FIJI BLUE CARBON PROJECT

May 1, 2023

CONSERVATION INTERNATIONAL

Australian Government

Department of Foreign Affairs and Trade

CONSERVATION INTERNATIONAL

AT A GLANCE

Founded in 1987

1,000 employees – 97% of field program staff are native to the country in which they work

Offices in 30 countries

2,000 global partners

Helped protect 1.5 billion acres of land and sea in 77 countries

Annual budget: US$ 170M+:
We strive to invest more than 80% of this directly into programs

On average 30% of our expenses go to empower local organizations through grants

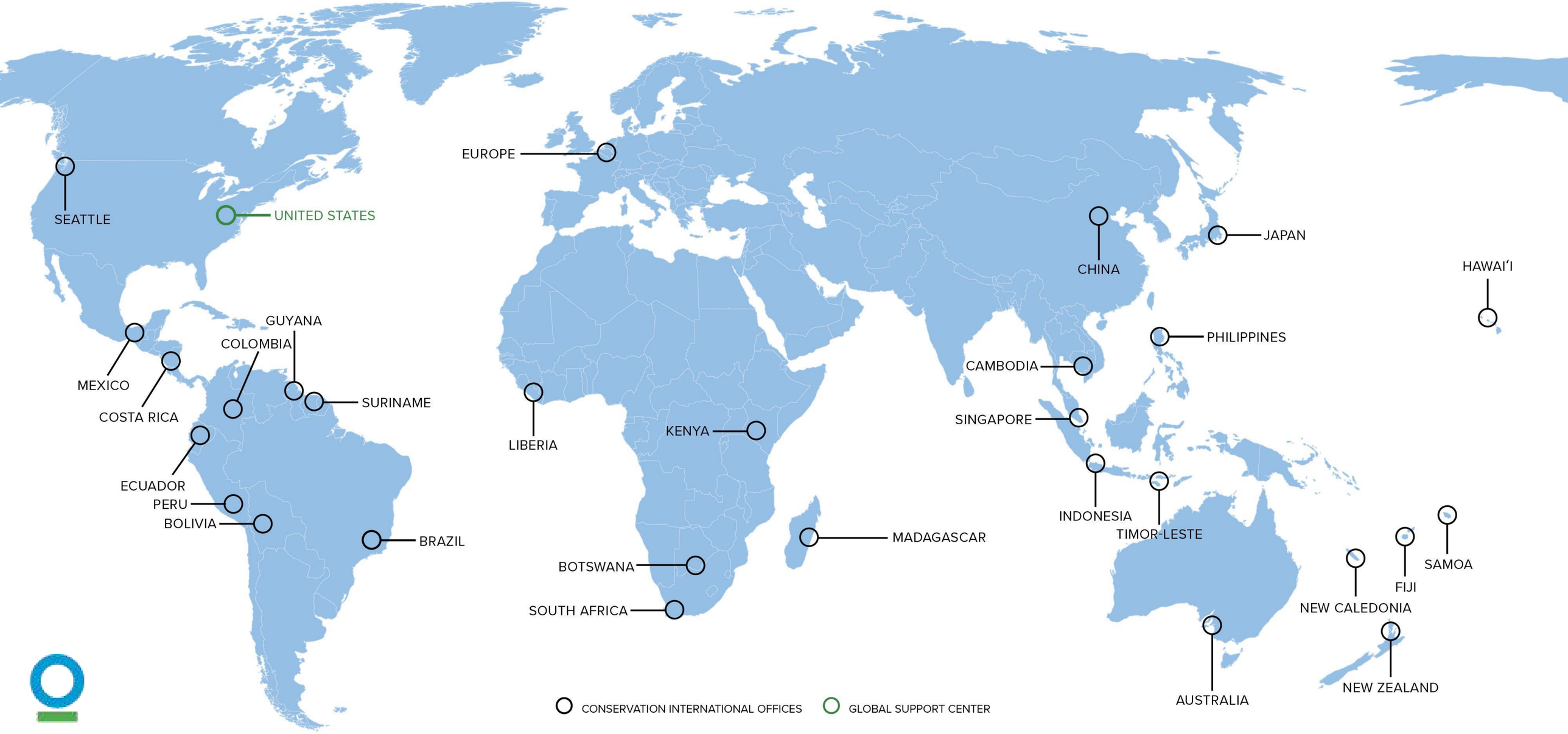
Helped protect more than 6 million square kilometers (2.3 million square miles) of land and sea across more than 70 countries

HOW WE DO IT

- Drive Innovative Science
- Finance the Protection of Nature
- Invest Locally, Indigenize Solutions
- Partner with Companies
- Engage Governments
- Broaden Our Reach

Where We Work

Starting with our first project in Bolivia more than 30 years ago, Conservation International has helped support 1,200 protected areas across 77 countries, protecting more than 601million hectares (1485 billion acres) of land and sea. With offices in 30 countries worldwide, Conservation International's reach has never been broader, but our mission remains the same: to protect nature for the benefit of us all.



CI FIJI

VISION: We will safeguard ecological, social, and cultural integrity through the restoration, protection, and production of regenerative sustainable resources to secure a resilient future for the people of Fiji

CI'S WORK IN FIJI

Lau Seascape Initiative

Strengthen ocean and island management, protection, and sustainable production of the Lau Seascape for resilient communities

Fisheries Improvement

Improve environmental, economic, and social performance of pelagic and coastal fisheries together with the Fiji Fishing industry and small-scale fishers.

Ridge to Reef to Ocean Approach

Secure climate resilience and sustainable livelihood intervention spanning communities from ridge to reef to ocean

Traditional Values

Promote cultural values and best practices through ongoing capacity building of Indigenous Peoples and Local Communities (IPLC), including setting up long-term management frameworks that are grounded in government and IPLC co-management

CONSERVATION INTERNATIONAL Fiji

Fiji

PACIFIC BLUE FOUNDATION
Sustaining Reef Communities

VATUVARA FOUNDATION

CORAL REEF ALLIANCE

USP THE UNIVERSITY OF THE SOUTH PACIFIC
Celebrating the Pacific, Shaping its Future

FIJI BLUE CARBON PROJECT

PHASE I: 2018 - 2020

Assess the **policy context** for blue carbon in Fiji, and define and develop **site assessment criteria**;

Assess community and stakeholder **perceptions and use** of coastal blue carbon resources to understand preliminary threats, governance and social considerations (in Tuva, Ba, Ra, Rewa, Bua, Macuata);

Provide an **overview of selected sites**, including an assessment of the extent and drivers of mangrove loss (as information and data allows);

Assess the ecosystem carbon stocks (biomass and soil) of selected mangrove sites and develop **estimates of emissions reductions and removals** (e.g. avoided deforestation or restoration projects) and outline additional considerations for potential project interventions projects;

Develop **estimates of finance needs** required to implement blue carbon projects;

Provide recommendations for the development of blue carbon projects in Fiji.

