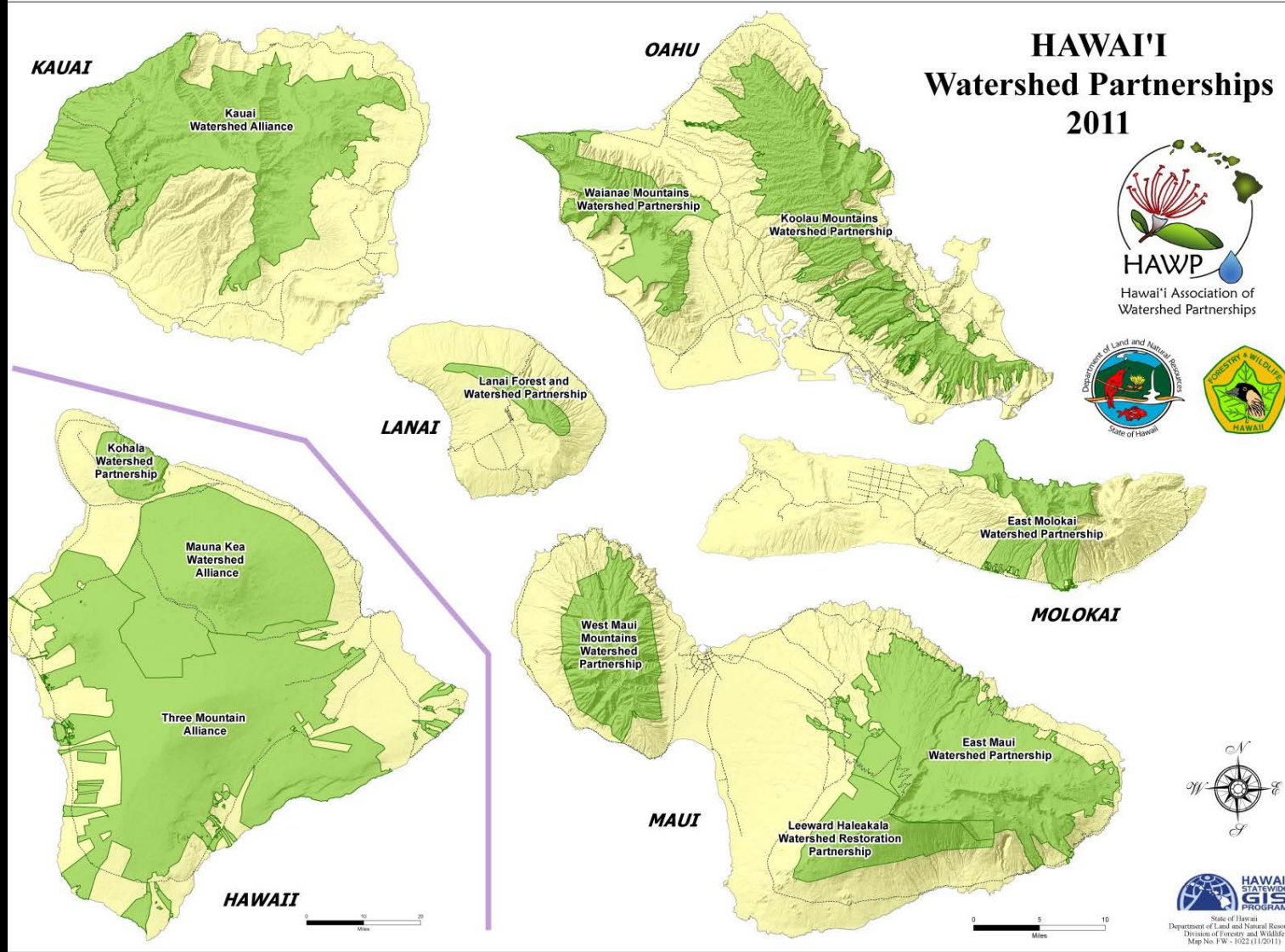


Invasive Species Control:

The Key to Maintaining Watershed Resilience





- ▣ 11 Voluntary public-private associations
 - Every major mountain top
 - 2 million acres statewide
 - 70 Landowning partners



Multi-layered Native Hawaiian forests maximize water capture and infiltration.



