

# Yes, Albizia can be successfully controlled. Just ask the Samoans



Photo credit: Tavita Togia

**Flint Hughes, Institute of Pacific Islands Forestry, USDA-USFS**  
**Tavita Togia, National Park of American Samoa, DOI-NPS**  
**James Leary, Univ. Hawaii - Manoa**





Amanda Uowolo;  
Aka “Queen Tamaligi”



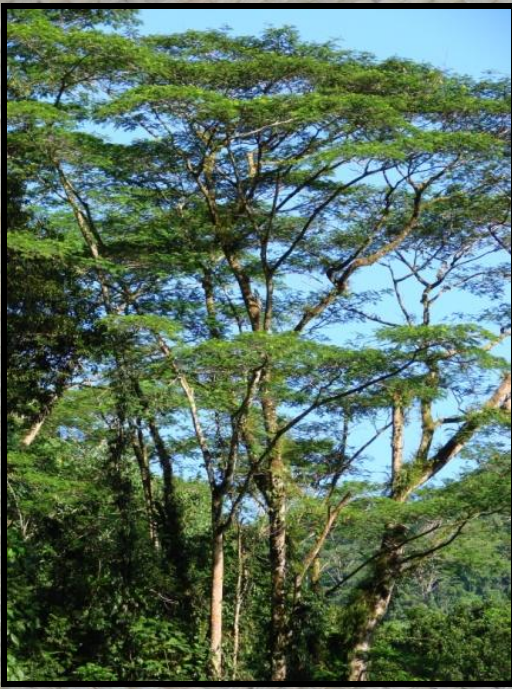


# American Samoa's Forests: A Biological Treasure

- The most intact native forests in the Pacific, they stretch from the ocean shores to the high ridges of Tutuila Island.
- Samoa has the 2<sup>nd</sup> largest native flora in Polynesia (behind HI), and ca. 30% of its species are endemic.
- Its forests contain many early successional species that are well-adapted to disturbances such as cyclones (e.g., Val – 2003, Heta-2004)







*Ecological Applications*, 15(5), 2005, pp. 1615–1628  
2005 by the Ecological Society of America

## INVASION BY A N<sub>2</sub>-FIXING TREE ALTERS FUNCTION AND STRUCTURE IN WET LOWLAND FORESTS OF HAWAII

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# Characteristics of *Albizia*

- *Albizia* grows fast, particularly in high light environments.
- Due to its very rapid growth rate under high light conditions, *Albizia* can take advantage of local disturbances to become established in an area.



