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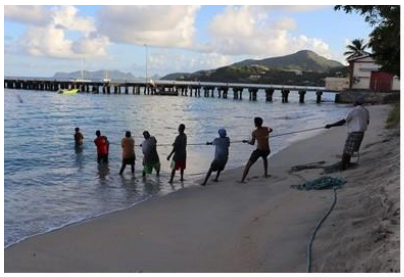
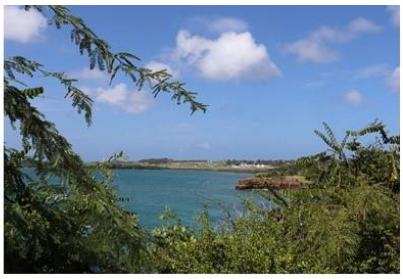
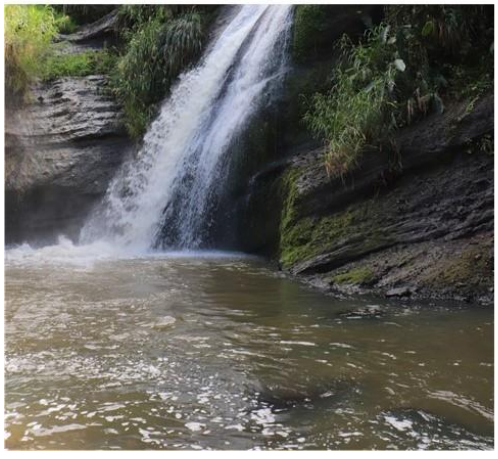
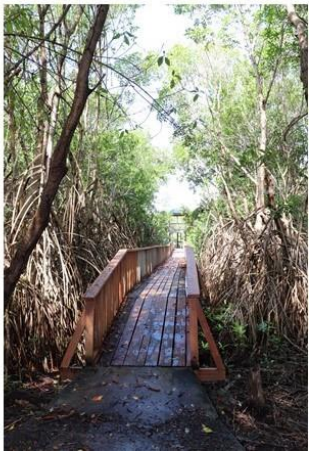
Workshop on the Second Order Draft of the Grenada National Ecosystem Assessment

Friday 16 September 2022

9:00am – 12:15pm

Registration link:
https://us06web.zoom.us/meeting/register/tZwsfu6hrD4rG9DhDHm4VyV62vv1MPr0qa_D

Summary of Chapter 2
on
Status, Trends and Threats to Grenada's Coastal, Deep Ocean, Forest, Freshwater, Offshore and Agricultural Ecosystems
and
Indicative Questions for Stakeholder Feedback

Summary of Chapter 2
STATUS, TRENDS, AND THREATS TO GRENADA'S COASTAL, DEEP OCEAN, FOREST, FRESHWATER, OFFSHORE AND AGRICULTURAL ECOSYSTEMS

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Introduction: Over the past 5 million years since Grenada's formation, ecosystems have undergone numerous changes due to natural processes and anthropogenic stressors, which we detail in this chapter. After providing a brief overview of Grenada's past environment (up until 1970s), we cover the status and trends of the islands agricultural, coastal, deep ocean, forest, freshwater and offshore island ecosystems. We then discuss the threats to these ecosystems and end highlighting broad knowledge gaps.

Past Environments: Biological communities on the Grenada Bank underwent mass extensions following rising sea levels, but the rate and magnitude of loss are likely incomparable to what occurred under later human occupation. Though the initial arrival of humans in the Caribbean from South/Central America does correlate with the loss of some species, due to human disturbance and habitat loss, and the translocation of others, the greatest human impacts on Grenada's environment began with European colonization with plantation agriculture. Following the full emancipation of the enslaved population, West Indian sugarcane became unprofitable; but even while the estates changed hands, they remained largely intact, and there were growing shifts to croplands versus wooded agriculture.

Status of Grenada's Ecosystems: Much of Grenada's ecosystems - coastal, forest, freshwater, forests, offshore islands and deep ocean - and their associated biological communities have undergone much change in the past century, as we detailed above under the Past Environments section. While data availability varies among ecosystems and biota, we attempt to succinctly describe the status of Grenada's flora and fauna today and general trends in their availability and distribution.

- **Agriculture & Agri-systems:** Though Agriculture and agri-systems may not be considered "natural" as they are modified landscapes for human food production, they do provide habitat for native and domesticated fauna.
- **Coastal Ecosystems:** Beaches, mangroves, seagrass beds and coral reefs account for Grenada's coastal ecosystems - they are part of a complex, supporting various life stages of marine fauna.
- **Deep Ocean Ecosystems:** Although Grenada's open ocean and deep ocean occupy a large proportion of its exclusive economic zone (EEZ), it is largely understudied, but home to many species, including commercially important and highly valuable species.
- **Freshwater Ecosystems:** Grenada is divided into 71 watersheds - there are no permanent streams on Carriacou, Petit Martinique or any of the offshore islands.
- **Forest Ecosystems:** Grenada's forest vegetation, not inclusive of Carriacou and Petite Martinique or other offshore islands, covers approximately 58% of its surface, belonging to three broad classes - Dry Scrub Woodland, Rainforest and Montaine Thicket - and supports diverse animal communities.

