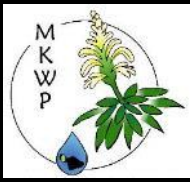


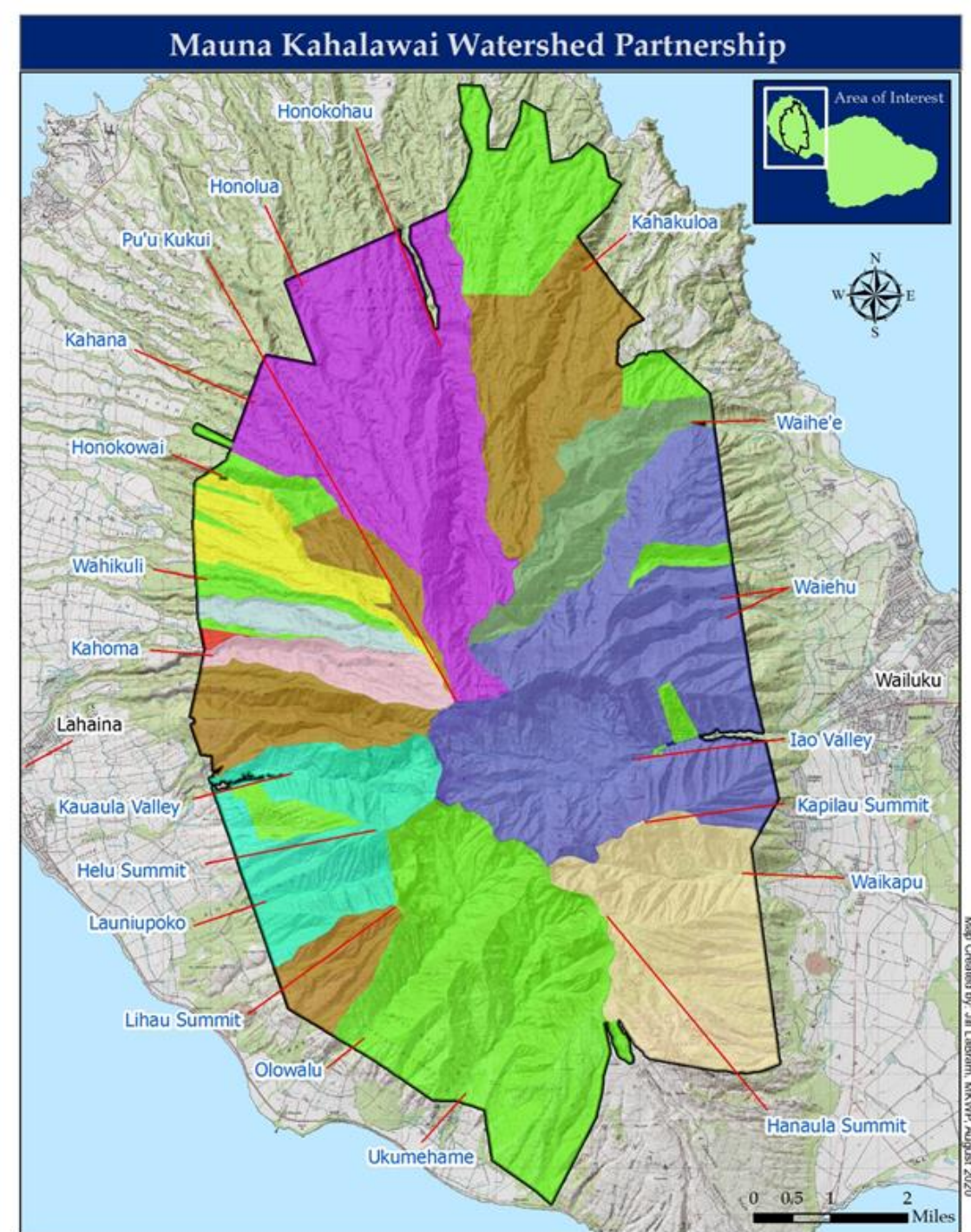
*Maui County Council  
Agriculture and Public Trust Committee  
February 1, 2022*



## MKWP Overview

- *Formed in 1998*
- *Malama Kahalawai 501c3*
- *47, 322 acres*
- *20,630 public acres @ 44%*
- *26,692 private acres @ 56%*
- *12 Partners*

	Dept. of Water Supply (Maui County)
	Hanaula Ranch, LLC
	Kaanapali Land Mgmt. Corp./The Nature Conservancy
	Kahoma Land Company, LLC
	Kahoma Land Holdings, LLC
	Kamehameha Schools
	Makila Land Company, LLC
	Maui Land & Pineapple Co., Inc.
	State of Hawaii - Natural Area Reserves
	State of Hawaii - Forest Reserves
	Wailuku Water Company, LLC
<b>Associate Partners</b>	
US Fish and Wildlife Service	





**MAUNA KAHALAWAI  
WATERSHED PARTNERSHIP**

**THE MEMORANDUM OF UNDERSTANDING**

This Memorandum of Understanding (MOU) is entered into by and between the following parties:

**Parties:**

- Maui County:** Represented by [Name]
- Maui Nui Water Company:** Represented by [Name]
- Maui Forest & Land Trust:** Represented by [Name]
- Maui Land & Natural Resources:** Represented by [Name]
- Maui Water Resources:** Represented by [Name]
- Maui Watershed Partnership:** Represented by [Name]

**WITNESSETH:**

That the parties have agreed to the following terms and conditions:

1. The parties agree to work together to protect and enhance the Mauna Kahalawai Watershed.

2. The parties agree to share information and resources related to the watershed.

3. The parties agree to coordinate efforts to address watershed issues.

4. The parties agree to consult with each other on any proposed actions that may affect the watershed.

5. The parties agree to monitor the watershed and report on the results of their efforts.

6. The parties agree to resolve any disputes through mediation.

7. This MOU shall remain in effect for a period of five (5) years, unless terminated or renewed by the parties.

8. This MOU shall be signed by the authorized representatives of the parties.

9. This MOU shall be signed in duplicate, with one copy to be retained by each party.

10. This MOU shall be signed in the English language.

11. This MOU shall be signed on or before the date of the signing ceremony.

12. This MOU shall be signed at the location of the signing ceremony.

13. This MOU shall be signed in the presence of the witnesses.

14. This MOU shall be signed in the presence of the public.

15. This MOU shall be signed in the presence of the media.

16. This MOU shall be signed in the presence of the community.

17. This MOU shall be signed in the presence of the state.

18. This MOU shall be signed in the presence of the federal government.

19. This MOU shall be signed in the presence of the United Nations.

20. This MOU shall be signed in the presence of the world.

# FY 21 Business ~ \$ 1,184,451

## FY22 Additional Sources

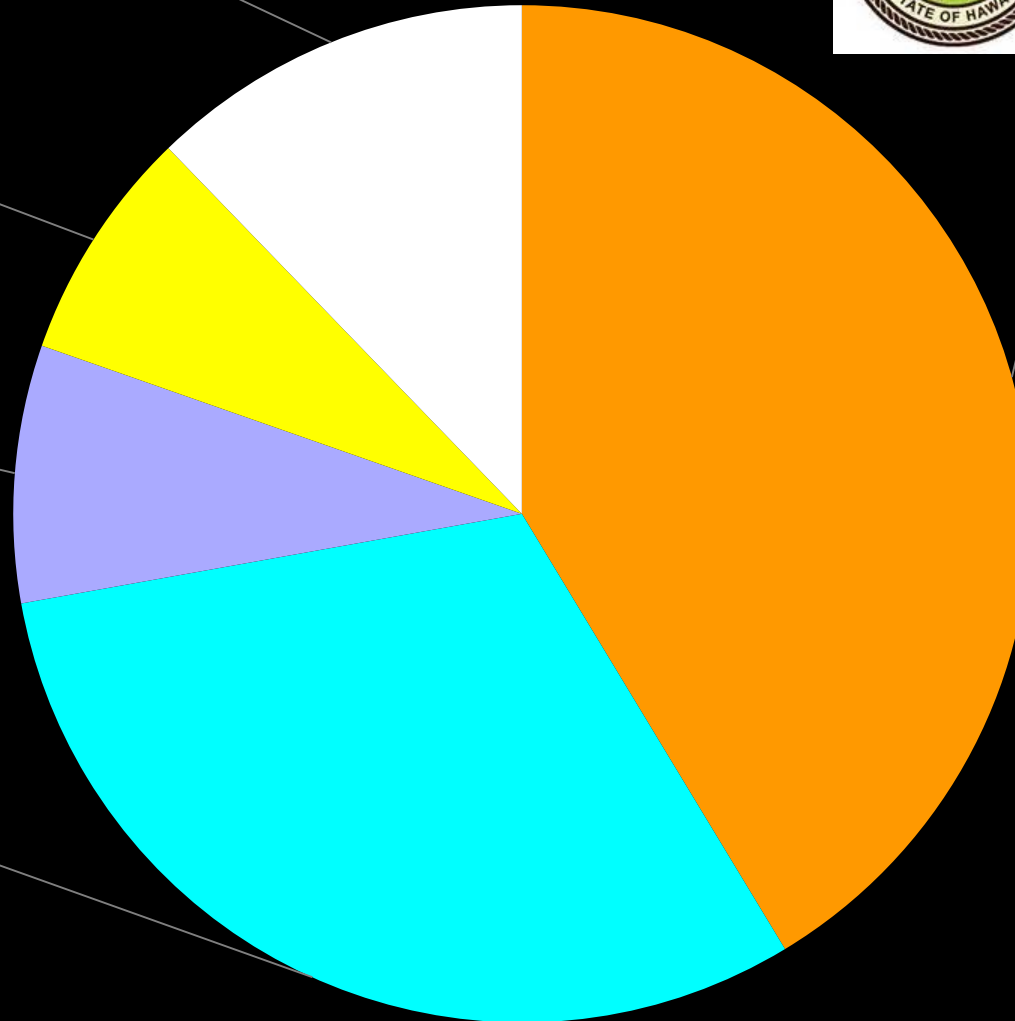
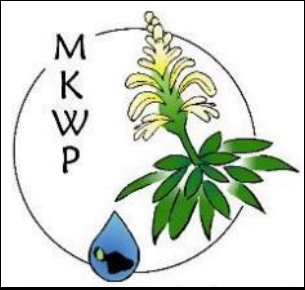
12%