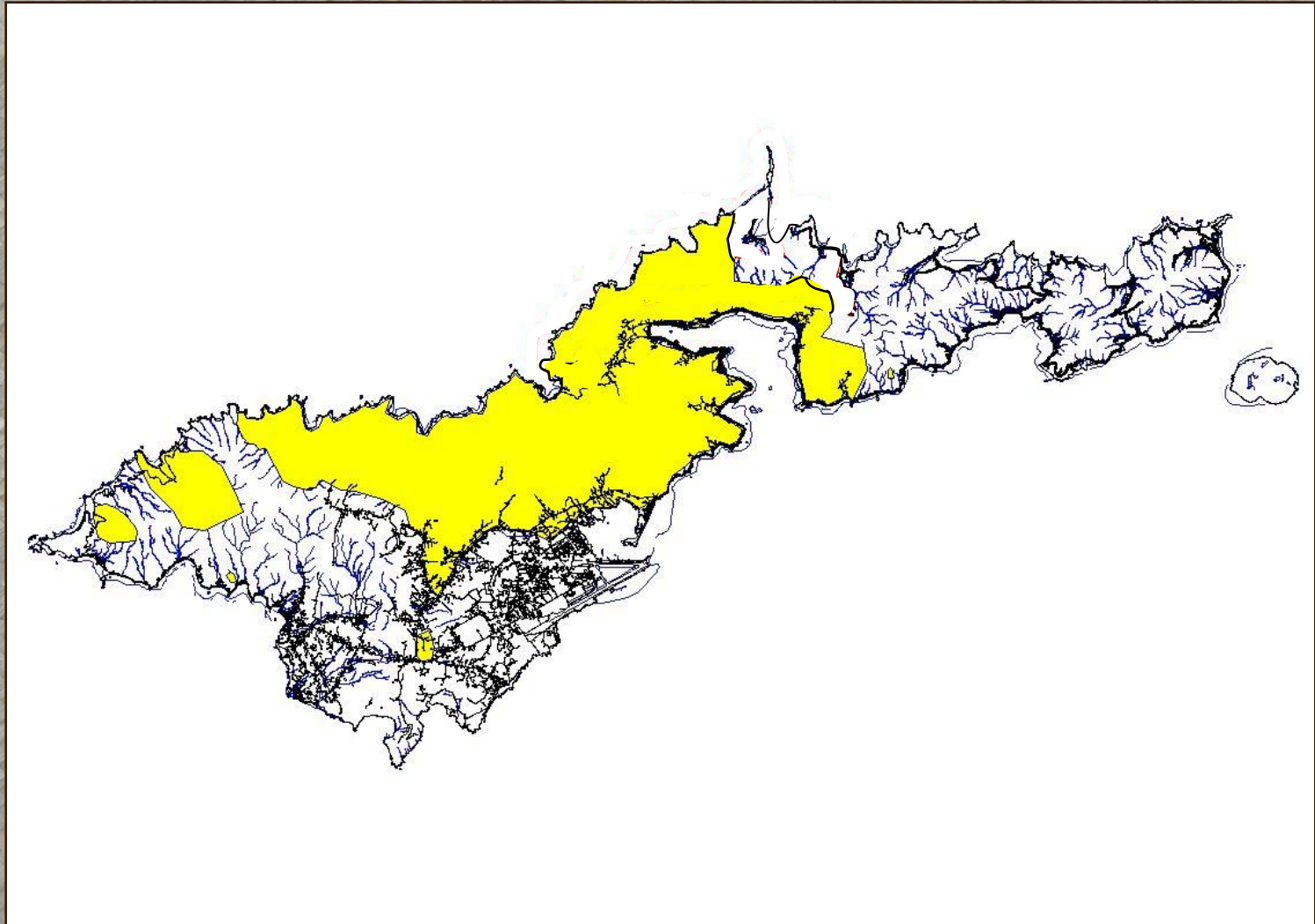
Aftermath of cyclone Heta 2004



Taro cultivation

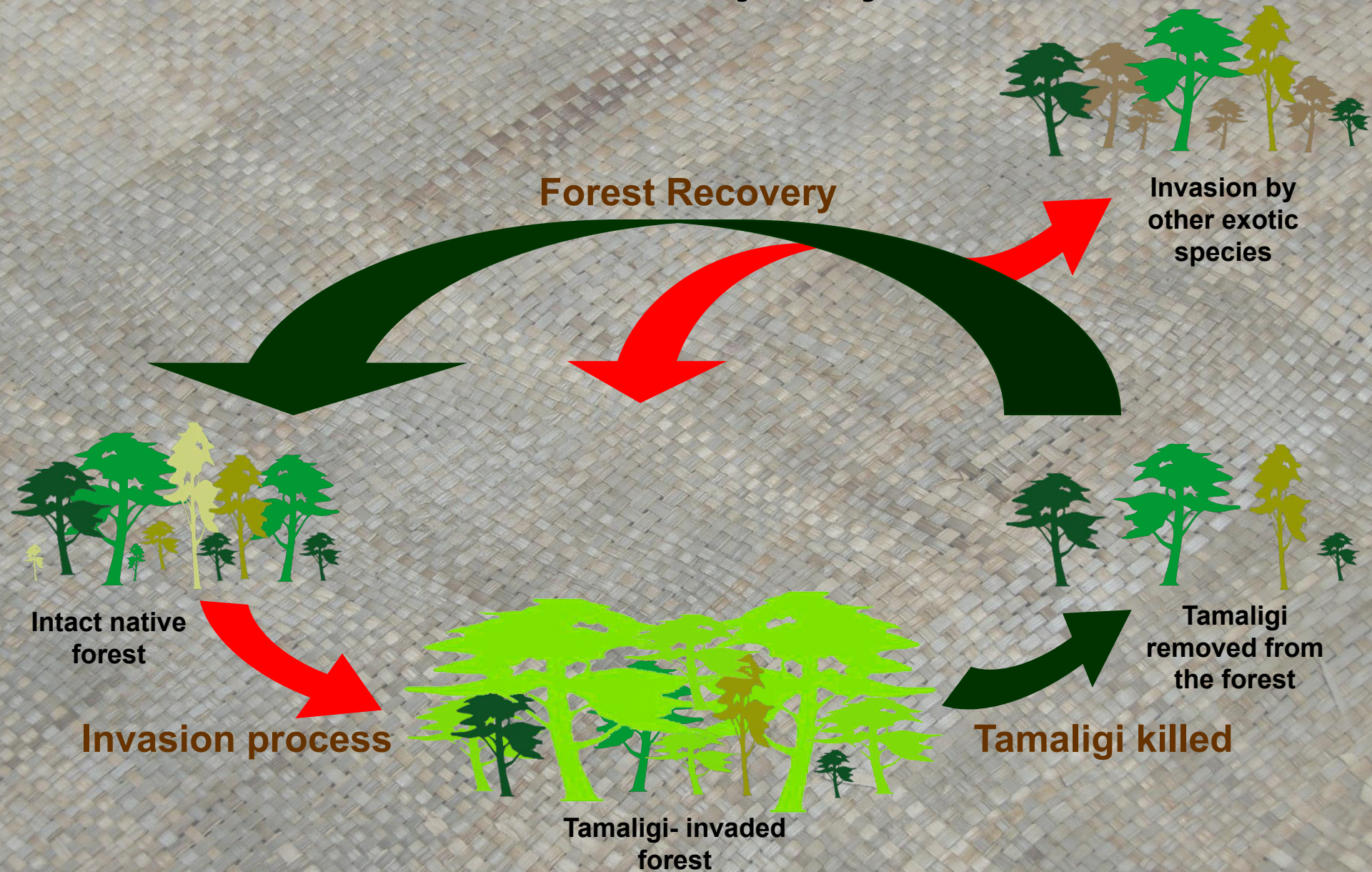


# Distribution of *Tamaligi* across Tutuila Island, American Samoa in 2001





# Forest Recovery Trajectories





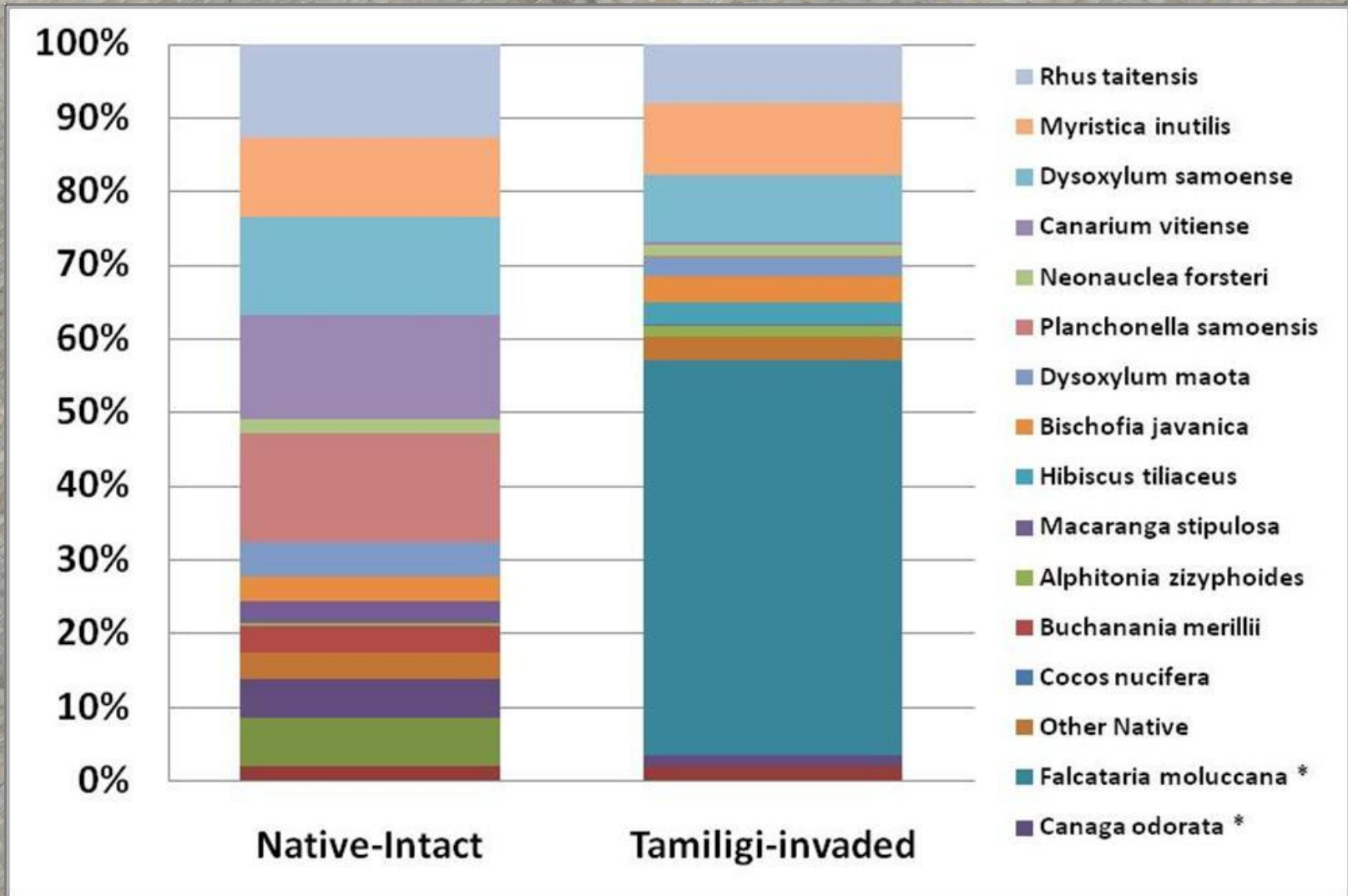
