

Revegetation, Soil Loss, and Management in the Talakhaya Watershed

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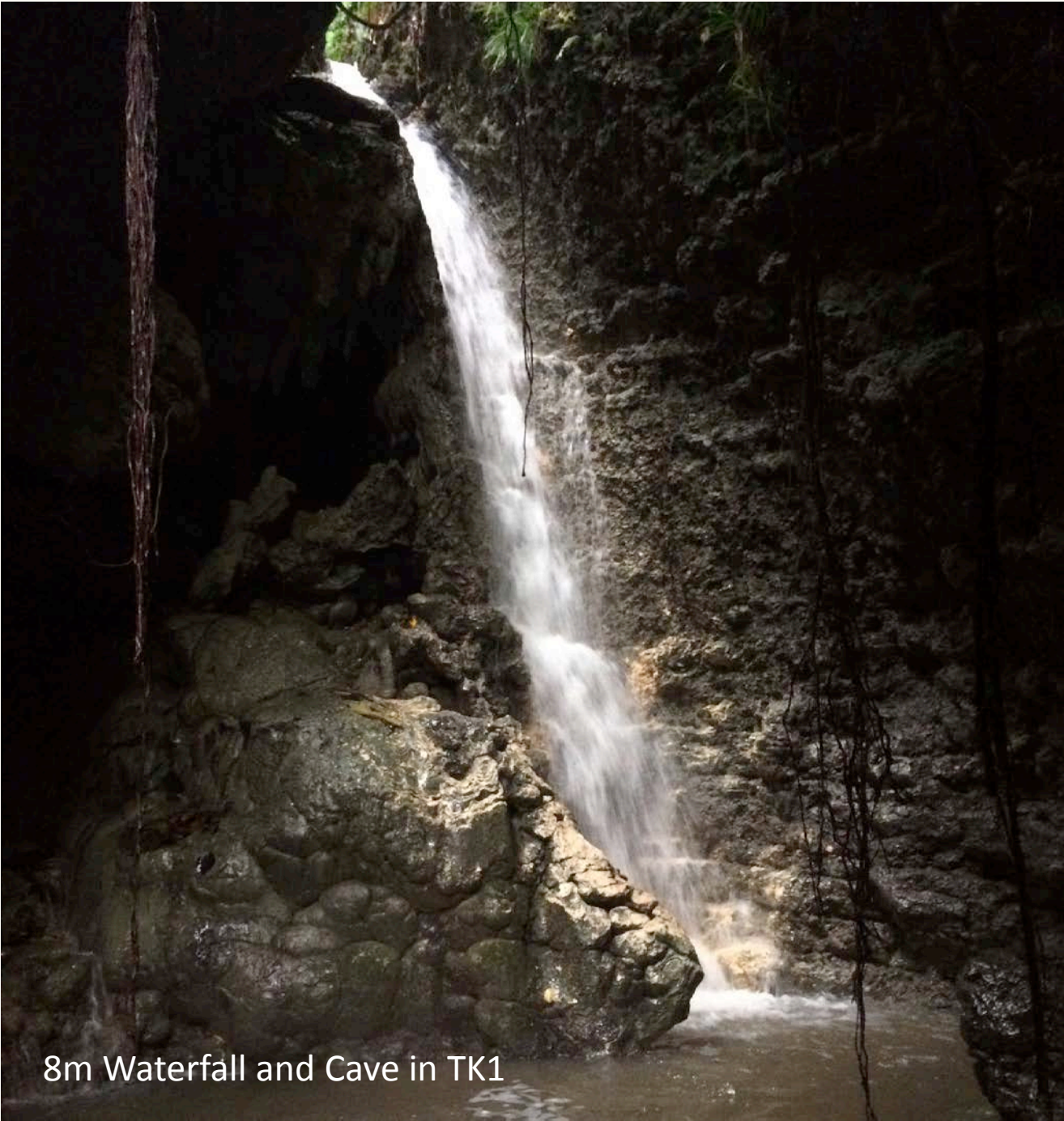
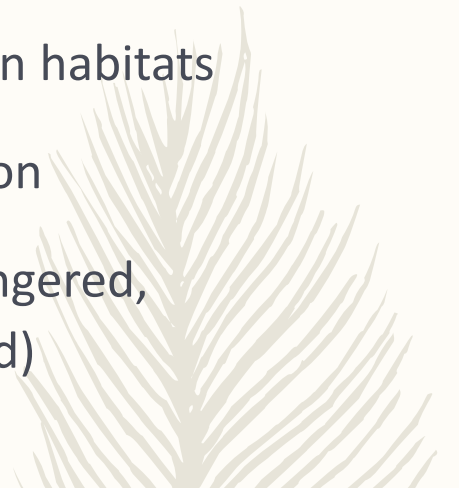
Outline