Site Selection and Assessment Criteria for Voluntary Market Project Design

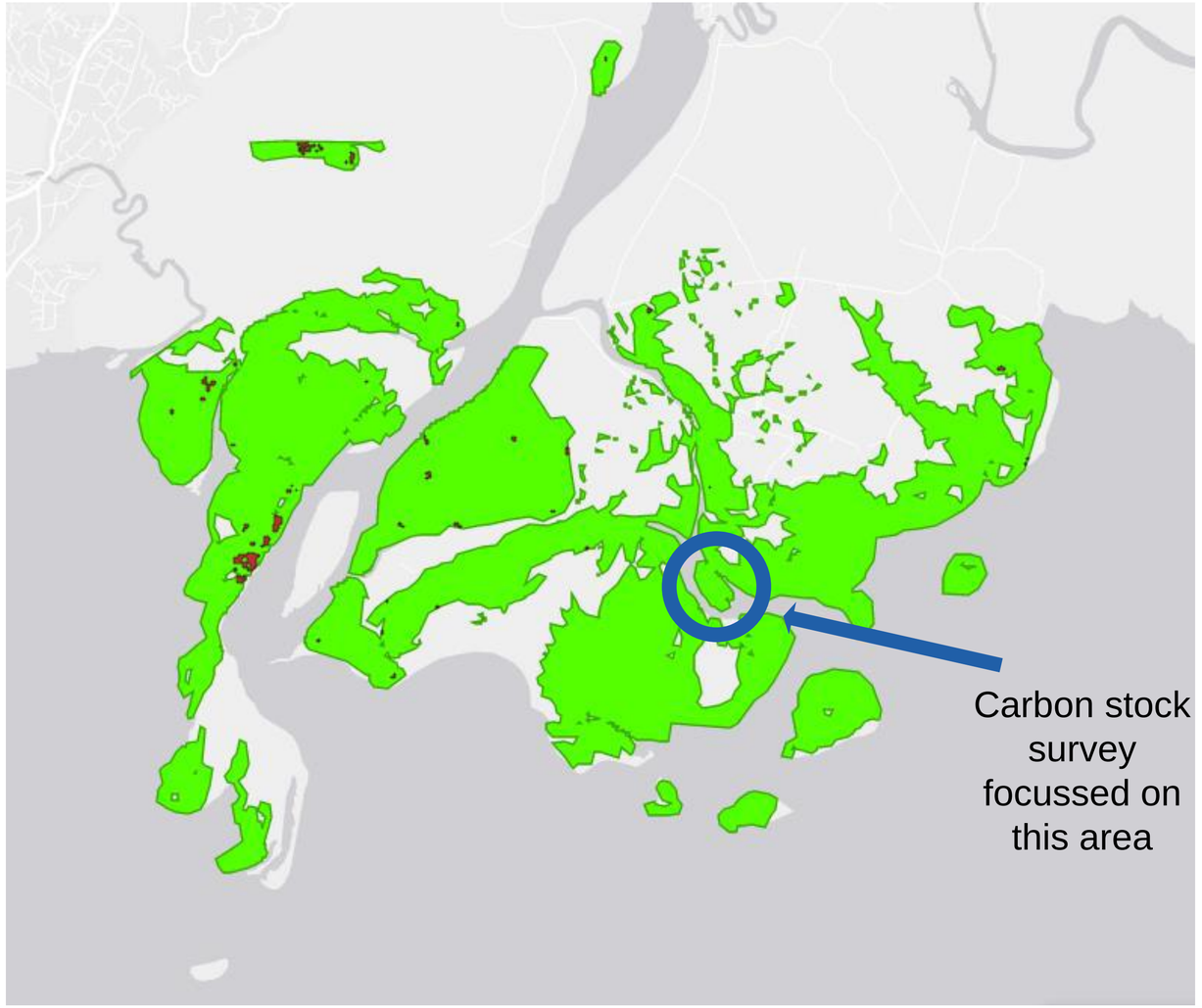
Criteria Category	Indicators	Description
Environmental	Size (ha); Habitat type/diversity; Accessibility.	Potential sites were identified based on area size, diversity of habitat and accessibility of the site for carbon sampling and management. Site assessments were limited by availability of data.
Local capacity to conduct project	Private sector support for conservation (potential or existing); Existing interventions (previous and current support from NGO).	Private sector support includes tourism operators or other business owners operating in the area.
Community Support	Harvesting/use of resources for social and economic benefits; Private sector support for commercial production; LMMA/YMST plans.	This requires analysis and understanding of how communities, private sector, and other entities manage, use and profit from mangroves in a specific site. This can be documented in community Locally Managed Marine Areas (LMMA) and community environment committee (Yaubula Management Support Team – YMST) plans, or in other formats.
National Context and Government Support	Policy alignment, Existing Legislation, Planned development.	Sites identified as priority for government interventions, or earmarked for removal for infrastructure development
Ecosystem service benefits	Biodiversity, Resilience, Production & Food Security	These include additional ecosystem service values to communities, including biodiversity values, adaptation values, and food security (e.g. fish breeding grounds)
Existing or Community-driven financing	Sustainable Livelihoods, community resources/funds for sustainable development;	Recognizing that climate financing will not be sufficient to fully fund conservation activities, management and livelihoods development. Additional site-level resources may make a site more feasible.

Final selected sites for establishing blue carbon projects in Fiji

SITE 1: REWA DELTA

Rewa Delta:

Patch scale mangrove loss, mostly dredge disposal



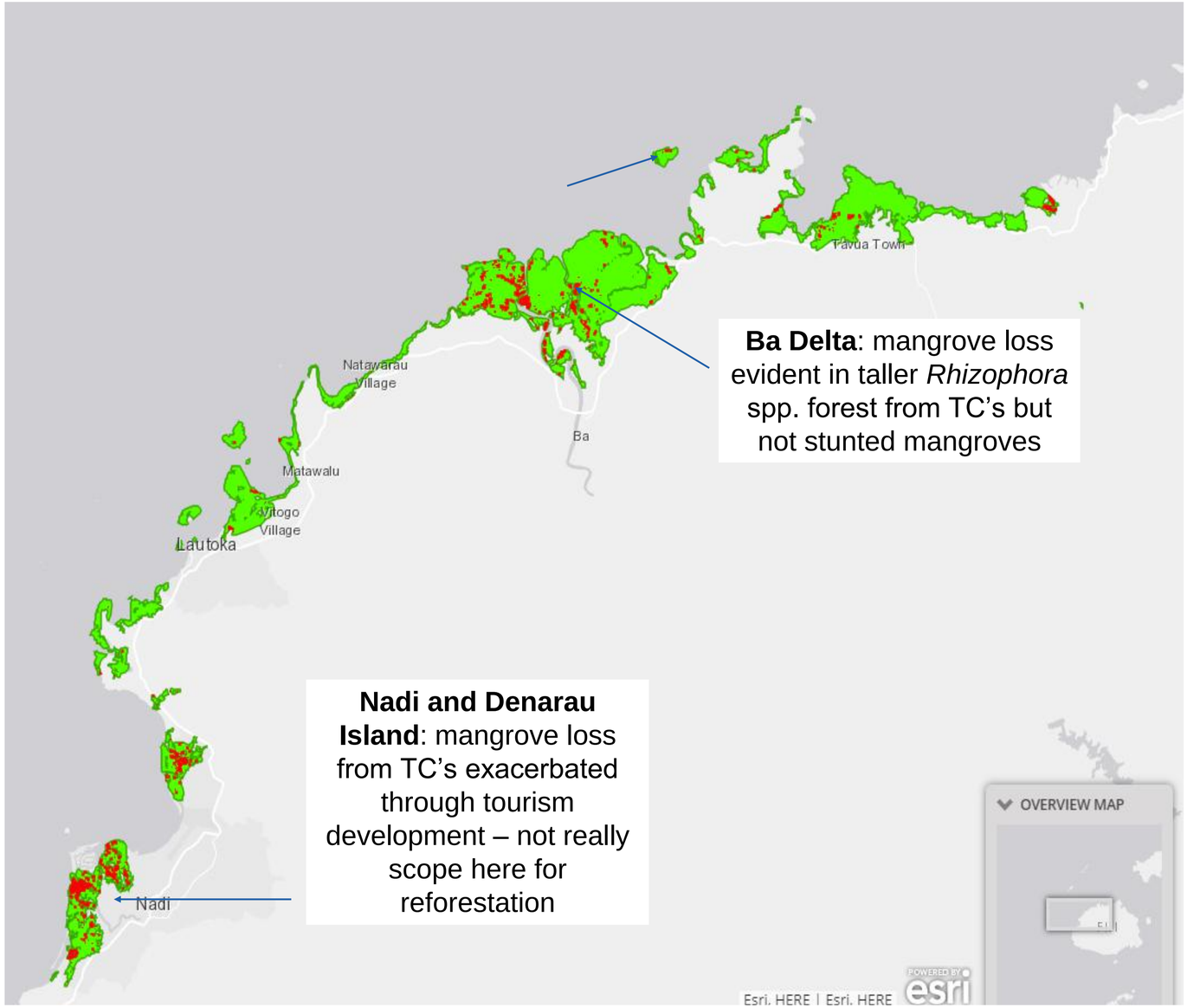
Clockwise from top left: Healthy, open *Brugeria gymnorrhiza* forest; Example of old growth *Brugeria gymnorrhiza* forest nearer to the landward margins; *Rhizophora* spp. dominated forest; A coconut seedling growing within tall, open forest. Note that selective logging was apparent in all of these habitats.