# Research Collaboration





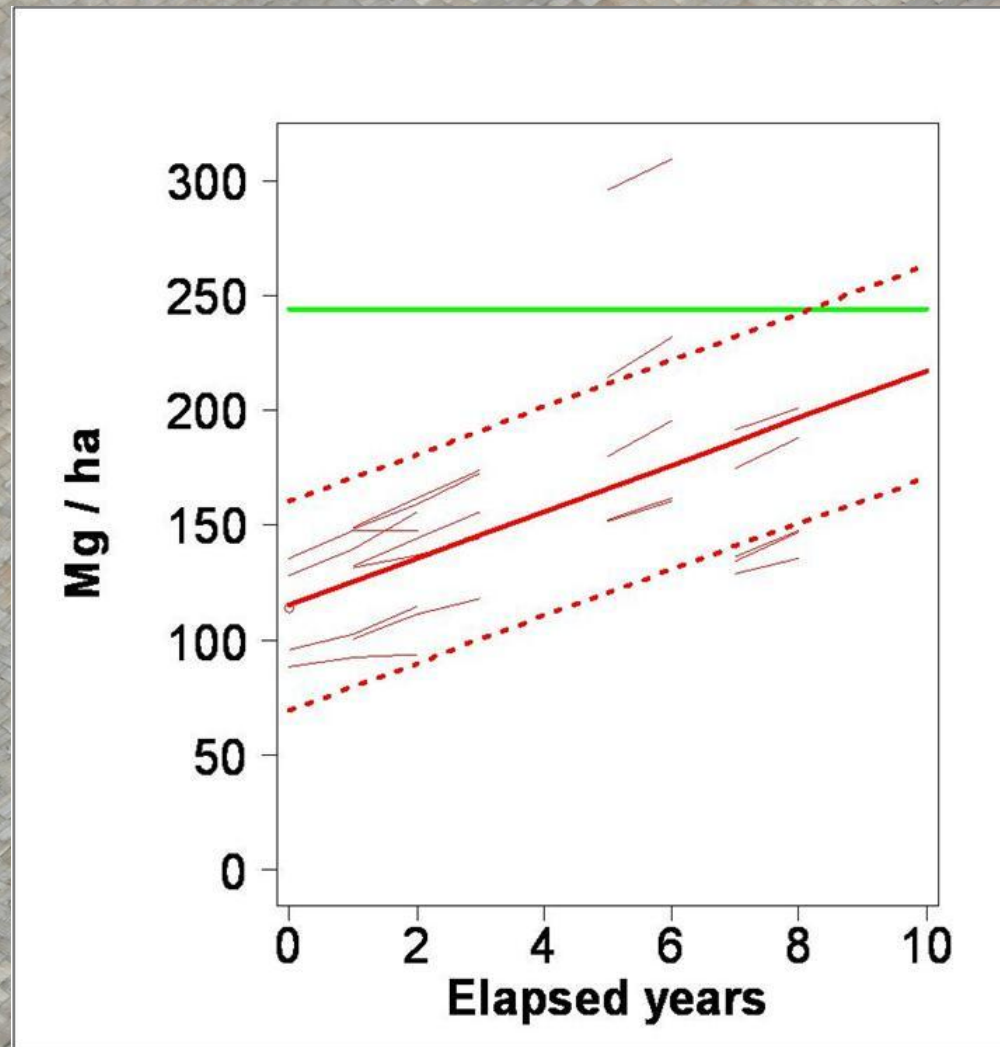
# Impacts on Forest Structure in American Samoa

Percentage of aboveground biomass accounted for by various tree species in native-dominated and *tamaligi*-invaded forests.