- 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

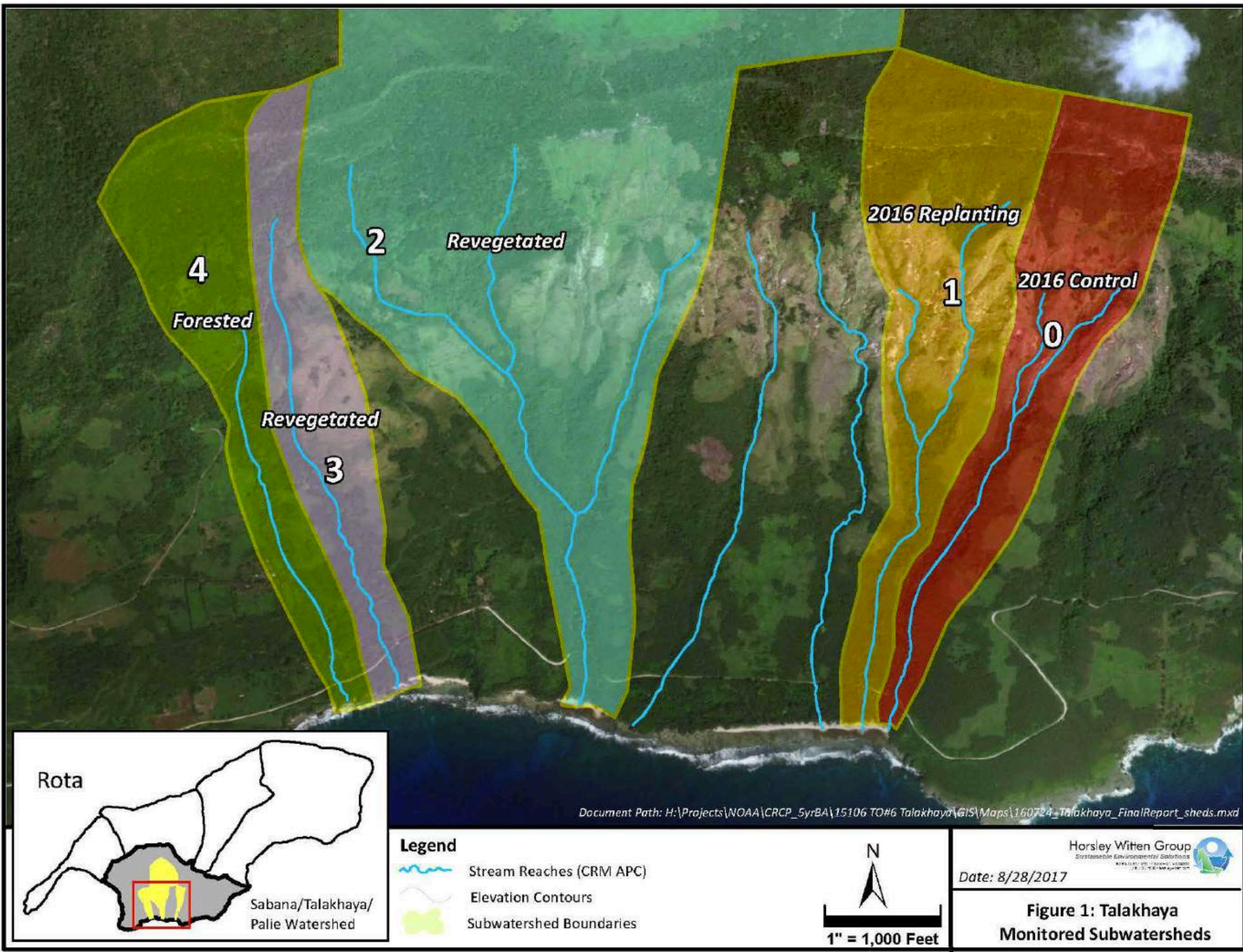
“The vision statement developed by management
team: ‘Protehi i rikesan i tano yan i tasi’”

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



8m Waterfall and Cave in TK1

A photograph of a waterfall cascading over dark, jagged rocks. The water is white and frothy as it falls. The surrounding area is dark and appears to be a cave or a dense forest. The waterfall is about 8 meters high.