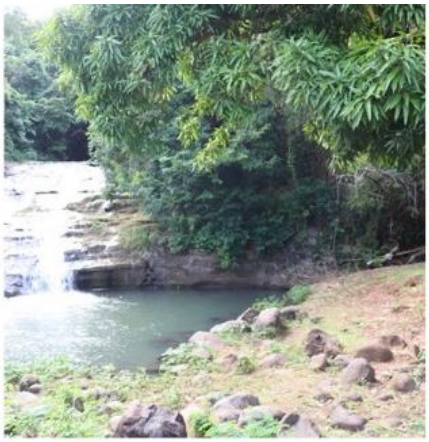
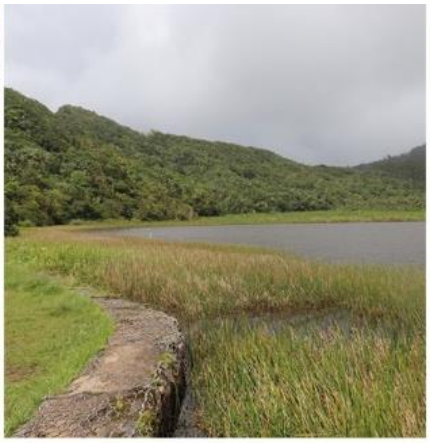
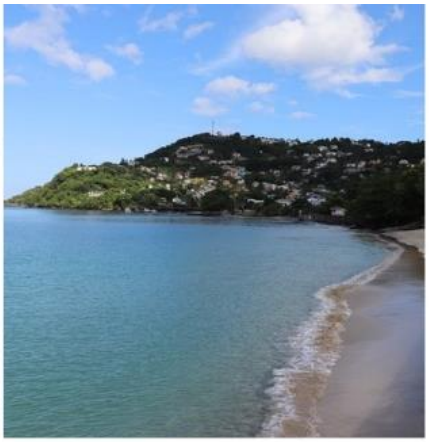
- **Offshore Island Ecosystems:** Proportionally, island ecosystems support more biodiversity than their respective mainlands; as such, they are the focus for global biodiversity preservation. There are approximately 60 uninhabited islands, islets, cays, and rocks in Grenada.

Trends: Though data on trends in Grenada's ecosystems over the past half century are limited, we rely on spatial data from 1982 to 2014 to quantify recent trajectories in these ecosystems in this section. Changes in land cover class area varied with the year, and in some cases, there were consistent declines in wetlands/mangroves and pastures/cultivated lands but increases in forest cover and nutmeg/wooded agriculture.

Threats: While there are both anthropogenic and natural threats to Grenada's ecosystems, we focus on threats in five major groups:

- **Diseases**: Numerous epizootic events and disease outbreaks have been reported in coral reefs and among sea turtles within the Caribbean Region. Rabies, leptospirosis, infectious brochantites and blood parasites have also been reported among mammals and birds in Grenada.
- **Habitat Loss & Degradatio**n: The loss and degradation of habitat can be largely to attributed to deforestation, development, and pollution, but there are consistent threats due to sand mining, storms and hurricanes, rainfall events, resource extraction, maritime vessels, and recreational activities
- **Invasive species**: Sargassum and lionfish have had notable impacts on coastal ecosystems, while mongoose are a major threat to birds in forests, and livestock are a main driver of degraded habitat on offshore islands.
- **Pollution**: Regardless of the source of pollution - agriculture domestic, sewage industrial waste and anthropogenic litter - both marine and terrestrial ecosystems are often impacted.

Gaps: Though not extensive, we provide a list of knowledge gaps on Grenada's ecosystems in this final section. These gaps reflect what is unknown in the grey and scientific literature; thus, they do not speak to anecdotal data or information. In brief, we show that much of the gaps are due to the absence of continual monitoring of biotas in the ecosystems in Grenada.

Indicative Questions for Stakeholder Feedback during breakout sessions

The information presented in the Grenada NEA is largely based on the available literature including peer reviewed journal articles, national reports, records and databases. This information has been supplemented by surveys and interviews where possible and relevant.

The breakout sessions will be used as one avenue for stakeholder feedback and local knowledge in terms of their "on the ground" observations and experiences relevant to the material presented in the chapter. Stakeholders are also welcome to continue to provide feedback on the workshop material after the event which can be emailed to project officer Aditi Thanoo Aditi@canari.org. Stakeholders are also invited to serve as official chapter reviewers, to be credited as such in the final published National Ecosystem Assessment document. Reviewers will receive the draft copy of the chapter with the expectation that they will review the entire chapter and submit detailed written comments. If you are interested in becoming an official reviewer, please email Aditi Thanoo at Aditi@canari.org

The breakout sessions for Chapter 2 during the workshop on Friday 16 2022 will address questions such as:

Threats

- Which areas around Grenada are lionfish more prevalent?
- Are there specific areas around Grenada that are more negatively impacted by Sargassum than others?

Gaps

- Freshwater: Are Sicydium gobies (tritri) still harvested in Grenada? How common are they and where can they be found?

General

For each of the following ecosystem types: Forest, agriculture, freshwater, coastal, deep ocean and offshore ecosystems:

- Are there specific plants or animals in each ecosystem type that you believe maybe under threat of extinction or extirpation (may cease to exist in a particular area)?
- What are the threats of major concern for these species in this ecosystem type in Grenada?
- What are the top threats you think this ecosystem faces overall?
- Do you think there are threats that this ecosystem faces that is unique to this ecosystem?
- Are there specific geographic areas/locations of concern for this ecosystem type in Grenada, Carriacou and Petit Martinique? What is happening there?
- Do you have any recommendations for the conservation or management of the specific ecosystem type or plant or animal species?