Revegetation, Soil Loss, and Management in the Talakhaya Watershed

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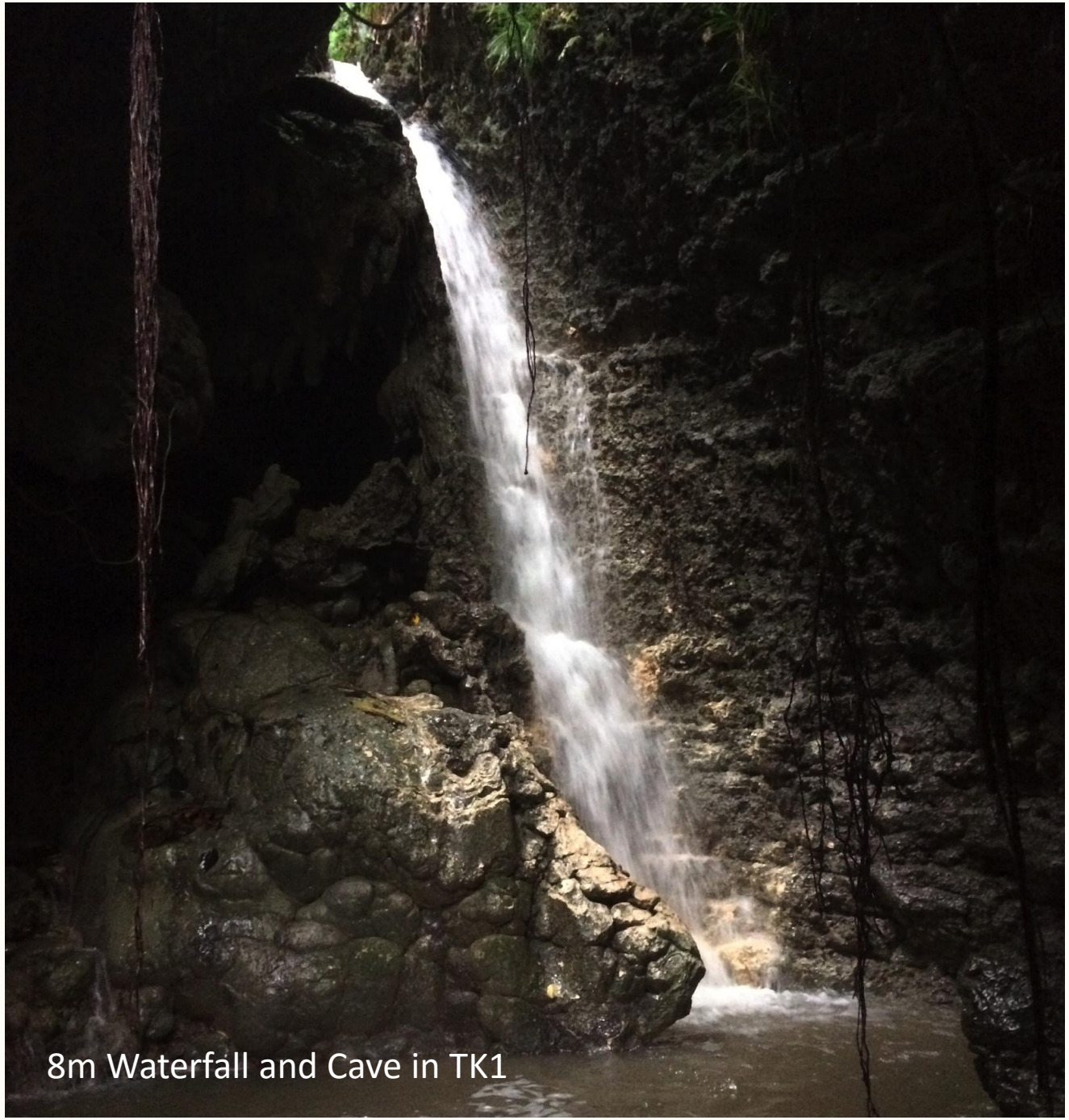
Outline

- Introduction to the Sabana/Talakhaya Watershed
- The Revegetation Project: A Decade Later
- Soil Loss Assessment Report: Phase II
- Watershed Management and Conservation

