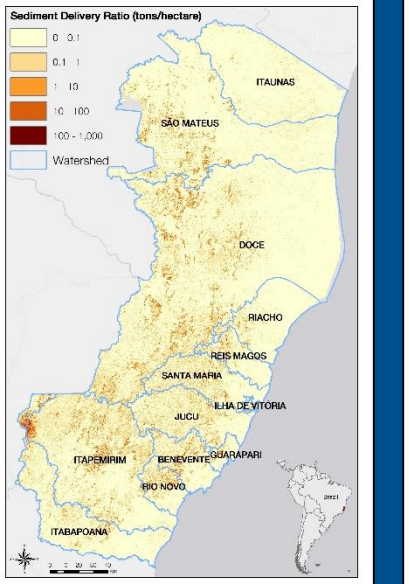
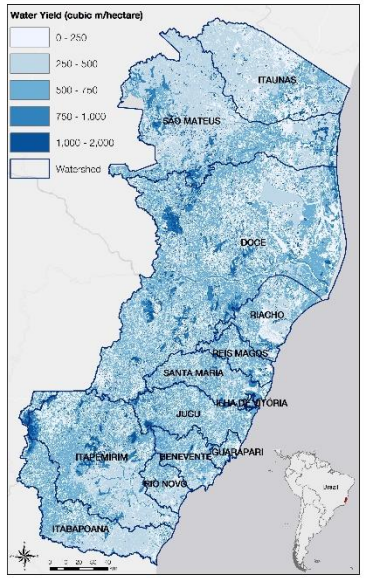
IUCN
natural capital PROJECT
ROOT
The Restoration Opportunities Optimization Tool
DFID Department for International Development
UKaid

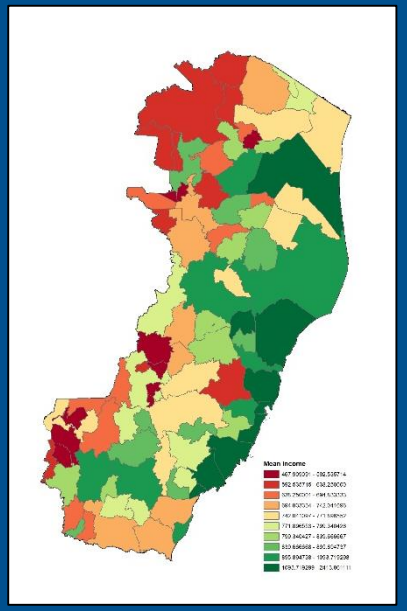
What are the outputs of ROOT?

