

Department of Land & Natural Resources Division of Aquatic Resources

Hawaii Interagency Biosecurity Plan January 2019 Progress Update



What is Hawaii's Aquatic Alien Status Quo?

Region	Aquatic NIS spp.	Reference
Hawaii	>348	<u>Eldredge & Carlton, 2009</u>
Continental US	450	Ruiz et al., 2014
Australia	160	Hewitt et al., 2004



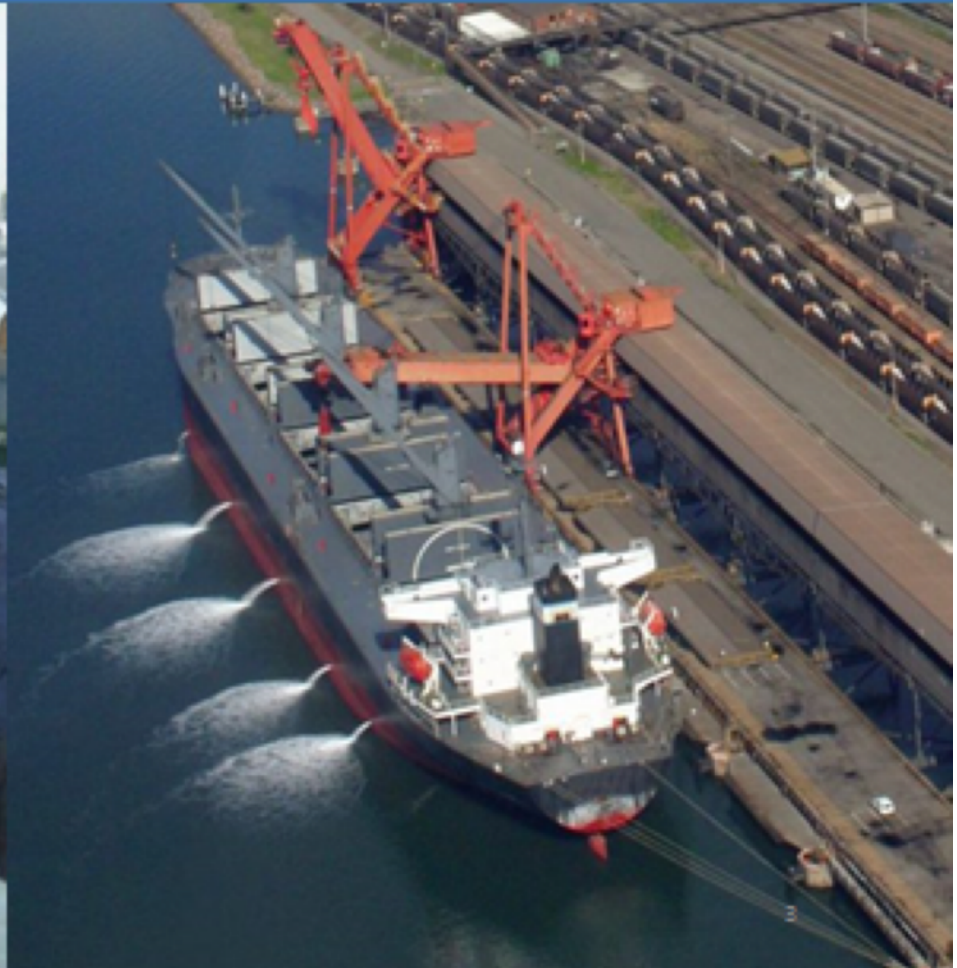
Hawaii Reliant on Shipping



Biofouling



Ballast Water



What is At Risk to Aquatic Invaders



International Dissemination of Epidemic *Vibrio cholerae* by Cargo Ship Ballast and Other Nonpotable Waters

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Received 12 December 1993/Accepted 25 April 1994

In 1991 and 1992, toxigenic *Vibrio cholerae* O1, serotype Inaba, biotype El Tor, was recovered from nonpotable (ballast, bilge, and sewage) water from five cargo ships docked in ports of the U.S. Gulf of Mexico. Four of these ships had taken on ballast water in cholera-infected countries; the fifth took on ballast in a noninfected country. Isolates examined by pulsed-field gel electrophoresis were indistinguishable from the Latin American epidemic strain, C6707; however, they differed significantly from the endemic Gulf Coast strain (VRL 1984), the sixth-pandemic strain (569-B), and a *V. cholerae* non-O1 strain isolated from a ship arriving from a foreign port. On the basis of our findings, the Food and Drug Administration recommended that the U.S. Coast Guard issue an advisory to shipping agents and captains requesting that ballast waters be exchanged on the high seas before entry of ships into U.S. ports.



