

Draft of the 10-year Management Plan

North-East Tobago
Man and the Biosphere Area

unesco
Man and the Biosphere Programme

FOCUS: UNESCO MAB Programme

February 2024

Draft 10-year Management Plan

Focus: UNESCO MAB Programme

for the

North-East Tobago Man and the Biosphere Area

SITE DESCRIPTION

Biogeographic location

The NETMABR is located on the north-eastern end of Tobago, the smaller of the twin-island Caribbean Republic of Trinidad and Tobago, forming the southernmost end of the Lesser Antilles. Although the island is small, the area is relatively isolated, approximately half the size of the entire island and home to a little less than a quarter of the island's population.

On the terrestrial side, NE Tobago's forests are being biogeographically classified as follows:

Realm: Neotropics

Biome A: Tropical and subtropical moist broadleaf forest

Ecoregion: NT 0171 Trinidad and Tobago moist forests

Biome B: Tropical and subtropical dry broadleaf forest

Ecoregion: NT 0231 Trinidad and Tobago dry forests

NE Tobago' marine environment is placed within the Eastern Caribbean Eco Region based on its predominant ecological features associated with (data deficient) sponge / coral co-dominated coastal reef ecosystem.

Realm: Tropical Atlantic

Province: Tropical North-western Atlantic

Sub-province: Caribbean Large Marine Ecosystem (CLME)

Eco Region 64: Eastern Caribbean

and bordered to the south-east by:

Realm: Tropical Atlantic

Province: North Brazil Shelf

Eco Region: Guianan

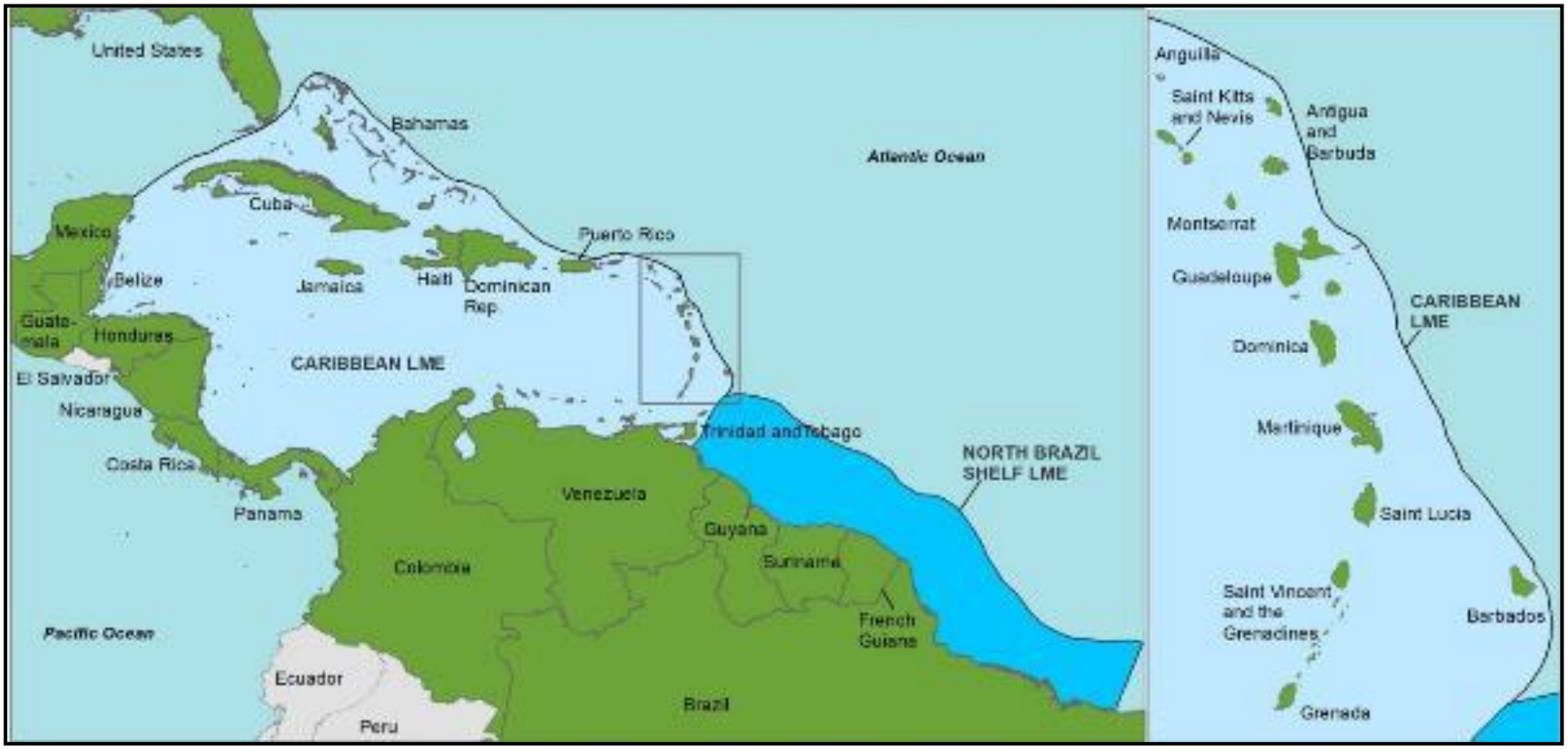


Figure Tobago's two marine ecoregions (Caribbean LME and North Brazil Shelf LME) are given in bright blue and blue (CLME+ Hub, 2018)

Biophysical characteristics

The terrestrial area is mainly characterised by the Main Ridge which has a length of 17km, a width of two to six kilometres and a maximum height of 573m. Its steep slopes drop often directly to sea level and are only interrupted by some low lying, coastal valleys cut by rivers.