The Sabana/Talakhaya Watershed

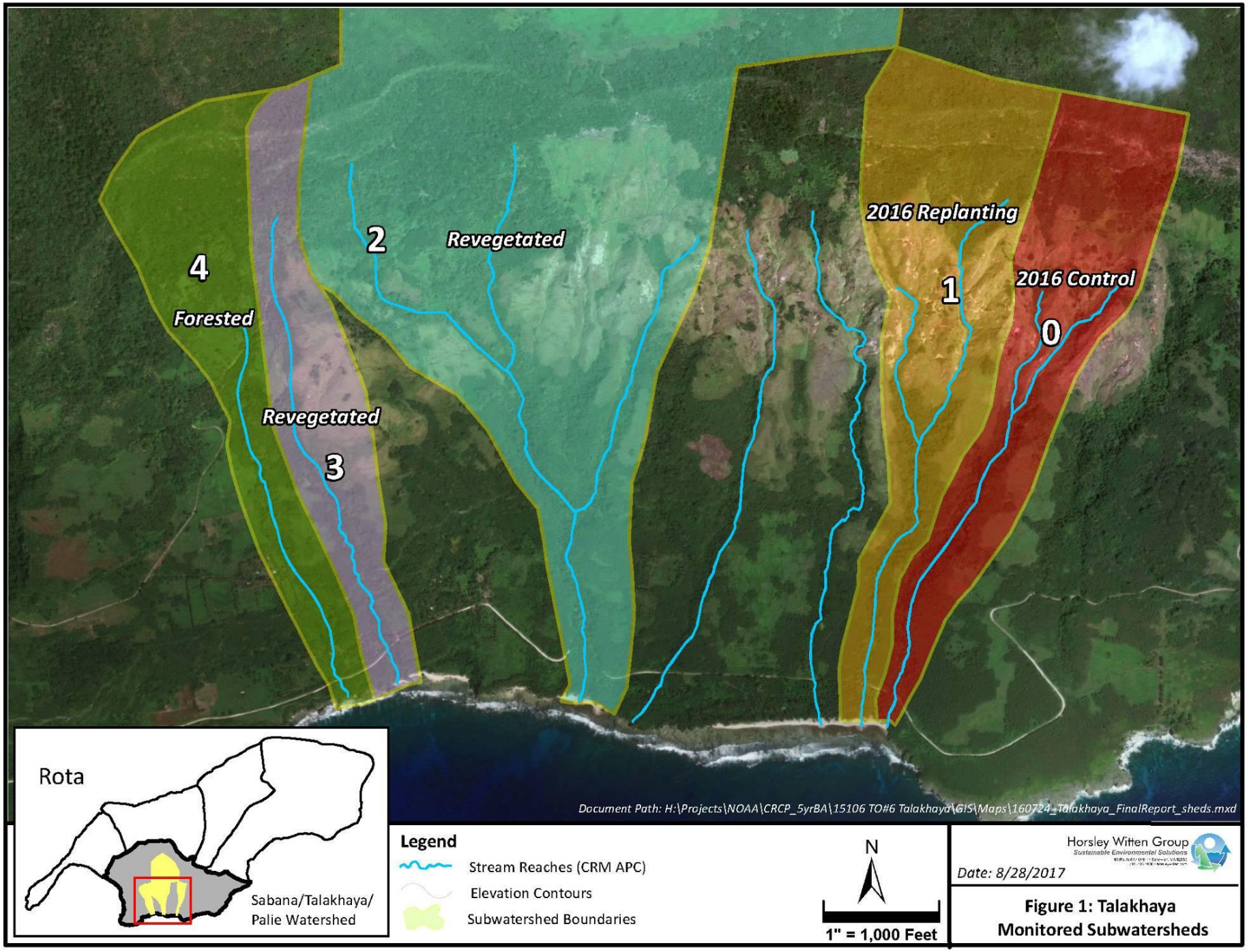
"The vision statement developed by management team: 'Protehi i rikesan i tano yan i tasi'"



8m Waterfall and Cave in TK1

- Freshwater/riparian habitats
- Land-sea connection
- Flora/fauna (endangered, endemic, protected)