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
- Set management priorities
- Established goals, objectives, and strategic actions
- Threats to watershed
 - Fires
 - Poaching
 - Soil erosion

The Revegetation Project: A Decade Later

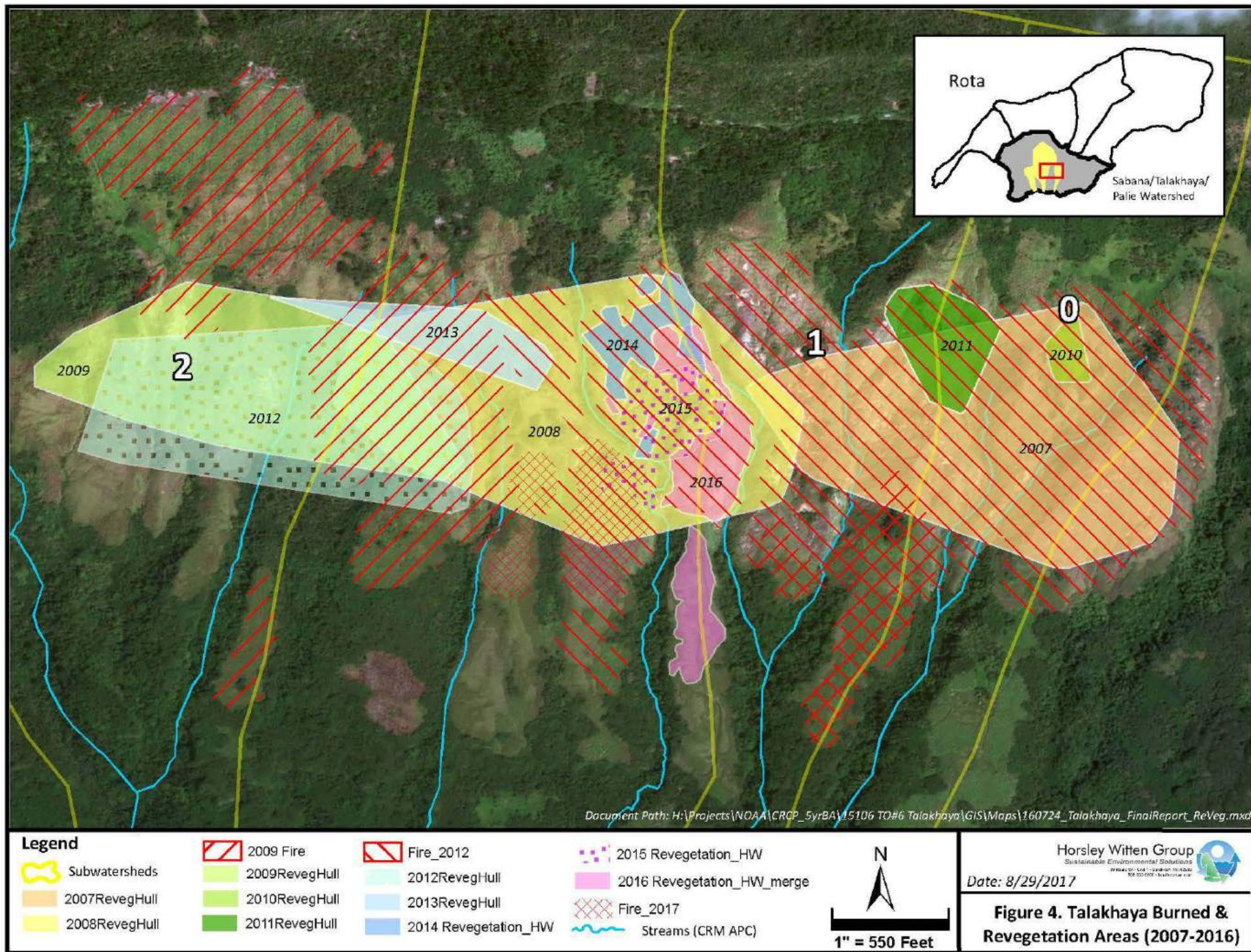
“Objective 1: By 2025, revegetate **all** critically eroding areas in the watershed with grasses and *Acacia*”