Clockwise from left: Example of a harvested *Brugeria gymnorrhiza*; Clear-felled, low canopy cover area adjacent to transect lines; Smaller *Brugeria gymnorrhiza* specimens that had been harvested near plots

SITE 2: BA DELTA

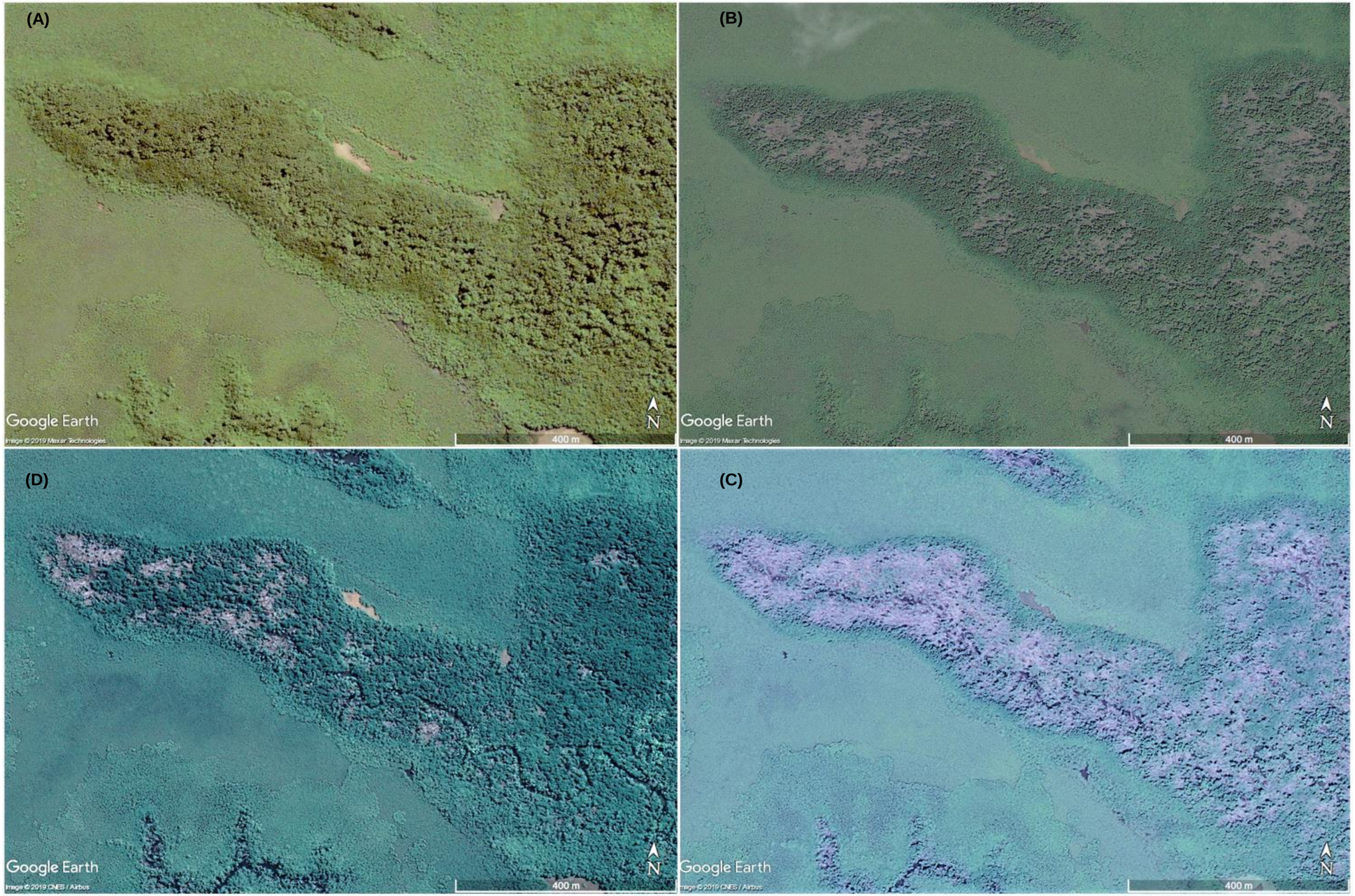
Ba Delta:

mangrove loss from TC’s and development



Ba Delta: mangrove loss evident in taller *Rhizophora* spp. forest from TC’s but not stunted mangroves

Nadi and Denarau Island: mangrove loss from TC’s exacerbated through tourism development – not really scope here for reforestation