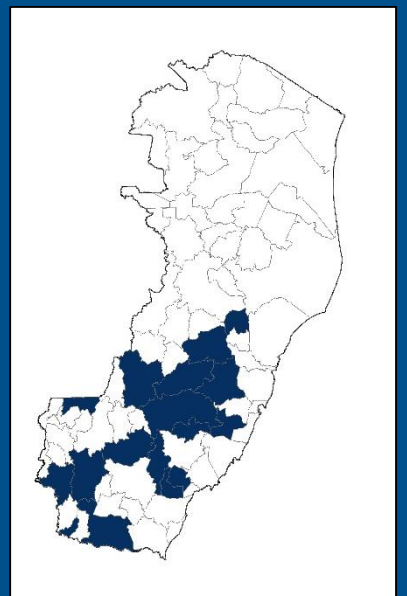
Impact Potentials



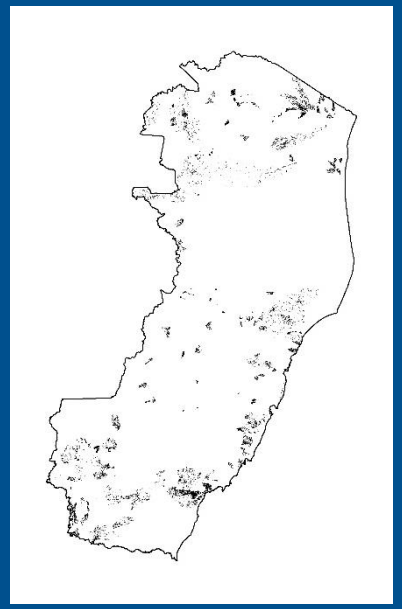


Beneficiaries





Activity Area

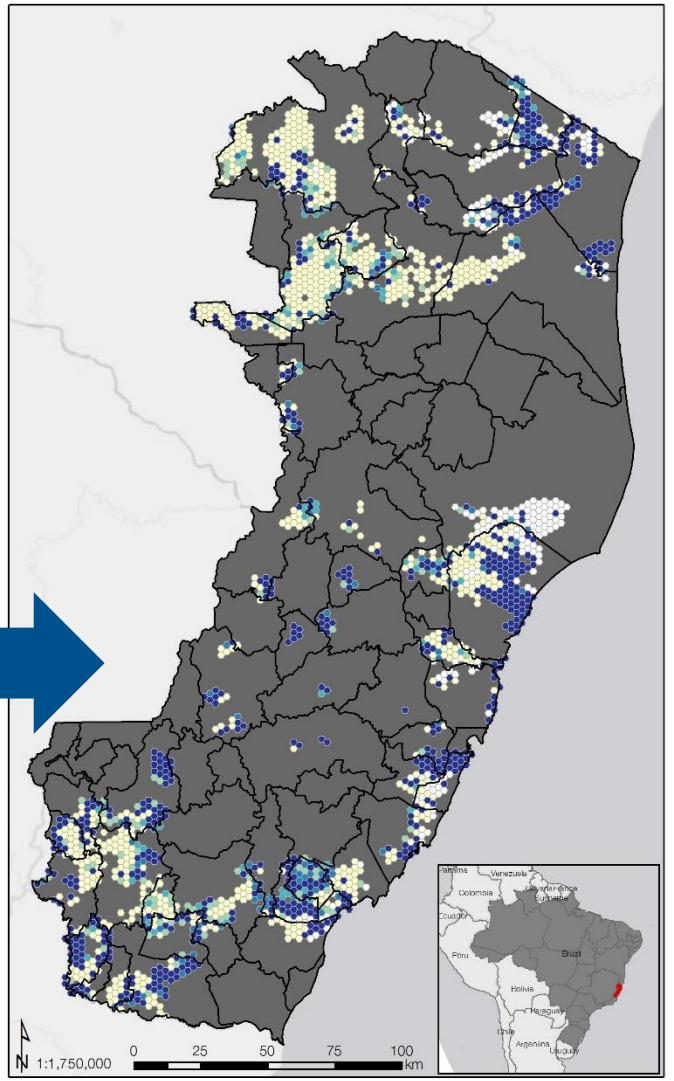


Targets

BONN CHALLENGE

80,000 Hectare Commitment

ROOT



Optimal Restoration Opportunity

- No Model Agreement
- Very Low Agreement
- Low Agreement
- Moderate Agreement
- High Agreement
- Very High Agreement
- Municipality

IUCN natural capital PROJECT

Restoration Opportunity Optimization of Ecosystem Services for Landscape Restoration