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 2017

Revegetation Volunteers 2017



Barren Areas in Talakhaya



The Future of the Revegetation Project

- 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



Herbivory Study Plot 1

Talakhaya Watershed Soil Loss Assessment Phase II Report

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

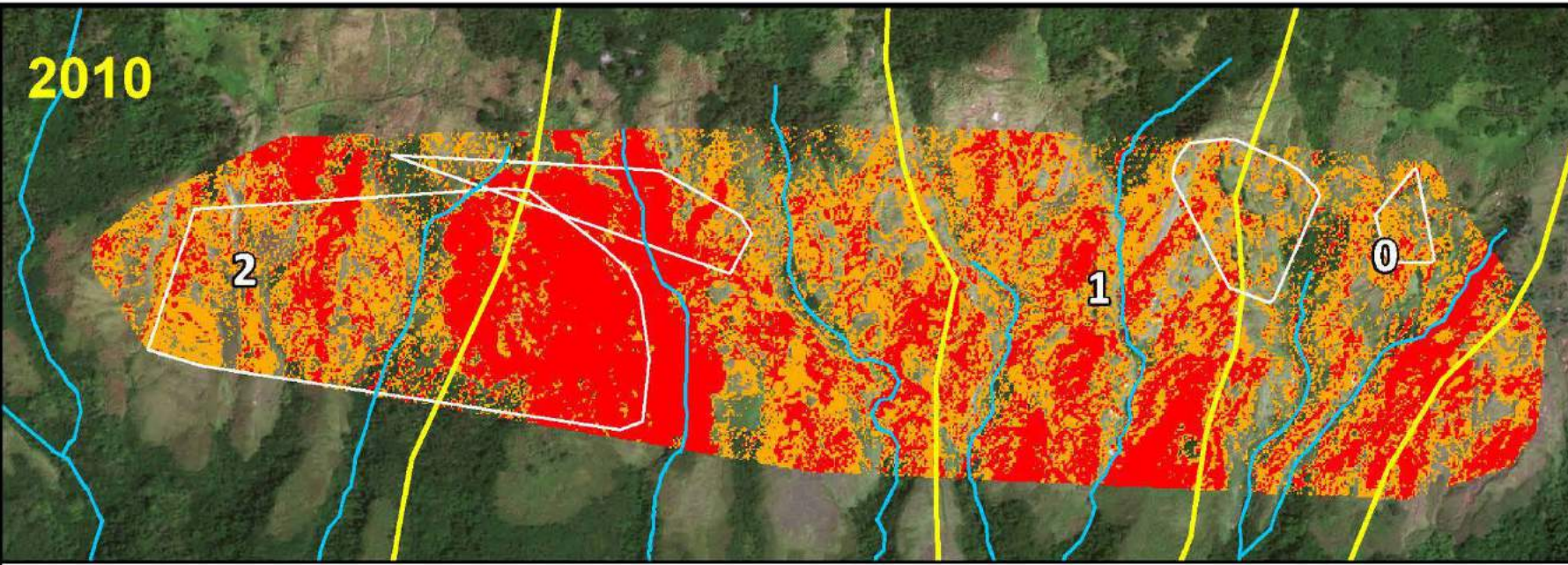