Invasive species destroy forest understory
Resulting in run-off and erosion



Erosion damages streams, beaches and reefs
such as here on Molokai's south slope

Reducing Runoff

Removal of goats,
pigs, and deer



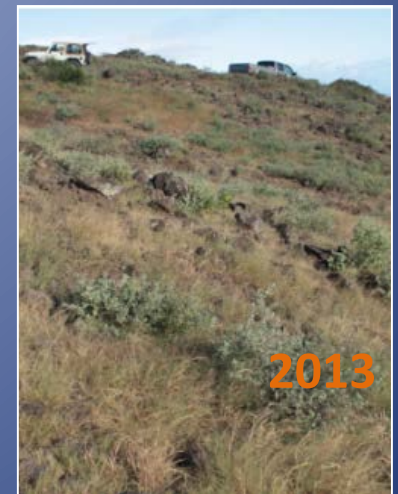
Native plant recovery



6 tons eroding/year
reduced to 2 tons/year



Coral reefs protected





BEFORE FENCING



AFTER FENCING



Restoring degraded pastures to native forest
= higher infiltration rates

A Healthy Watershed Forest = A Healthy Economy



Investing in Green Infrastructure Pays Off



- + Water Recharge
 - + Water Quality
 - + Recreation
 - + Climate Control
 - + Biodiversity
- \$7.4-\$14 billion

Net present value
of Koolau Forest
Ecosystem services



Important cultural traditions depend on the survival of native species.