ESPIRITO SANTO STATE BRAZIL

Ecosystem Services:
Sediment Retention
Water Yield

Beneficiaries:
Priority Watersheds
Low Income

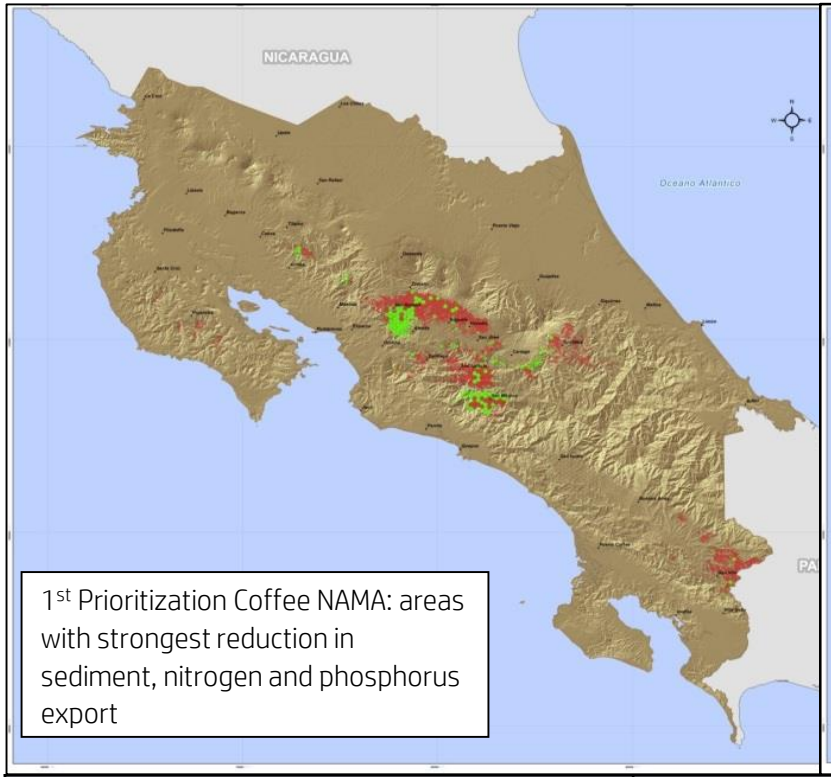
This map shows where investments in restoration could be made where the gains in multiple ecosystem services would be optimized throughout 80,000 hectares of potential opportunity area in Espirito Santo State, Brazil. These opportunity areas were identified as a part of the statewide forest landscape restoration assessment using the Restoration Opportunities Assessment Methodology (ROAM)(IUCN and WRI, 2014) and meet Espirito Santo's commitment to the Bonn Challenge.

Areas identified in dark blue indicate a high agreement among 50 unique iterations of the optimization model. They indicate that restoration in these areas will have optimal benefits for achieving benefits in both sediment retention and water yield while also considering the optimal locations for restoration where these services may postively impact priority watersheds and in municipalities where incomes are lowest. Hexagons are 1000 hectares large.

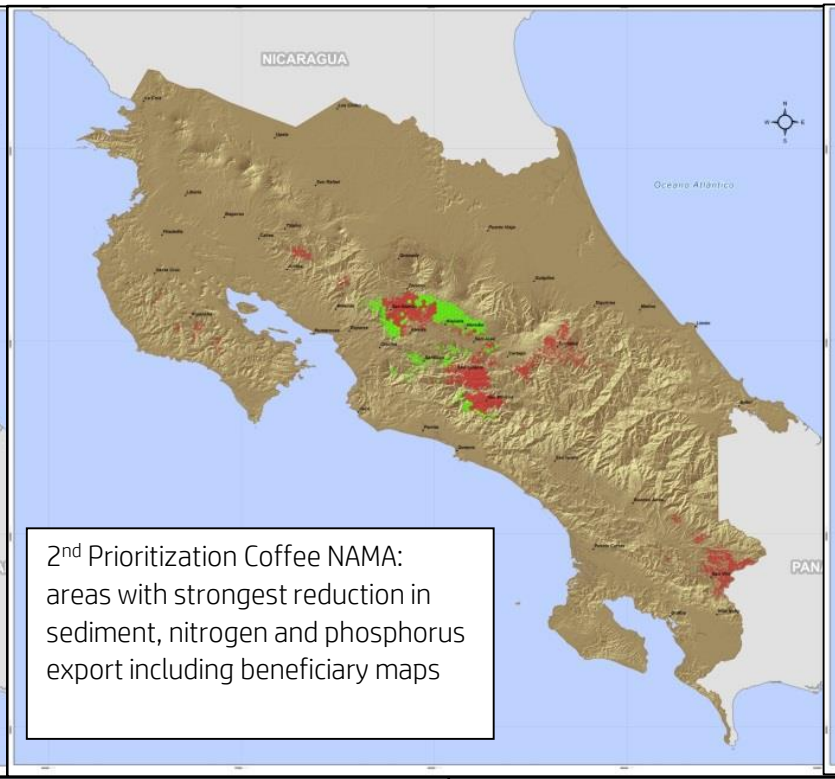
UKaid from the Department for International Development

Prepared by Craig R. Beatty, International Union for Conservation of Nature (IUCN) August 2017. Data Provided by State of Espirito Santo, World Resource Institue Brazil, and IUCN Brazil. Model prepared using the Restoration Opportunity Optimization Tool (ROOT) co-developed by IUCN and University of Minnesota Natural Capital Project. Projection: WGS 1984 UTM 24S.