Marbled Eel in TK2



The Sabana/ Talakhaya watershed is approximately 4,900 acres and contains the island's only streams and wetlands within a riparian network


Burn Area in Feb 2017

Conservation Action Plan

- Created in 2012, revised in 2015
- Management priorities
- Threats to watershed
  - Fires
  - Poaching
  - Soil erosion

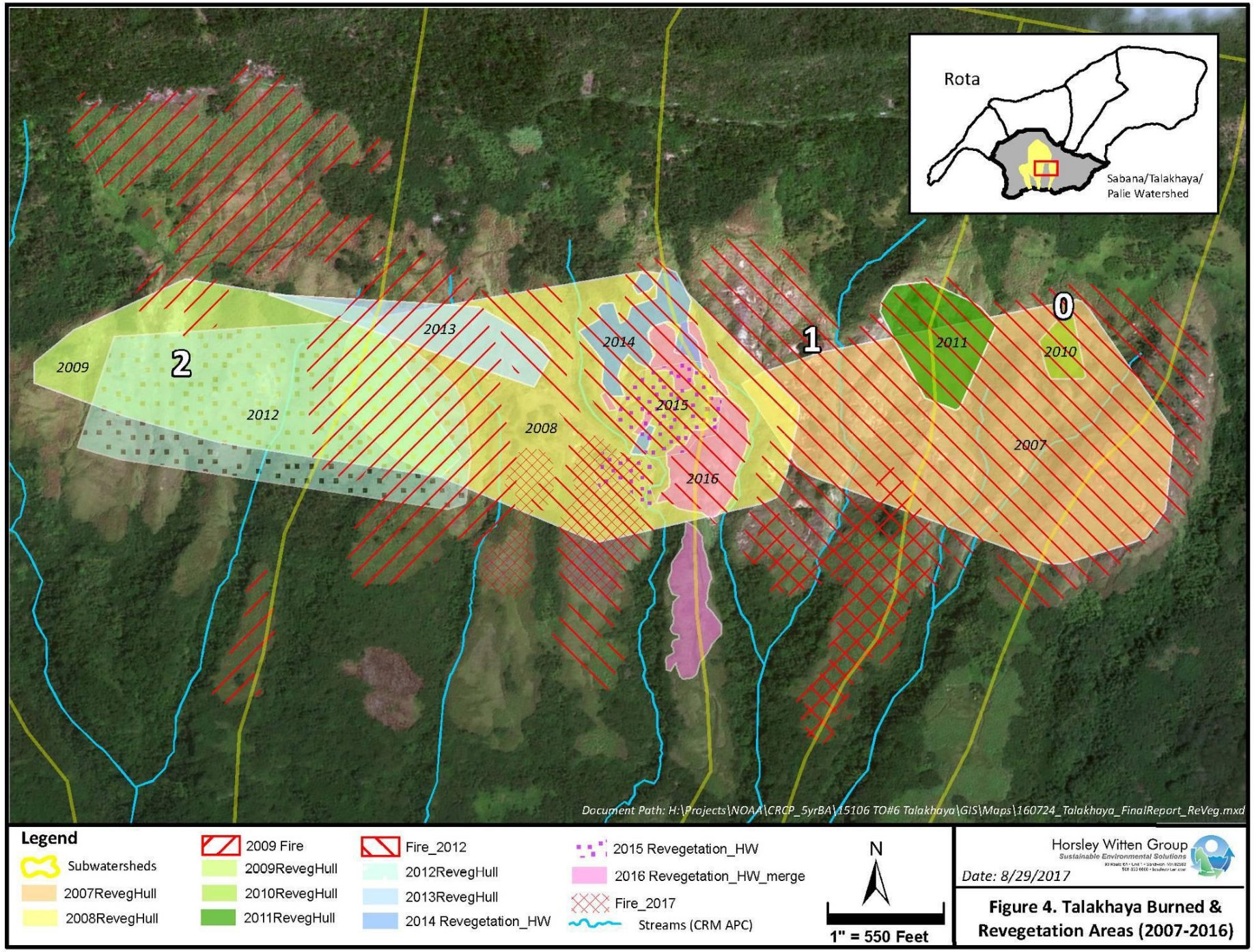
The Revegetation Project: A Decade Later