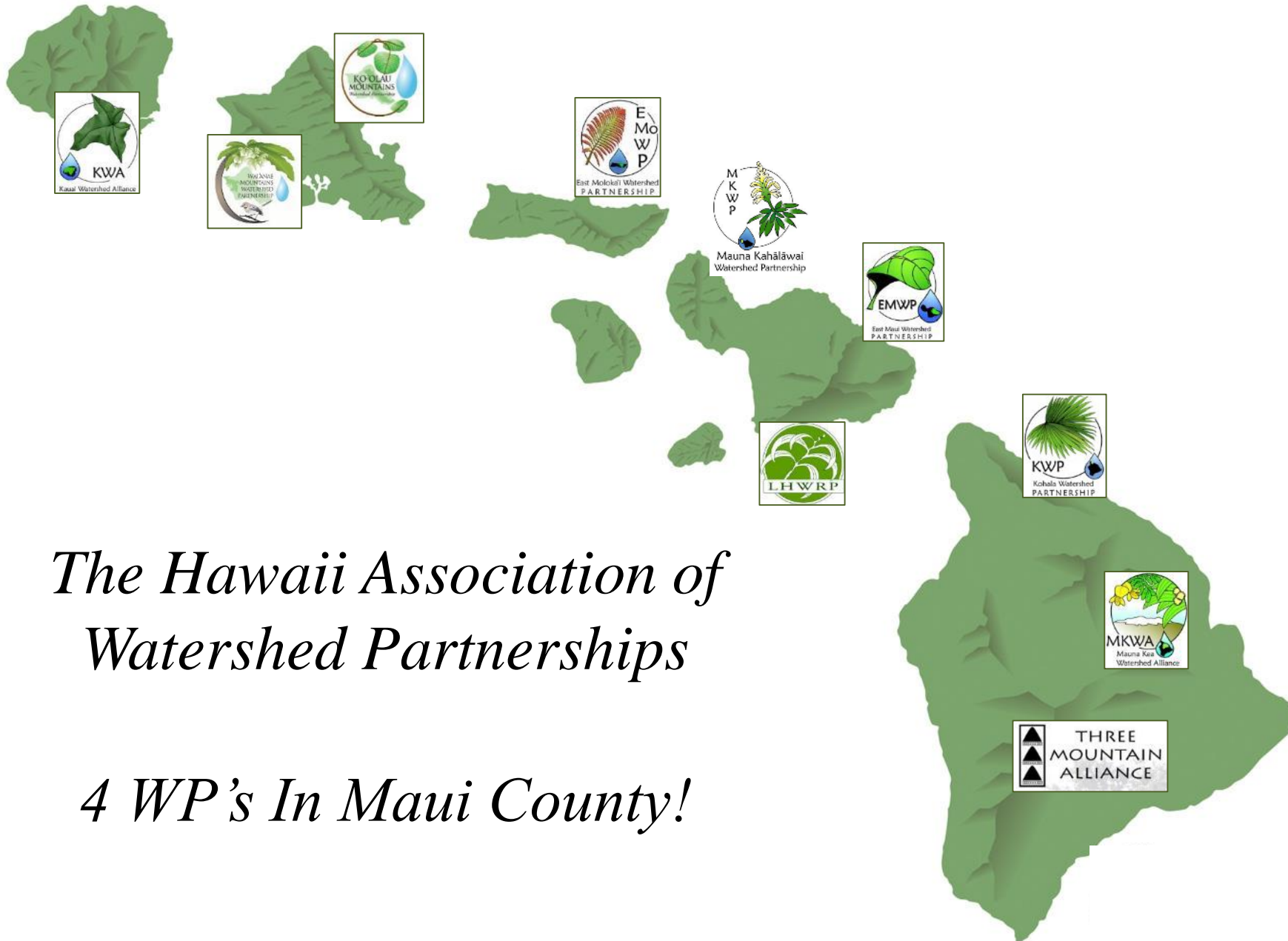
41%

8%

8%

31%





# *The Hawaii Association of Watershed Partnerships*

*4 WP's In Maui County!*



# *Field Crew*







# *Source Water Resources & Ecological Functions*

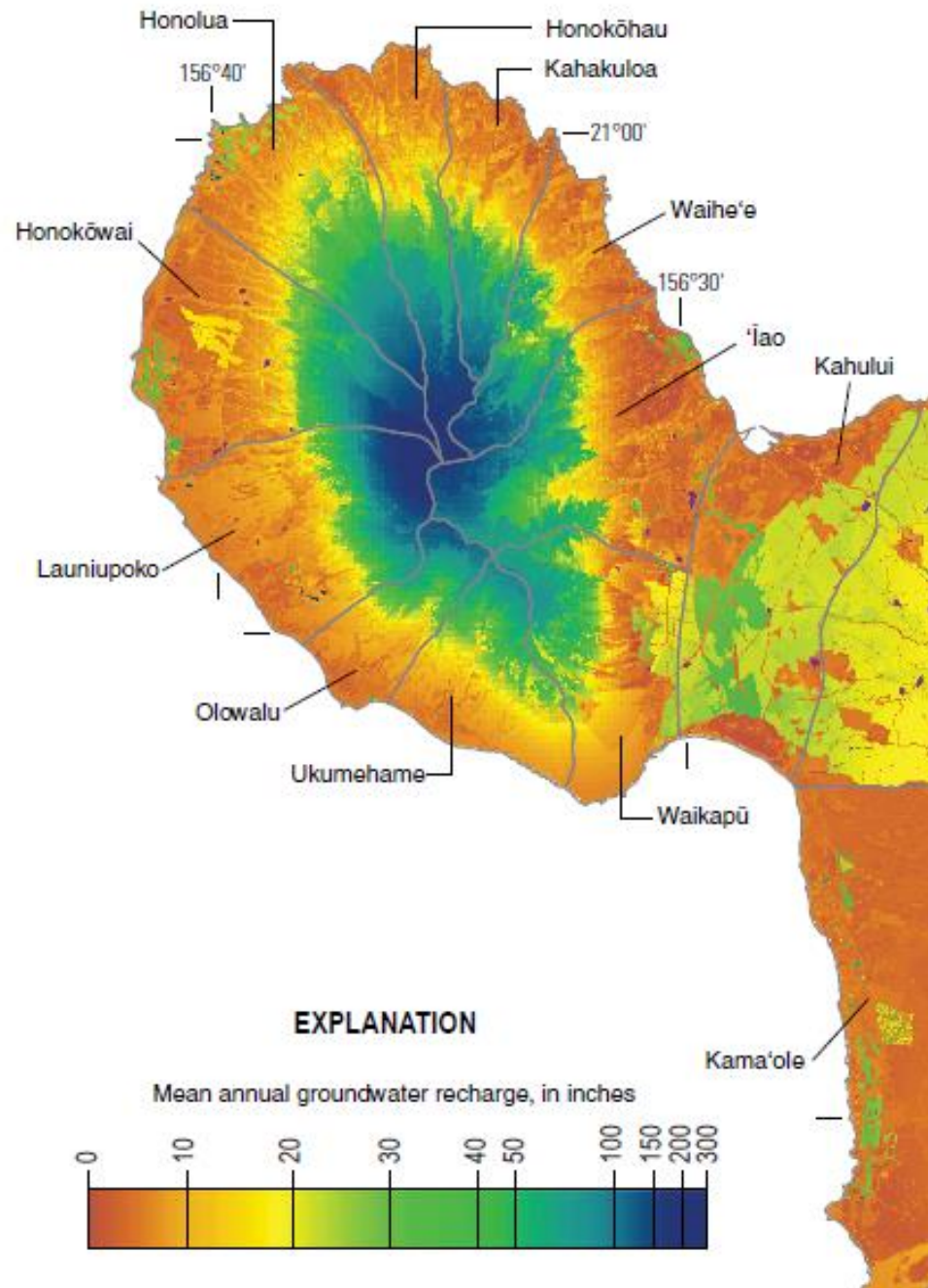
## *“Essential Recharge Area”*

*77%  
of Dept. of Water  
Supply water  
provided by  
MKWP  
aquifers & streams,*

## *“Ecological Resources”*

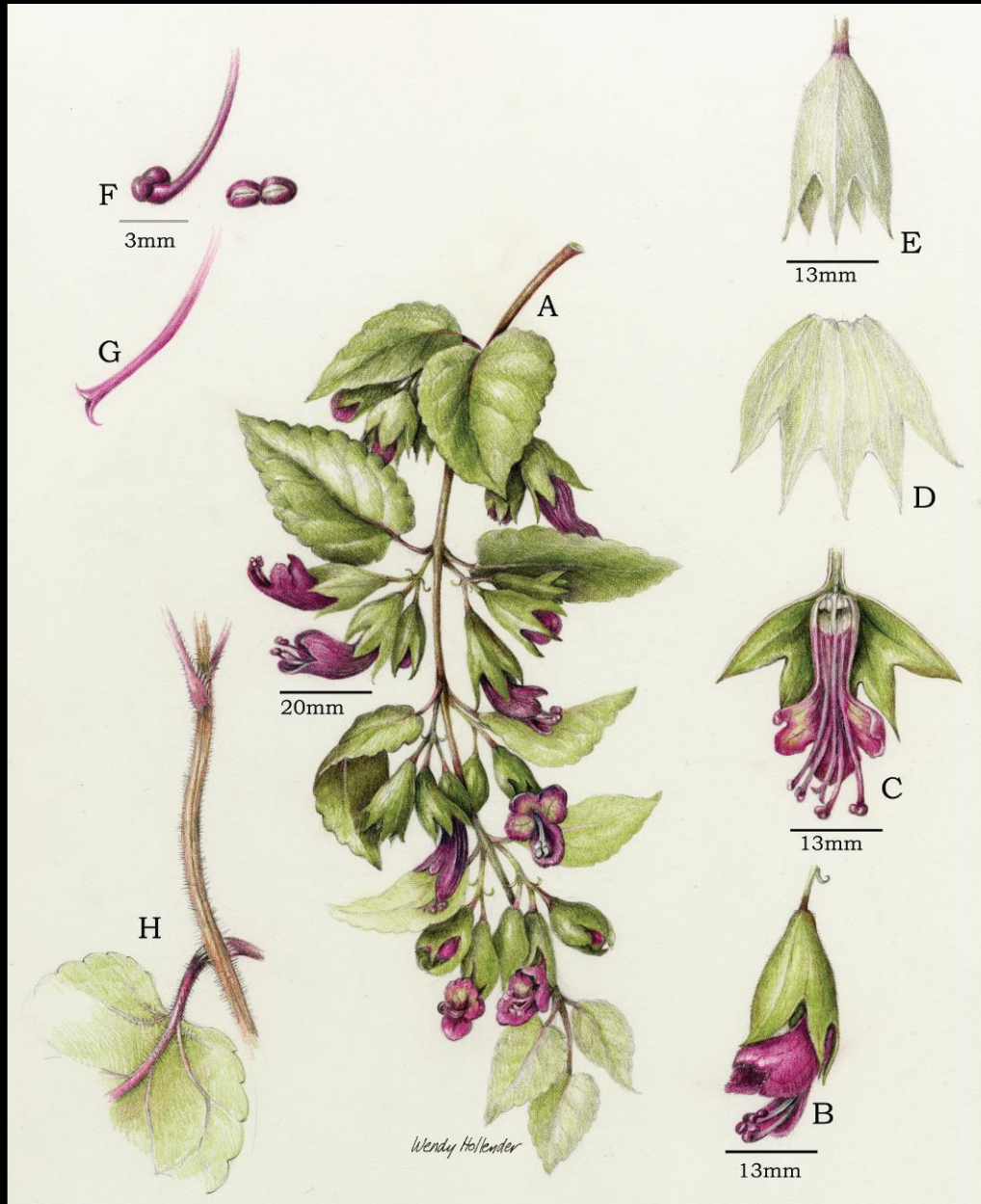
*70%  
Native Dominated  
Plant  
Communities,  
170  
Endangered &  
Rare Elements*

# *Priority Water Recharge Area “Water Tower”*



*Average annual recharge from 1978-2007, USGS- Johnson et al.*

# *Stenogyne kauaulaensis*









# *MKWP Programs*

- 1. Invasive animal management*
- 2. Invasive plant control*
- 3. Human activities management*
- 4. Wildfire management*
- 5. Water and watershed monitoring*
- 6. Protection of rare species & habitat*
- 7. Public education and awareness*
- 8. Watershed management coordination*