Hawaii Needs Our Protection

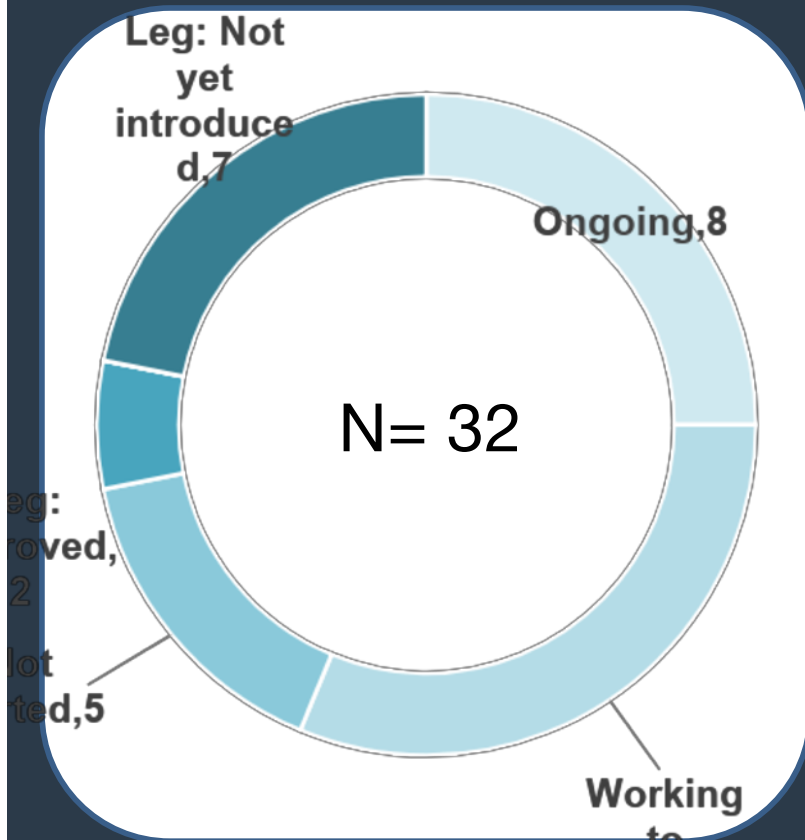


Primary Biosecurity Roles

- Border inspection of ballast water & biofouling
- Postborder response to aquatic invasive species



DAR HIBP Actions



Highlights:

- Established civil service Ballast Water & Biofouling position
- Evaluating in-water cleaning technology
- Developing ballast water regulations
- Ongoing urchin release to control invasive algae in Kaneohe Bay

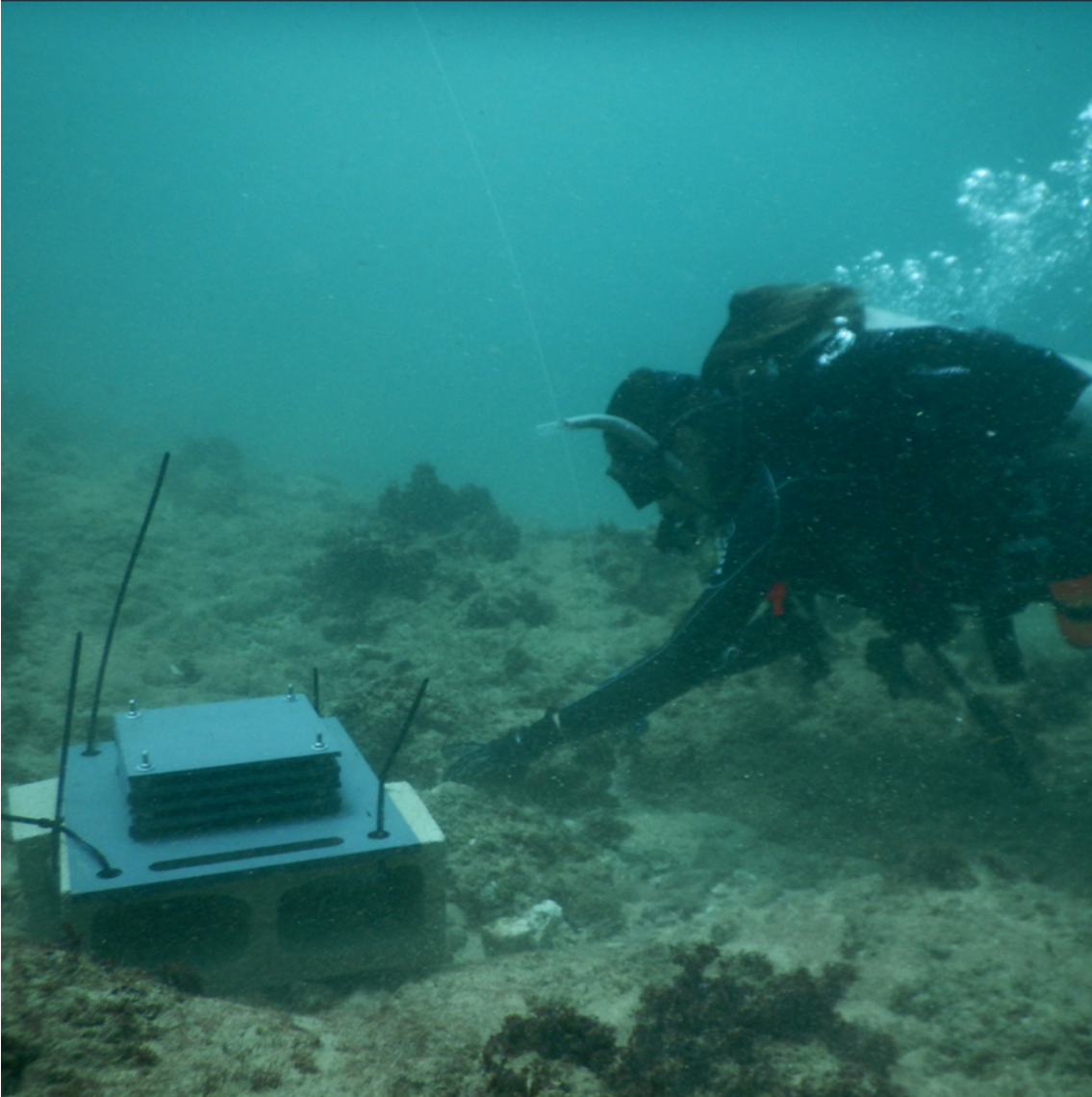
Remaining Needs:

- Establishing aquatic inspection fee & personnel prior to federal discharge act
- Increased funds for AIS response

2018 Biosecurity Accomplishments



2018 Biosecurity Accomplishments



2018 Biosecurity Accomplishments

HOUSE OF REPRESENTATIVES
TWENTY-NINTH LEGISLATURE, 2018
STATE OF HAWAII

H.C.R. NO. 130

HOUSE CONCURRENT RESOLUTION

URGING STATE AGENCIES TO EVALUATE, COLLABORATE, AND IMPLEMENT
BEST MANAGEMENT PRACTICES, TECHNOLOGIES, AND REGULATIONS TO
ADDRESS VESSEL BIOFOULING IN HAWAII HARBORS.

1 WHEREAS, biofouling, or biological fouling, is the
2 accumulation of microorganisms, plants, algae, or animals on a
3 wetted surface, such as the hull of a shipping vessel; and

4
5 WHEREAS, biofouling begins to accumulate on submerged
6 portions of vessels within a few weeks, and this layer of
7 microfouling facilitates the growth of larger fouling organisms
8 that can decrease the efficiency and safe operation of a vessel;
9 and

10
11 WHEREAS, studies have shown that biofouling on shipping
12 vessels is an important vector of aquatic invasive species
13 transfer, which, if established in new ecosystems, may pose
14 threats to the environment, human health, property, and
15 resources; and

16
17 WHEREAS, the *Hawaii Interagency Biosecurity Plan 2017-2027*
18 recognizes that up to seventy-eight percent of Hawaii's non-
19 native marine algae and invertebrate species can be attributed
20 to vessel biofouling; and

21
22 WHEREAS, the *Hawaii Interagency Biosecurity Plan 2017-2027*
23 calls on the Department of Land and Natural Resources,
24 Department of Agriculture, Department of Health, and Department
25 of Transportation to develop hull husbandry practices and
26 proactive hull cleaning standards for nonmilitary vessels to
27 minimize movement of non-native aquatic organisms into Hawaii's
28 ports, harbors, and marinas; and

29

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H.C.R. NO. 130

1 WHEREAS, section 187A-32, Hawaii Revised Statutes,
2 designates the Department of Land and Natural Resources as the
3 lead state agency for preventing the introduction of non-native
4 aquatic organisms through the regulation of hull fouling
5 organisms; and

6
7 WHEREAS, Chapter 342D, Hawaii Revised Statutes, tasks the
8 Department of Health with administering water pollution control
9 regulations and enforcing water quality standards; and

10
11 WHEREAS, section 266-1, Hawaii Revised Statutes, provides
12 that all vessels and shipping within the State's commercial
13 harbors and roadsteads are under the care and control of the
14 Department of Transportation; and

15
16 WHEREAS, the maritime industry is an important component of
17 the State's economy; and

18
19 WHEREAS, a high level of coordination between various state
20 agencies will be required to develop and implement safe and
21 effective measures for management of biofouling in Hawaii's
22 harbors; and

23
24 WHEREAS, commercial shipping companies have made great
25 efforts to adopt voluntary best management practices to reduce
26 vessel biofouling, including the use of less toxic protective
27 hull coatings and by cleaning and reapplying coatings within
28 recommended timeframes; and

29
30 WHEREAS, the Alliance for Coastal Technologies and the
31 Maritime Environmental Resource Center have developed a program
32 for testing full-capture biofouling removal technologies and
33 have formally invited participation from Hawaii's agencies in
34 its testing programs; and

35
36 WHEREAS, the State has been requested to represent isolated
37 tropical island climates for this program; and

38
39 WHEREAS, Chapter 194, Hawaii Revised Statutes, authorizes
40 the Hawaii Invasive Species Council to advise and coordinate
41 invasive species-related efforts with and between state,

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Vessel Incidental Discharge Act (VIDA)



- VIDA approved on 12/4/18
- EPA and USCG to lead implementation
- **Hawaii interisland carve out**
- Honor system based compliance assurance
- Ground truthing documentation by authorities not required

Priorities in 2019

HOUSE OF REPRESENTATIVES
THIRTIETH LEGISLATURE, 2019
STATE OF HAWAII

H.B. NO. 746

A BILL FOR AN ACT

RELATING TO AQUATIC BIOSECURITY.