"Objective 1: By 2025, revegetate **all** critically eroding areas in the watershed with grasses and *Acacia*"

Surveying 2016 Planting Area

The Revegetation Project

- The primary activity to reduce soil loss and curb erosion
- Local Agencies
- July through October
- Transporting seedlings by truck and with backpacks
- Targeting barren areas in Talakhaya
- More than 25,000 per year



Approximately 60-70% of the Conservation Area has been revegetated since 2007, despite the impact of fires in 2009, 2012, 2013, and 2017

Revegetation 2017

- Planting in the control area
- Higher numbers than previous years
- 2017 Planting numbers:
  - Vetiver grass.....37,417
  - Bahia grass.....3,491
  - Acacia confusa.....1,480
- Qualitative data vs. quantitative

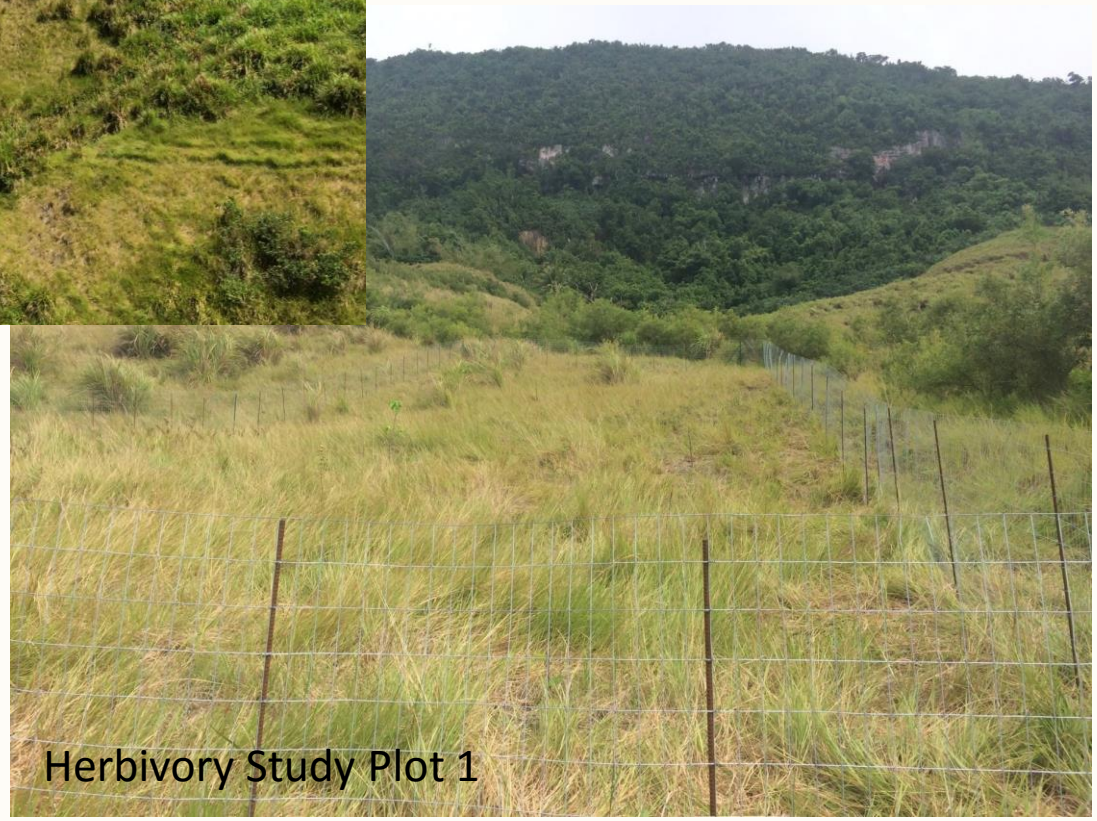

Revegetation Area 2017

Revegetation 2017

Revegetation Volunteers 2017


Barren Areas in Talakhaya

The Future of the Revegetation Project


Herbivory Study Plot 1

- Challenges for the future:
  - Dealing with deer (herbivory study)
  - “Real hunters don’t burn”
  - Targeting barren areas
  - Transitioning from grasses to trees
  - Hard to reach locations
  - Funding fears