## West Maui Mountains Watershed Management Plan

---



---

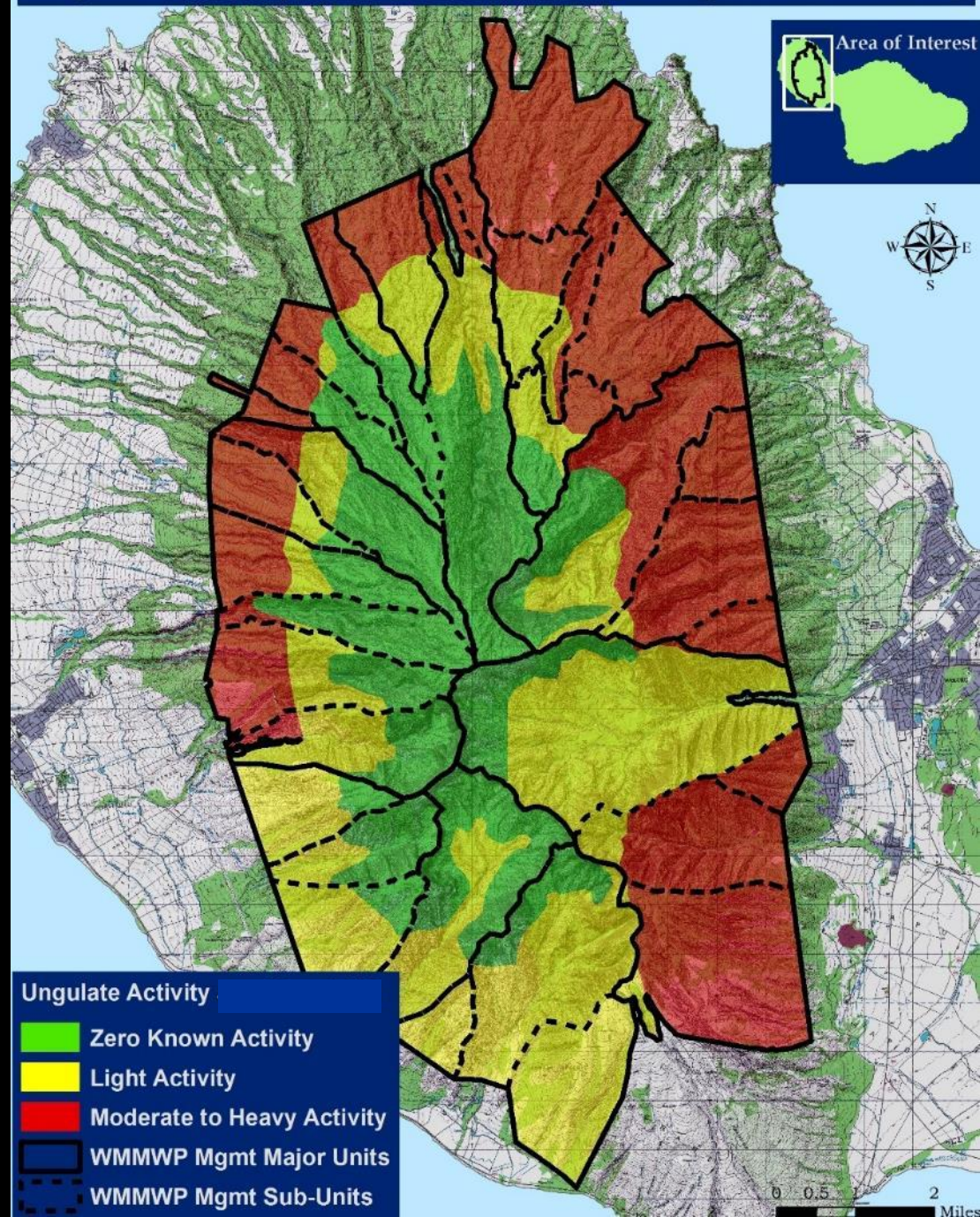
Prepared by



# *Feral Ungulates*

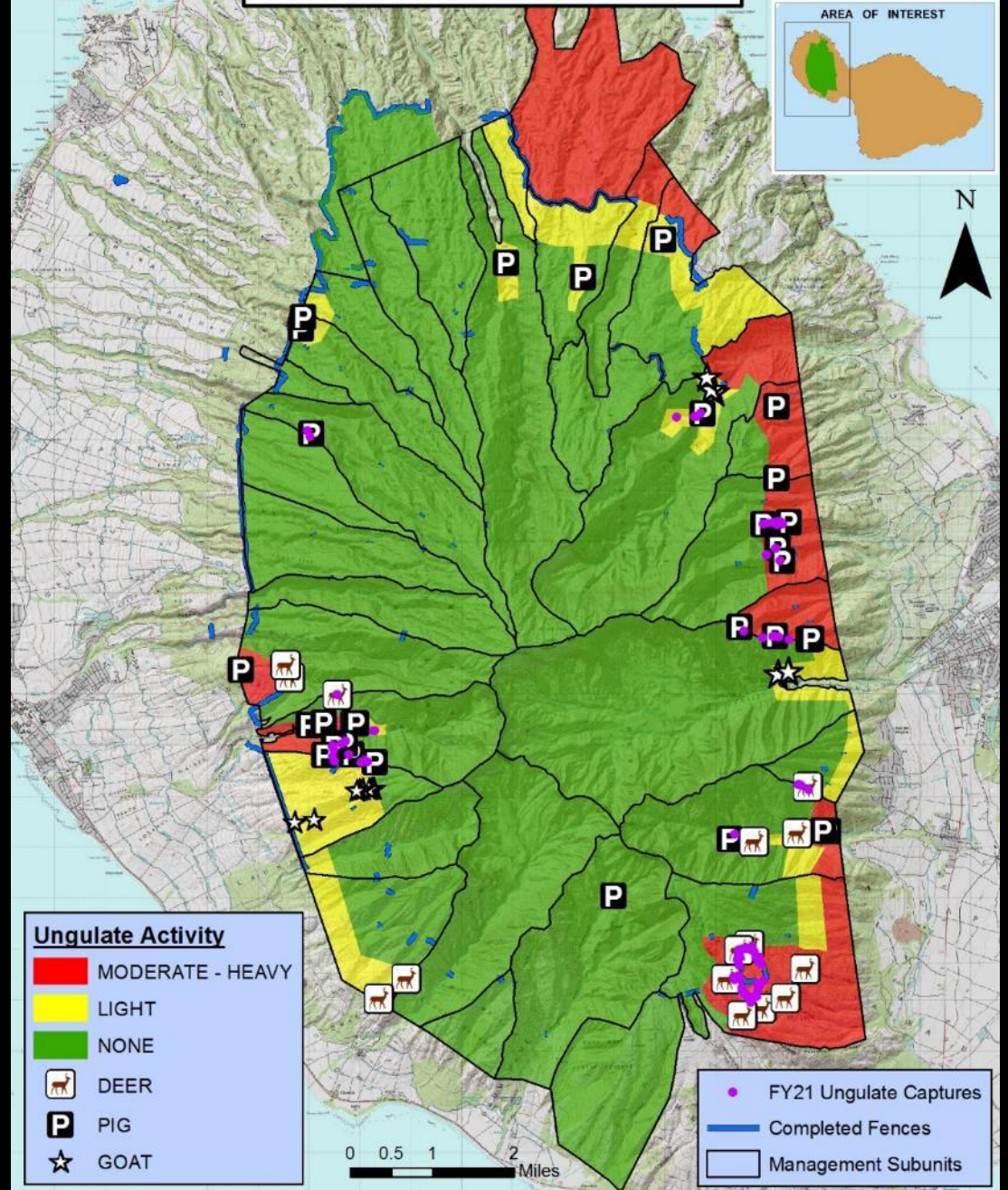


# Ungulate Activity in West Maui - 1999 Management Plan Map



# MAUNA KAHALAWAI WATERSHED PARTNERSHIP

## UNGULATE INGRESS FY 2021



# *Cattle Damage*



# *Pig Damage*



# *Sediment Transport to Streams & Ocean*



*Photo Credits: Save Honolulu Coalition*

*Solution:  
Fencing clearly helps  
minimize the problem.*







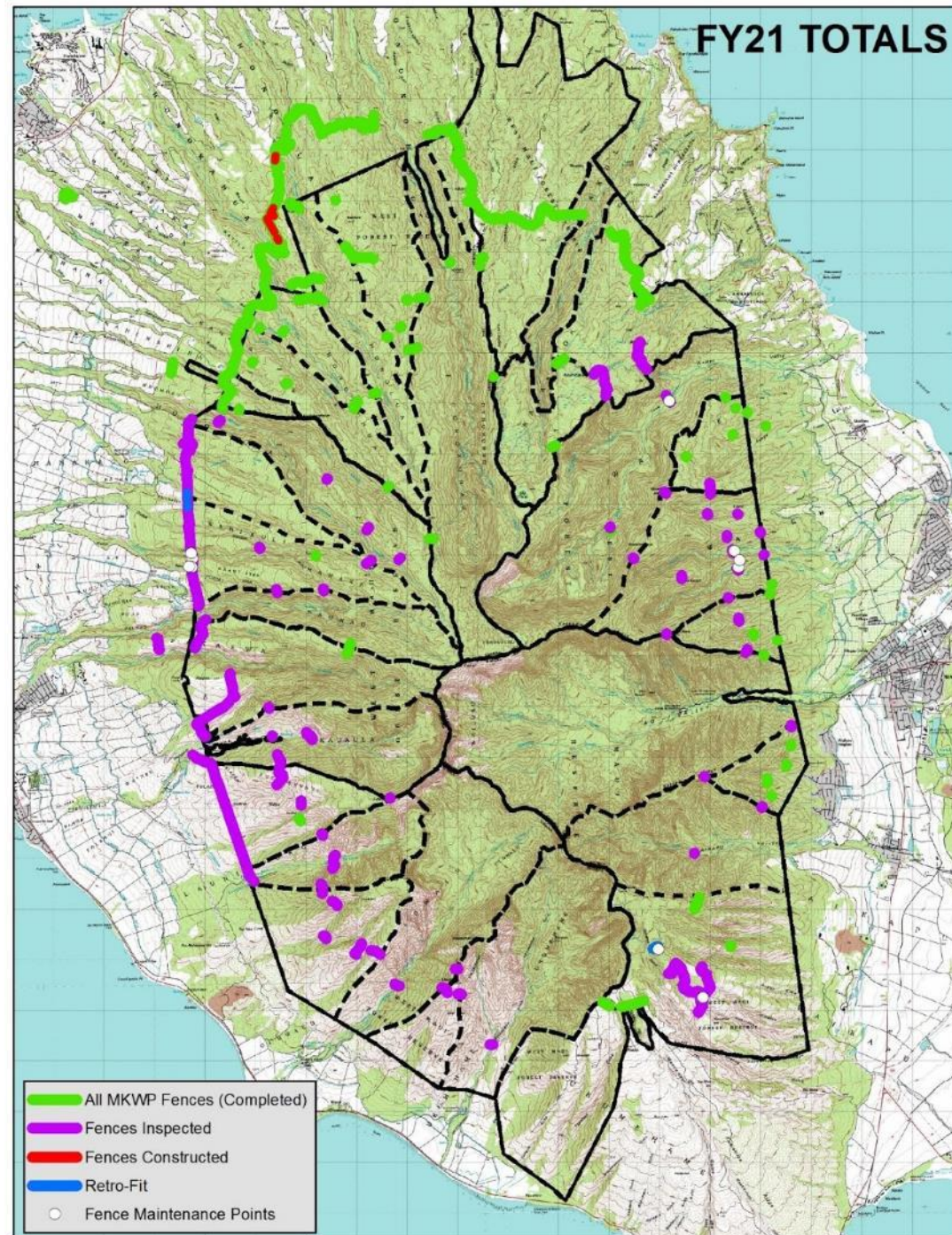
# *FY21*

## *Fence work*

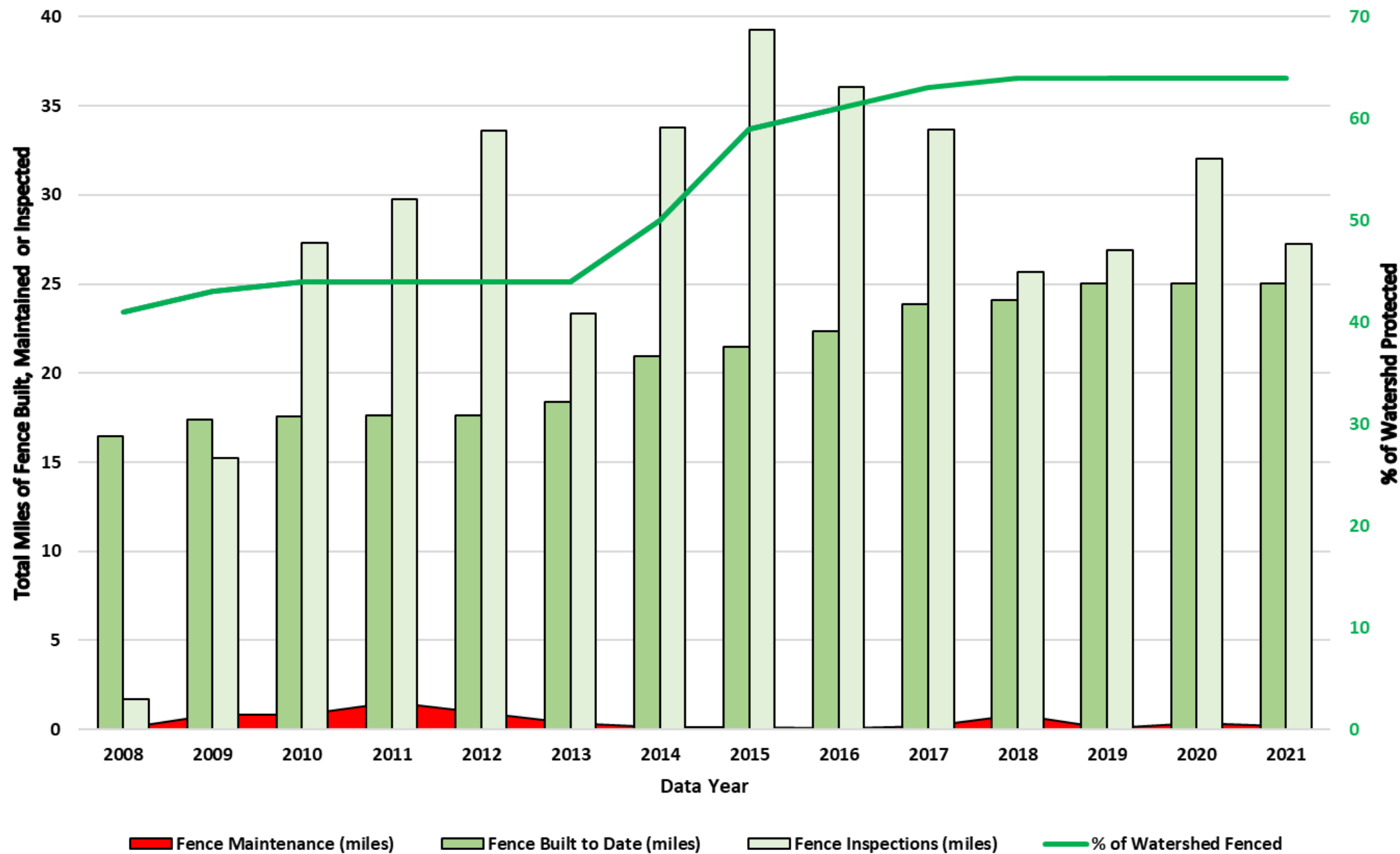
Meters Inspected	43,855
Meters of Maintenance	136
Meters Constructed	925
Meters Retrofit	355
Meters in Progress	310+

### FY22

- Estimate ~28 miles of fence completed
- Protecting ~32,500 acres
- 69% of watershed
- Planning 20 miles of Boundary



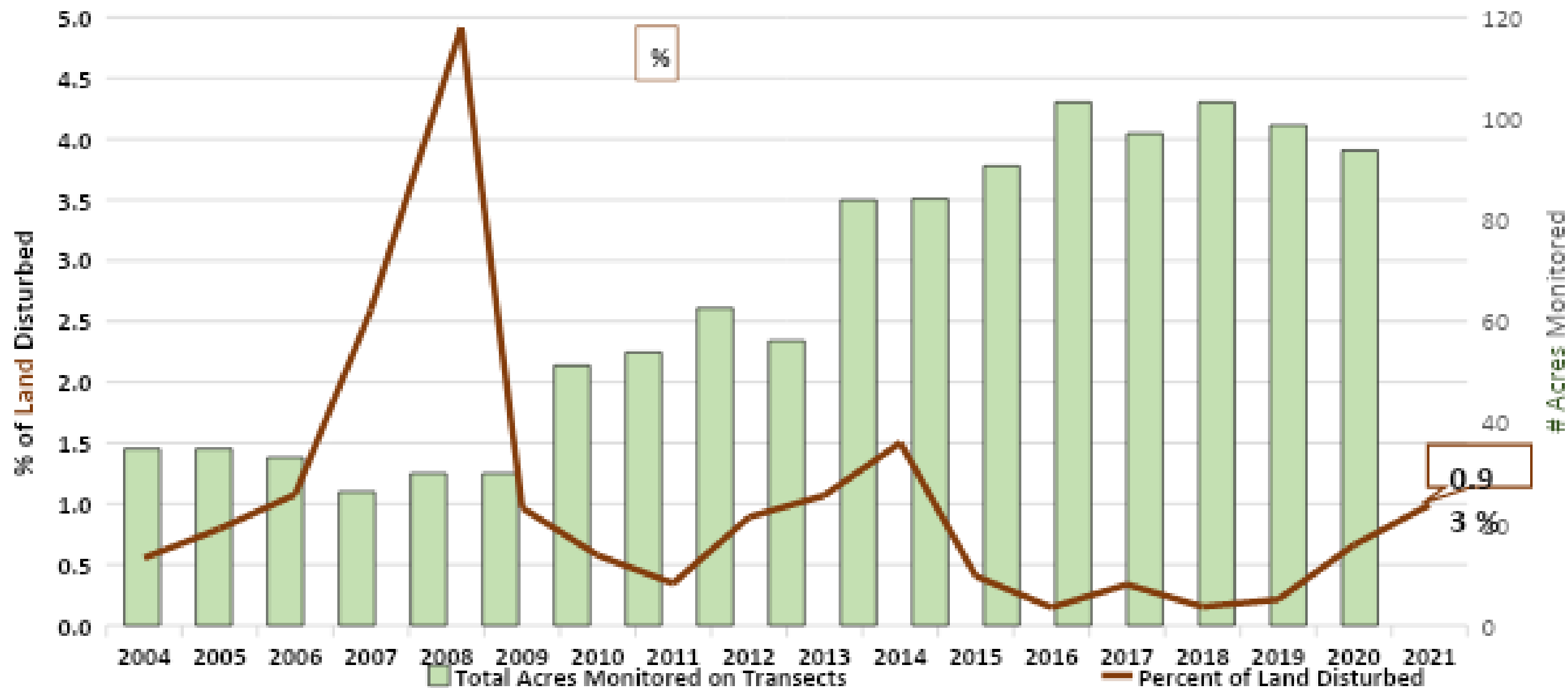
# MKWP Trends in Fencing From 2008 to 2021