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

- 1 SECTION 1. The legislature finds that the introduction and
2 spread of alien aquatic organisms poses an unprecedented threat

Priorities in 2019-2022



Other Priorities



Hawaii's Cultural Resources Need Our Protection



Department of Land & Natural Resources Division of Forestry & Wildlife

Hawaii Interagency Biosecurity Plan January 2019 Progress Update

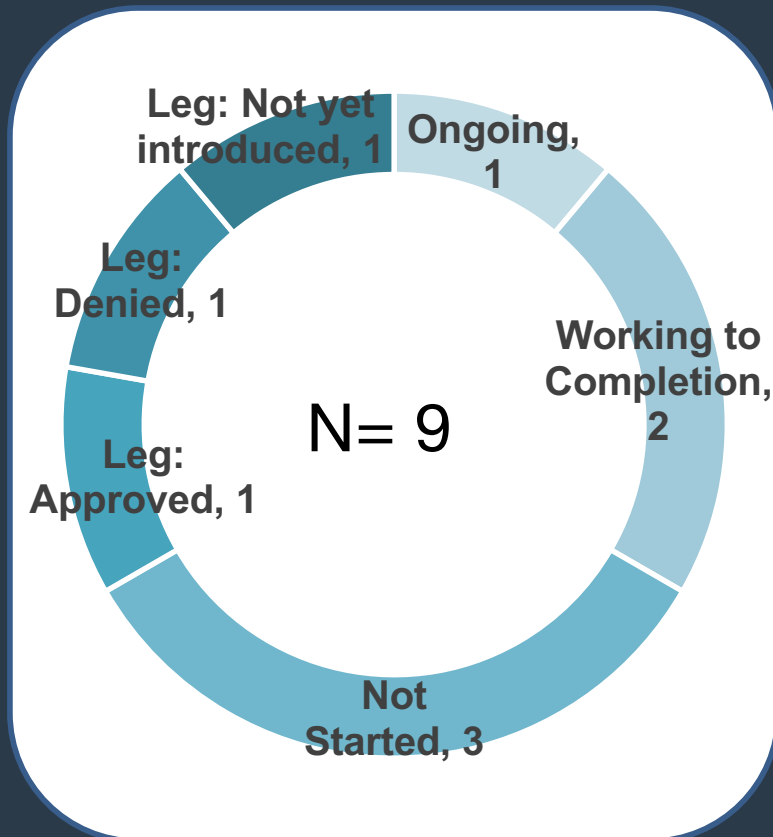


Primary Biosecurity Roles

- Postborder detection and response for invasive species threatening natural resources
- Postborder control of invasive species in protected areas



DOFAW HIBP Actions



Highlights:

- Increased watershed protection via fencing & control of invasives
- Coordinating response to Rapid Ohia Death
- Supporting new biosecurity research via HISC funding
- Developed 643pest.org online pest reporting tool under HISC

Remaining Needs:

- Biosecurity techs for DOFAW-managed areas (10 requested in 2019)
- Additional funds for fencing, coqui, ROD, and HISC projects