Healthy Economy = Green Jobs



Natural Area Reserve Fund FY14 = 156 Jobs

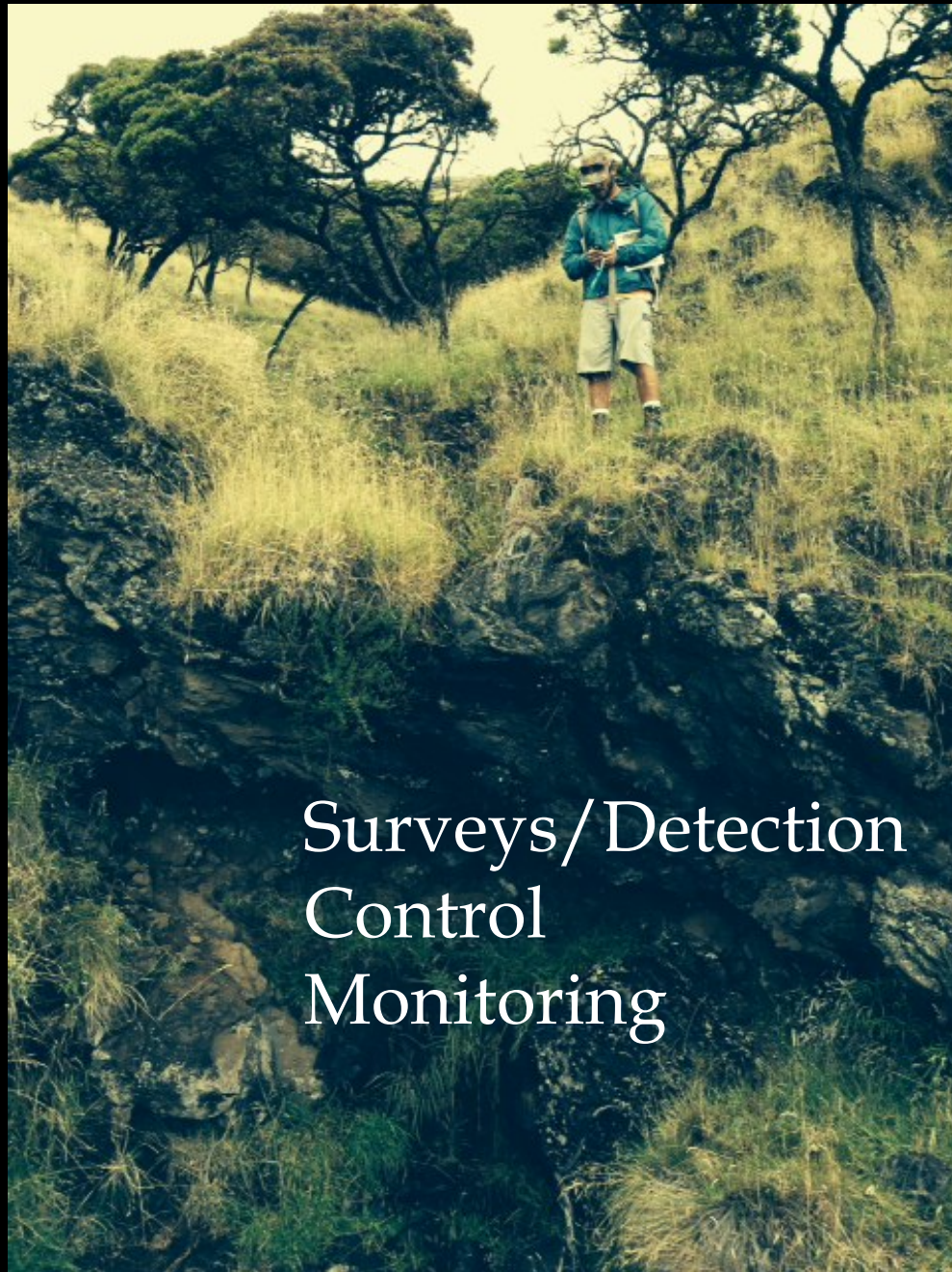
118 Youth Interns trained



A photograph of a lush, green mountain landscape. The foreground is filled with dense, low-lying vegetation and a small white tent. The middle ground shows a valley with more trees and a small stream. The background features steep, forested mountains partially shrouded in mist or fog. The overall scene is serene and natural.

Maintaining resilient watershed forests takes

- Field Work
- Collaboration