## MKWP Trends in Ungulate Control 2006-2021



## MKWP Trends in Monitoring Ungulate Activity 2004-2021

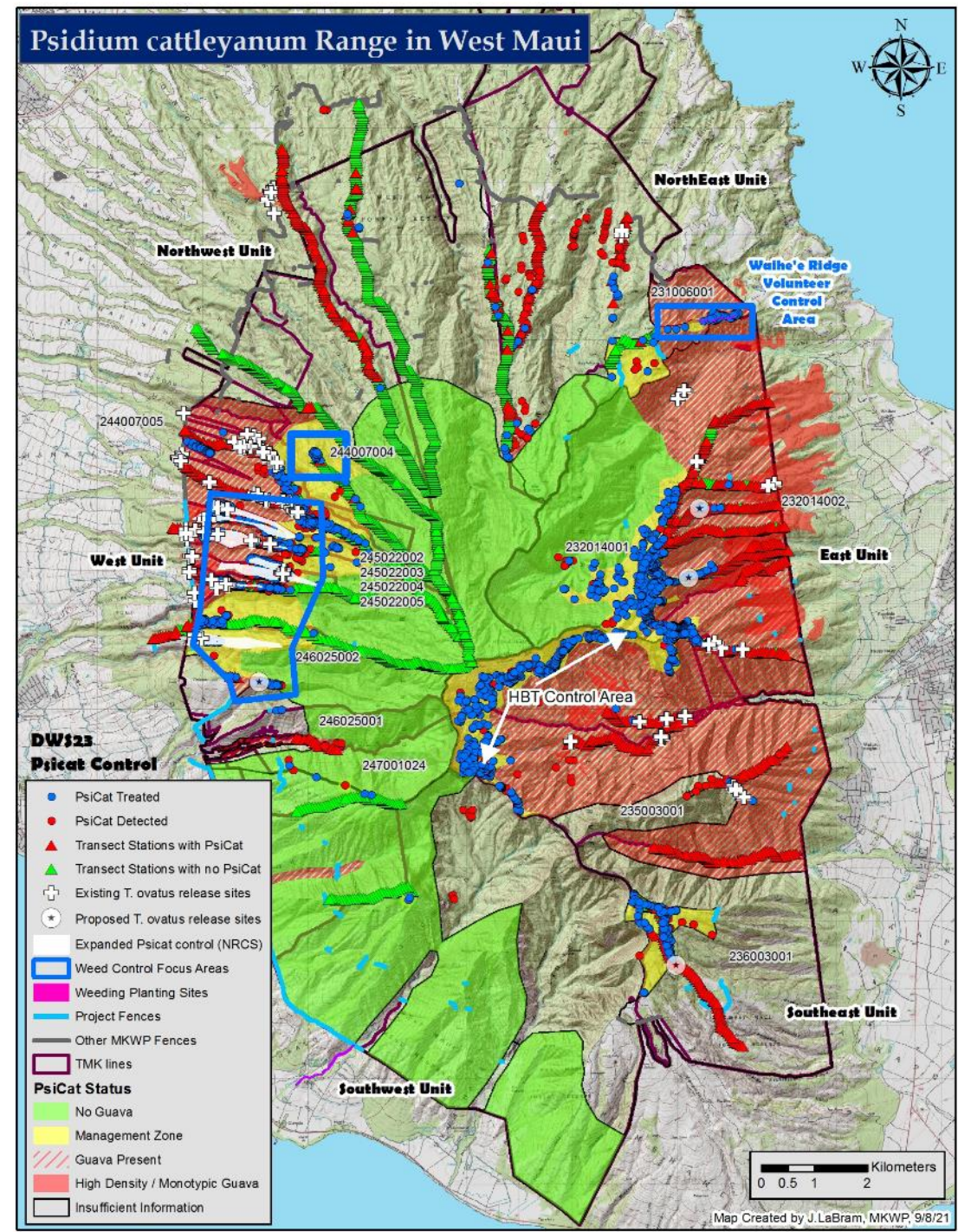


# Lahaina Phase II ~ 1500m Makila Section



# Strawberry Guava

- *Water Hog*
- *4,082 acres managed*
  - *Ground control*
  - *Aerial via HBT*
  - *Biological control*
  - *Public Involvement*