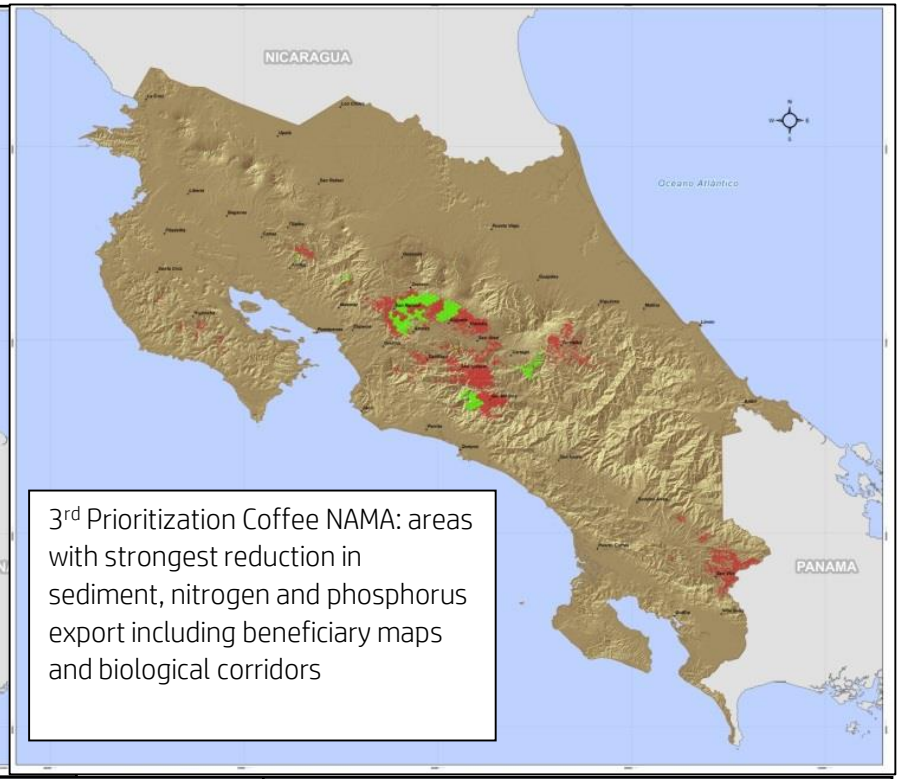
Costa Rica: Nationally Appropriate Mitigation Action Coffee



1st Prioritization Coffee NAMA: areas with strongest reduction in sediment, nitrogen and phosphorus export



2nd Prioritization Coffee NAMA: areas with strongest reduction in sediment, nitrogen and phosphorus export including beneficiary maps



3rd Prioritization Coffee NAMA: areas with strongest reduction in sediment, nitrogen and phosphorus export including beneficiary maps and biological corridors

Current Land Use	Transition	Target[a] (hectares)	Total area[b] (hectares)
Shade coffee	Fertilizer management	25,000	90,000
Sun coffee	Agroforestry system and fertilizer mgmt.		

Program	Current Land Use	Restoration action
Coffee NAMA	Shade coffee	Fertilizer management, and implementation of agroforestry systems where they do not yet exist
	Sun coffee	

The Restoration Opportunities Optimization Tool

The Need: Provides decision-makers with a tool to wade through and optimize restoration for both social and ecosystem service objectives.

The Application: Goes beyond prioritization among many different services and beneficiaries and helps optimize these decisions, saving time and money and leading to better restoration outcomes.

Results: Generates clearly communicable results in maps that distil many competing and complimentary objectives into optimal suggestions.

Implications: ROOT will lead to smarter and more impactful investments in landscape-scale restoration.

Acknowledgements: Peter Hawthorne, Leander Reas, Adrian Vogl, Kelly Meza Prado, Mirjam Kuzee, Chetan Kumar, Bonnie Keeler, Miguel Moraes