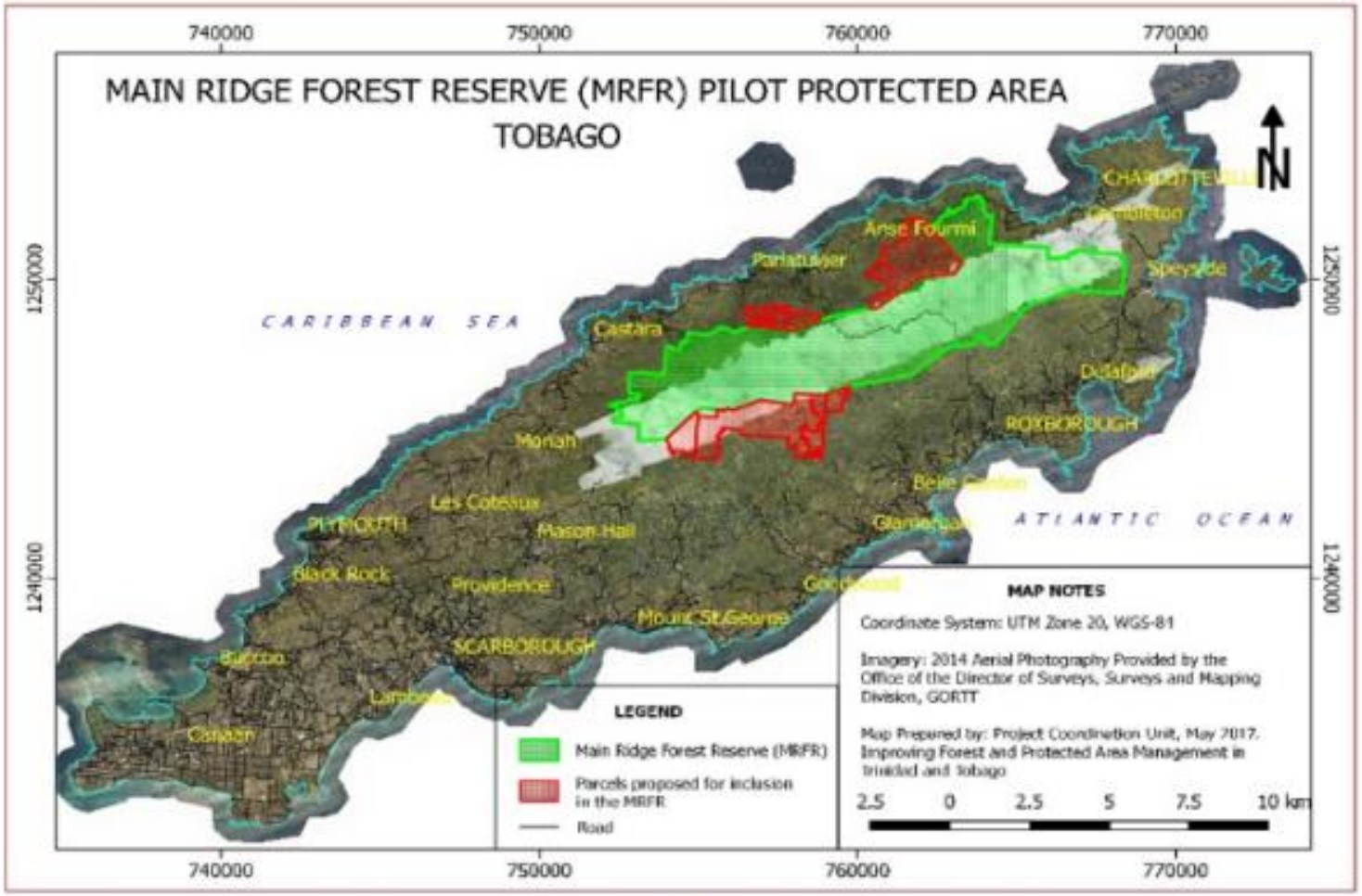


Figure Map of the Main Ridge Forest Reserve Tobago (IFPAM, 2017)

These valleys harbour villages and the small remains of wetlands such as marshes and grass lands.
The coast consists mostly of rocky shores, interrupted by some sandy beaches.