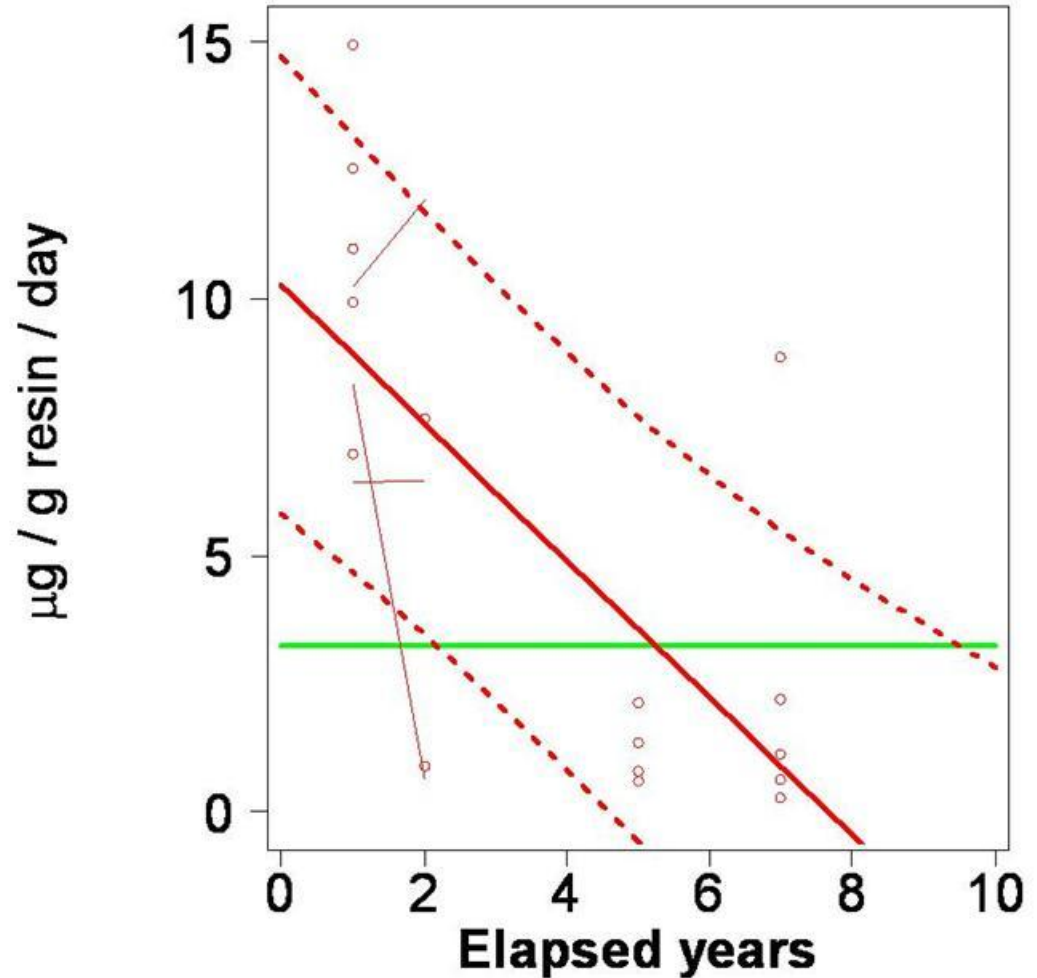
## Total Aboveground forest biomass



**Aboveground biomass in intact native forest (green line) and recovering forests following tamaligi control (solid red line). x-axis = time since control. Dashed lines denote 95% confidence intervals. Thin red lines denote trajectories of individual plots measured over consecutive years; open circles denote one-time measures of individual plots.**