Water

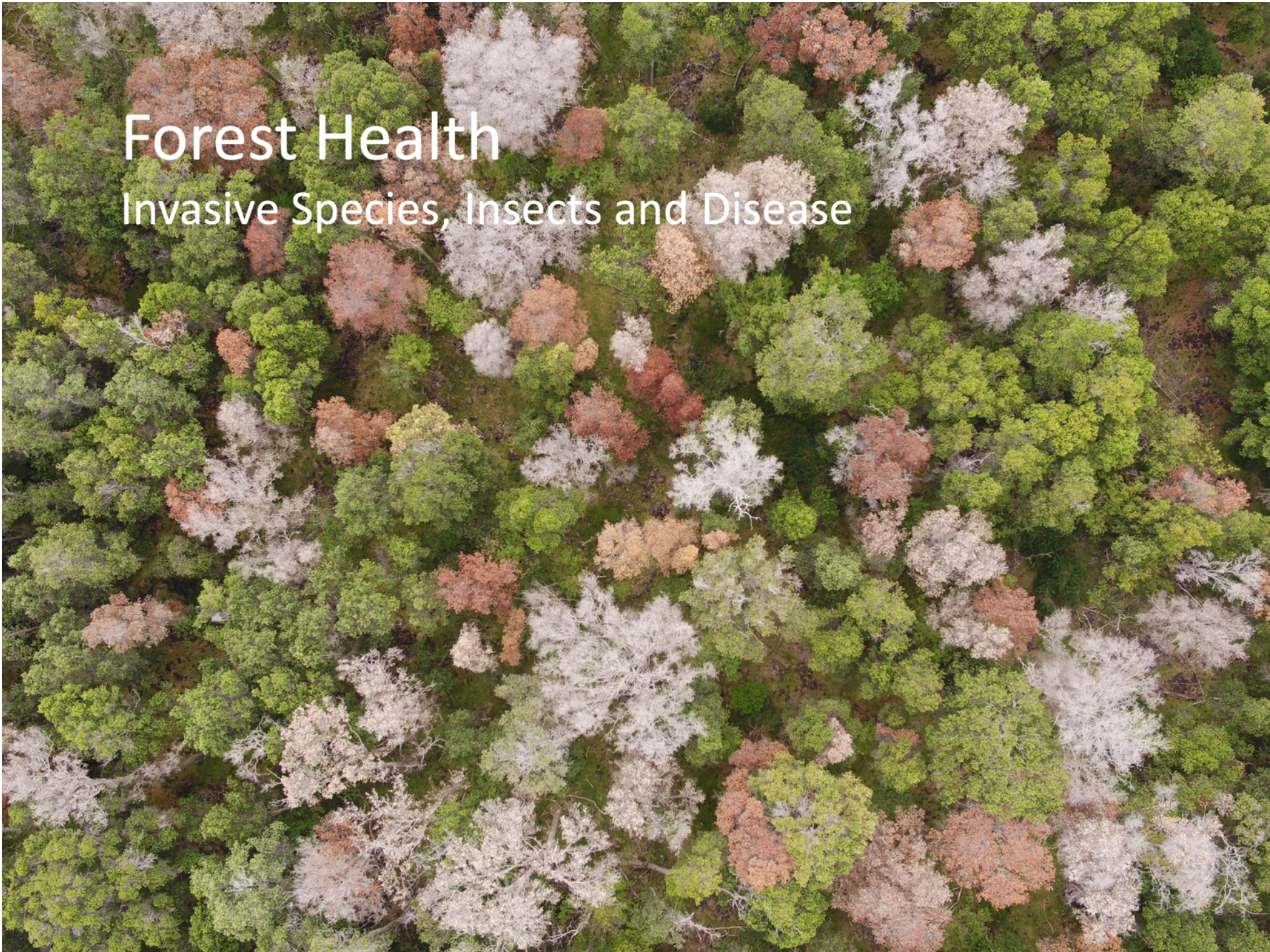


Wildfire



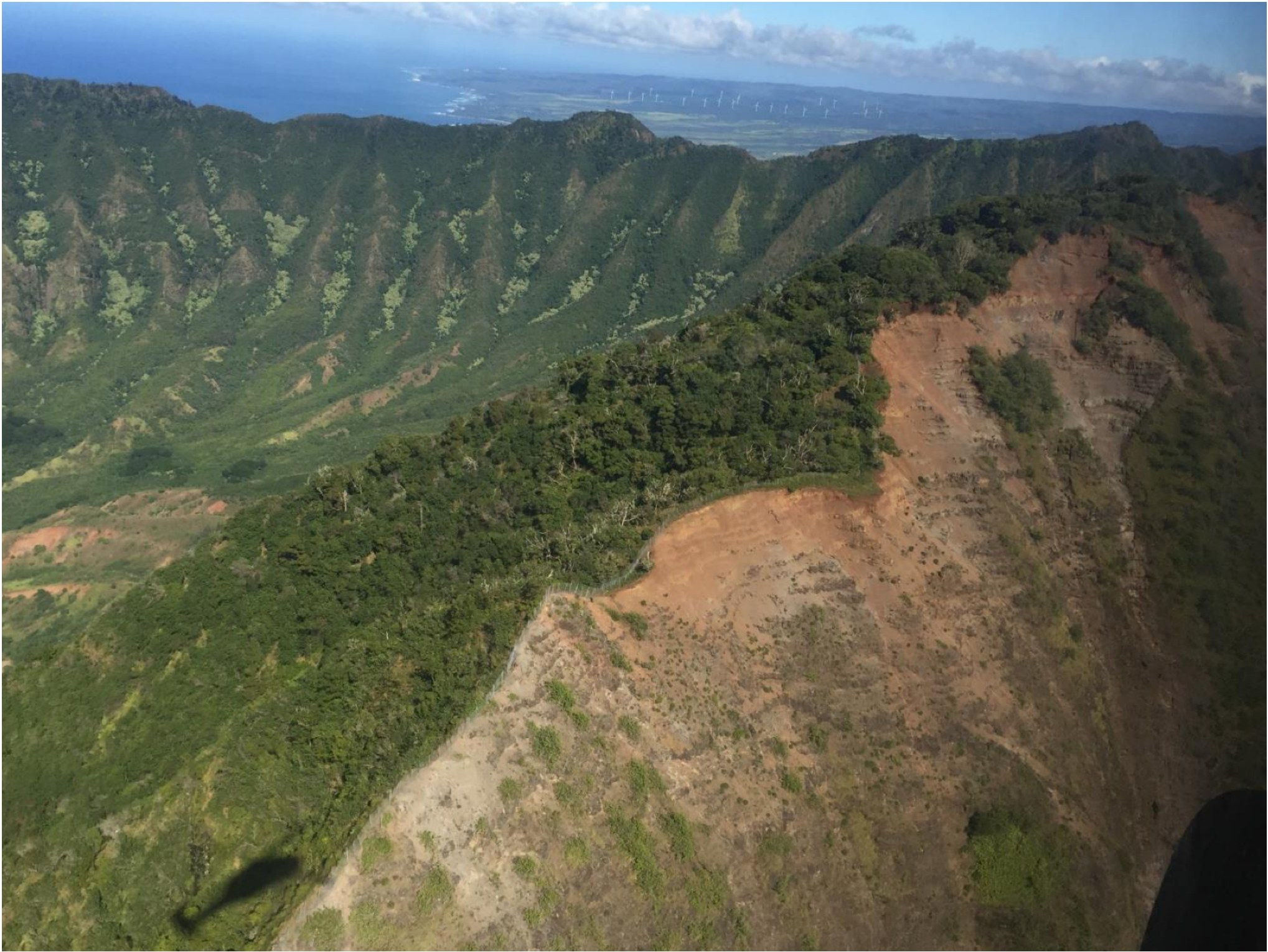
Forest Health

Invasive Species, Insects and Disease