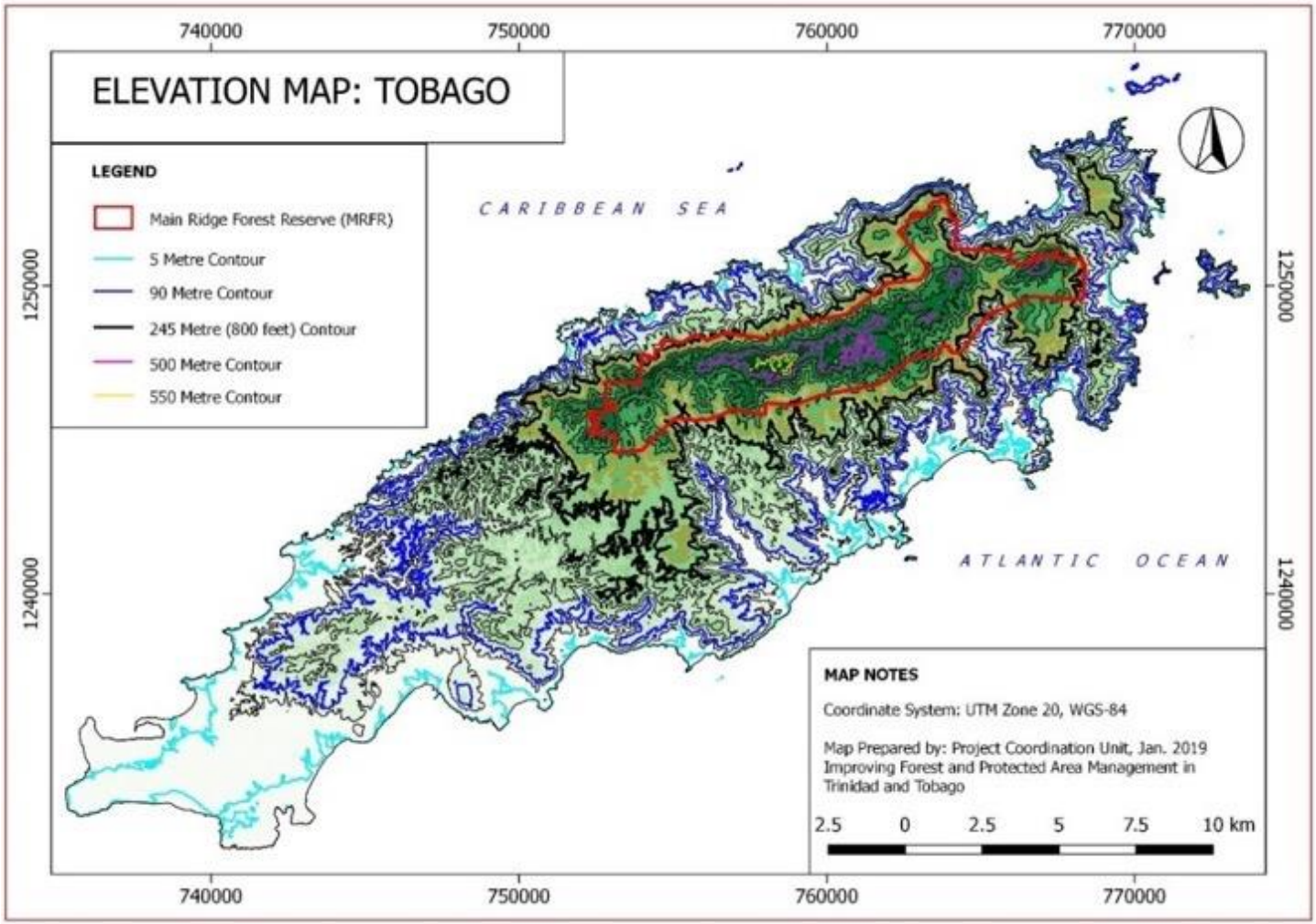


Figure Elevation Map of Tobago (IFPAM, 2019)