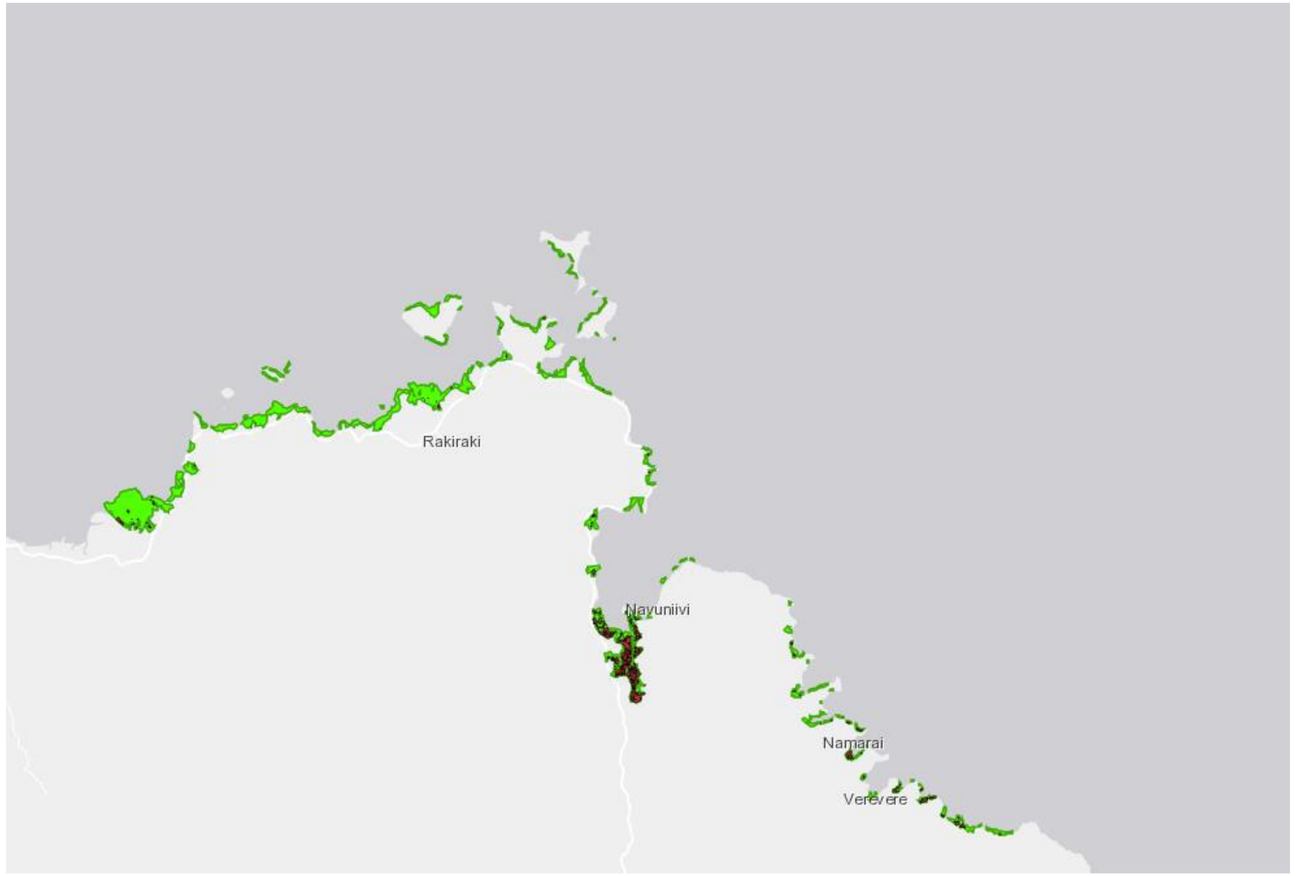


Clockwise from top left: (A) May 2004 - Healthy, intact mangrove forest within the Ba Delta showing both riverine and scrub mangrove communities; (B) January 2011 – Damage to taller riverine mangroves from TCs Gene (Jan 2008) and Mick (Dec 2009); (C) February 2014 – TC Evan (Dec 2012) exacerbates damage incurred, with remaining standing riverine mangroves succumbing to windthrow; (D) July 2019 – Signs of recovery. Note that TC Winston also struck Ba in December 2016 yet there is little evidence of impacts. Imagery source: Google Earth Pro (2019).

Clockwise from top left: Scrub or dwarf mangroves of the Ba Delta; a solitary *Rhizophora* specimen approximately 15 m in height which survived TCs Gene (Jan 2008), Mick (Dec 2009), Evan (Dec 2012) and Winston (Dec 2016) surrounded by regrowth of relatively uniform height; example of the widespread damage and dead and downed wood which impedes regeneration in taller forest of the Ba Delta.

Site 3: Ra Province, Viti Levu Bay

Viti Levu Bay: mangrove loss evident in *Brugeria gymnorrhiza* forest resultant from TC Winston but not fringing *Rhizophora* spp. forest.



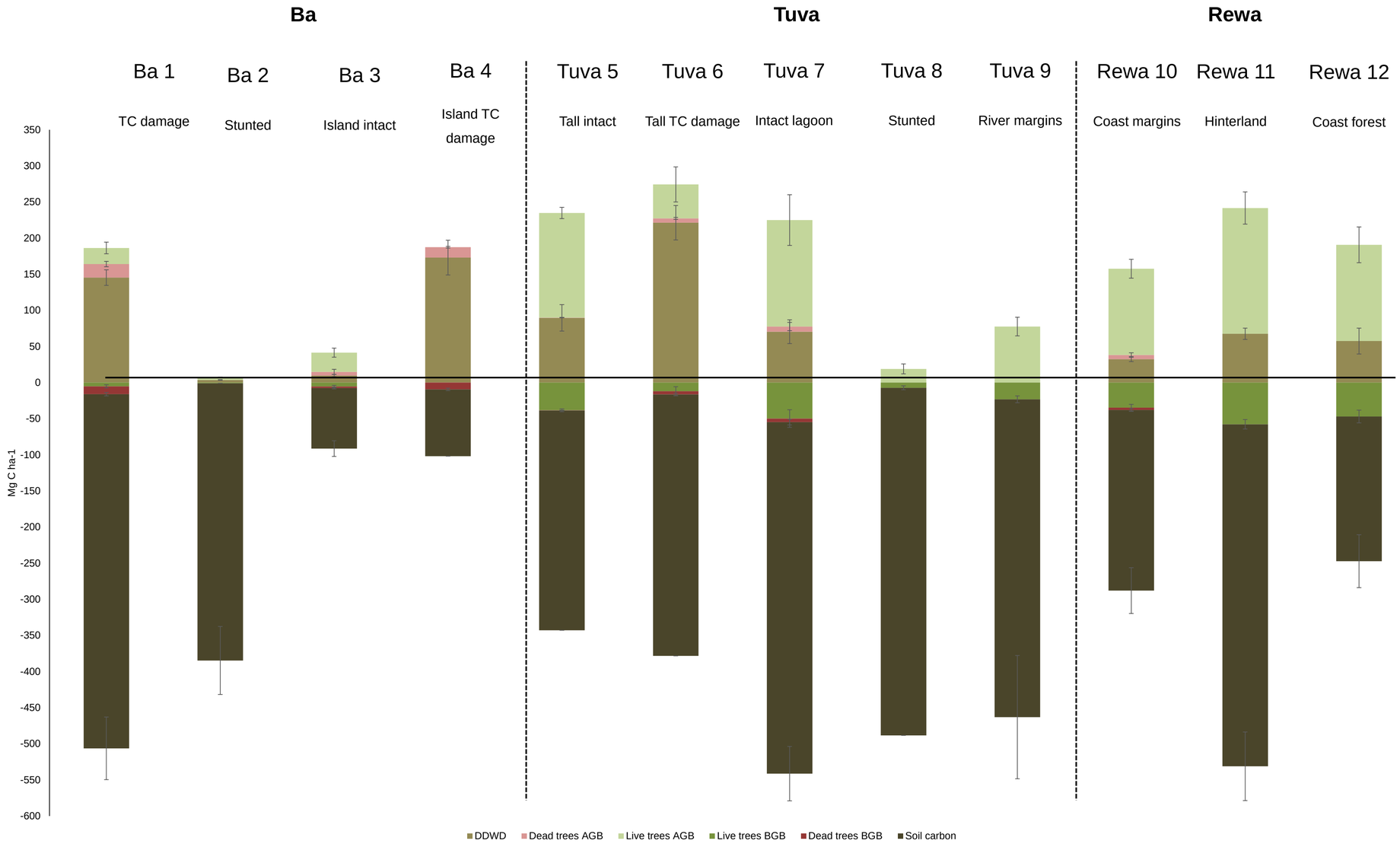
Viti Levu Bay 2015

Viti Levu Bay post - Tropical Cyclone Winston 2017




Top left and top right: Interior *Brugeria gymnorrhiza* forest within Viti Levu Bay damaged by TC Winston showing limited recovery juxtaposed against landward margins with dense seedlings and saplings (bottom left and bottom right).