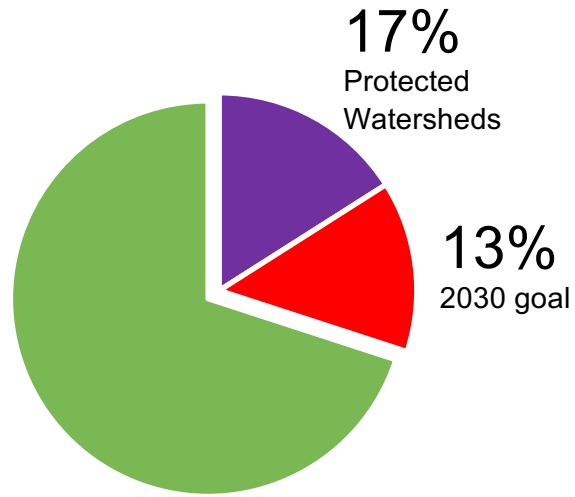




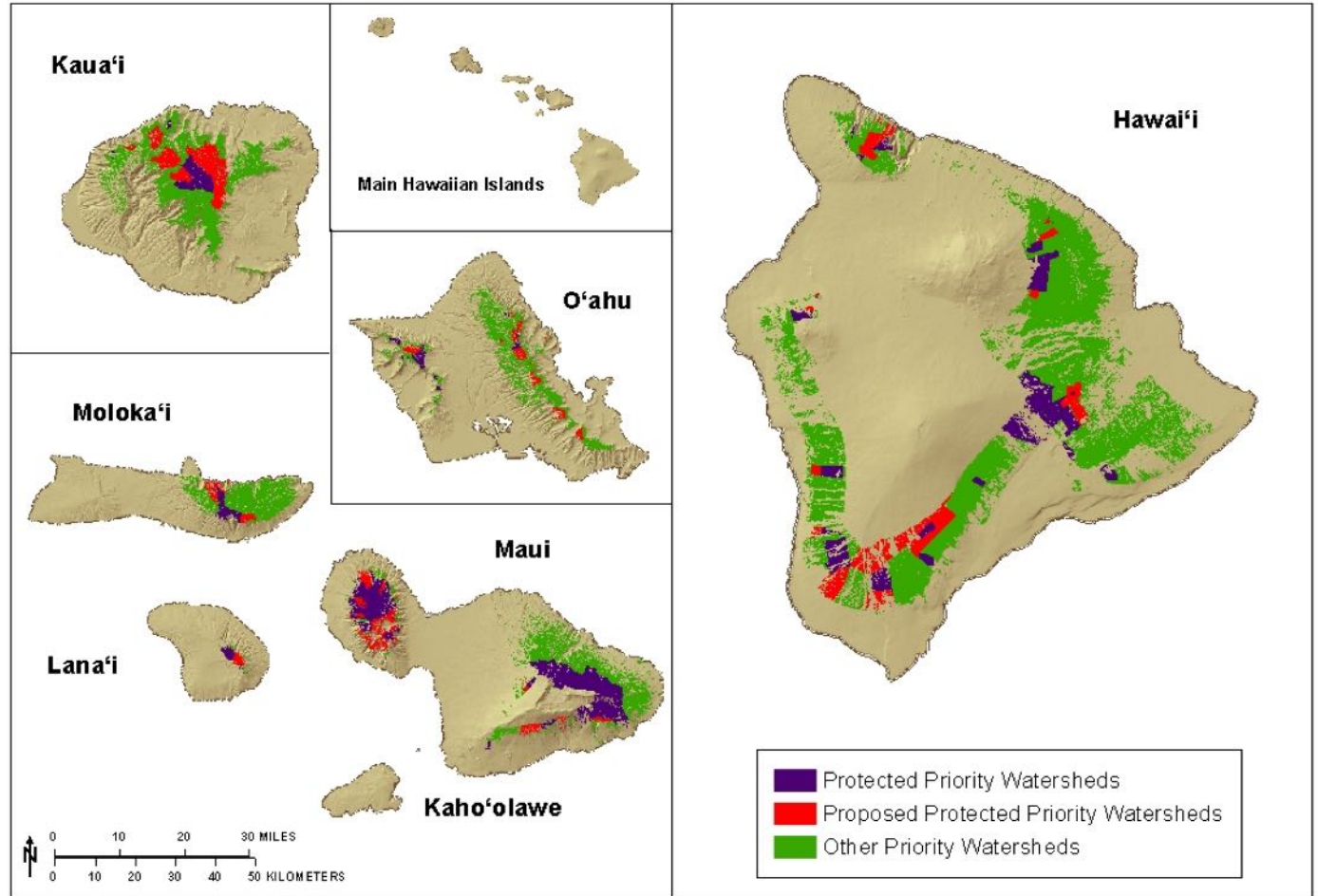




30x30 Watershed Plan



Priority Watersheds



Features approximate and subject to change. DOFAW587-4170.