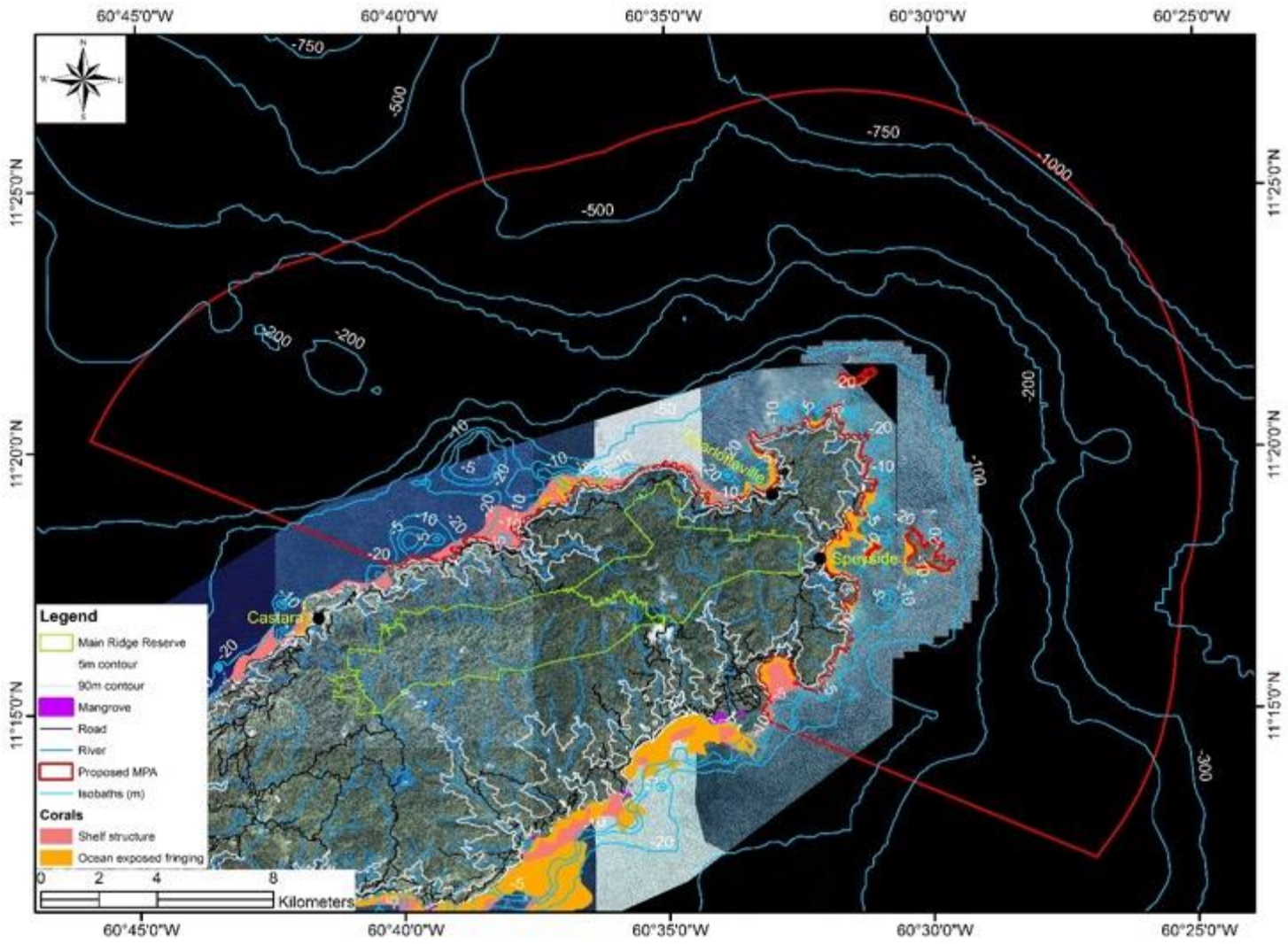


Figure Bathymetric Map of NE Tobago, note: borders of planned NE Tobago MPA not correct

Most of the rocky nearshore marine area is covered by reefs; within bays the substrate consists of a sand / clay mixture to various degrees. The seafloor towards the Caribbean (north) drops to about 500m, while it drops to about 1,000m towards the Atlantic in the north-east.

Climate

Using the Köppen climate classification, the area can be classified as **Aw** (winter dry season) indicating a tropical wet-dry climate which is controlled mainly by seasonal fluctuations of the trade winds and the Intertropical Convergence Zone (ITCZ) with precipitation in the driest month being less than 60mm. The terms winter and summer have little meaning, but in many locations annual rhythm is provided by the occurrence of wet and dry seasons. Average temperature of the warmest month (July) is 27.3°C Average temperature of the coldest month (February) is 25.6°C. Tobago's mean annual precipitation is 2,519.3 mm, recorded at a known elevation of 4.0m. The average annual rainfall ranges from 3,800 mm in the Main Ridge to less than 1,250 mm in the south-western lowlands.

There is no meteorological station within or near to the NETMABR; however, there are plans to establish two stations in mid-2023. The Crown Point Meteorological Services operates a Campbell Scientific Automated Weather Station in the Louis D'or area in the North-East called the Louis D'or AWS which is within the NETMABR and has been actively recording data since 13 December 2007.

Geology, Geomorphology, Soils

Tobago is located south-east of the Caribbean Plate and the Lesser Antilles, 110km north-east of the Venezuelan coast of South America. The north-eastern part of Tobago, in which the NETMABR falls, consists of cretaceous metavolcanic rocks and the centre consists of unmetamorphosed cretaceous volcanic and plutonic rocks. The MRFR forms the easternmost allochthonous fragment of the Caribbean Mountain system. It is situated in the geological metamorphic province North Coast Schist Group (NCSG). This is considered to constitute the oldest rocks on Tobago embracing the Main Ridge namely the Parlatuvier and Mount Dillon Formations see Figure 37. The NCSG contains a succession of low-to-medium grade regionally metamorphosed rocks originated from the Lower Cretaceous. These heavily deformed metavolcanics and metasedimentary rocks underwent penetrative plastic deformation during greenschist facies metamorphism. The Main Ridge contains phyllitic, serictic schists that grade upwards into the Parlatuvier Formation, a series of metavolcanics rocks which show a yellowish-brown or buff colour and pale green colour at fresh exposures due to abundance of chlorite, epidote and amphibole. In this formation, mica, chlorite, granular quartz and epidote compose a fine-grained schistose matrix which encloses porphyroclasts of plagioclase feldspar, amphibole, and clinopyroxene.

The significant movement of the oceanic island Tobago over the past 10 million years has brought it from the west in the Pacific, which lead to a direct joint to Venezuela at least once, before it migrated eastwards to the present location. About 11,000 years ago the last separation from the continental mainland took place. Meanwhile it became attached several times to the South American continent and was joined to Trinidad through a land bridge during periods of low sea level as for instance in the past ice age. These

events enabled movement of flora and fauna species from Trinidad and explain species like the Tobago Glass Frog which is closely related to a Venezuelan species but a separate species.