# *Pictometry Mapping*





# Control Methods

## HBT - Aerial Control



## Natural Enemies = *Tectococcus ovatus*



## Ground Control

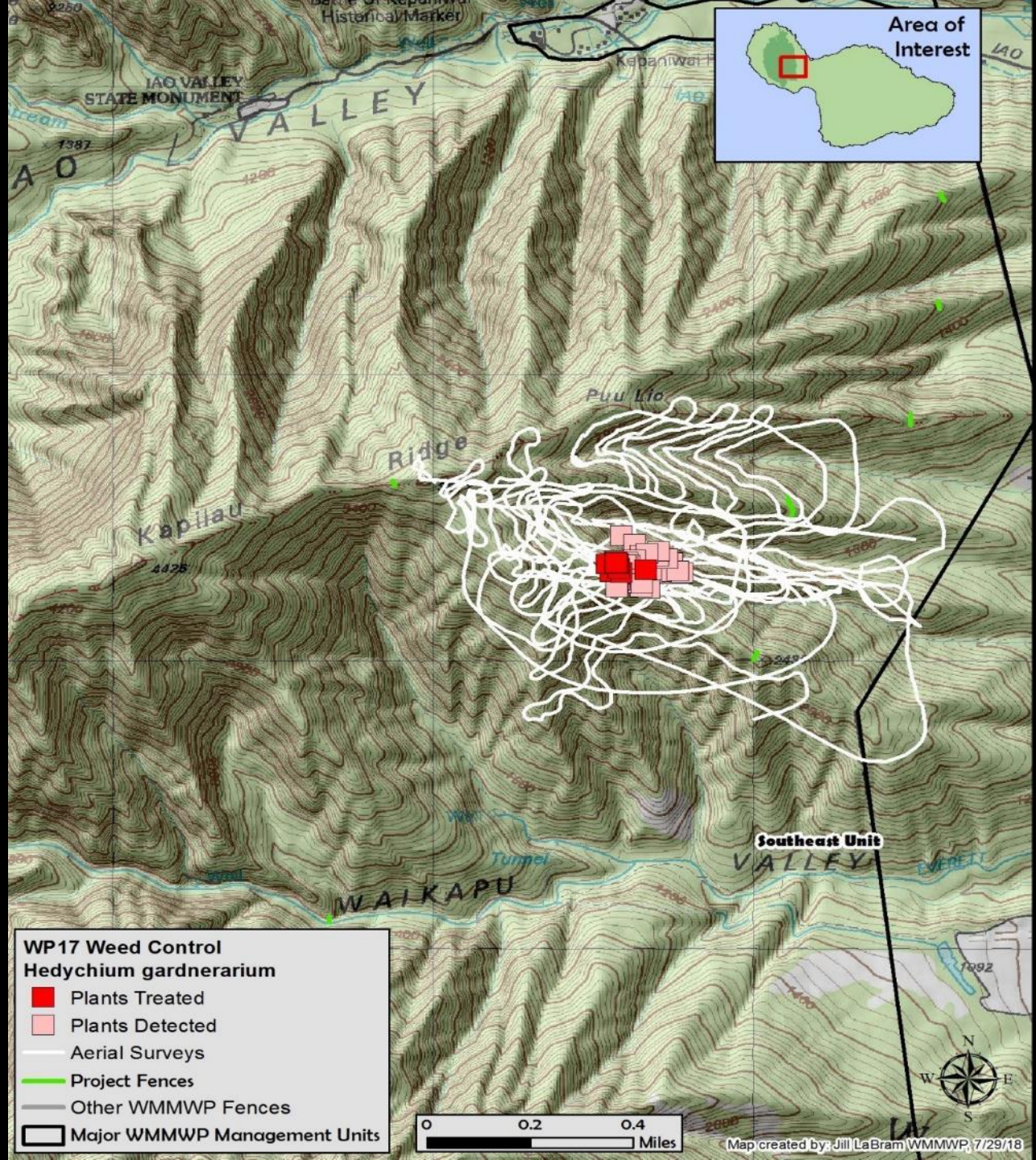


# Himalayan Ginger

*Hedychium gardnerianum*

~15 Acres

*Hedychium gardnerianum*  
Zingiberaceae  
Gerald D. Carr

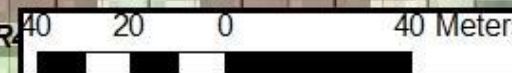


# *Himalayan Ginger*

*Hedychium gardnerianum*

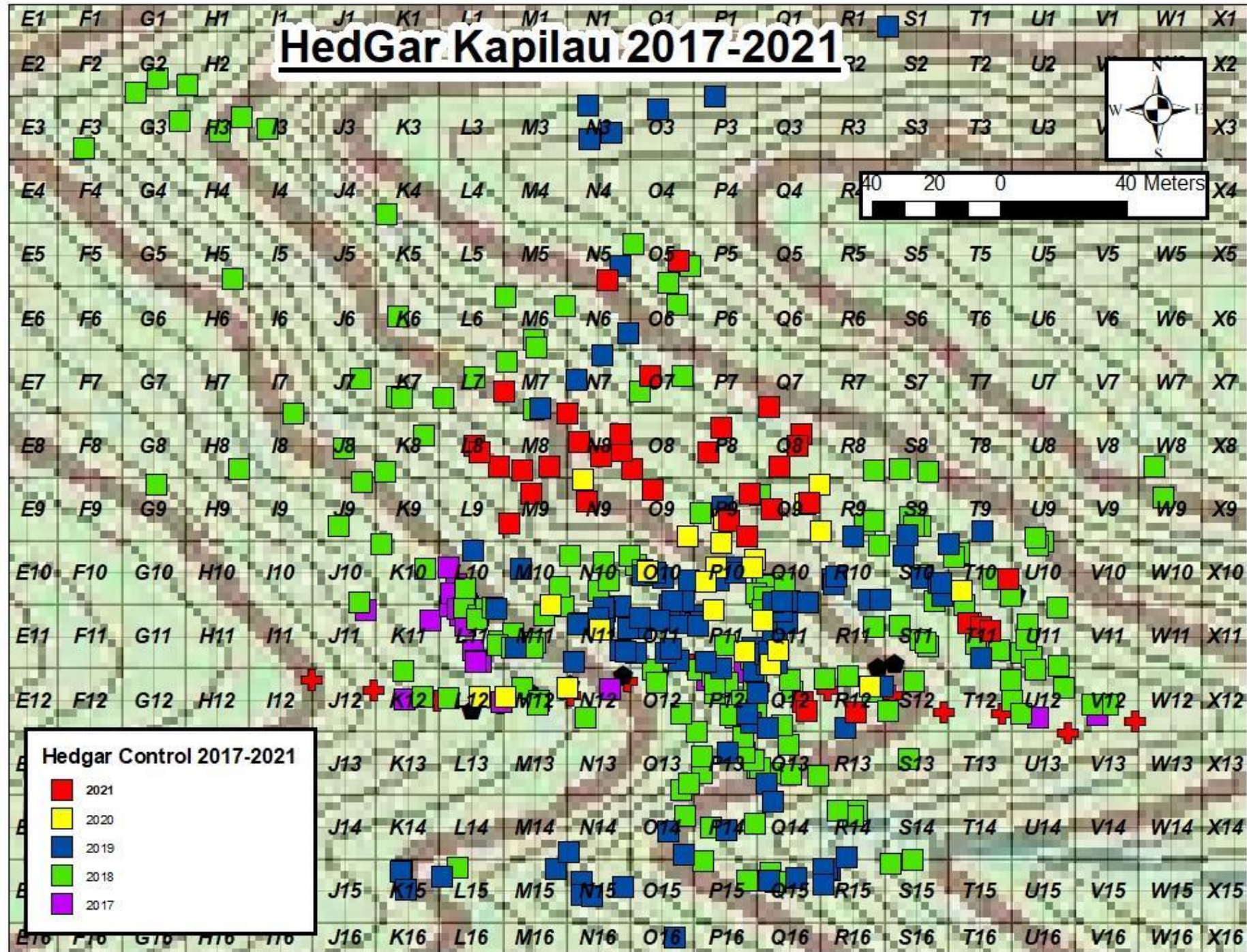


# HedGar Kapilau 2017-2021

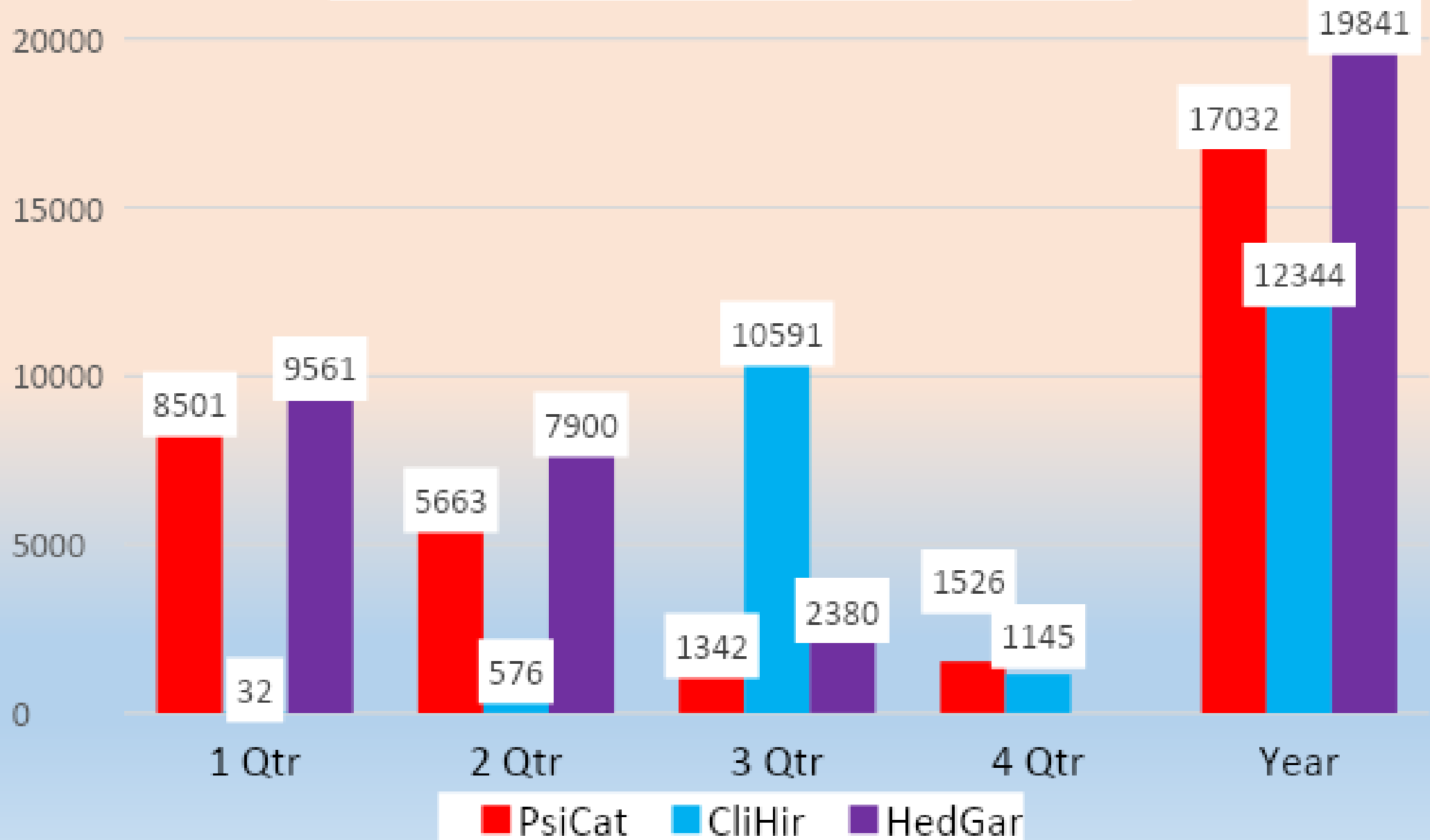


## Hedgar Control 2017-2021

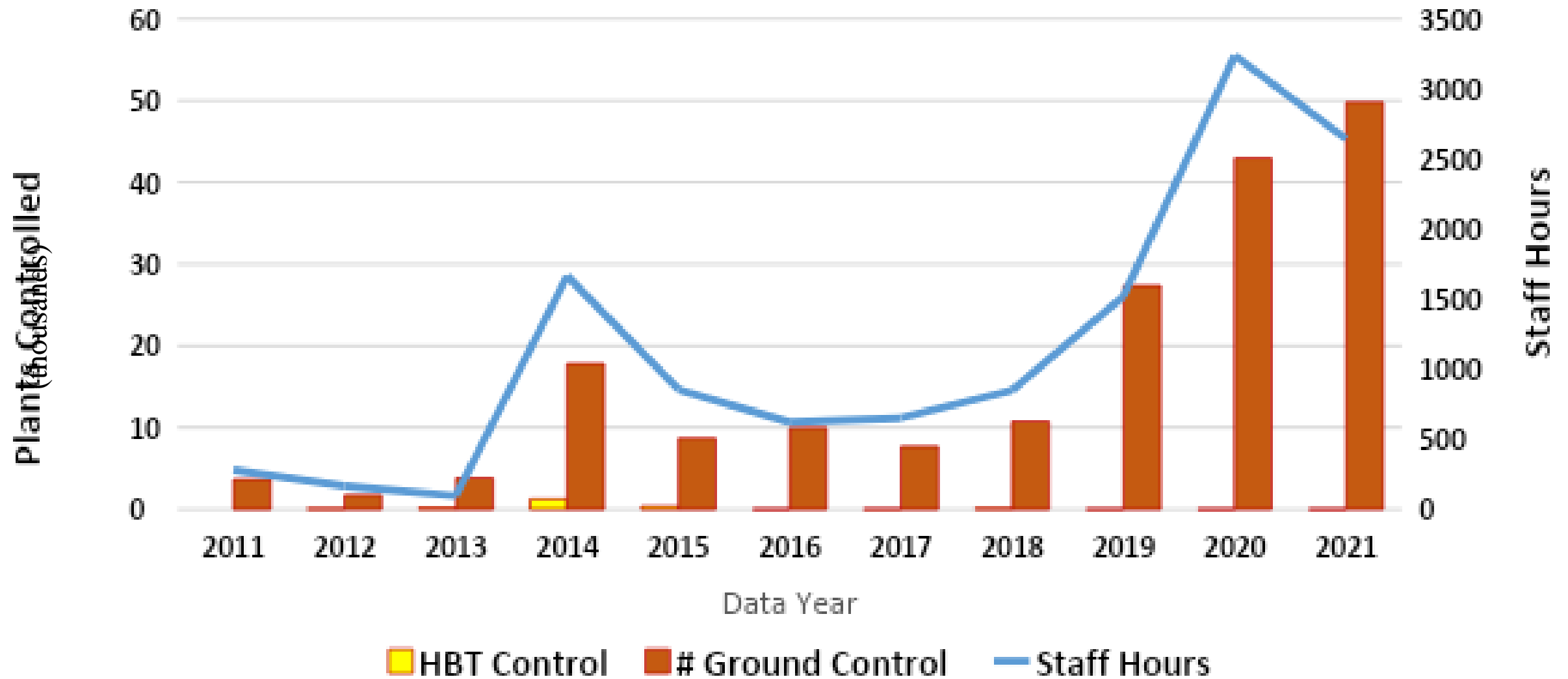
- 2021
- 2020
- 2019
- 2018
- 2017



# 2021 Priority Weeds Treated



## MKWP Efforts in Priority Weed Control 2011 - 2021

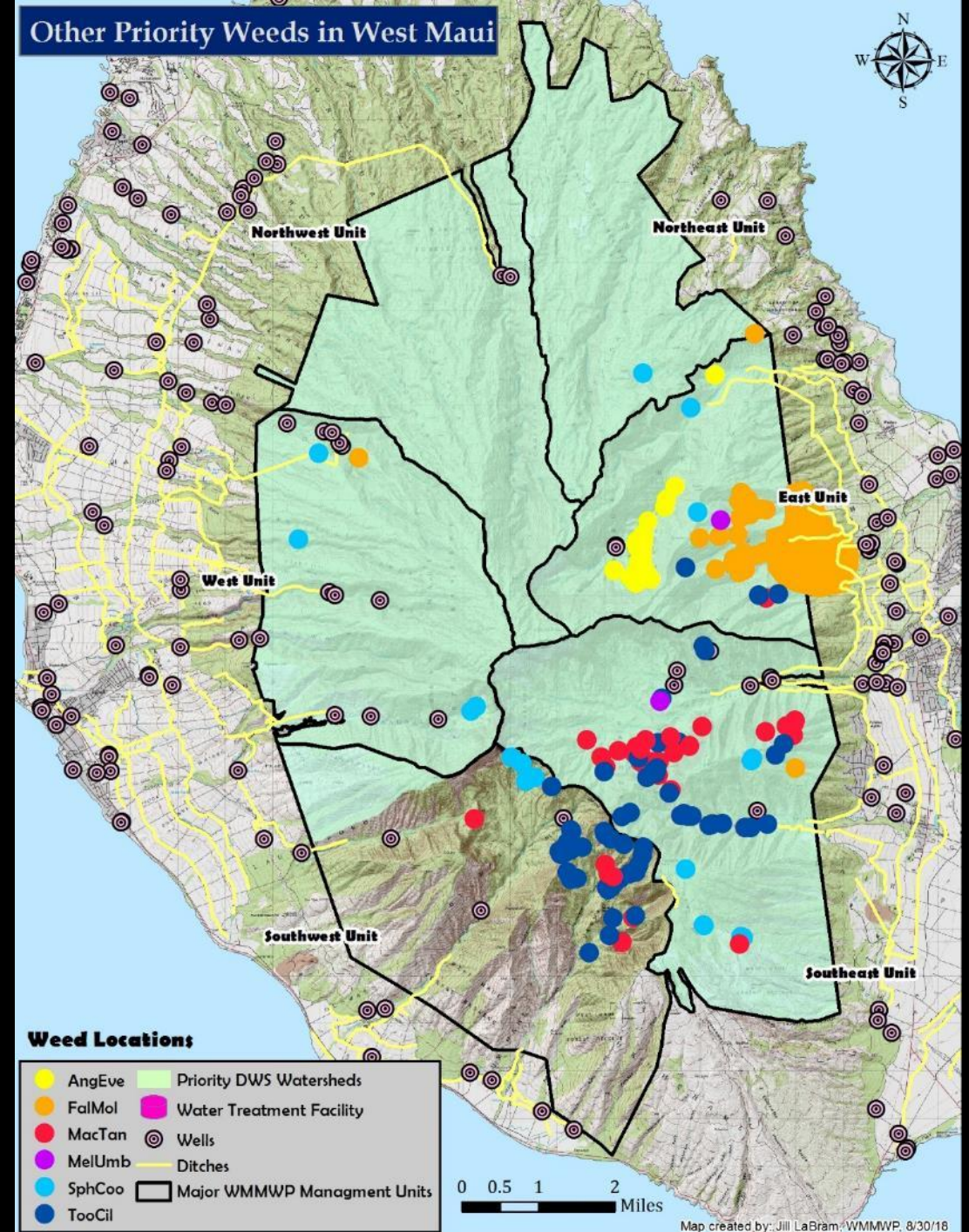


# Other Priority Weeds

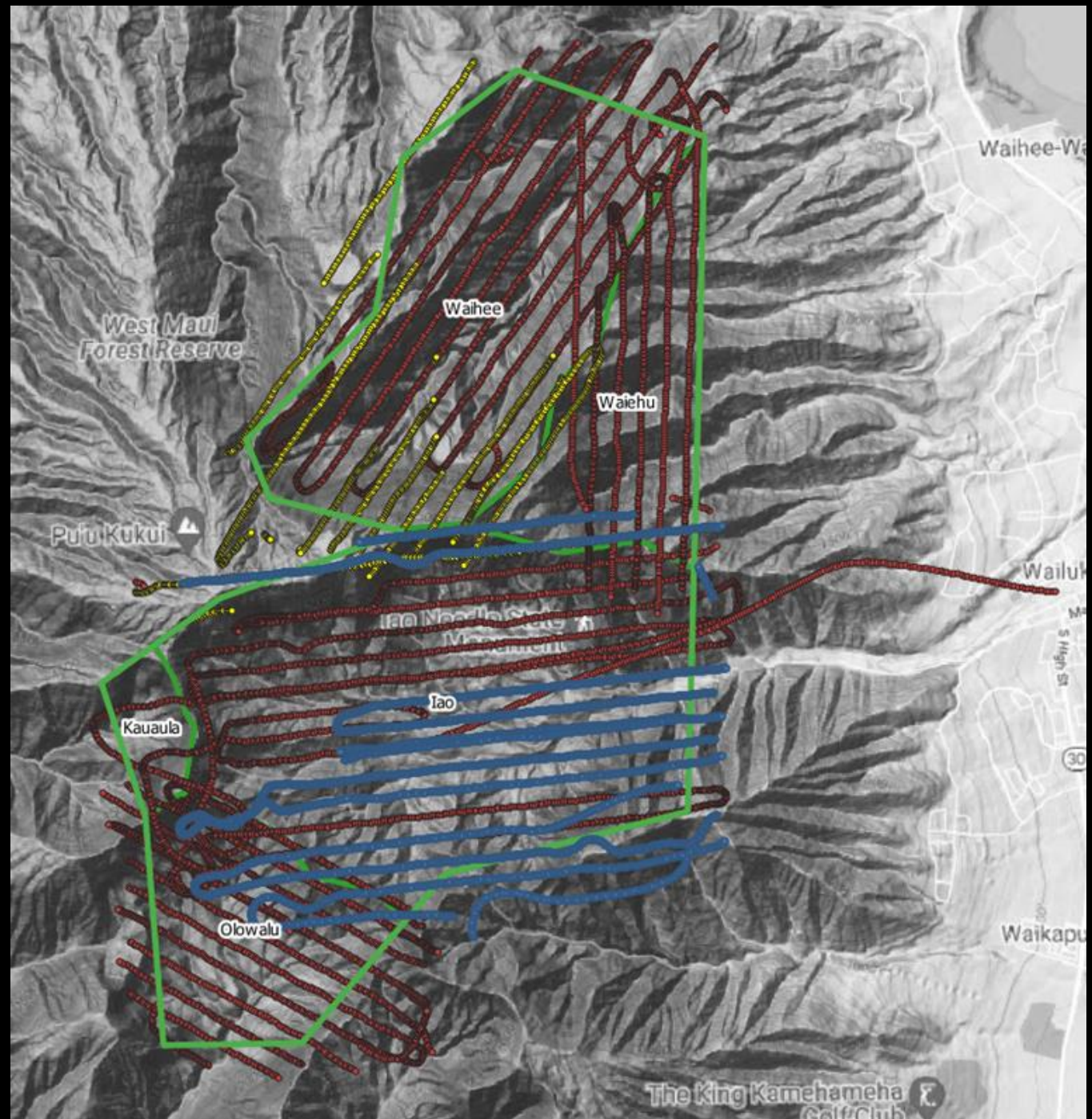
Albizia



Australian Tree Fern

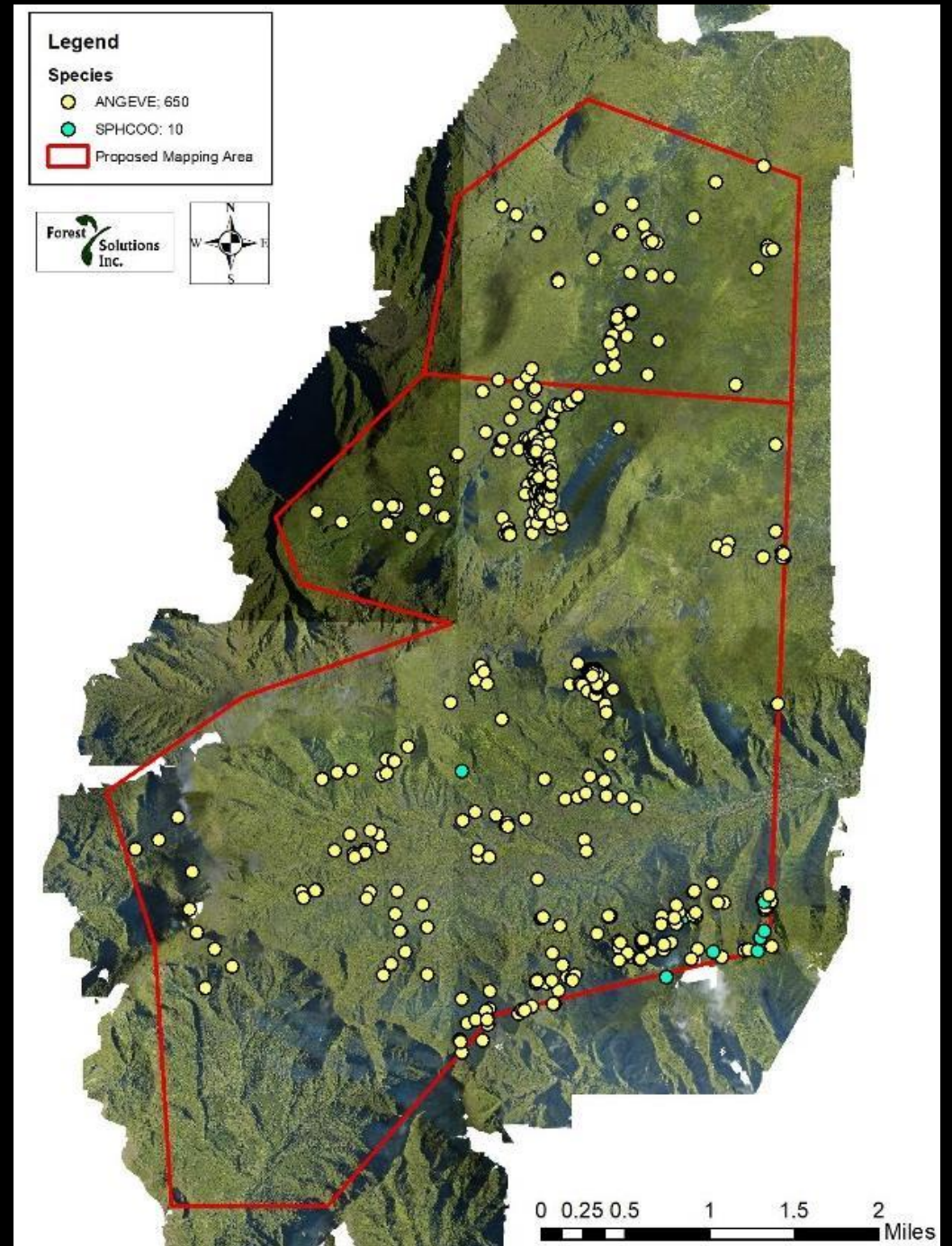


*USF&WS*  
*Science Applications Grant*  
*Resources Mapping Hawaii*