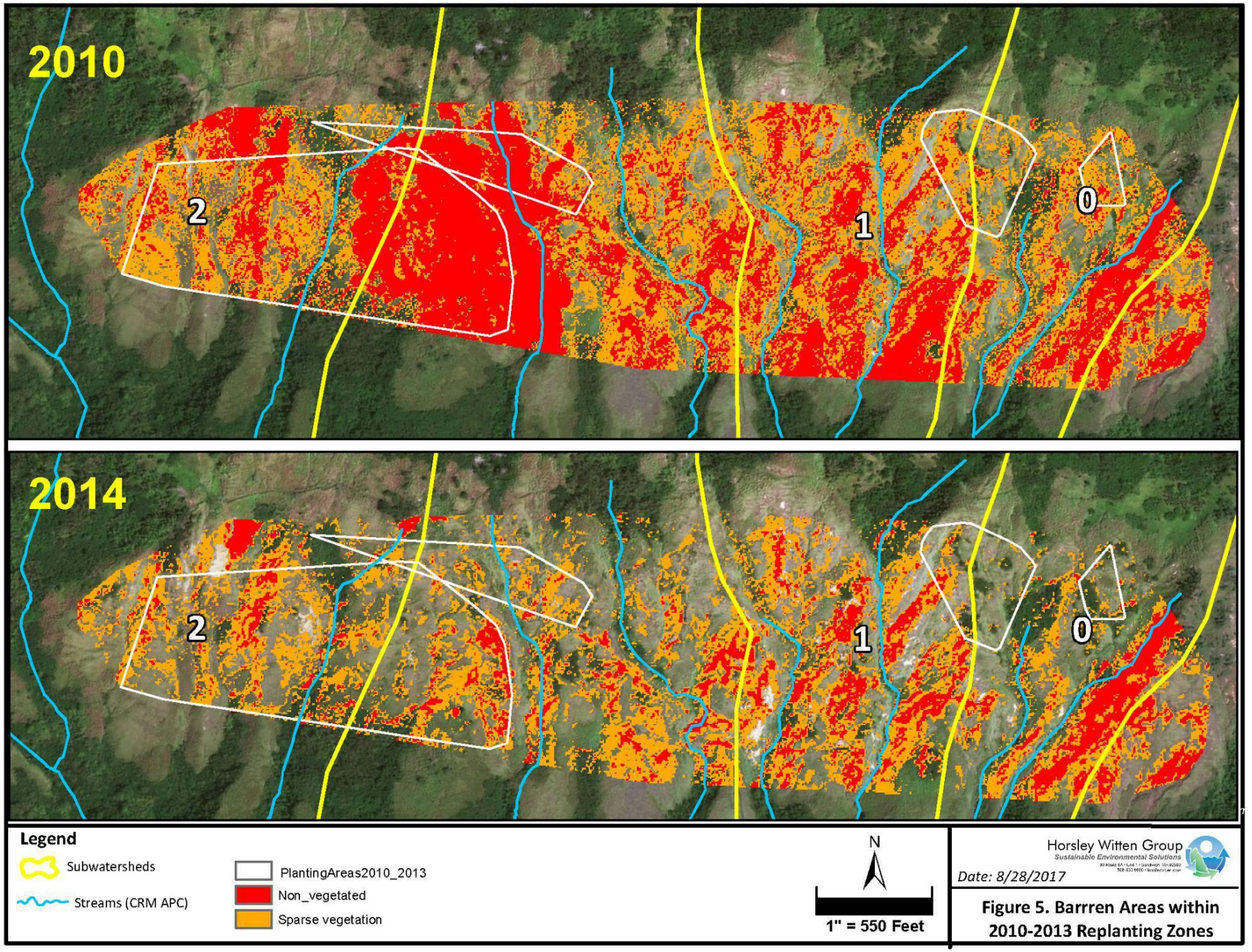
Talakhaya Watershed Soil Loss Assessment Phase II Report

"Objective A3: By 2015, reduce soil loss in Talakhaya highly eroding areas by 25%"