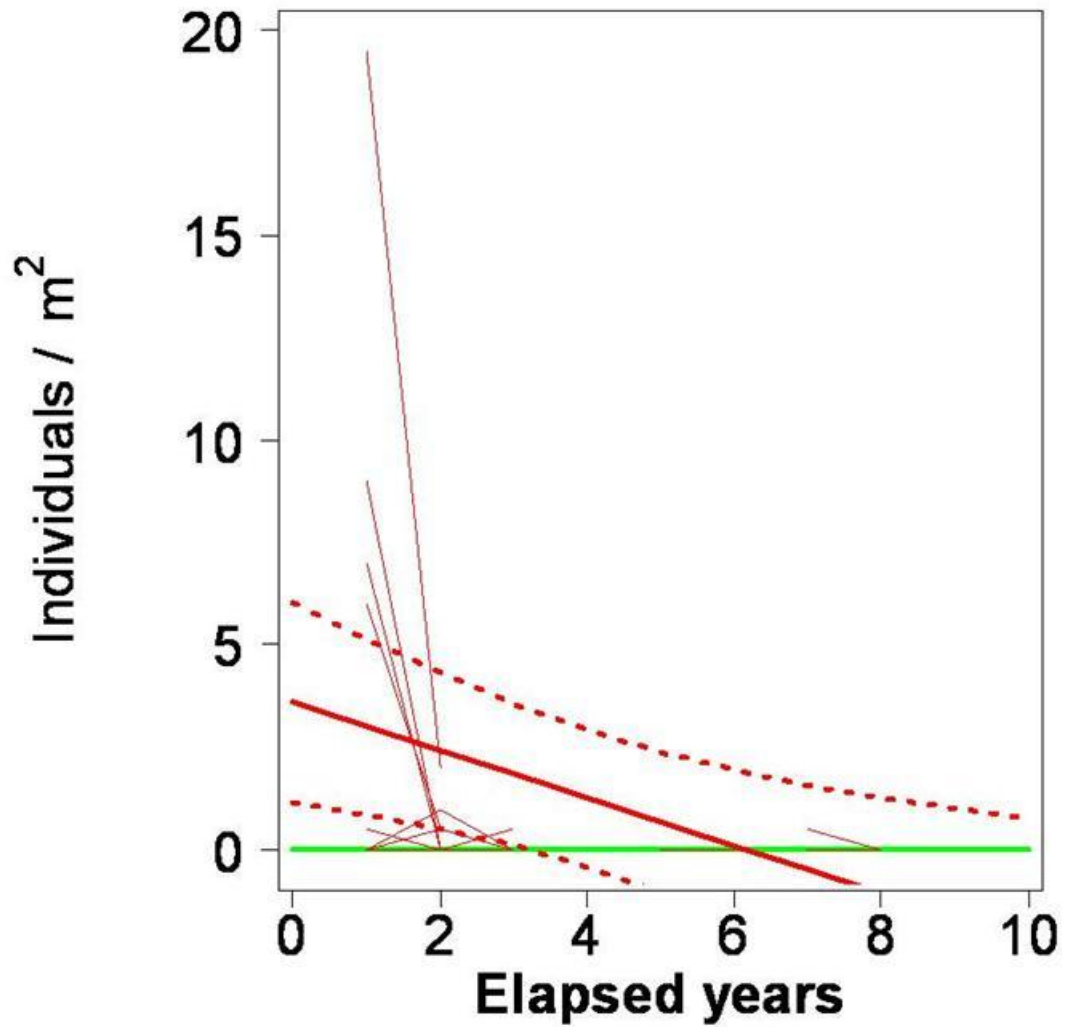


**Available soil N (nitrate and ammonium) in intact native forest (green ) and in recovering forests following *tamaligi* control (red).**





***Tamaligi* seedling density in intact native forest (green line) and recovering forests following tamaligi control (solid red line).**







ORIGINAL PAPER In BIOLOGICAL INVASIONS

DOI 10.1007/s10530-011-0164-y

Recovery of native forest after removal  
of an invasive tree,  
*Falcataria moluccana*, in American  
Samoa

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Tavita P. Togia

Keywords Invasive species Disturbance Pacific  
Islands Samoa Biomass Richness Soil nitrogen  
Succession

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# The National Park Resource Management Crew





# Grassroots Support





# Education & Outreach





# Control Method



**Girdling *Tamaligi* trees**



**Before control**



**2 years after girdling**

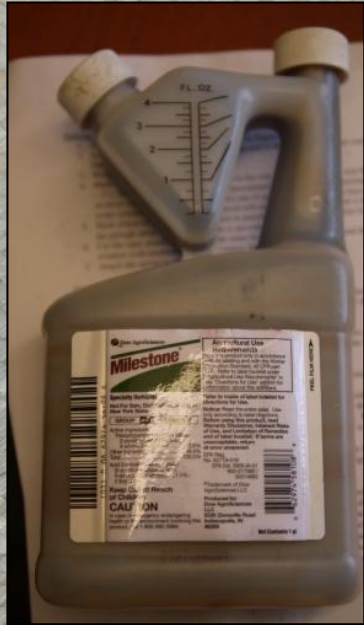


**7 years after girdling**



# Milestone Herbicide Application: Low-volume “Hack and Squirt”

Non Hazard Trees:  
\$3.50 per tree (paid labor  
and supplies)