Surveys/Detection
Control
Monitoring



Control of species incipient
to a watershed

A photograph of a hillside covered in dense green vegetation with numerous bright yellow flowers. The sky is a clear, bright blue. The text is overlaid in the center of the image.

Before it would take millions
Or even be too late

Bocconia invading
Nakula Natural Area Reserve, Maui



Total of 33,537 Acres of invasive
plant control in FY14





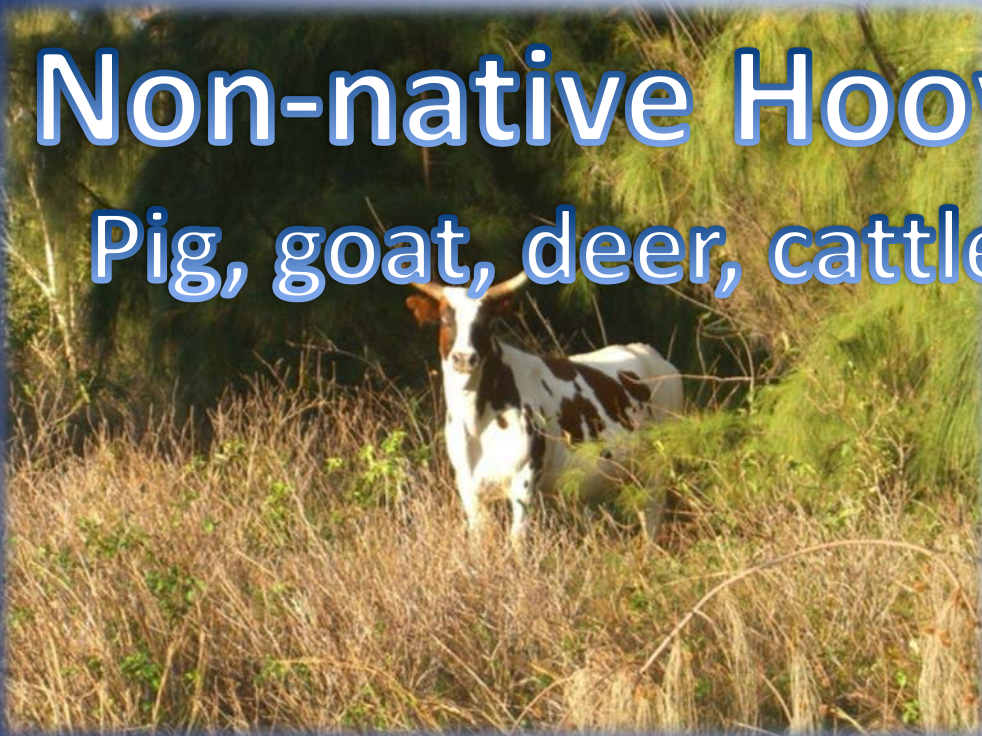
Non-native feral animals:
The biggest threat to Hawaii's watershed health.