ECOSYSTEM CARBON STOCKS (BIOMASS AND SOIL)



PHASE II:
2021 - 2024

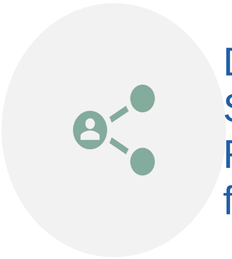
CONSERVATION INTERNATIONAL

PROJECT GOAL: Strengthen awareness, scientific understanding, and protection of Fiji's coastal ecosystems, while also developing financing pathways relevant to the carbon and non-carbon values of Fiji's coastal blue carbon ecosystems.

OBJECTIVE 1. CONFIRM VIABILITY OF RESTORATION AND AVOIDED DEFORESTATION BLUE CARBON PROJECTS IN FIJI AND DEVELOP TRADING RECOMMENDATIONS

Assess the agents and drivers of deforestation and degradation of mangroves in Fiji

Assess the suitability of various carbon trading standard and methodologies and develop Blue Carbon Trading Recommendations for Fiji

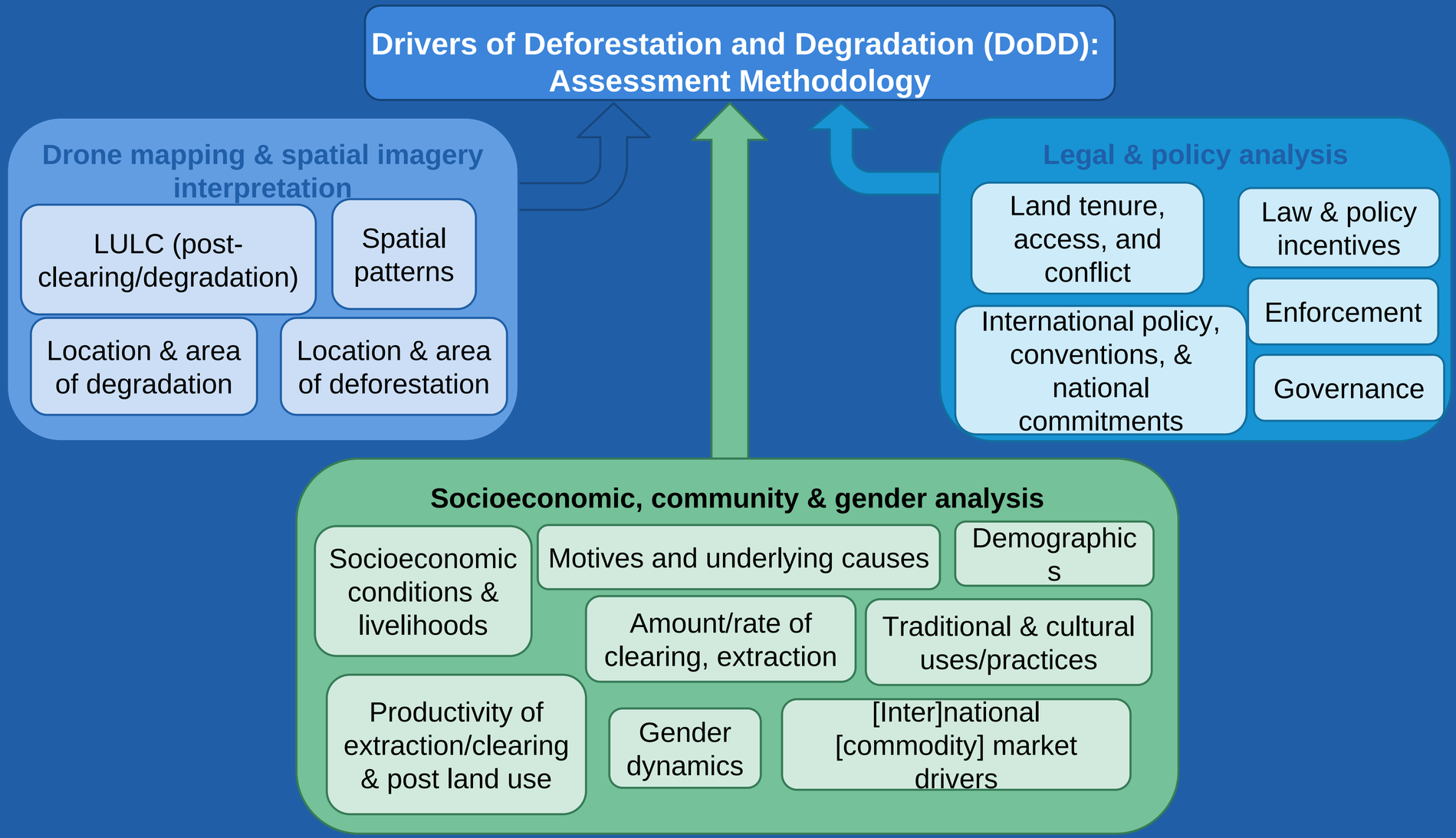


Develop Benefits-Sharing Recommendations for Blue Carbon

DRIVERS OF DEFORESTATION AND DEGRADATION ASSESSMENT

- Legal and Policy Assessment
- Geospatial Mapping
- Socio-economic Assessment & Community Interviews – In total, 33 communities and 685 households were surveyed (July to September 2022)
- Ground truthing – Conducted in October and November 2022
- Drivers of Deforestation and Degradation Report – Validation Workshop (February 2023)