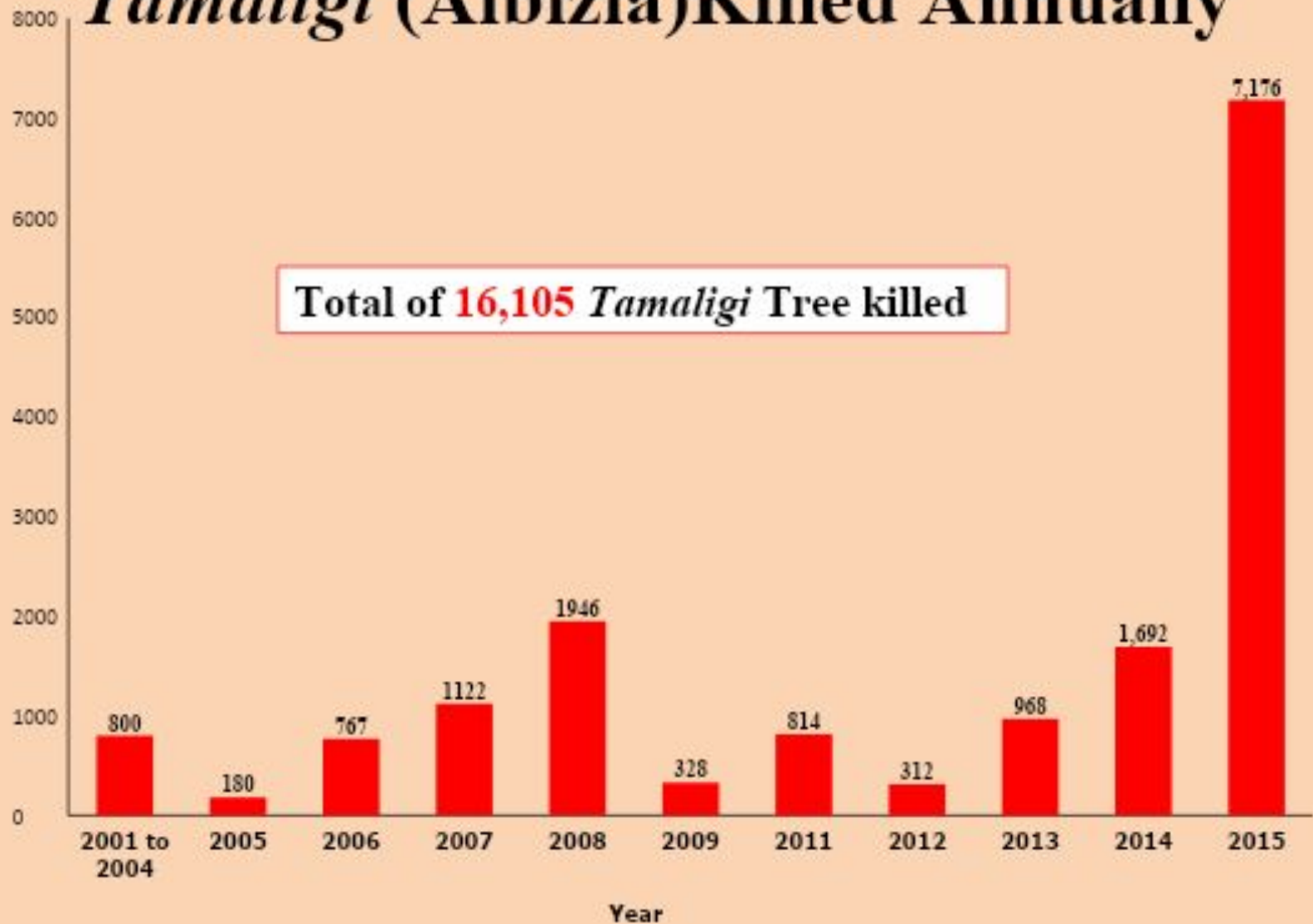


Dr. James Leary; Univ of  
Hawaii-Manoa



# *Tamaligi* (Albizia) Killed Annually

Number of *Tamaligi* Tree Killed

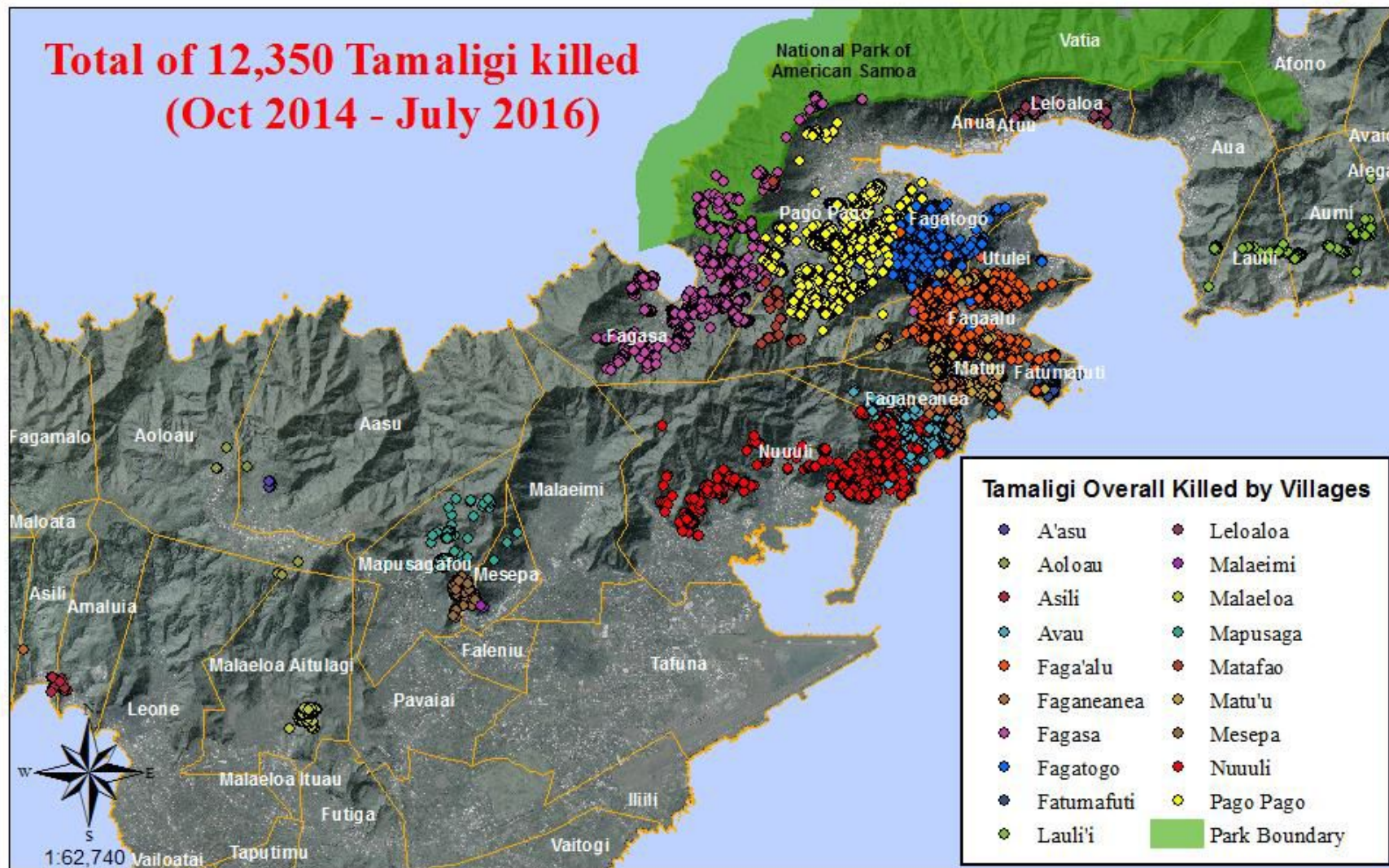




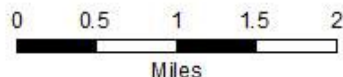


Project D14AP00071: ASG-DOI Tamaligi Project in Tutuila Island