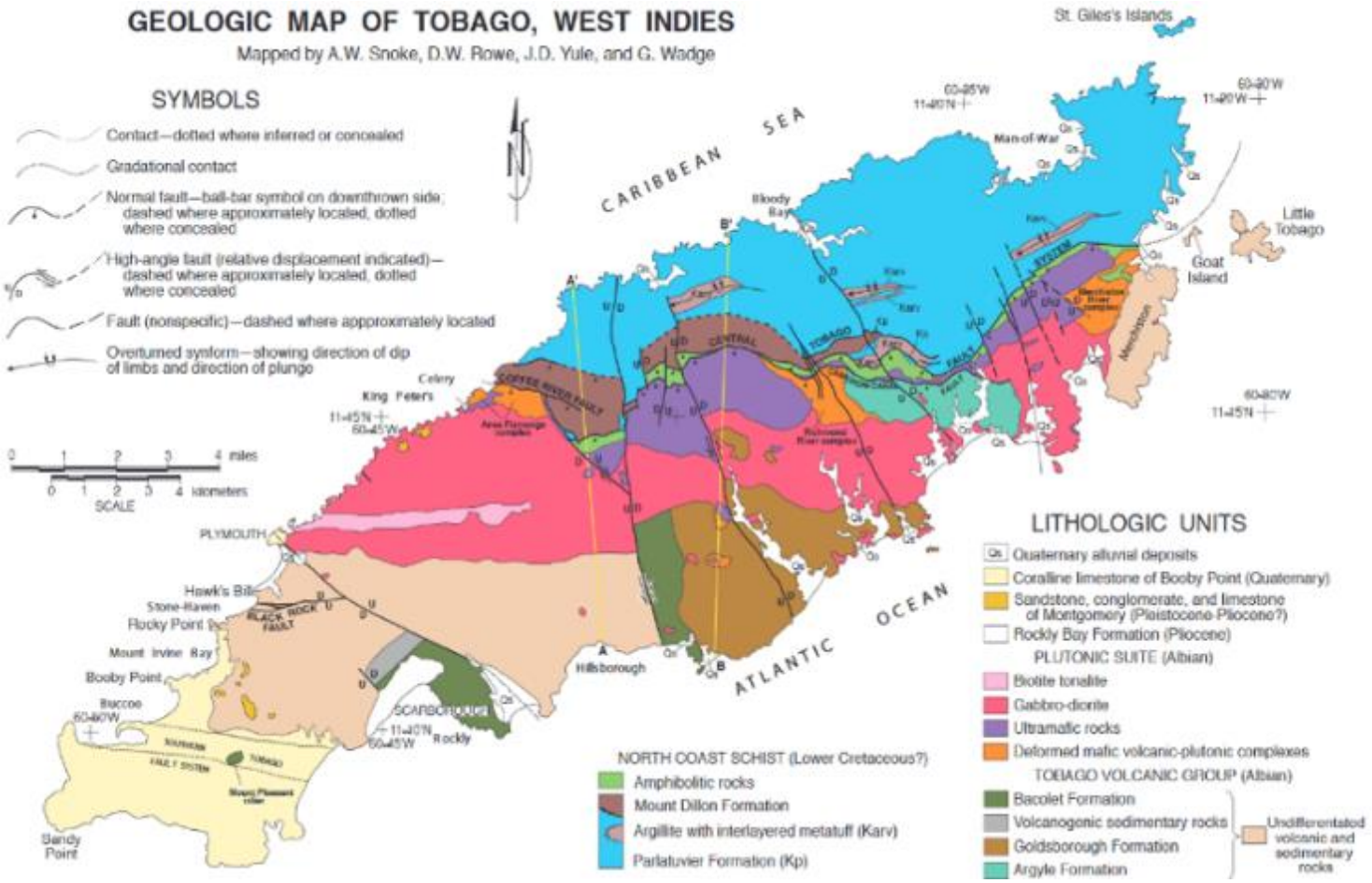


Figure Geological map of Tobago.

Ecosystem descriptions

The Millennium Ecosystem Assessment (MEA) defines an ecosystem as one that has "strong interactions among its component and weak interactions across its boundaries". In NE Tobago, the ecosystems within the landscape are tightly interlinked but buffered from other social and ecological systems. The Caribbean Sea and the Atlantic Ocean buffer the marine boundary, whilst the terrestrial environment is buffered by the island's topography and the MRFR, both of which has restricted extensive community development to the south-western end of Tobago. What is therefore captured by the NETMABR, is a land- and sea- scape that encompasses in a small area, a wide range of ecosystem processes, services, and biodiversity, including two of the world's most biodiverse ecosystems: tropical rainforest and coral reefs.

Tropical Forest Ecosystem

The mainland terrestrial area of the BR is predominantly a tropical forest ecosystem, covering approximately 150km^2. The topography ranges from sea level to a maximum elevation of 573 m. The main forest types within the BR are lower montane forest with very small pockets of elfin woodland and evergreen formation forests, lowland rain forest, and dry tropical broadleaf forest. Interspersed between the communities in the lower elevations are a variety of other forest types such as young secondary forest and forested wetlands.

NE Tobago's forests constitute a mix of northern South American and Antillean species, creating a unique diversity in contrast to the other islands of the Antilles. It is a critical avian habitat, with the MRFR designated as an Important Bird and Biodiversity Area (IBA). The dry tropical forest is a rare ecosystem in Trinidad and Tobago and is poorly protected. While this forest type is often favoured for clearing for human habitation, its topography, exposure, and inaccessibility in NE Tobago leaves it relatively undisturbed, making these forests regionally valuable for conservation.

NE Tobago moist broadleaf forests include lower montane forest, xerophytic rain forest, evergreen formations, and some elfin woodland (Davis et al. 1986, Thelen and Faizool 1980).

The rain forest is restricted to sheltered mountain valleys of the Main Ridge. The majority of the MRFR is lower montane and is found at heights above 244 metres. This area receives the greatest amount of rainfall, the greatest exposure to wind and the lowest temperatures, making it an evergreen forest. The lowland rainforest is occurring to a maximum of 366 metres. The xerophytic rainforest is found on the southern slopes of the MRFR at heights above 244 metres and is the driest compared to the other types.

NE Tobago dry broadleaf forests are climax Deciduous Seasonal Forests, a subset of tropical dry forests, located primarily on Little Tobago and Saint Giles Island. (Beard, 1944) Floristic affinities are strongest with northern South American countries but were also

heavily influenced by Antillean elements indicating that Little Tobago lay in a transition zone between continental South American dry forests and Antillean dry forests (Oathham, 2006). Some very small patches of dry evergreen forest exist in exposed coastal areas (Helmer, et al., 2012).

Very small patches of **swamp forest** occur in Kingsbay, Kendell, Louis D'Or, Hermitage, and Englishman's Bay.

The vast majority and only substantial area of NE Tobago's forests falls therefore into the biome of tropical (and subtropical) moist broadleaf forest (Olsen, et al., 2001).