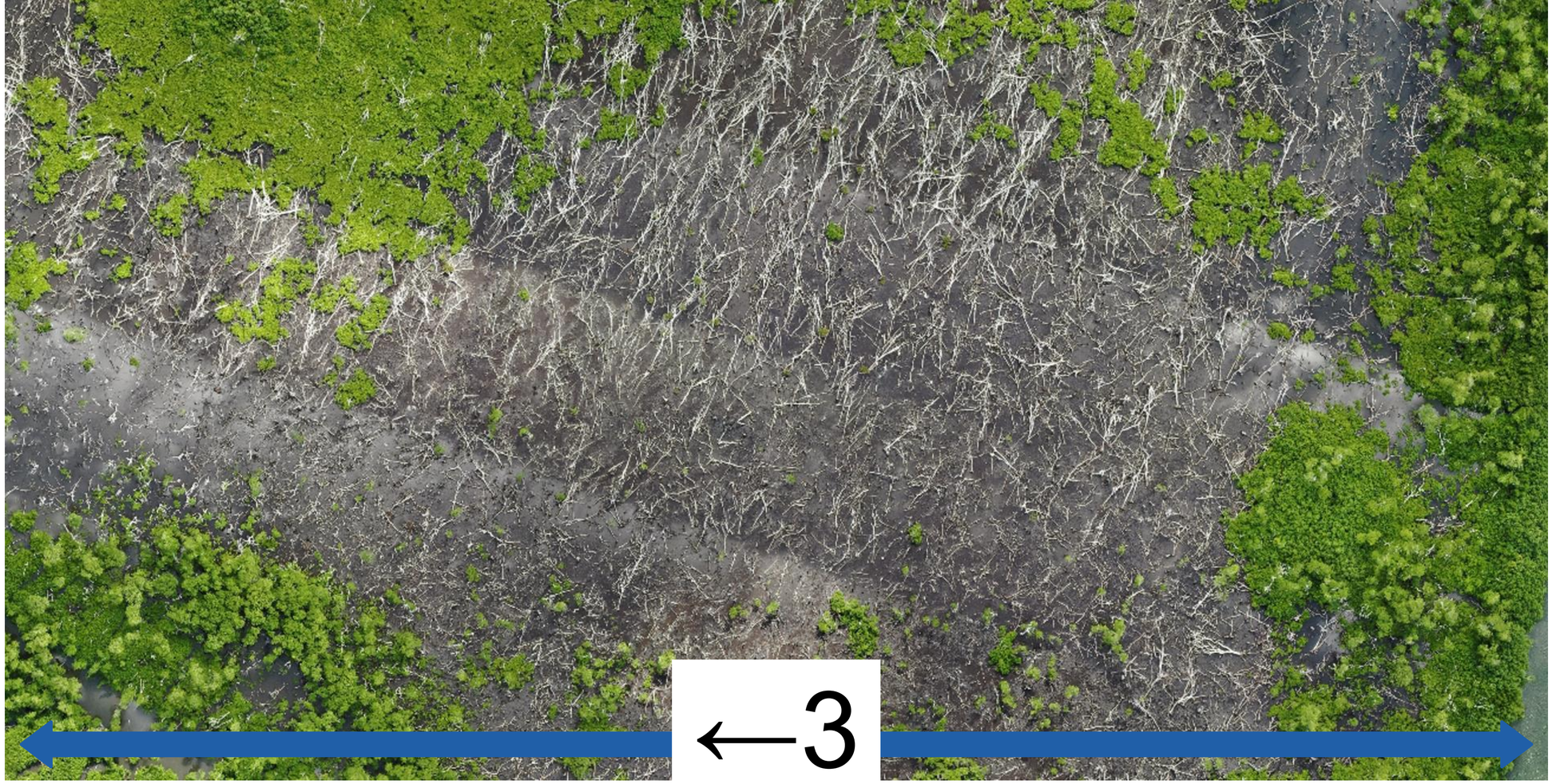
DoDD: Agents, drivers, underlying causes of mangrove deforestation and degradation



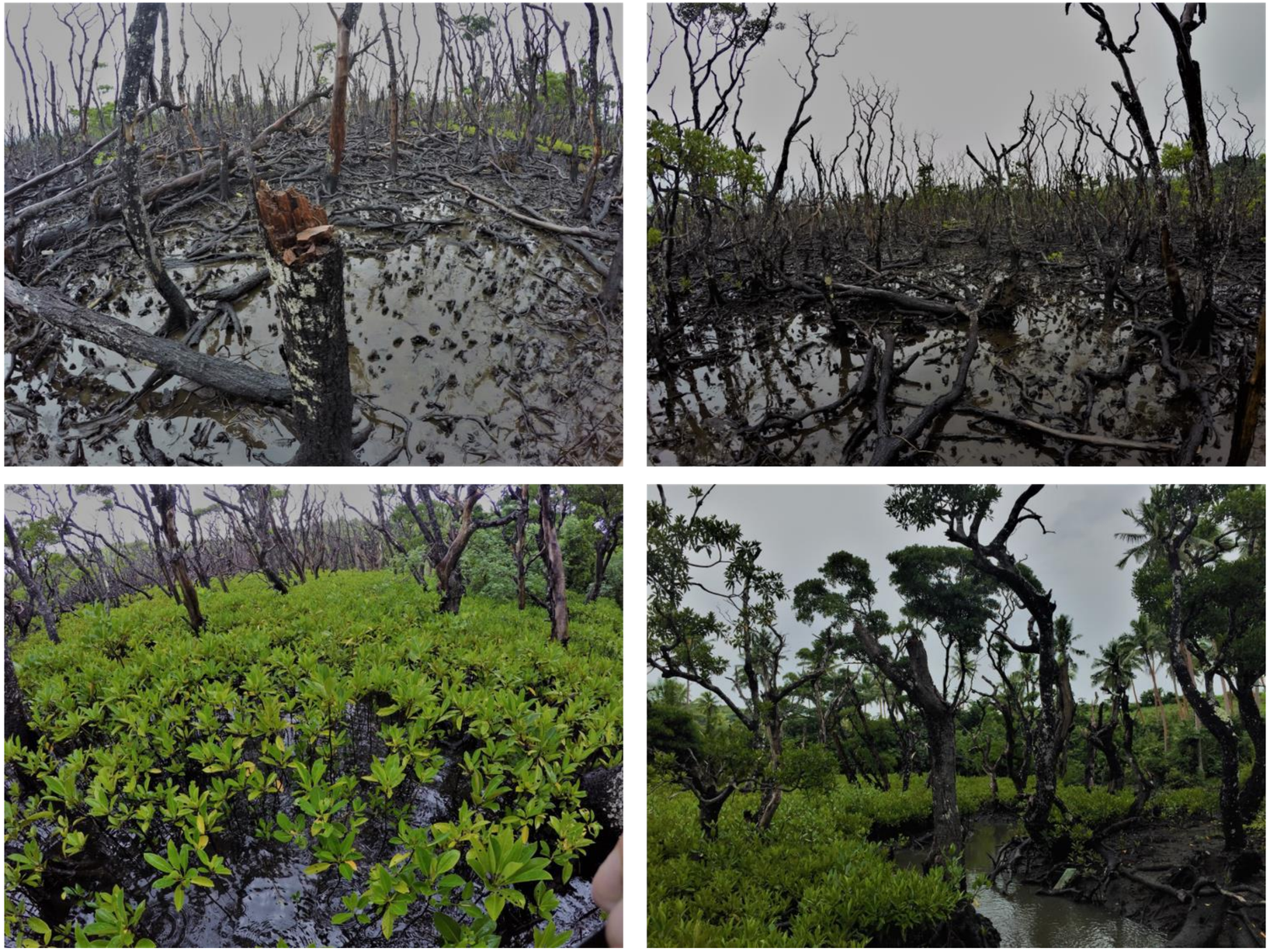
NaViti Levu Bay


bit.ly/snazzy-ee-ts-gif
5 km
2002
Earth Engine + Landsat + LandTrendr

Drone imagery of Viti Levu Bay. , DRAC Team, Ministry of Forestry, Fiji Government