**Total of 12,350 Tamaligi killed  
(Oct 2014 - July 2016)**



Map coordinate system:  
WGS84 UTM Zone 2S



Map produced by:  
[Loia Tagoai]  
Date: 8/4/2016



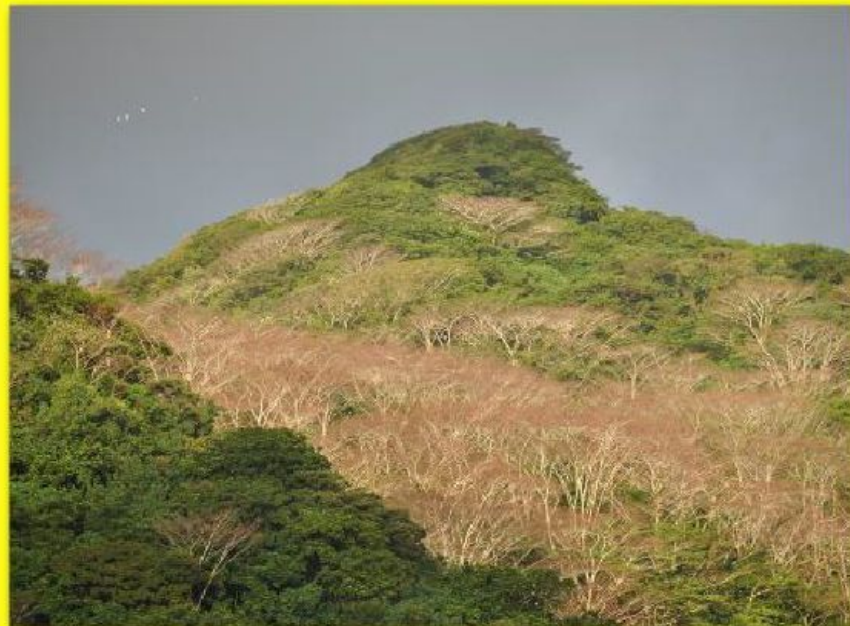
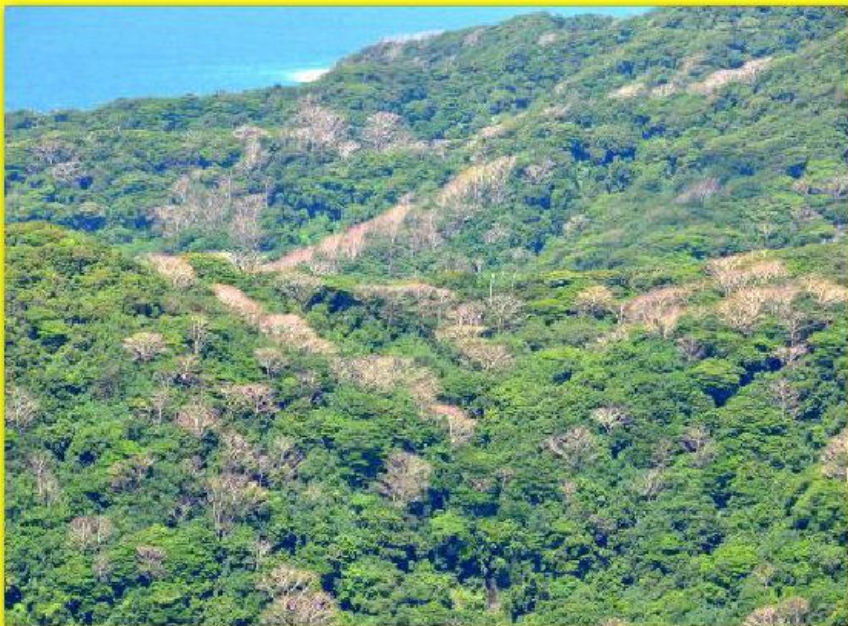
# Fagatogo: View from Mount Alava