Turbid Waters in TK3

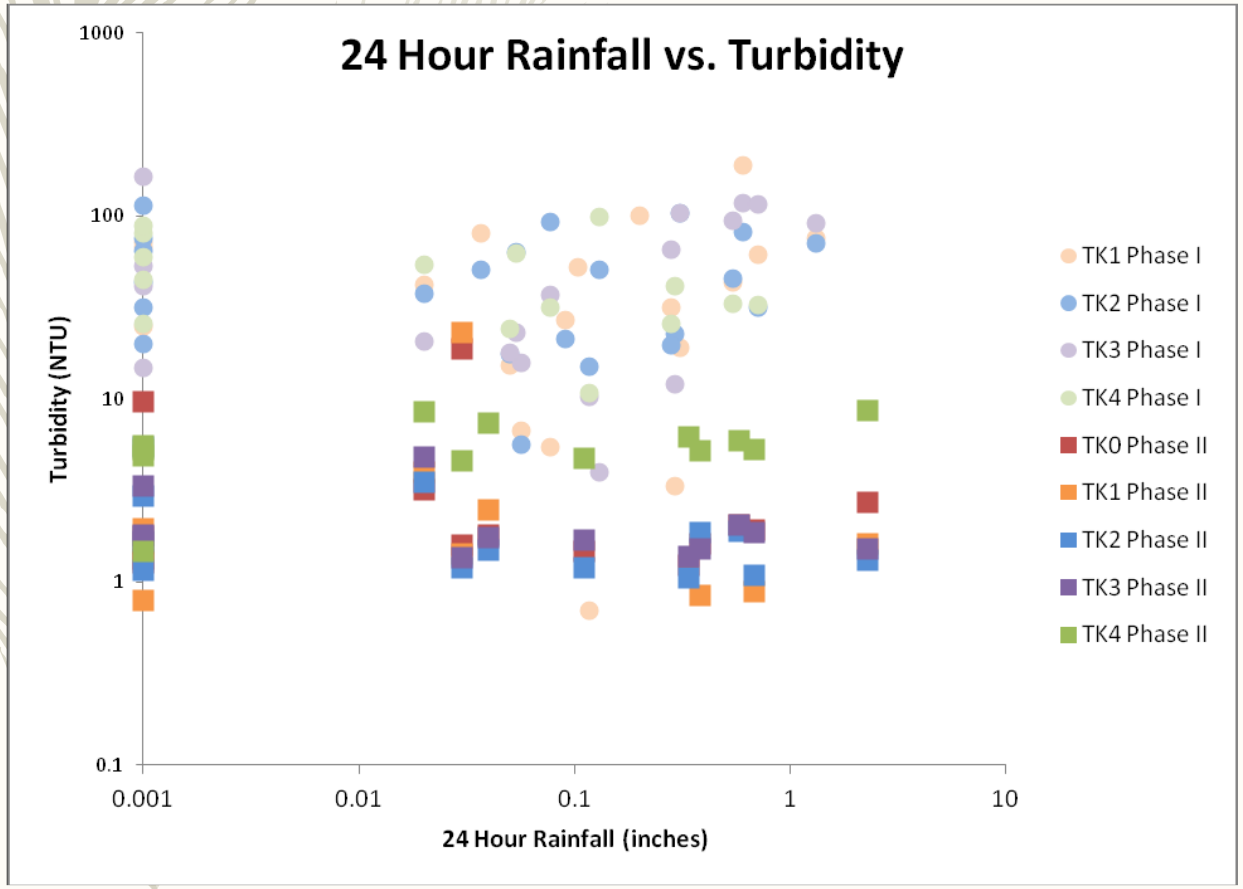
Soil Loss Assessment

- Phase I versus Phase II
  - Soil loss reductions observed, but more time was needed for establishment
- The focus for the study encompasses 1,090-acres within the greater watershed
- Intended to measure the change in soil loss in conjunction with the revegetation project



Revegetation is reducing barren areas, however the challenges of mapping and methodology make it difficult to make soil loss conclusions