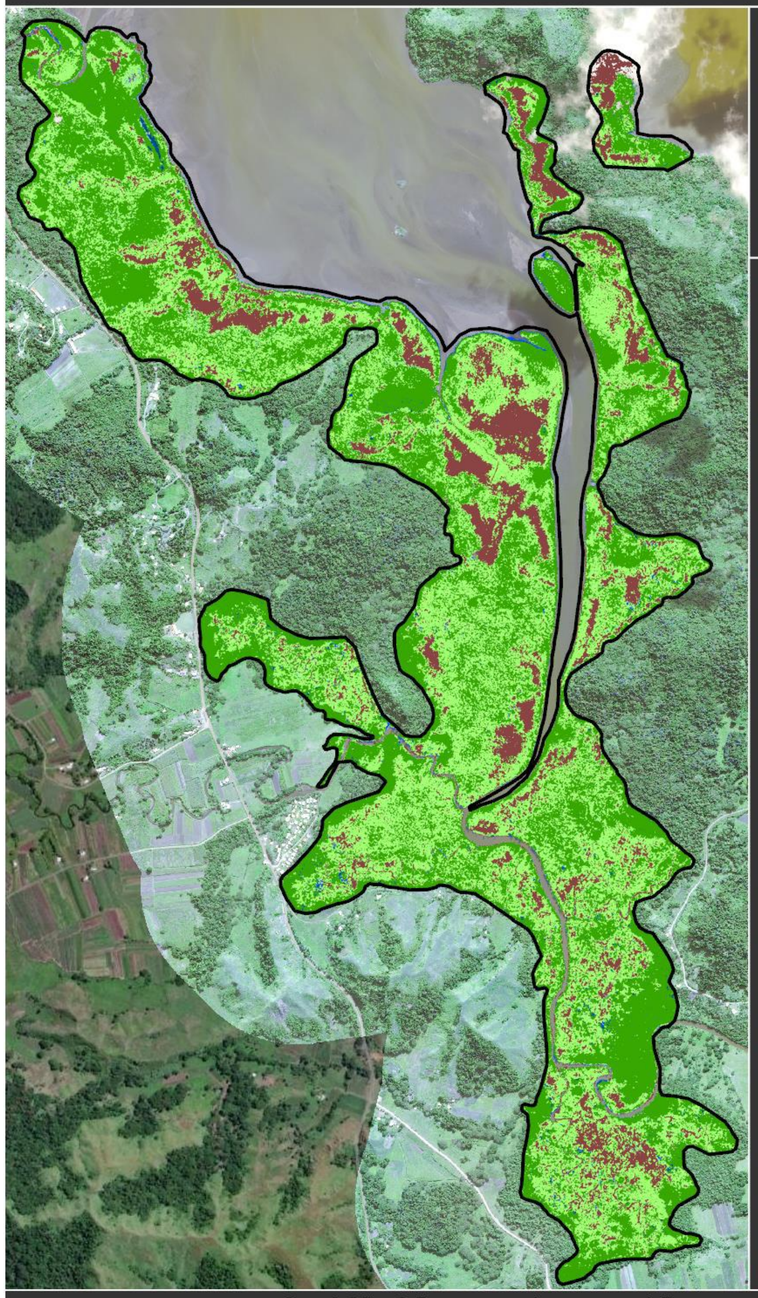


- Tiri lining river margins has recovered (smaller in stature, not as susceptible to windthrow);
- Dogo propagule recruitment limited to margins and possibly around springs / upwelling areas (reduces salinity);
- Large interior areas of Dogo not regrowing – little sign of propagule recruitment;
- Soil salinity changed (too salty), Dead/downed wood physically blocking propagule dispersal on the high tide, and streams/channels blocked
- Field work in VLB: assess restoration feasibility e.g. test salinity hypothesis, check for potential blockages to dispersal, undertake carbon stock assessment (biomass)



Top left and top right: Interior *Brugeria gymnorrhiza* forest within Viti Levu Bay damaged by TC Winston showing limited recovery juxtaposed against landward margins with dense seedlings and saplings (bottom left and bottom right).

Navitilevu Bay - Mangrove change 2013-2022



- Mangrove boundary
- Mangrove (stable)
- Cyclone Damaged, Regrowth/Regen
- Cyclone Damaged, No Recovery
- Expansion (2013-2017)
- Expansion (2017-2022)

0 0.25 0.5 1 1.5 2 km

OBJECTIVE 2. FINALIZE THE PROJECT INFORMATION NOTE/PROJECT DESIGN DOCUMENT AND VERIFY THE PROJECT

Develop project restoration plan and agreement with communities and key stakeholders, including the project implementation plan, project goals, objectives and monitoring strategy

Design a monitoring and evaluation plan to track carbon and non-carbon benefits

Together with community partners, assess project risk and develop mitigation strategies

Develop the Project Information Note and submit to Plan Vivo for consideration

OBJECTIVE 3. IMPROVE MANAGEMENT AND RESTORATION OF PRIORITY MANGROVE AREAS IN FIJI

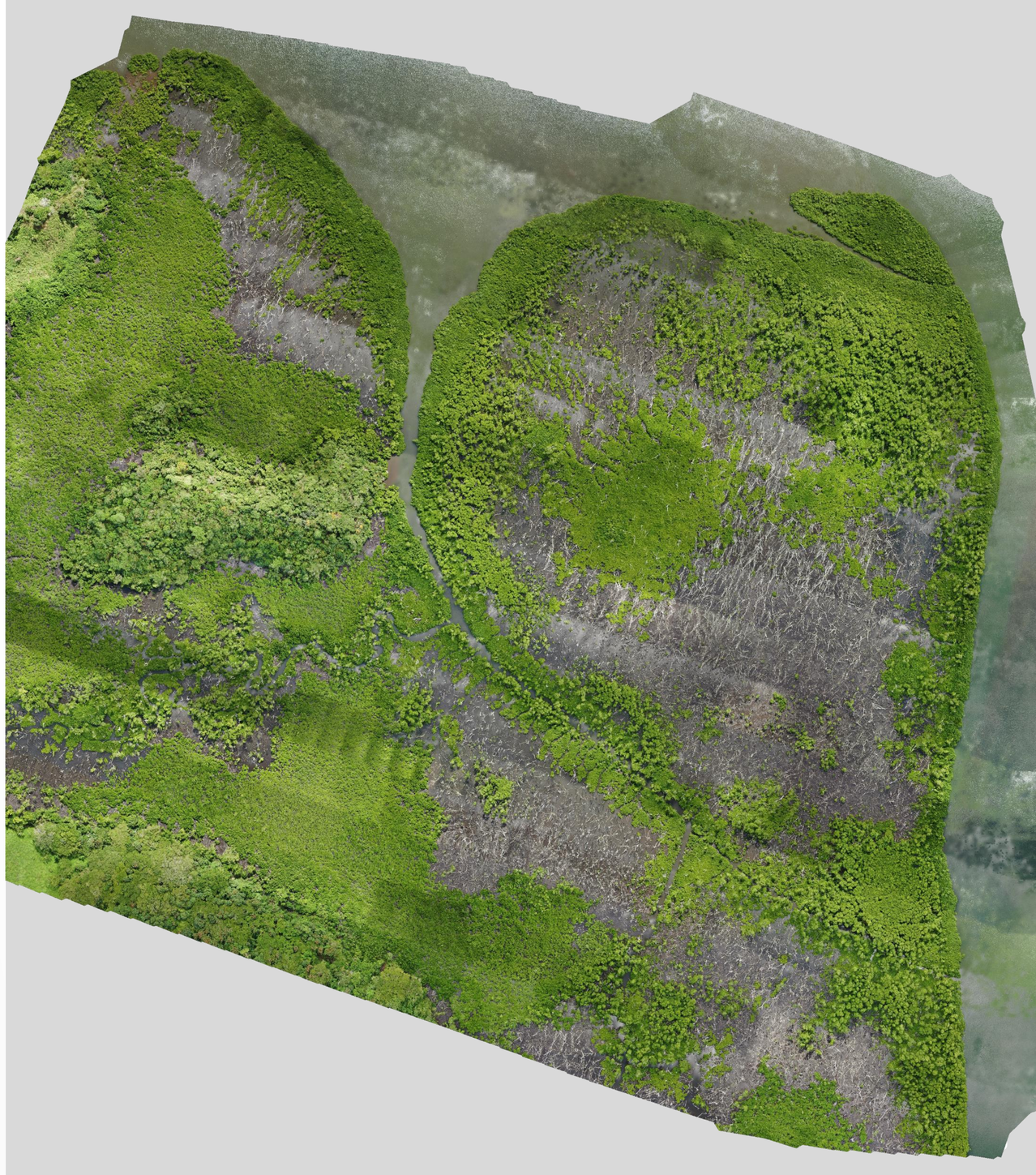
Restore degraded mangroves in Navitilevu Bay in Ra Province