Fresh and Brackish Water Ecosystem

Riverine and riparian ecosystems are the freshwater ecosystems creating critical links within the landscape, whilst estuarine and mangrove ecosystems form the interface between freshwater and marine ecosystems. They provide corridors for animal and nutrient movement from the ridges to the ocean. Although there are four largely permanent rivers in the area, most watercourses are seasonal between the dry and rainy seasons. The NETMABR contains estuaries at every river mouth, which includes at King's Bay and Bloody Bay, as well as a wetland at Speyside. Two, small patches of mangrove are located in King's Bay and Louis D'or, making this a very critical habitat.



Figure King's Bay Waterfall (UNESCO/Jacob Bock)

Table 1. Location of mangroves and wetland types with their approximate size.

	Site	Type	~ Size [ha]
1	Kendell	grassy wetland, temporary estuary	2
2	Argyle	grassy wetland, temporary estuary	1
3	Lois D'or	mixed agriculture, mangrove	10

4	Kings Bay	mangrove, temporary estuary	9
5	Speyside	grassy wetland	2
6	Hermitage	mangrove	2
7	Bloody Bay	grassy wetland, temporary estuary	5
8	Englishman's Bay	mangrove	5
9	Parlatuvier	grassy wetland	2

Coastal Marine Ecosystem

The coastal marine ecosystem cluster includes beaches, cliffs, marine systems from the littoral zone to a 50m depth contour and covers roughly 400ha of the proposed area. The beaches of NE Tobago are predominantly narrow bands of sand at the base of steep valleys. Many are isolated from easy landward access. The cumulative length of all beaches is approximately 10km across 35 beaches. Although a limited area, these beaches host an active rookeries of critically endangered hawksbill sea turtles. The coastal marine environment harbours relatively healthy and robust Caribbean coral reef complexes.

Offshore Islands Ecosystem

The offshore islets of the area include Little Tobago, the St. Giles complex, Goat Island, Sister's Rocks, Brother's Rocks, and Booby Island. These small islets, although terrestrial, are dominated by the marine environment. Vegetation on the largest three (Little Tobago, the St. Giles Complex, and Goat Island) is young secondary bush and remains a relatively undisturbed example of dry tropical forest reflecting both Antillean and north South American influences and are protected as sanctuaries. The islets are also critical for avian reproduction, reflected in the status of St. Giles Islands and Little Tobago Island as IBAs for supporting principally seabirds.

Marine Pelagic Ecosystem

The marine pelagic ecosystem starts beyond a depth contour of 50m, extending to the outer edge of the NETMABR; it encompasses both the Caribbean Sea and the Atlantic Ocean and thus the interaction of the Guiana Current and the Caribbean System. This ecosystem and the coastal reef ecosystems are seasonally enriched by a nutrient pulse from the Orinoco River. A diversity of marine mammals, turtles, sharks, rays, and commercially valuable fish species frequent the waters.



Figure 1. Elkhorn Corals (UNESCO/Jacob Bock)

Human systems
Land Tenure

Medium to large scale commercial properties are noticeably absent. The most current, publicly available tenure data are based on cadastral maps dated between 1951 and 1974 (Division of Lands and Surveys, GoRTT). Consequently, the subsequent analysis is an estimate of the current tenure situation.

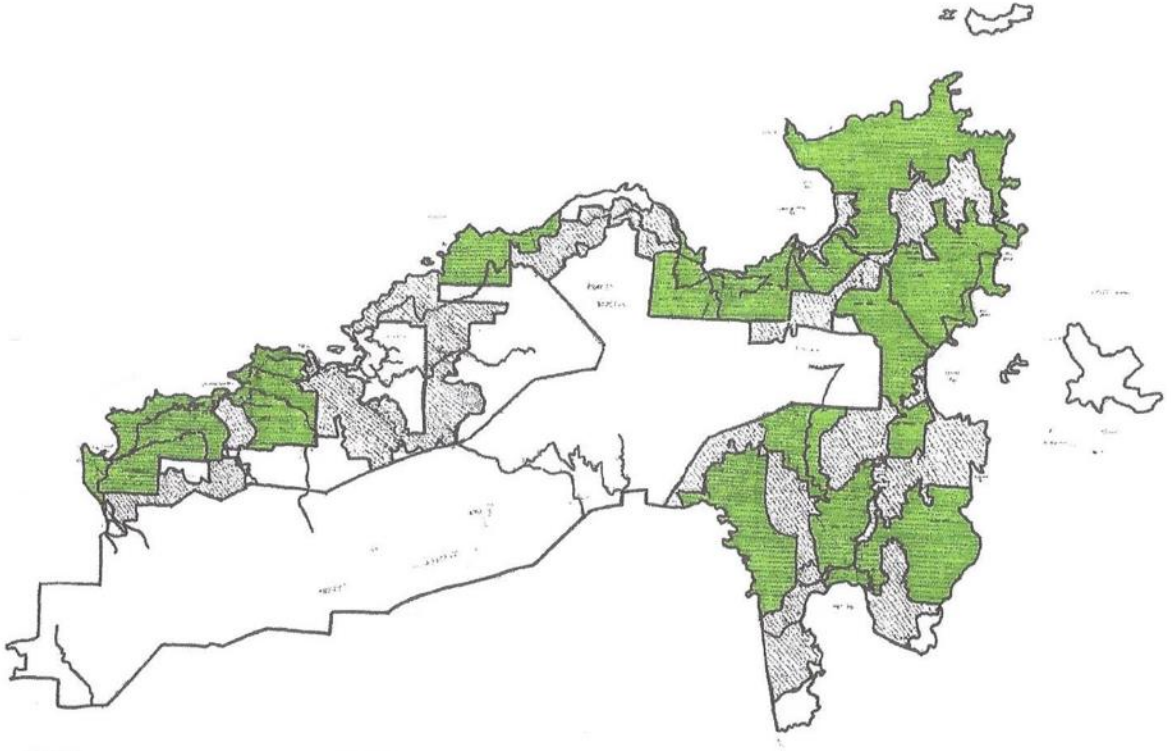


Figure Simplified Land Tenure Map for North-east Tobago

Map adapted from the North East Tobago Development Plan, EDG & Kairi Consultants 2003. State Land is not shaded. Areas comprised of parcels of Private Land >40 ha are shaded in green. Areas comprised of parcels of private land <40 ha are shaded in grey.