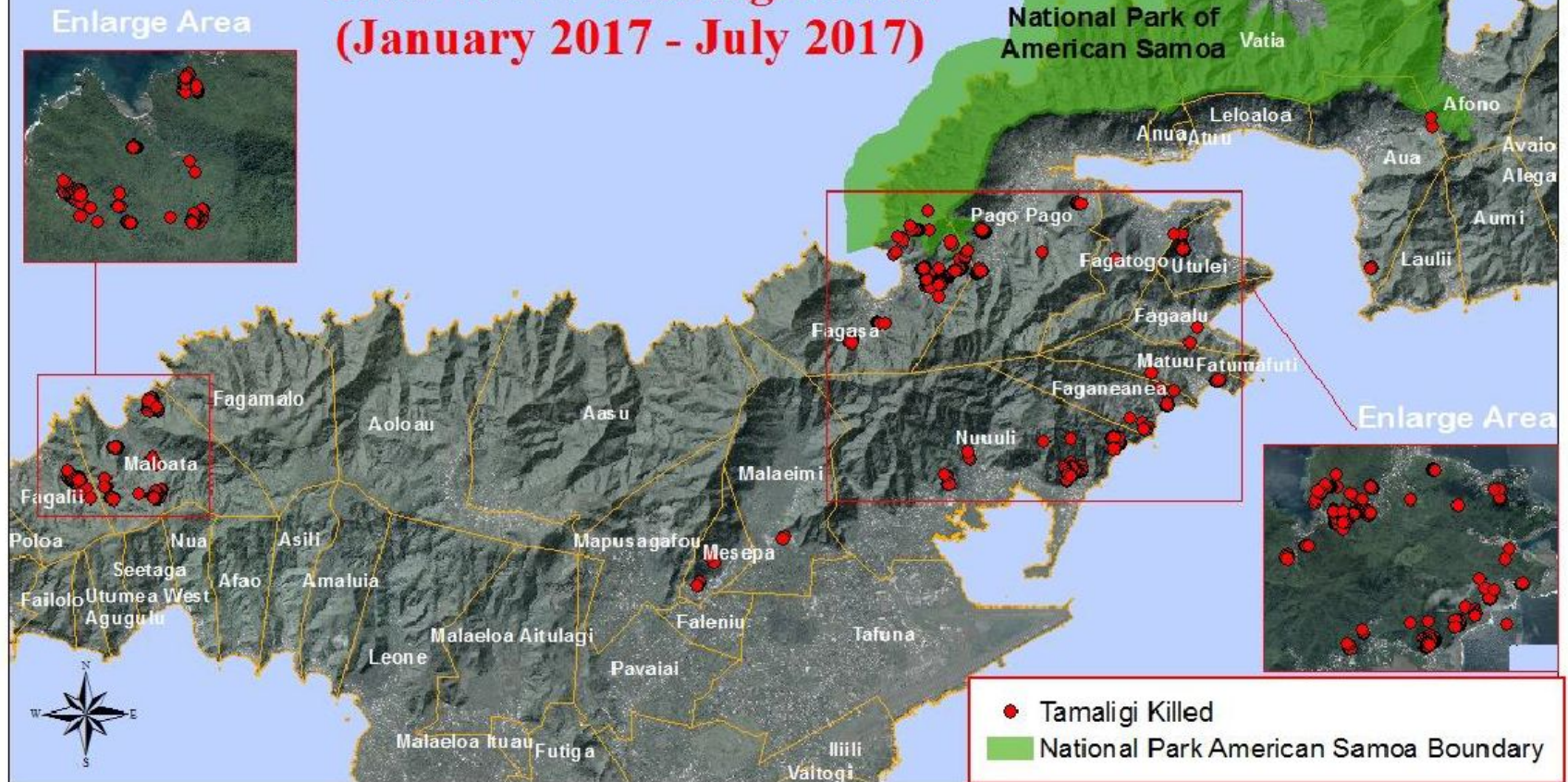




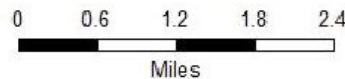
**Figure 1: Final Completion Report**

National Park of American Samoa & Government of American Samoa Partnership  
DOI-OIA Project D14AP00071

**Total of 777 Tamaligi Killed  
(January 2017 - July 2017)**



Map coordinate system:  
WGS84 UTM Zone 2S



Map produced by:  
[Krystal Palota]  
Date: 7/31/2017

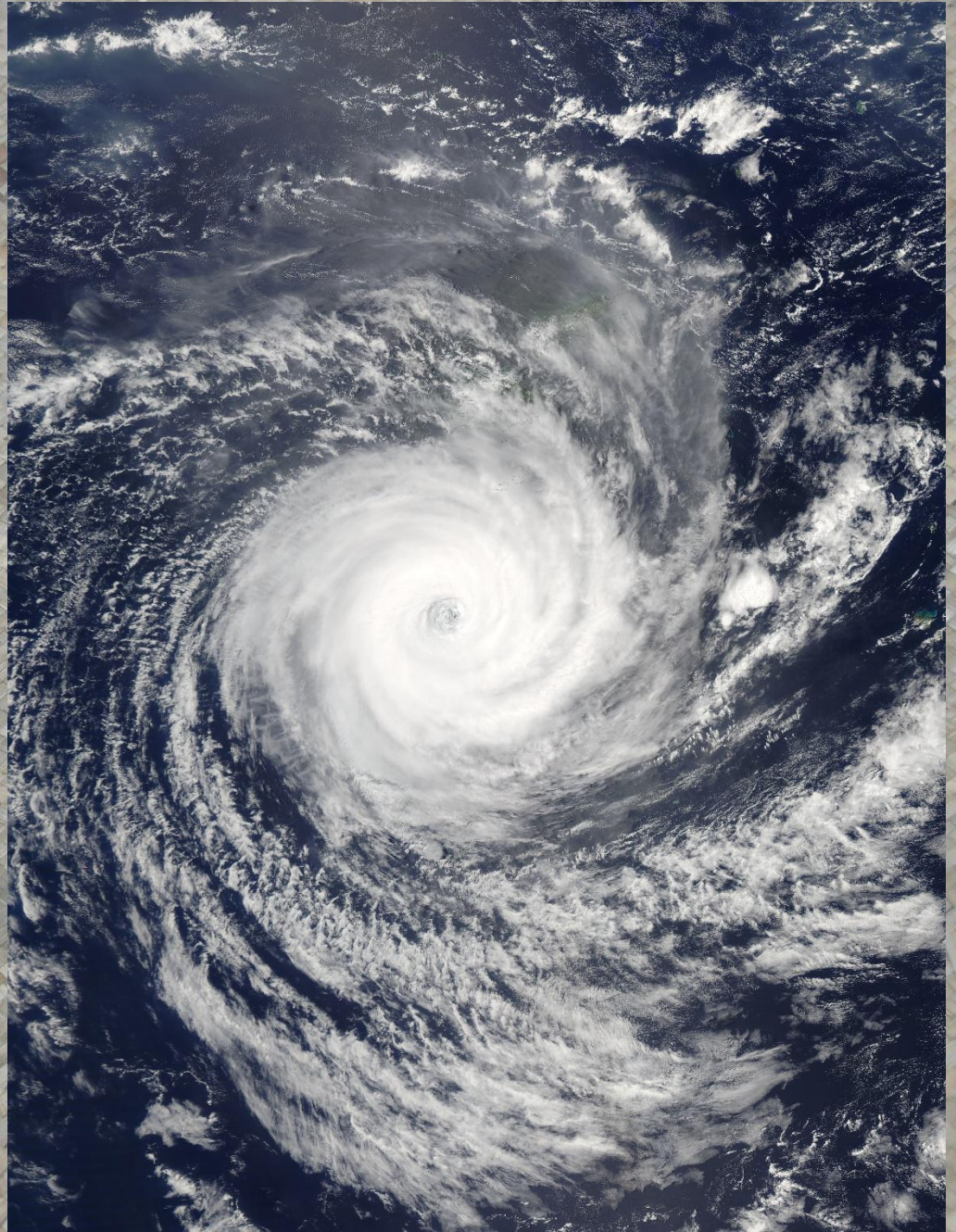


***Tutuila* crew eradicates the last remaining *Tamaligi* trees in *Maloata & Fagali* villages. Field Supervisor Tama recording the GPS Coordinates of each *Tamaligi* trees, while the crew apply the Incision Point Application (IPA) techniques to the trees**





**Cyclone Gita  
Hits  
American  
Samoa,  
February 9,  
2018.**







**Mahalo! to all the members and volunteers of the resources management field crew of the National Park of American Samoa**