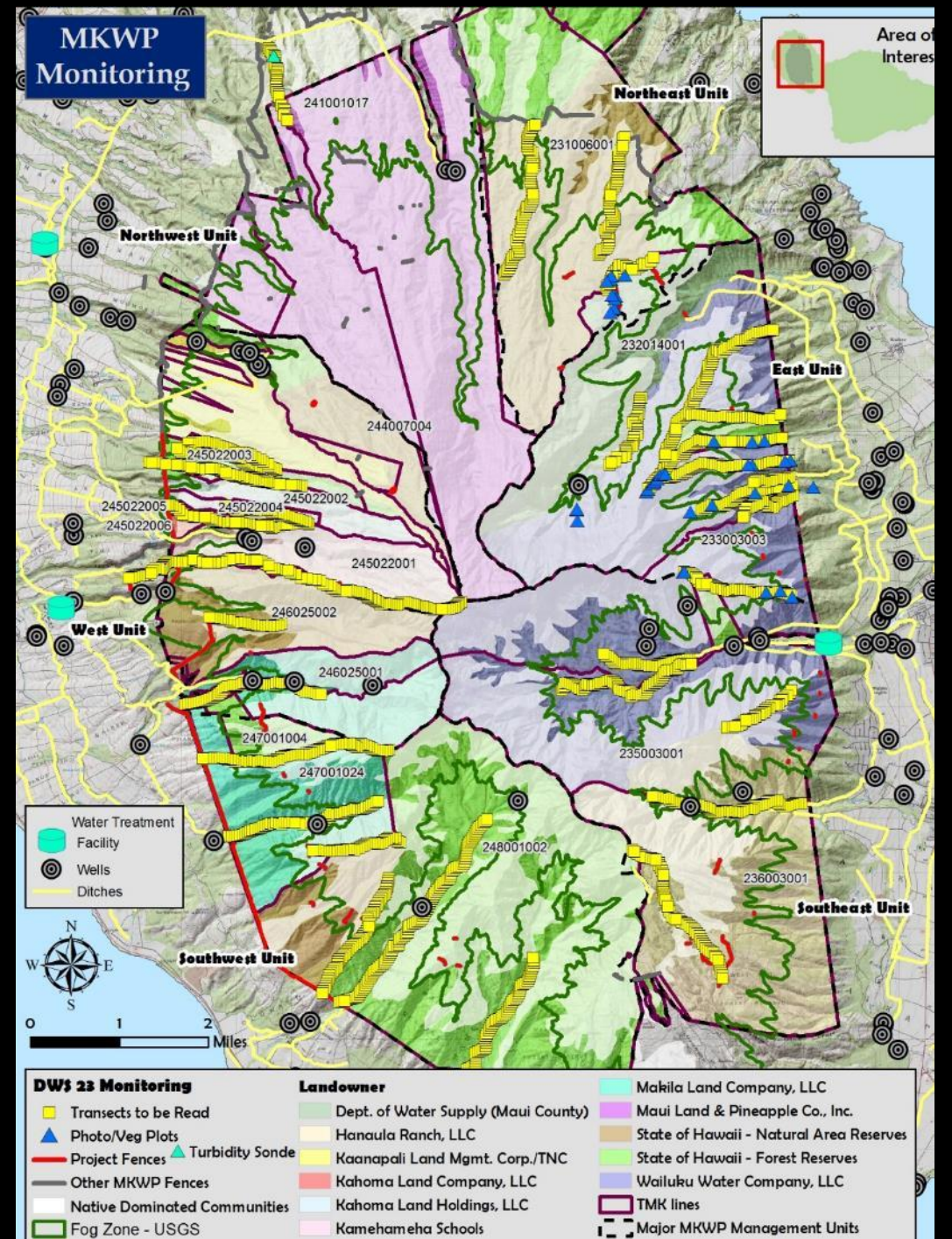


Supported by

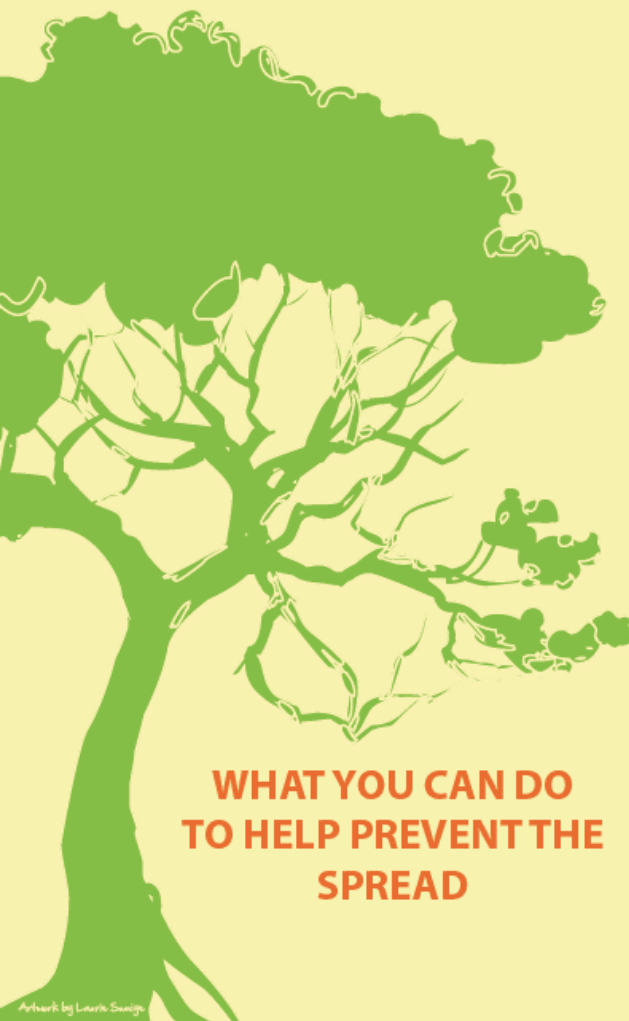
# *Invasive Tree Ferns*



# MKWP Monitoring



# RAPID 'ŌHI'A DEATH



WHAT YOU CAN DO  
TO HELP PREVENT THE  
SPREAD



## 5 THINGS YOU CAN DO

### 1 DON'T MOVE 'ŌHI'A

Do not move 'Ōhi'a wood, firewood or posts, especially from an area known to have ROD. If you don't know where the wood is from, don't move it.

### 2 DON'T TRANSPORT 'ŌHI'A INTER-ISLAND

Comply with the new quarantine rule to help prevent ROD from spreading. Don't move 'Ōhi'a plants, wood, or other 'Ōhi'a plant parts interisland without a permit.

### 3 CLEAN YOUR TOOLS

Use only these proven cleaning methods—other methods have been tested and they don't kill the fungus. Tools used for cutting 'Ōhi'a trees (especially infected ones) should be cleaned with 70% rubbing alcohol or 10% bleach (if using bleach be sure to oil afterwards to prevent corrosion).