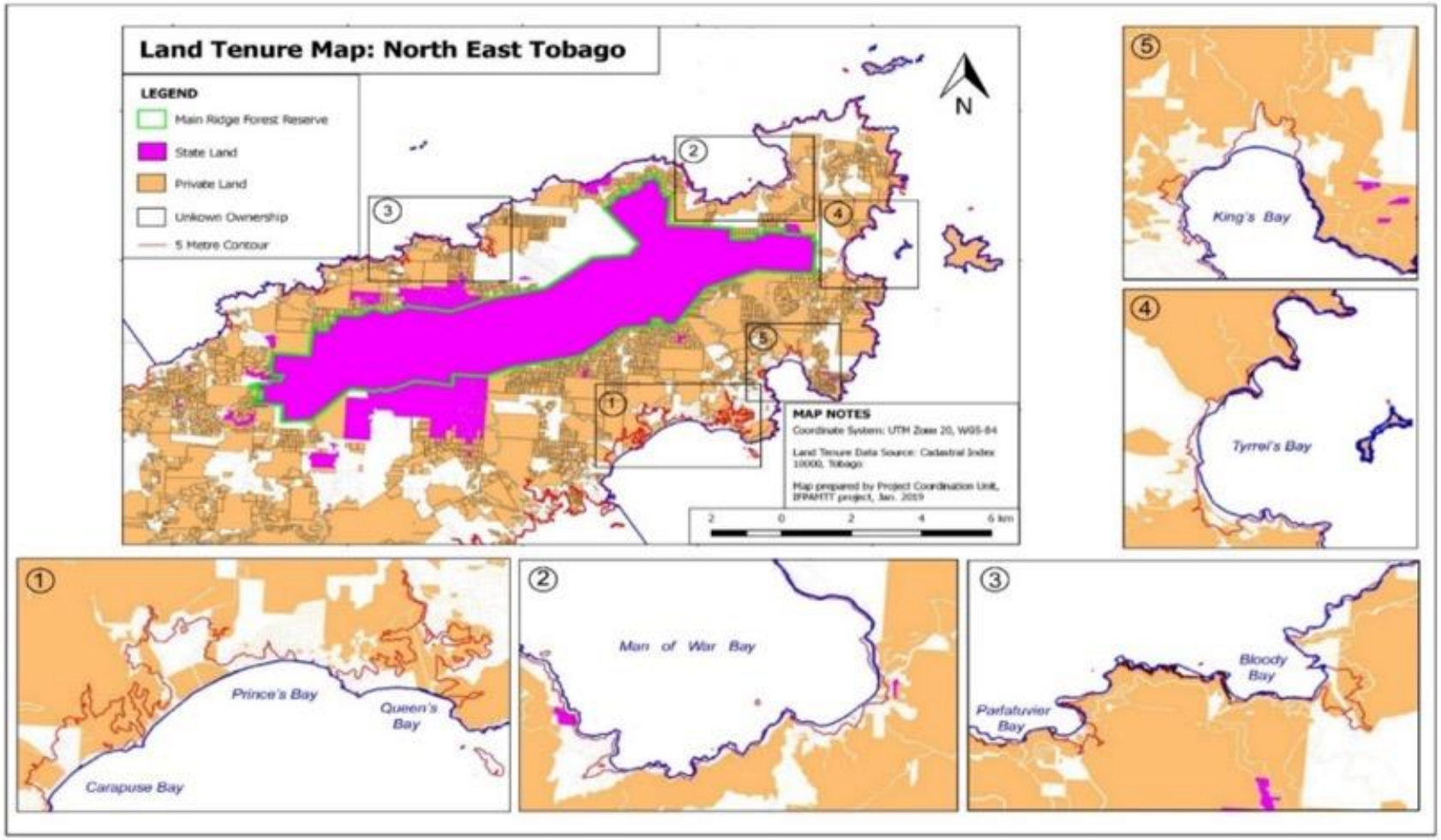


Figure Cadastral Map of Area Surrounding MRFR (note: this map contains errors)

Table 2. Table of Areas of Current Tenure Types, Legislation and Responsible Authorities in North East Tobago.

Type	[Ha]	Legislation	Responsible Authority
Public Unprotected Areas			
Marine Area	~59,000	Fisheries Act (67.51), Archipelagic Waters and EEZ Act 51:06, Territorial Sea Act 1:15	Marine Resources and Fisheries Department, THA
State Lands	~800	State Lands Act 57:01/57.05	Land Management Services, THA
Public Protected Areas			
Forest Reserve	~4,000	State Lands Act 57:01/57.05	Department of Natural Resources and Forestry, THA
Prohibited Areas	~300	Forests Acts 42/1015	
Game Sanctuary		Wildlife Act 16/1958	
Private Areas			
Private Lands	~4,000	Various Acts regarding Private Property / Zoning Policies e.g., NE Tobago Management Plan, the Tourism Master Plan and the National Draft Tourism Policy, Comprehensive Development Plan for Tobago (2006 and 2012)	Town and Country Planning Division, GoTT

Private Lands

Private lands include small residential and commercial properties, small scale agriculture, small scale industry (mainly tourism), and large, inactive and unproductive agricultural estates. These estates, although undeveloped, are also unprotected and undermanaged from an ecosystem and conservation perspective. Small properties less than 40ha account for approximately 38% of private lands, while medium to large estates greater than 40ha account for approximately 62% (ERIC estimate, 2016). All private lands are privately managed with very few regulatory restrictions on permitted activities or development. However, the boundaries of the zoning regulations of the Town and Country Planning Division and certain policies applicable to NE Tobago provide an existing regulatory framework. The main zoning components in NE Tobago are: residential, agriculture, small scale industry, and low-impact ecotourism.