Estimated annual cost of feral pig damage and control in the US = \$1.5 billion

Non-native Hooved Mammals

Pig, goat, deer, cattle, sheep, mouflon



Fencing



Before

After





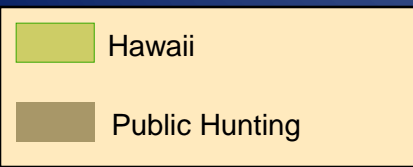
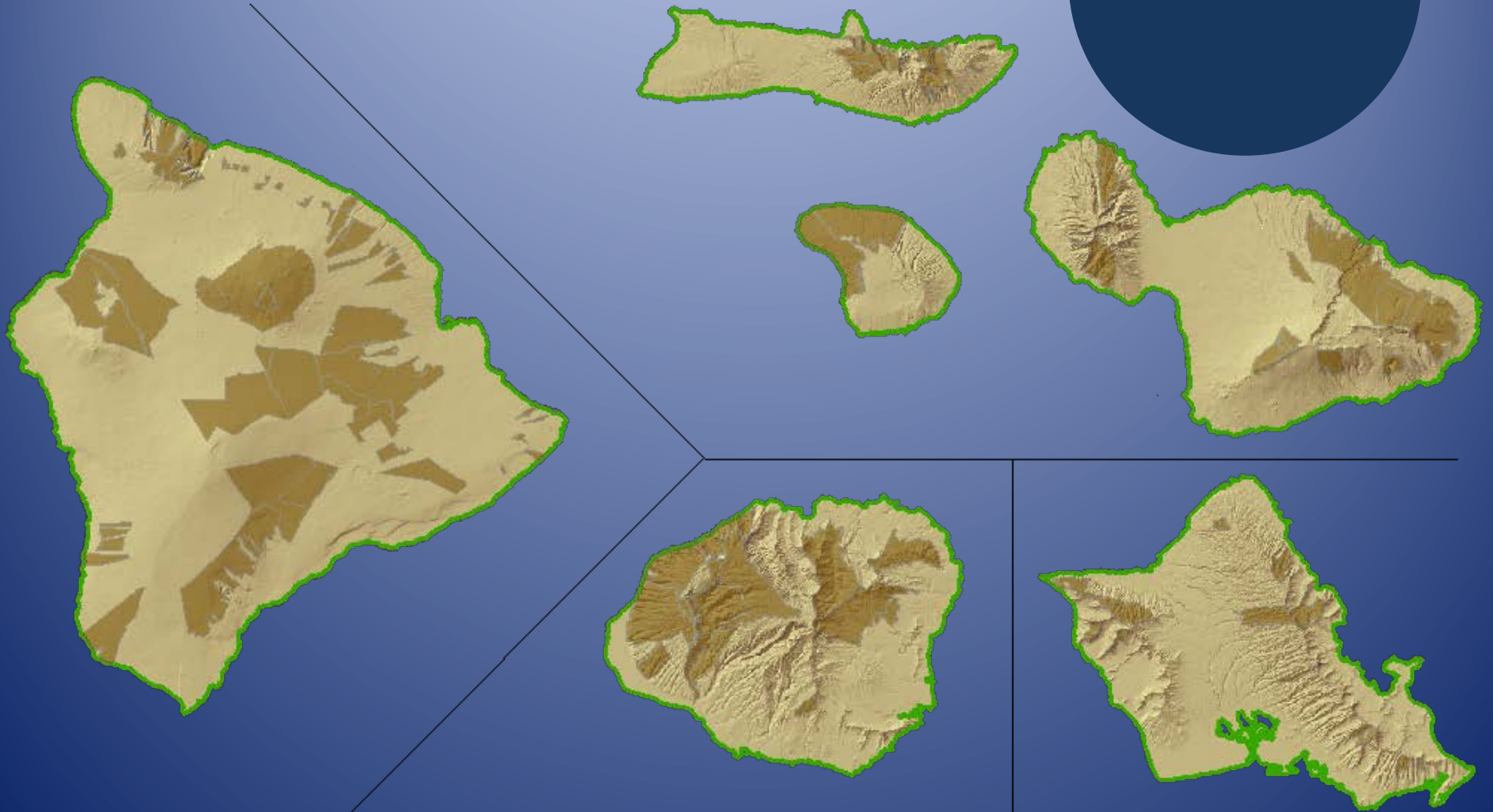
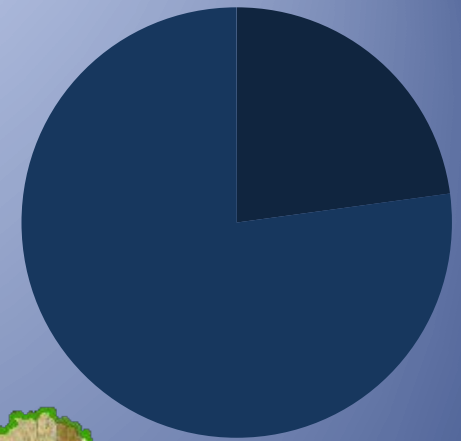
Kaupo, Maui