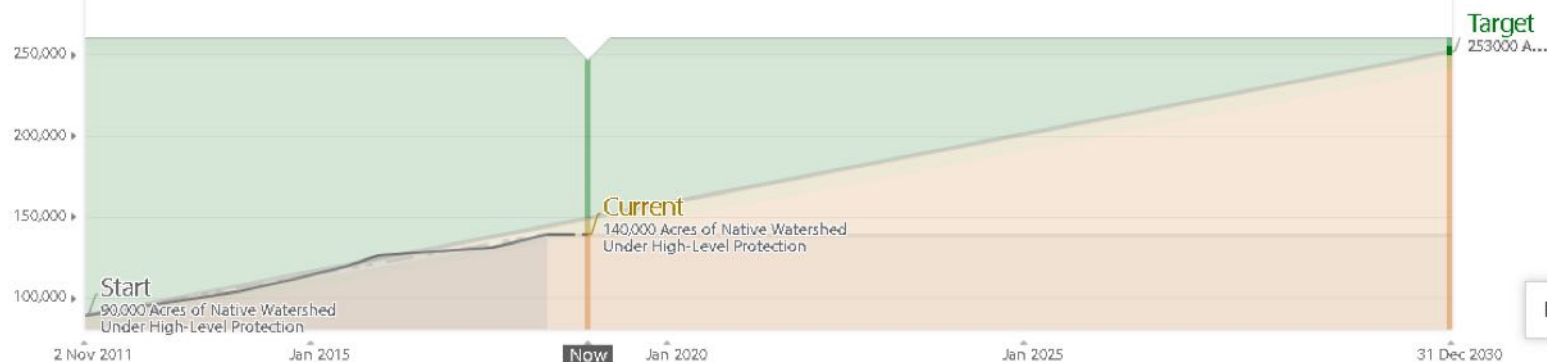
Protect 30 Percent of Watershed Forests by 2030



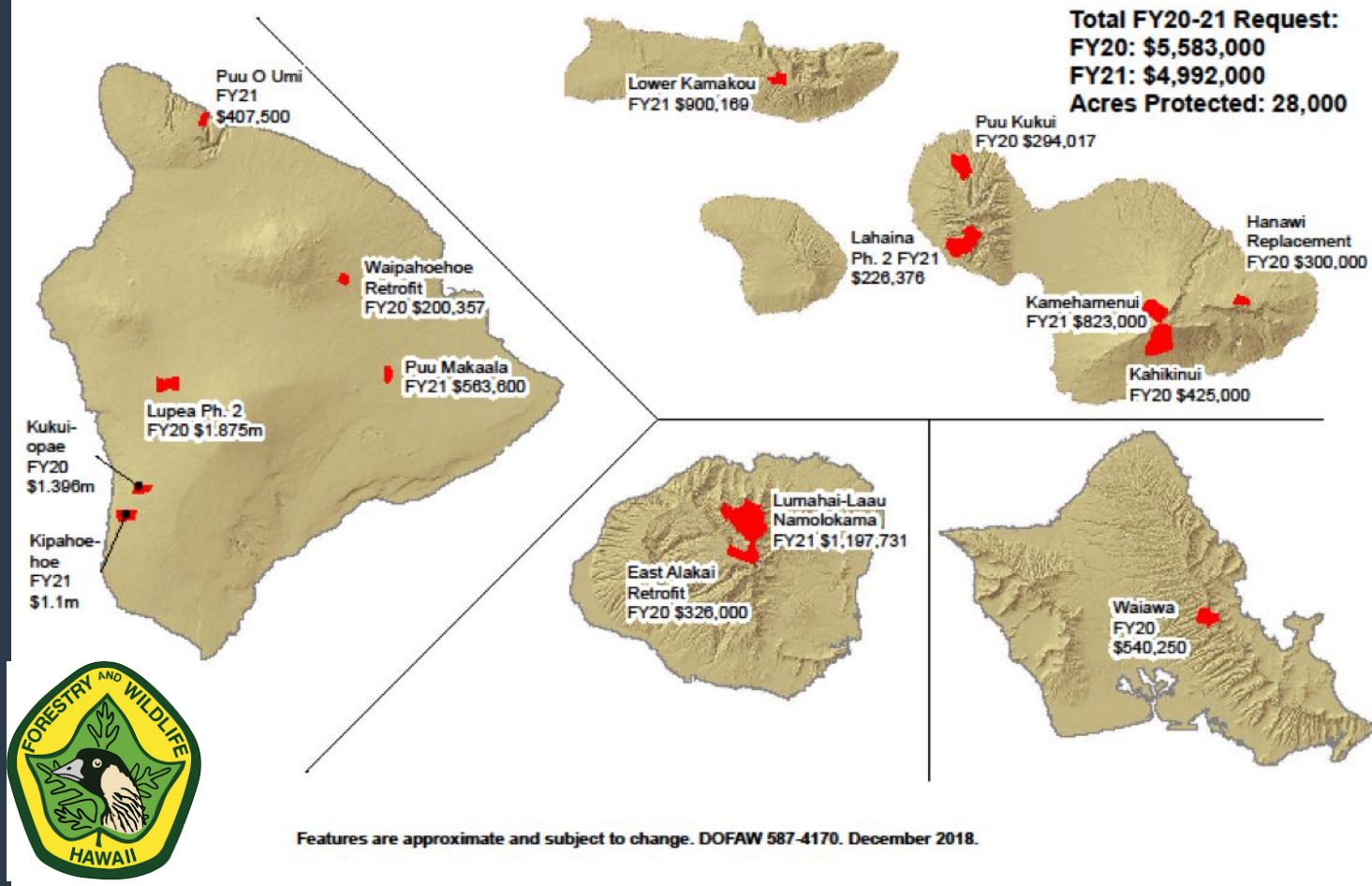
HOW WE'RE TRACKING PROGRESS: This goal is measured by tracking Native Priority Watersheds Under High Level of Protection [Explore the data](#)

