCorps Intern

Prevention: Stony Coral Tissue Loss Disease (SCTLD)

- Currently devastating Caribbean- rapid spread and high mortality
- Has been shown to travel via ballast water and is assumed to travel via biofouling communities – high risk to Hawai‘i
- Formed SCTLD working groups, collaborated nationally and internationally to develop response plans, and educated stakeholders.
- Bill



Challenge: The Vessel Incidental Discharge Act (VIDA)

VIDA will:

- **Preempt states** from developing and enforcing ballast water and vessel hull in-water cleaning regulations that are more stringent than the federal regulations
- Allow states to **enforce/co-enforce** the new federal regulations or enforce state regulations that mirror federal regulations
- Prohibit states from charging shipping companies a **fee** to support this regulatory work = *no revenue to build a DAR team*

Prevention: Risk Screening

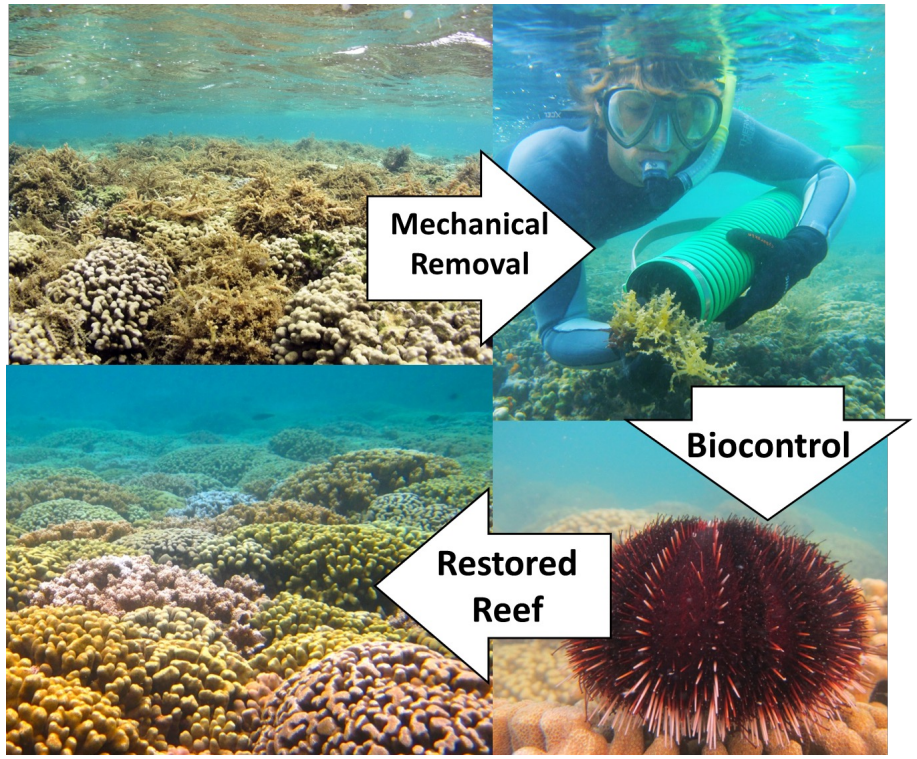
- Completed risk screenings for species to assess the risk of invasion to Hawai‘i.
- Completed ongoing ballast water risk screenings to identify high risk vessels.

Rapid Response to AIS

- Since 2020 we have rapidly responded to 4 high risk introductions
  - Dry Dock
  - Kāne‘ohe Corals and Anemone
  - Kaua‘i Corals
  - Ala Wai Corallimorph

Hawai‘i Division of Aquatic Resources

Invasive Algae Management



- Approximately 988,000 urchins produced
- Kāne‘ohe Bay Area Treated: 951,132 m^2 (~235 acres)
- Waikīkī MLCD Area Treated: 120,000 m^2 (~30 acres)
- Pilot projects with community groups and researchers

AIS 2022 – Challenges

- Challenges with revenue (VIDA)
- 3 Unfunded Civil Service Positions: 1- Aquatic Biologist III, 2- AIS Fishery Technicians
  - Funding Restored as of January 2023!!!
  - Selected AB III
  - Hoping to hire FT IV ASAP




Hawai'i Division of Aquatic Resources

AIS 2023 – Priorities

- Work to educate on VIDA and implications for AIS in Hawaii
- Prioritize prevention and response to species of concern such as SCTLD and pathways that are high risk
- Continue invasive algae management with native urchin biocontrol
- Expand DAR AIS program capacity and reach

Contact Us:

- General AIS: kimberly.h.fuller@hawaii.gov
- Ballast Water/Hull Fouling/SCTLD: elizabeth.a.monaghan@hawaii.gov

http://dlnr.hawaii.gov/ais/