Unfenced vs Fenced

The Nature
Conservancy

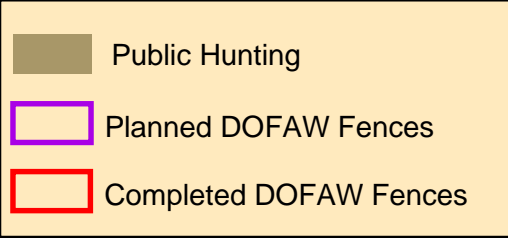
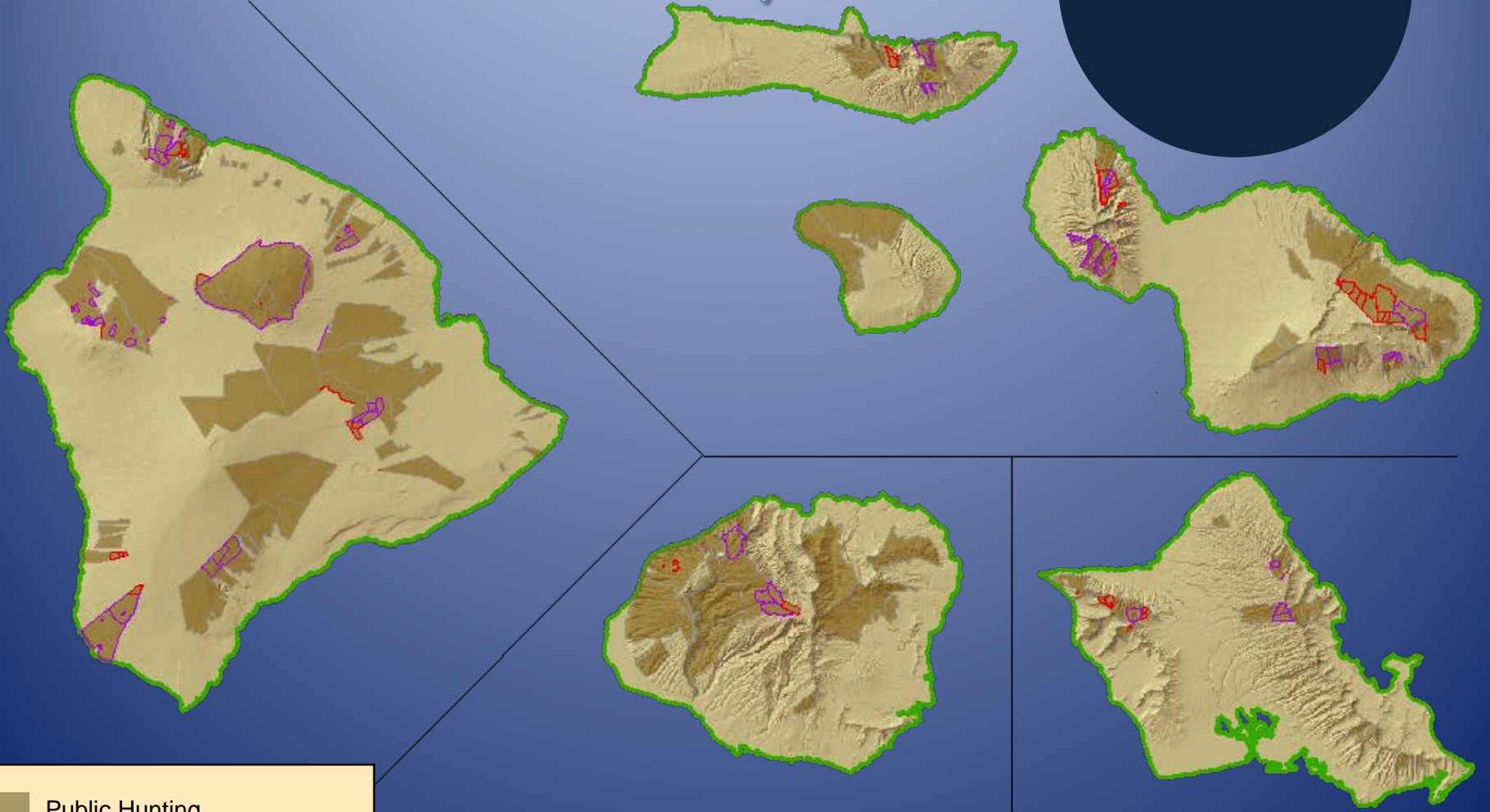
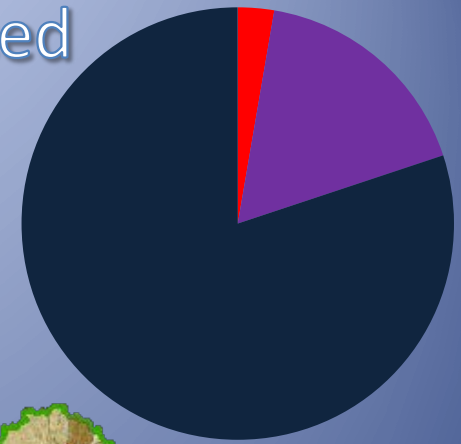
Protecting nature. Preserving

22.8% of land statewide
is open to public hunting



930491 acres of the state is designated for public hunting
4073725 acres of land in the state
22.8% of the state is public hunting

3% of public hunting land is currently fenced
Plans are to increase the total to
20% over the next 15 years



25173 acres of Public Hunting land in the state is fenced
159970 acres of Public Hunting land in the state is Planned Fencing Units
930491 acres of the state is designated for Public Hunting
19.9% of Public Hunting land in the state is Planned/Fenced Units

Increase hunter access to existing public lands



Fencing allows reforestation to begin.



107,544 natives planted
in 2014

Who
we are



Christian Lum, Restoration Assistant



Robert Lee- Restoration Assistant

Ainoa Kaiokamalie, Restoration Assistant



16,629 Volunteer hours
contributed toward watershed protection
and invasive species control in the past year