Turbid Waters in TK3

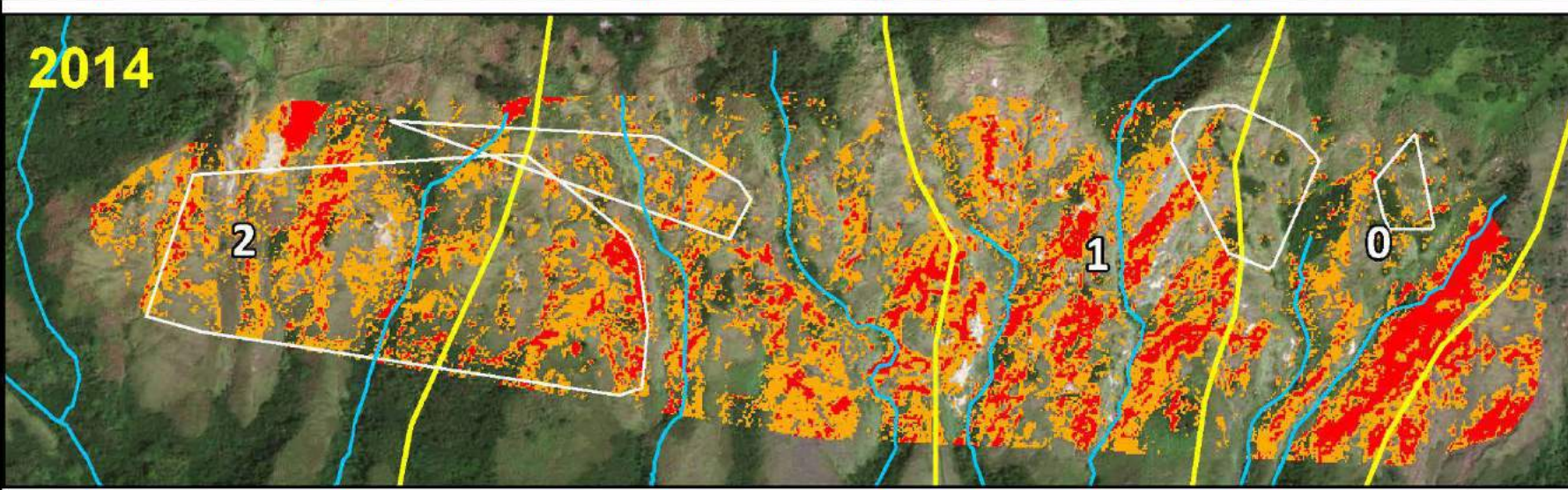
Soil Loss Assessment

- 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


2010

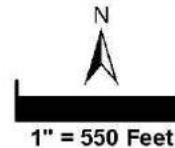


2014



Legend

-  Subwatersheds
-  Streams (CRM APC)
-  PlantingAreas2010_2013
-  Non_vegetated
-  Sparse vegetation



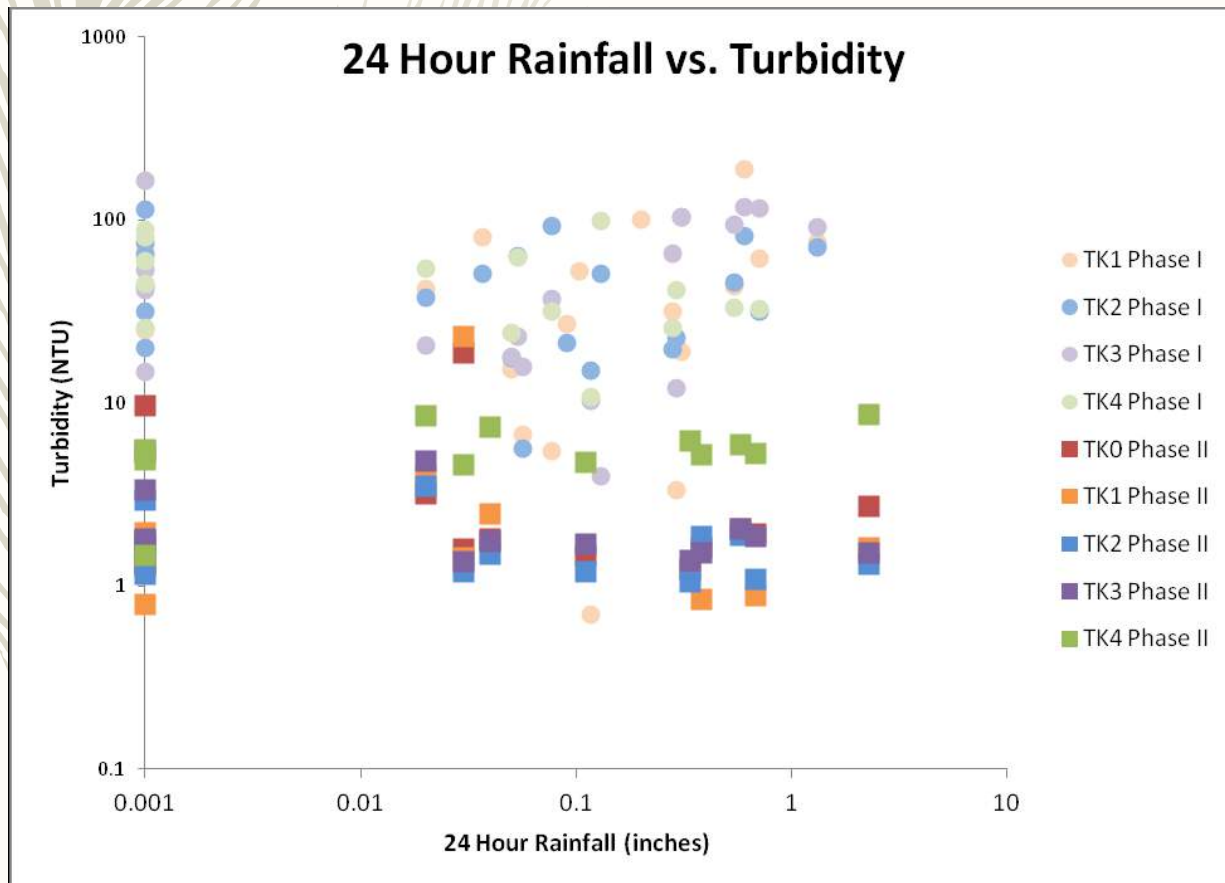
Horsley Witten Group
Sustainable Environmental Solutions