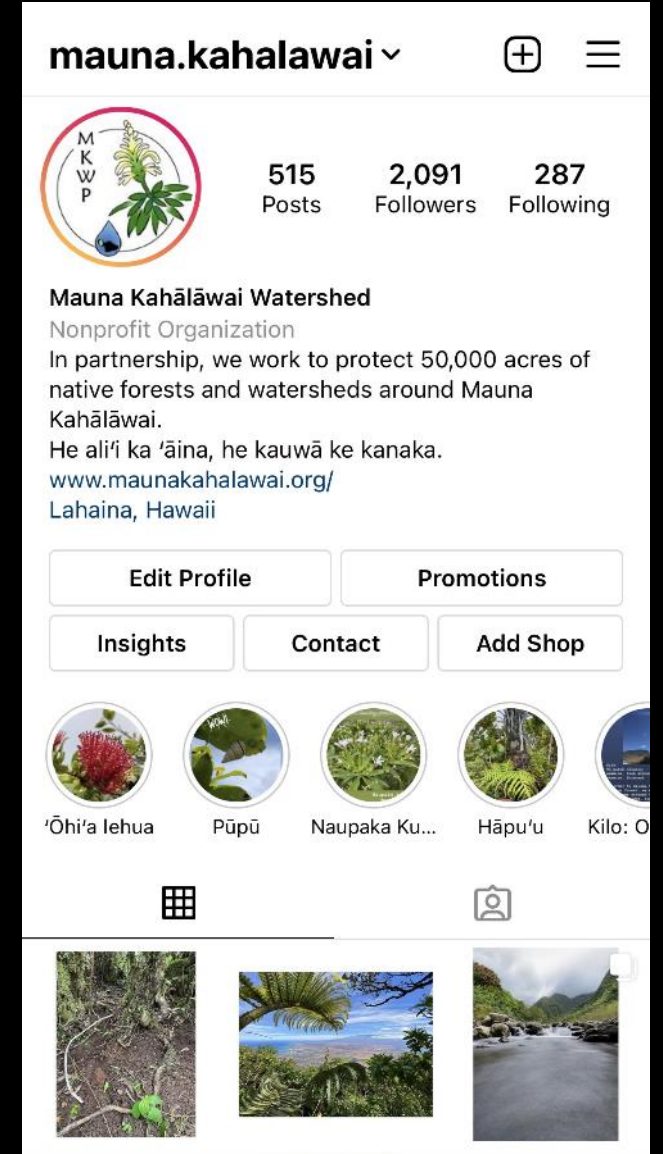
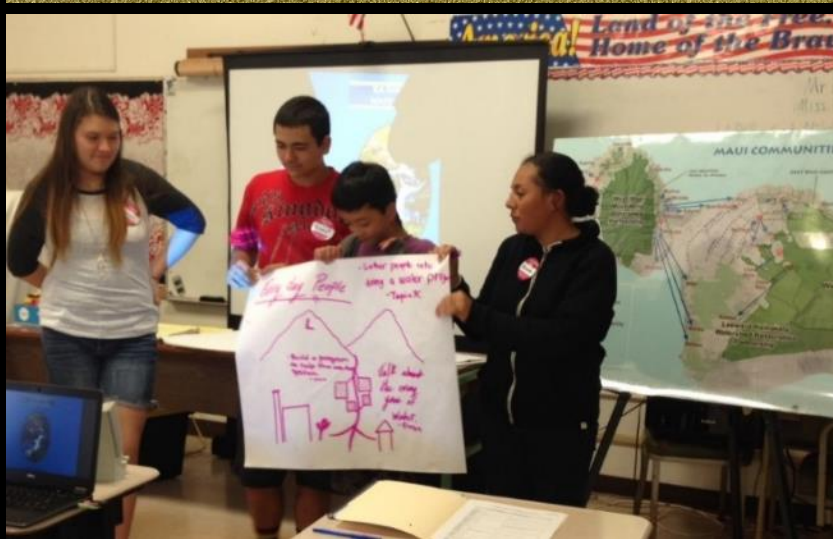
### 4 CLEAN YOUR GEAR

Clean your shoes, and clothing. Decontaminate shoes by dipping the soles in 10% bleach or 70% rubbing alcohol to kill the ROD fungus. Other gear can be sprayed with the same proven cleaning solutions. Wash clothing in hot water and detergent.

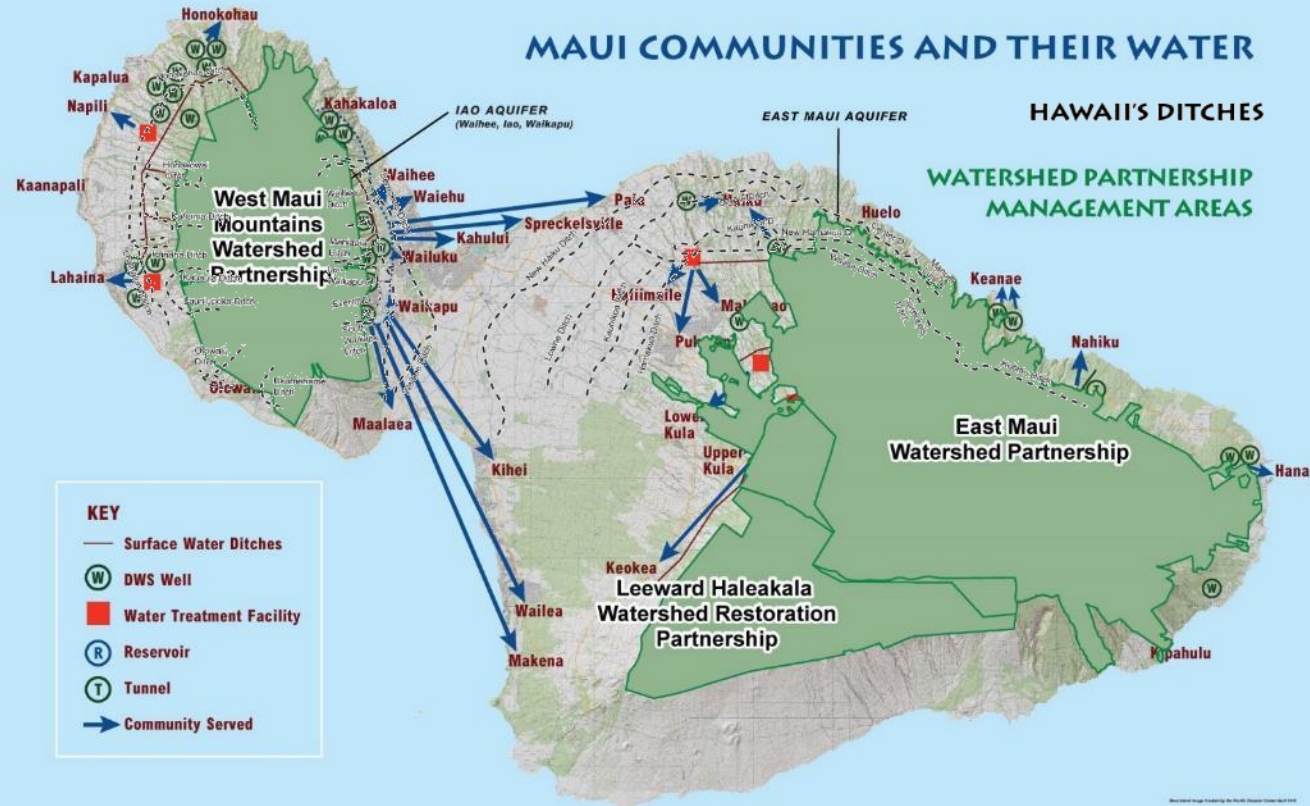
### 5 WASH YOUR VEHICLE

Wash the tires and undercarriage of your vehicles with detergent especially after traveling from an area with ROD and/or if you have traveled off-road.