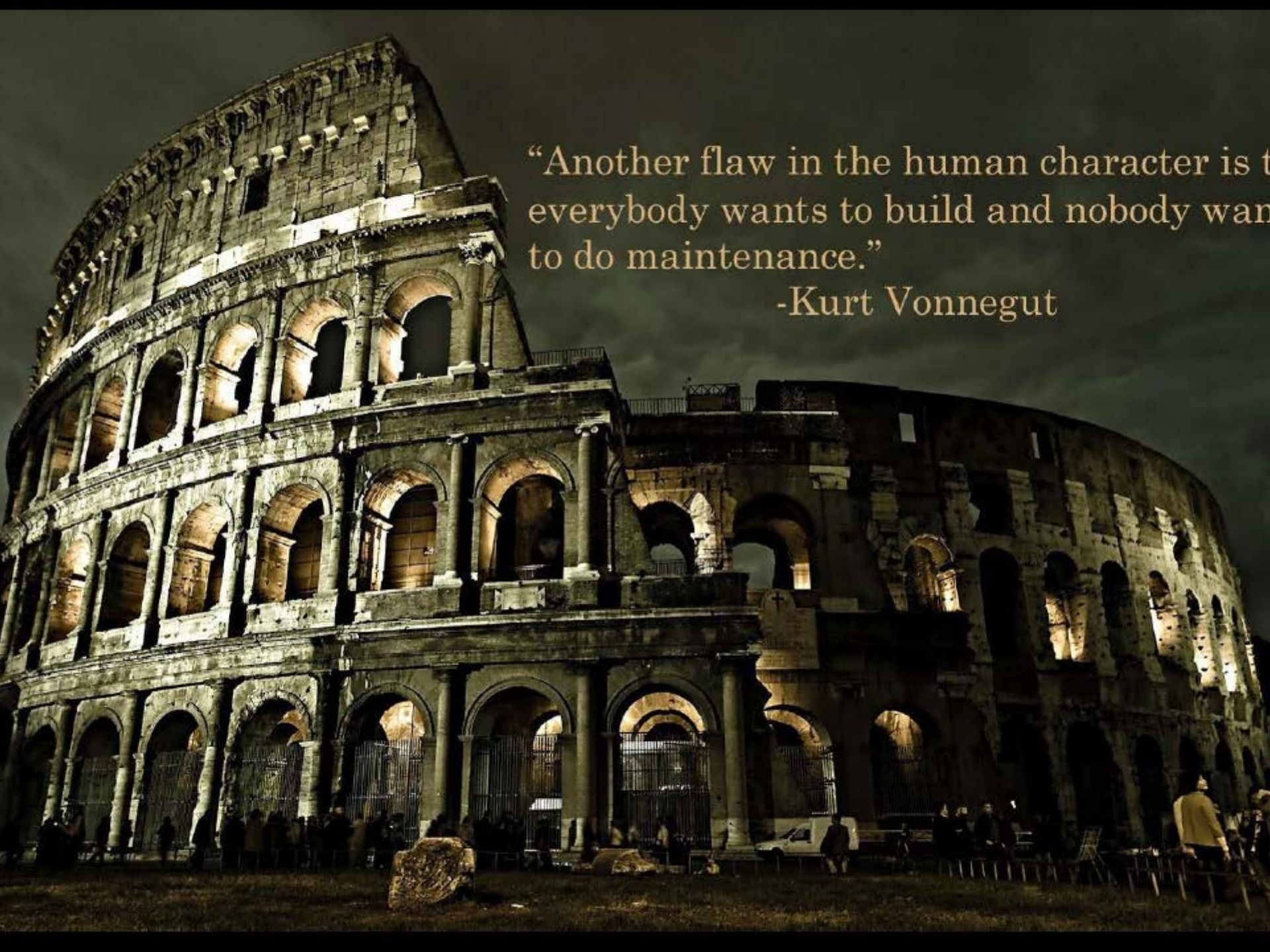
Green infrastructure requires maintenance to keep our water supplies flowing, just like the pipes.