Report Findings

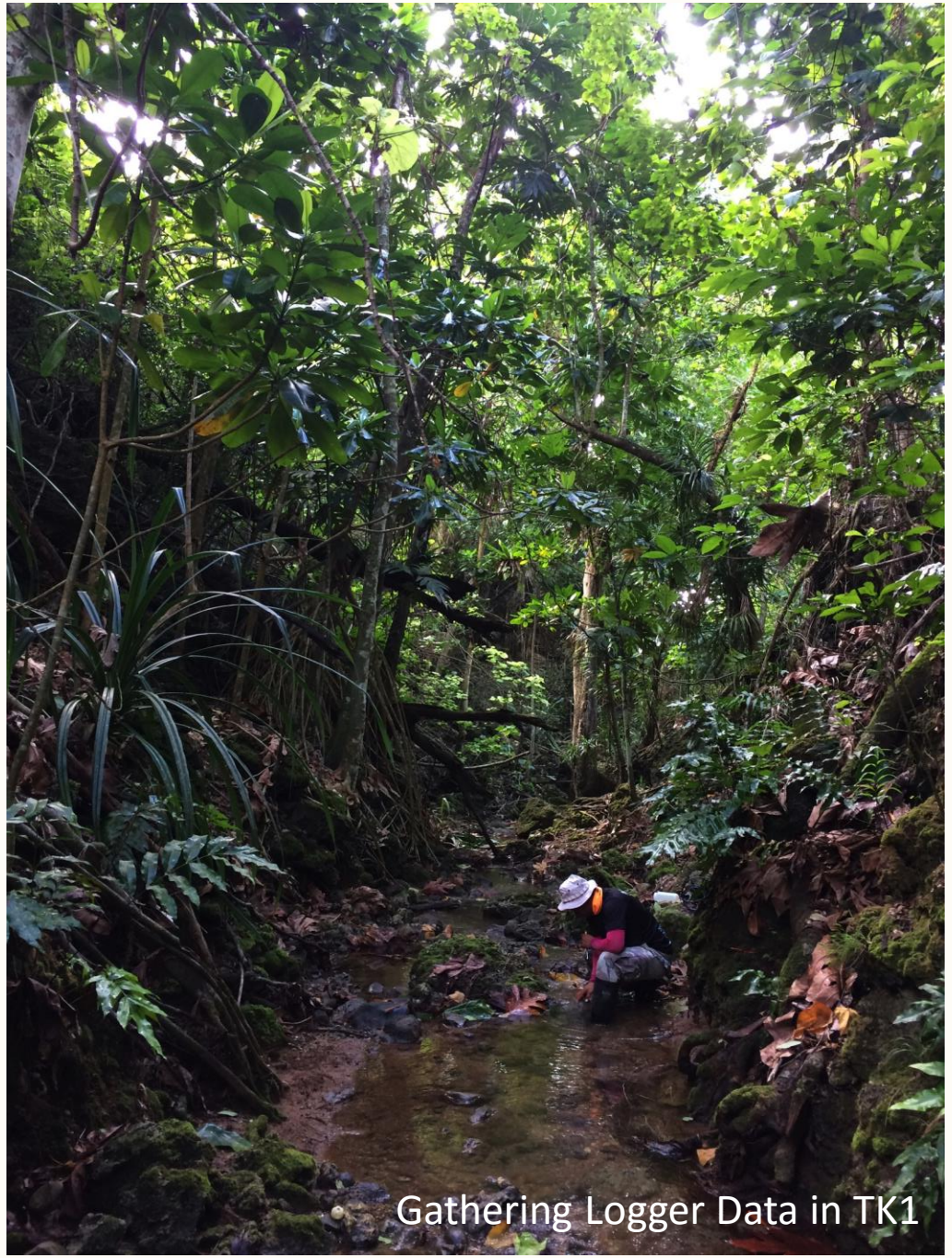


- Hard to make the connection between revegetation project and changes in stream quality
- Need more data to make conclusions
- What other methods can be used to measure soil loss and stream water quality?