# Public Education & Awareness



## MAUI COMMUNITIES AND THEIR WATER

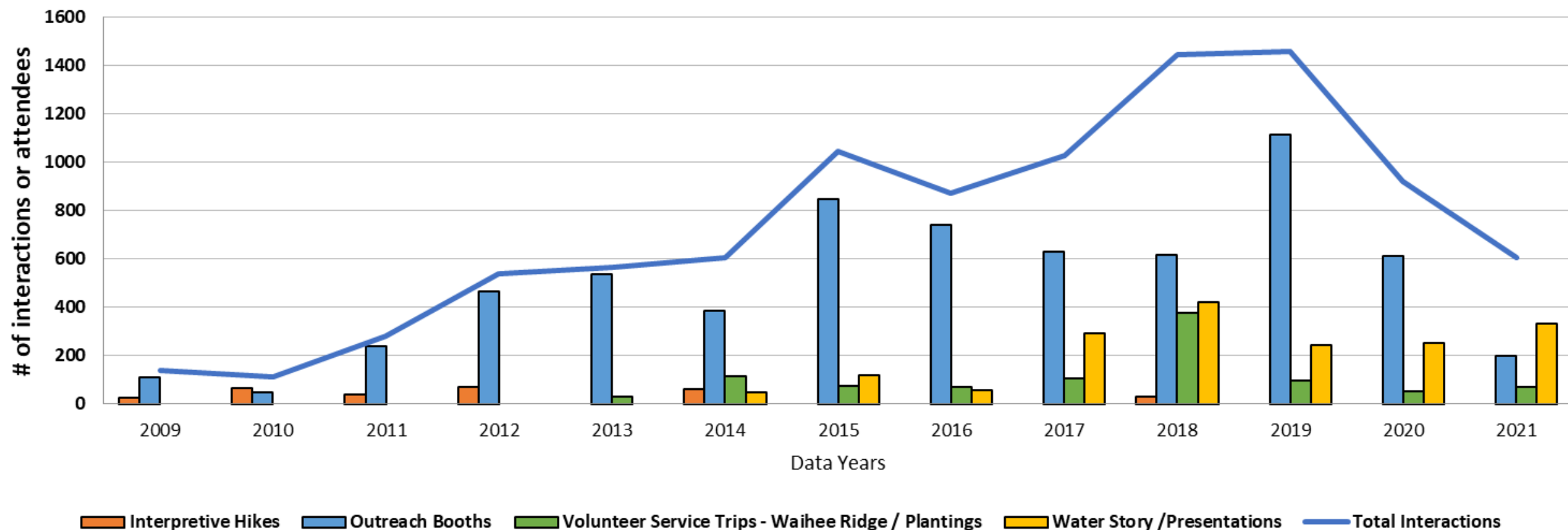


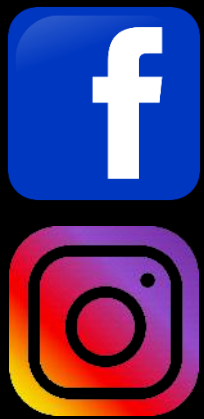




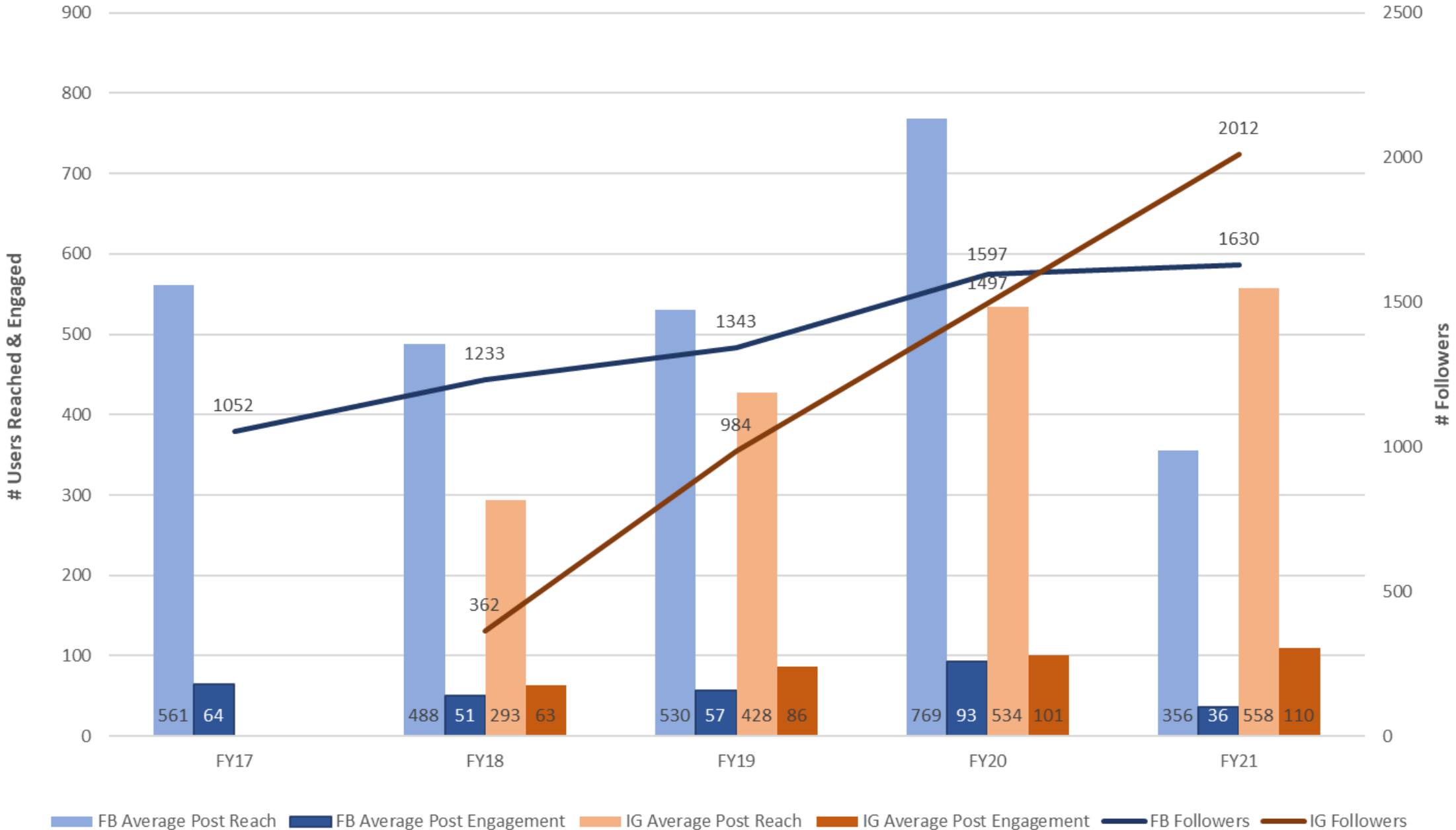
# Public Engagement

## MKWP Outreach Efforts from 2009 to 2021





Facebook & Instagram Post Reach & Engagement, FY17 - FY21



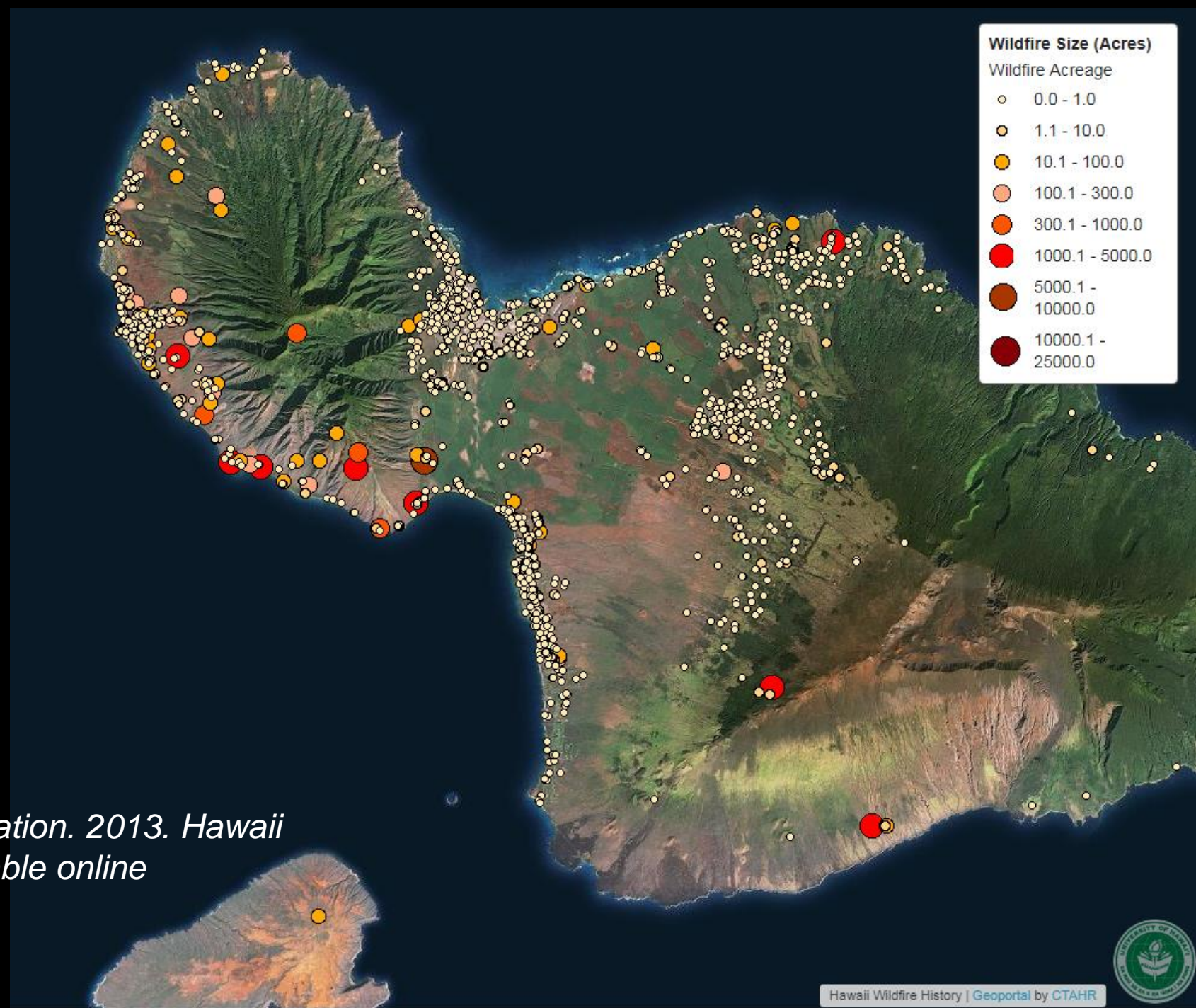


*KUPU Hawaii AmeriCorps*  
*[www.kupuhawaii.org](http://www.kupuhawaii.org)*



# Fire Frequency

Hawaii Wildfire Management Organization. 2013. Hawaii State Wildfire History Data Set. Available online at [gis.ctahr.hawaii.edu](http://gis.ctahr.hawaii.edu).





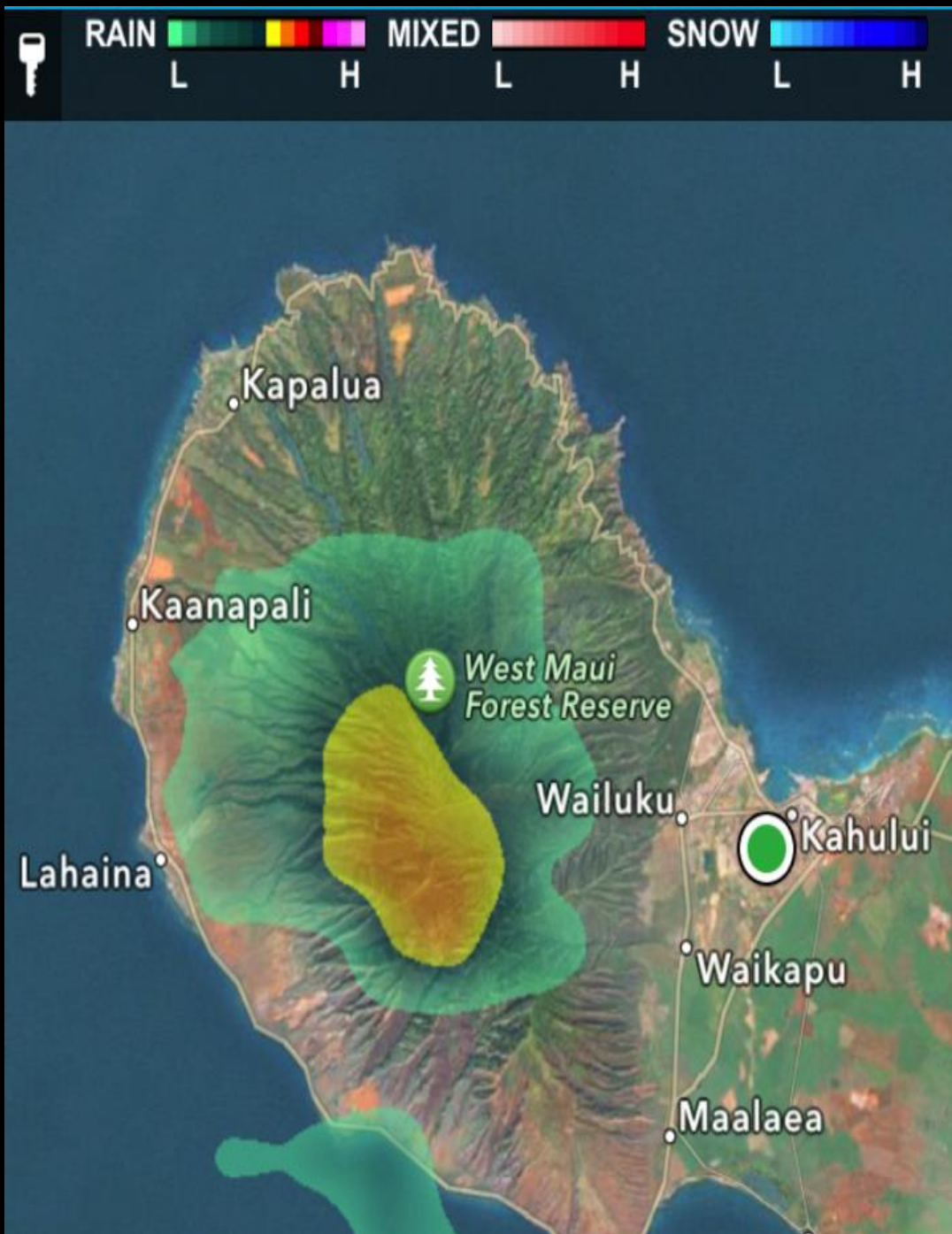
*Photo Credit:  
TNC Molokai*





*Pu'u Kukui*  
*5,788'*

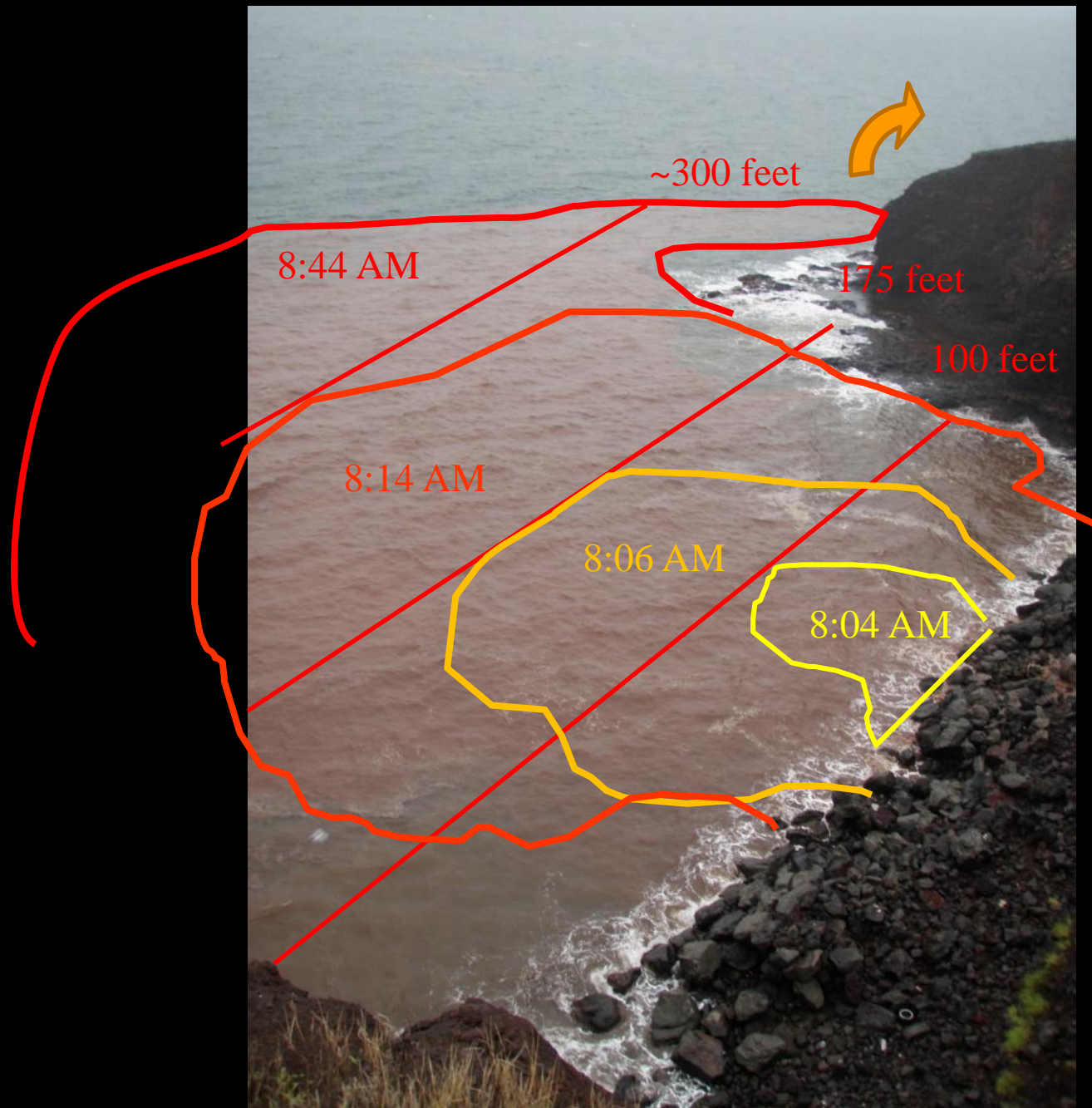
*Helu Fire*  
*3600'*



## *Gullies Form*



*8:44 AM  
January 11,  
2011  
Makahuna  
Gulch*



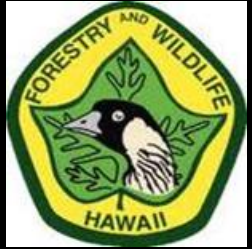


## *Ma'alaea Harbor*



# *Southwestern Fire Planning*





# HEICF Grant Proposal

## Targeting Small Scale Volunteer Restoration in Olowalu Valley



*Protect Our Watersheds !!!*



## APT Committee

---

**From:** Chris Brosius <brosius@maunakahalawai.org>  
**Sent:** Tuesday, February 1, 2022 11:20 AM  
**To:** APT Committee  
**Subject:** MKWP Presentation for Ag and Public Trust Committee  
**Attachments:** Maui County Agriculture and Public Trust Committee 02012022\_Mauna Kahalawai Watershed Partnership\_Compressed.pdf

You don't often get email from brosius@maunakahalawai.org. [Learn why this is important](#)

Aloha All,

Thank you for the opportunity to speak with you today.  
Apologies for not providing this copy of the presentation sooner. Life has been very full since being asked to speak.  
If you have any questions on the content please let me know and I will be happy to clarify before, during or after the meeting.

I look forward to seeing you shortly.

Attached is a link to the full ppt and a pdf of the presentation in case that is helpful.

Chris



[Maui County Agriculture and Public Trust Commit...](#)

--

**Chris Brosius**

**Program Manager**

**Mauna Kahālāwai Watershed Partnership**

PO Box 13240

Lahaina HI. 96761

**Office Hrs: Mon.-Thurs.: 7am - 5:30pm**

Phone: 808-661-6600

Fax: 808-661-6604

[brosius@maunakahalawai.org](mailto:brosius@maunakahalawai.org)

[www.maunakahalawai.org](http://www.maunakahalawai.org)

<https://www.facebook.com/maunakahalawaiwatershed/>0

[https://www.instagram.com/mauna\\_kahalawai/](https://www.instagram.com/mauna_kahalawai/)

<http://hawp.org/>

<https://pcsuhawaii.org/>