Watershed Funding FY13-15

2012 Goal: Double protected acres over 10 years
From 10% to 20% of priority watershed

Cost: \$11 million per year
Allocated to date: ~\$6 million per year

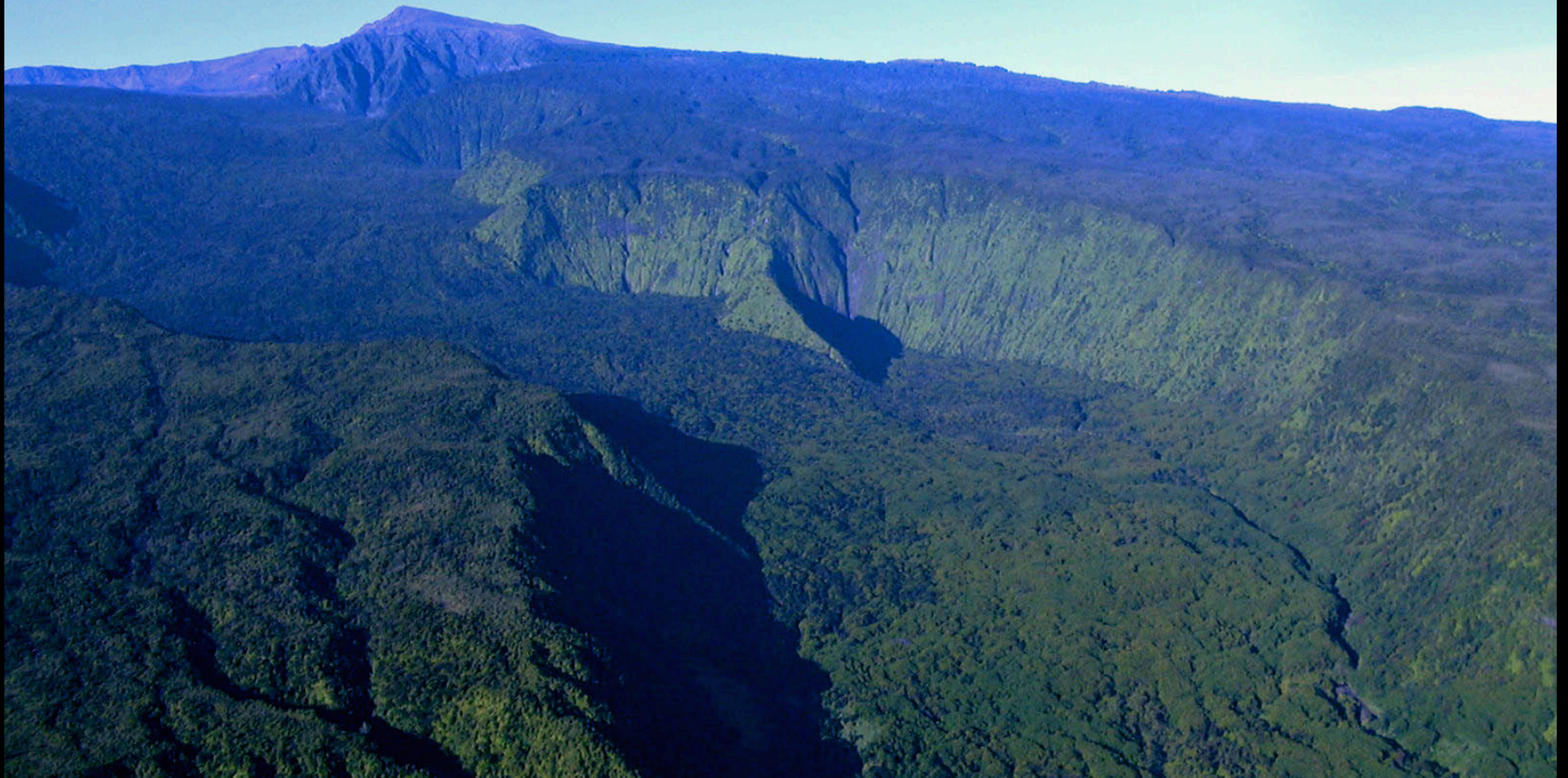
	(Millions)							
Year	NARF (S)	General	CIP	Total/Year				
FY 13	\$ 2.5	\$ -	\$ 2.5	\$ 5.0				
FY 14	\$ -	\$3.5	\$ 5.0	\$ 8.5				
FY 15	\$ 2.4	\$ -	\$ 3.5	\$ 5.9				
	\$ 4.9	\$3.5	\$11.0	\$19.4 million over 3 years				



“Another flaw in the human character is that everybody wants to build and nobody wants to do maintenance.”

-Kurt Vonnegut

Healthy forested watersheds
the key to supplying
an abundant supply of water
for the long term.





“Forest protection means ... conserving the water supply. The future welfare and agricultural prosperity of the Hawaiian Islands depends on the preservation of the forest...”

-E.M. Griffith, 1902