140,000 Acres of Native Watershed Under High-Level Protection
Current as of Apr 2018

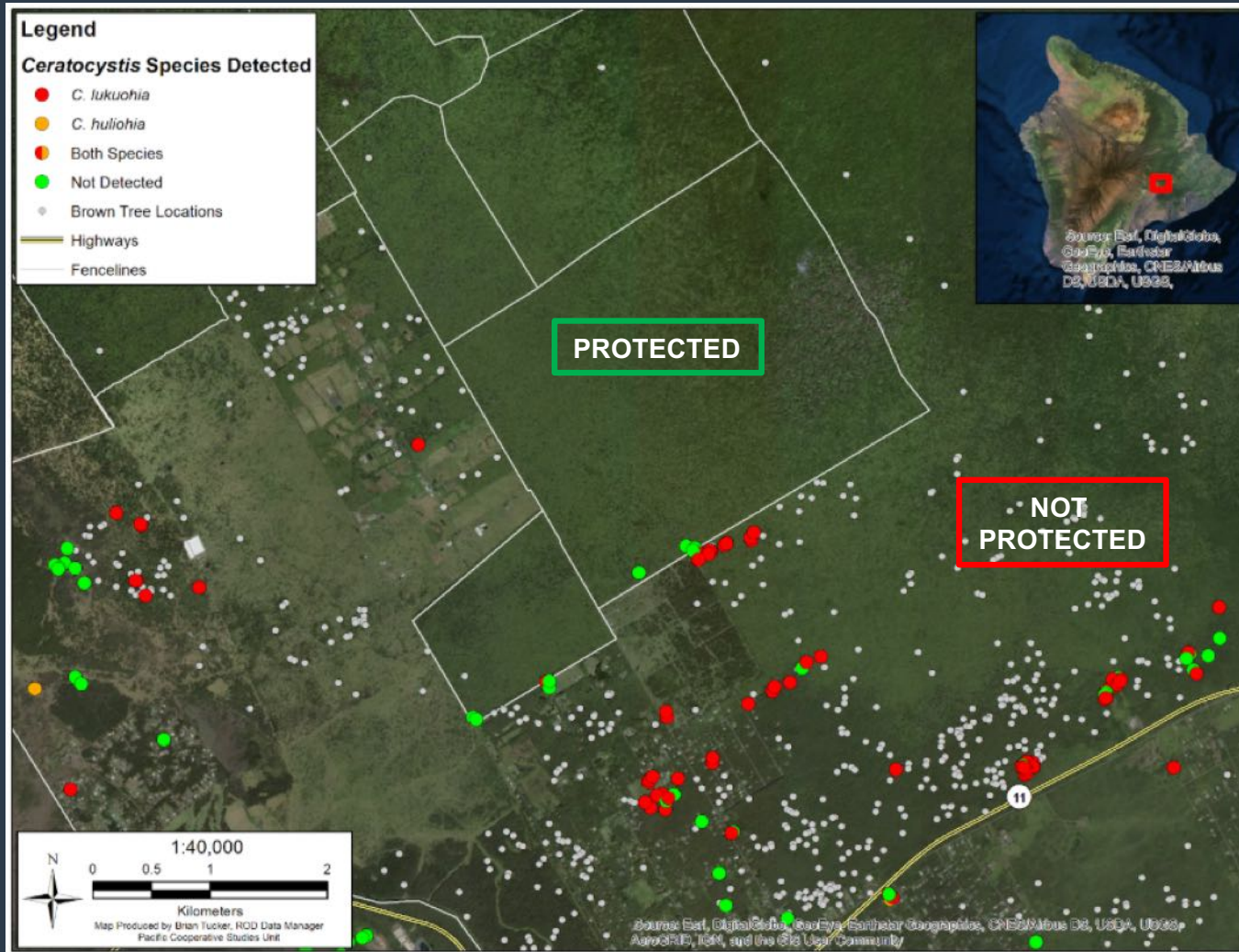
▶ **253,000** Acres of Native Watershed Under High-Level Protection
Dec 2030 Target



Watershed Protection and Initiatives, SW Requested FY 20-21 CIP Proj. D01A (LNR 407)



Ola'a tract near Volcano



Kapāpala Ranch – Southeast Mauna Loa