Date: 8/28/2017

**Figure 5. Barrren Areas within
2010-2013 Replanting Zones**

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

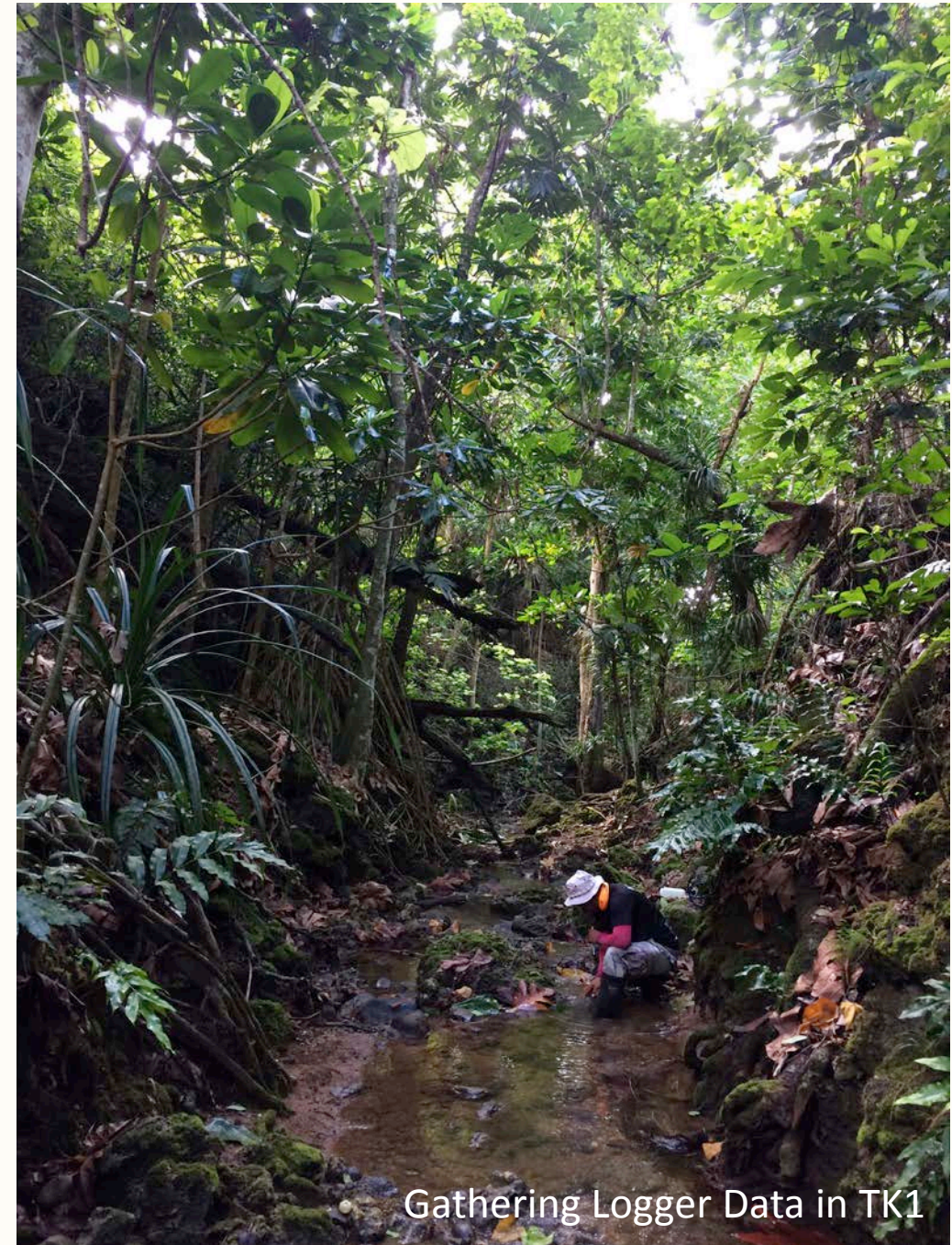
Report Findings



- 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





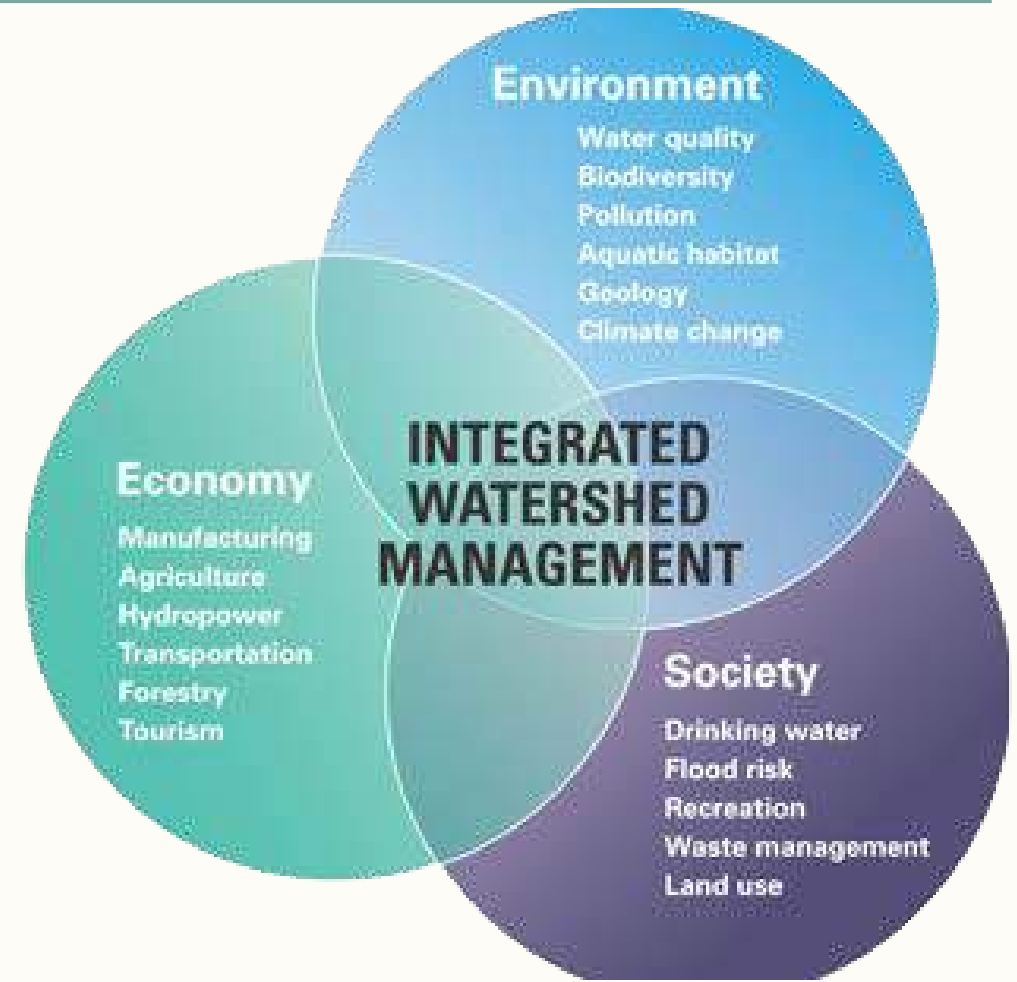
Watershed Management and Conservation

“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 concerns
- Increased risk of fires
- Water balance and streamflow

Rain Gauge in Sabana



Logger in a Dry TK0



Cane Toad Tadpoles in TK1





Continuing Research

- Collecting more data
- Looking into alternative measurements, methods, and approaches
- Surveying and economic valuation of resources
- 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)