Support implementation of the Fiji Mangrove Guideline, and other actions to improve forest management/reduce drivers of deforestation in the Rewa Delta

Strengthen sustainable and climate resilient community-based livelihood

Identify alternative financing pathways to support community development and mangrove restoration and management

NAVITILEVU BAY, RA PROVINCE



ROLE OF REMOTE SENSING

- Mangrove Mapping: Map the extent and distribution of mangrove ecosystems, size and location of these important habitats.
- Vegetation Monitoring: Track changes in vegetation cover, biomass, and productivity, health of the ecosystem.
- Detection of Disturbance: Detect and map disturbances to mangrove ecosystems, such as deforestation, erosion, and pollution, identify areas that may be at risk of degradation, and to develop targeted interventions to mitigate these impacts.
- Sea Level Rise Monitoring: Monitor changes in sea level, potential impacts of sea level rise on mangrove ecosystems.

3.1 RESTORATION IN RA

- Priority restoration sites have been identified – Navitilevu Bay
- In-situ nursery set-up – Phase 1 – 15,000 Seedlings being grown by May 2023
- Development of a restoration plan commenced, and seeking collaboration with Australian Institute of Marine Science

COMMUNITY CENTERED POST DISASTER RESTORATION/REHABILITATION

- Encouraging Local Ownership: Encourage local ownership of the restoration process, which can help to ensure the sustainability of the restored ecosystem in the long term.
- Enhancing Ecological Resilience: Enhance the ecological resilience of mangrove ecosystems, making them more resistant to future natural disasters.
- Improving Livelihoods: Mangrove ecosystems provide important sources of livelihoods for many coastal communities, including through fishing, aquaculture, and non-timber forest products.
- Strengthening Social Cohesion: Help to strengthen social cohesion and build community resilience in the face of future disasters.

3.2 IMPROVE MANAGEMENT IN REWA

- CI supported the Ministry of Forestry to develop the Mangrove Management Guideline (support by co-financing)
- Stakeholder consultations will commence on this guideline in Q1 2023
- CI will support delivery of management actions identified under the Guideline in the Rewa Delta

3.3 LIVELIHOODS

- Collaboration on livelihoods with WWF leading livelihoods work in Ba, linking to the Great Sea Reef Resilience Facility (GCF-funded project)
- Consultants are being procured for development of a livelihoods strategy and action plan and set up of pilot projects in Ra and Rewa.
- Focusing on specific commodities (eg mangrove oysters, crabs, sea-grapes) and non-commodities (eg ecotourism initiatives) and supply chains

3.4 ALTERNATIVE FINANCING

- Building from the livelihoods and blue carbon pilot project, CI will review existing blended financing pathways to support communities and mangroves in the Pacific.
- Where feasible and relevant, financing pathways should enhance feasibility and bankability of blue carbon projects by diversifying project revenue streams away from carbon, and/or leveraging livelihoods investments.

OBJECTIVE 4. IDENTIFY OPPORTUNITIES TO INTEGRATE BLUE CARBON AND NATURE-BASED SOLUTIONS

Strengthen Delivery of Nature-based Solutions in Fiji, specifically supporting the Ministry of Waterways on eco-seawalls

Conduct an exchange with first nation communities in Australia and local communities in Fiji on blue carbon and nature-based solutions

Design and conduct adaptation monitoring and evaluation within priority sites

WHAT IS GREEN-GRAY INFRASTRUCTURE?

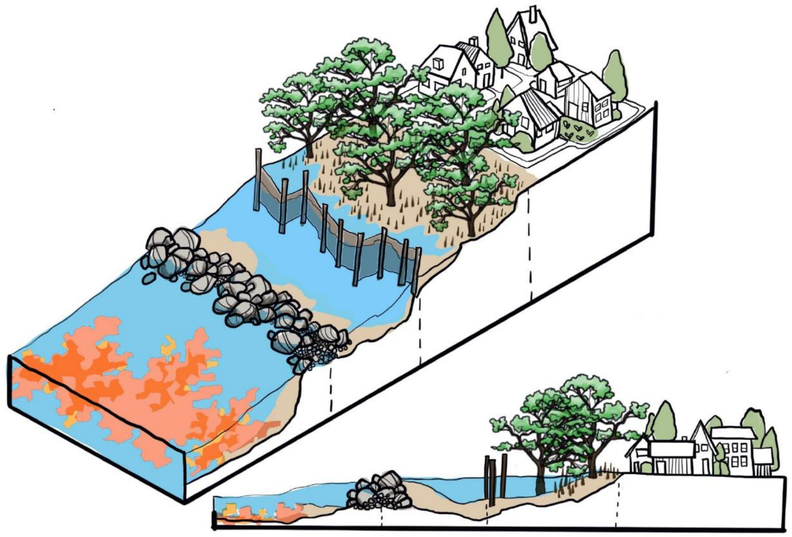
Green-gray infrastructure combines conservation and/or restoration of ecosystems with the selective use of conventional engineering approaches to provide people with solutions that deliver climate change resilience and adaptation benefits.

COASTAL GREEN – GRAY

COASTAL EXAMPLE

© Rod Braun

combining coral reef conservation + mangrove restoration + rock breakwaters for coastal protection

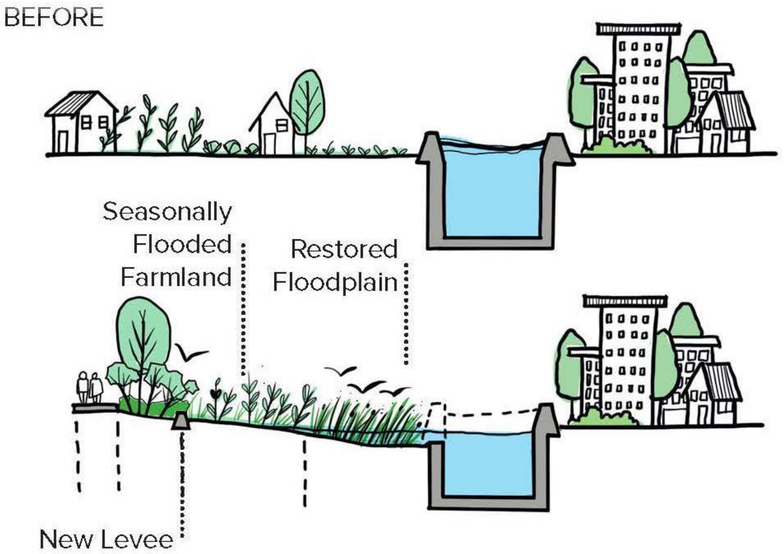


FRESHWATER GREEN – GRAY

FRESHWATER EXAMPLE

Source: Palm Beach County Water Utilities

combining floodplain restoration, levee construction and modified infrastructure to manage riparian flooding and restore ecosystem function



ADDRESSING CLIMATE VULNERABILITY AND SHORELINE EROSION THROUGH DELIVERY OF ECO-SEAWALLS IN FIJI


VINAKA
CONSERVATION
INTERNATIONAL