Phase II Report Recommendations

- Long-term monitoring
- Using different methods to measure soil loss
- Additional sub-watershed data
- GIS data of barren lands and stream dynamics
- More data overall


Using Drones to Gather Data

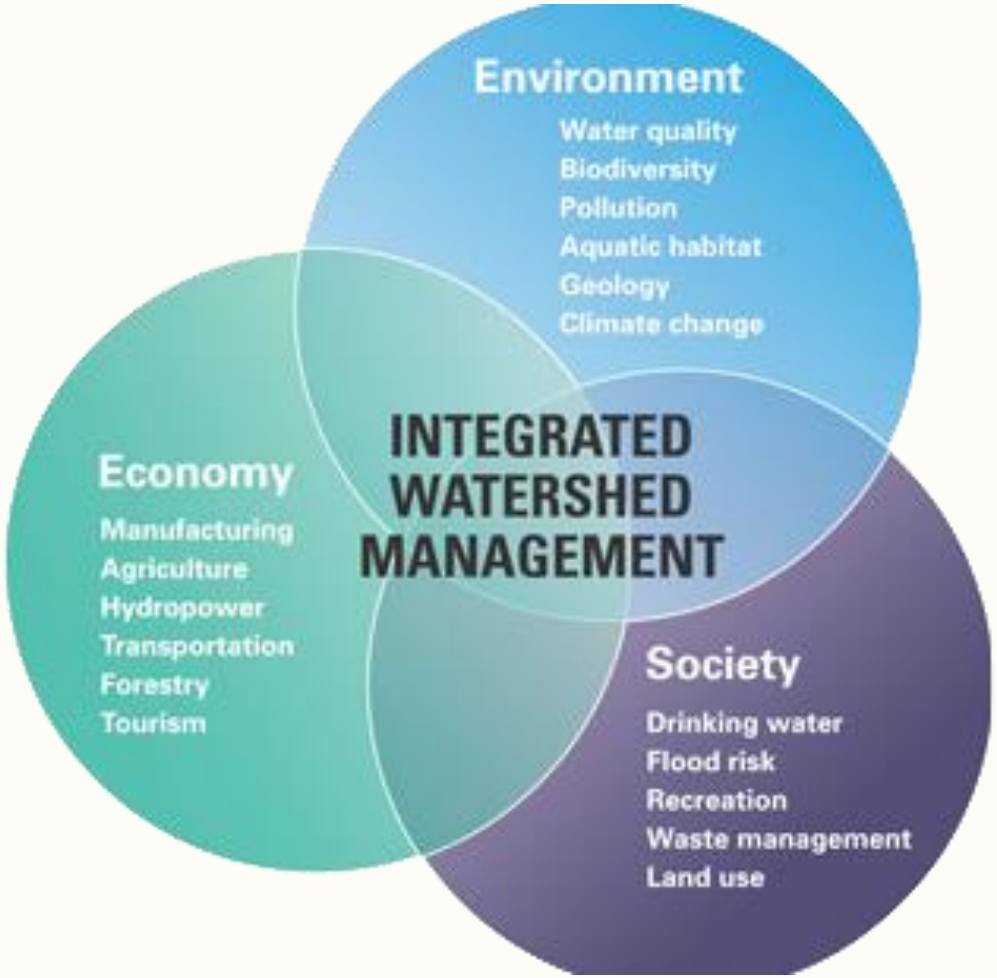

Gathering Logger Data in TK1

Watershed Management and Conservation

"Objective E4: By 2015, have process in place to incorporate collected scientific data into management decisions"

Integrated Management

- WQS, TMDL, and watershed modeling (EPA)
- Place-based metrics for watershed health
- Inclusion of socioeconomic data in planning (SEM-P)
- Community-based management efforts
  - Strengthened partnerships with local agencies



Climate Change

- Impact on habitats and biodiversity
- Drinking water
- Increased risk of fires
- Water balance and streamflow


Rain Gauge in Sabana


Logger in a Dry TK0


Cane Toad Tadpoles in TK1

Summer Eco-Camp 2017 in Talakhaya

Continuing Research

- Collecting more data
- Looking into alternative measurements
- Surveying the island
- Updating and improving on the existing management plan
- Outreach and education

Questions?

Sources:
1 – “Soil Loss Assessment Report Phase II” prepared by Horsley Witten Group, Inc. and Malcolm Johnson (2017)
2 – “Sabana/Talakhaya Conservation Action Plan” prepared by Aric Bickel with updates from BECQ (2012, 2015)
3 – “Handbook for Developing Watershed Plans to Restore and Protect Our Waters” prepared by USEPA (2008)
4 – Photos taken by Malcolm Johnson (2017)
5 – IWM Image from Conservation Ontario (2013)