Public Lands

Government-owned areas include the marine area, a protected terrestrial area (Main Ridge Forest Reserve), three prohibited areas (the St Giles Islet complex: Marble Island, London Bridge and St Giles Island) a game sanctuary (Little Tobago), and regular, unprotected state lands. All these areas are governed by a non-transparent mixture of national legislation and managed by various THA Divisions.

Based on a proposed change in legislation, via the National Protected Areas Systems Plan, the long-term conservation tenure for the Main Ridge Forest Reserve and for the planned MPA will most likely be IUCN category 2 (National Park) protected area.



Figure View over NE Tobago, MRFR and Brothers and Sisters islets

1.1.1 Zoning

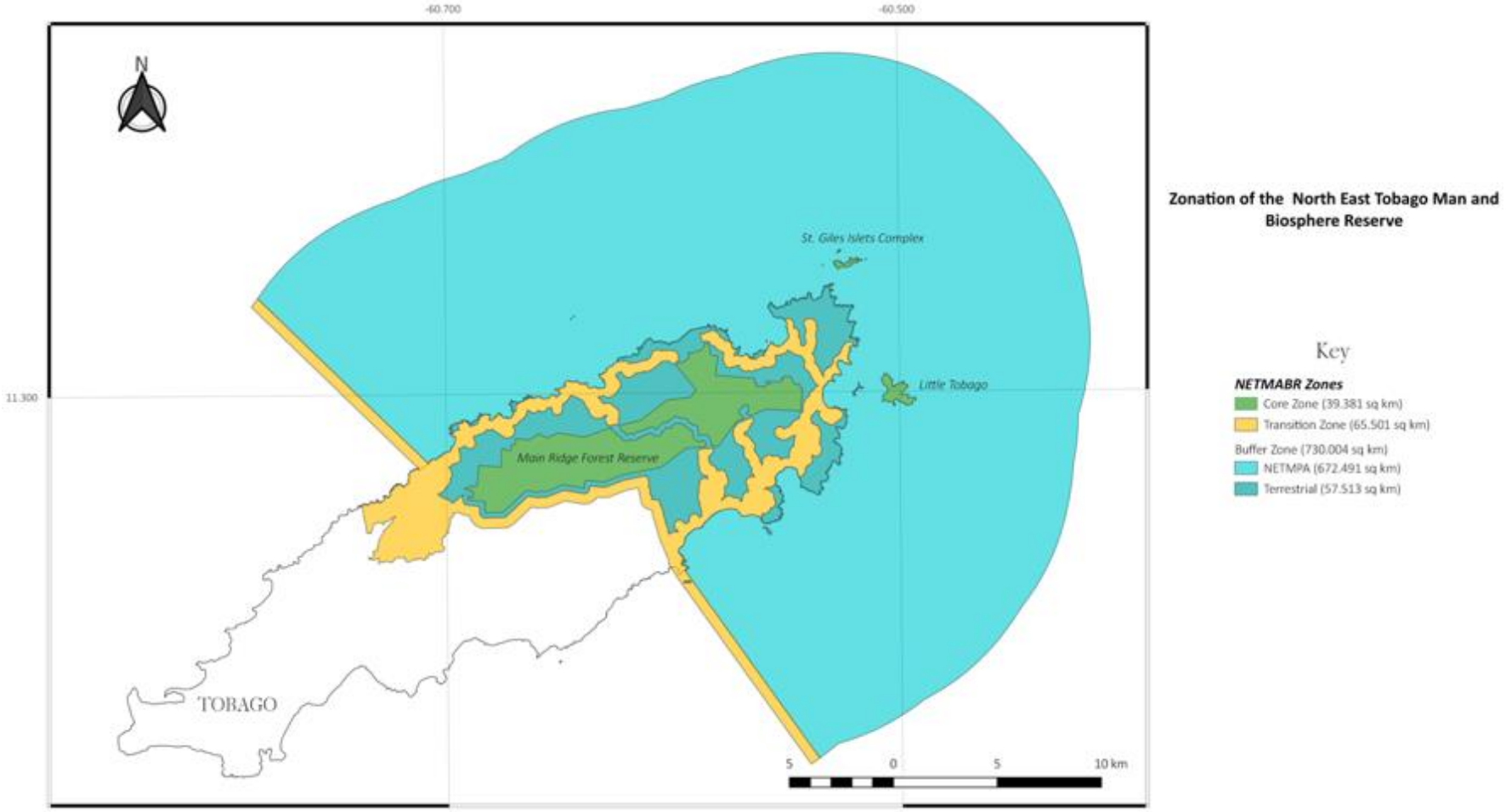


Figure Zonation map of the NETMABR (100m, 200m, 500m).

The ***Core Zone*** is determined based on existing legal protection of the three core sites: MRFR, Little Tobago Bird Sanctuary, and St Giles Wildlife Sanctuary; these sites also enjoy a generally high regard by residents, are seen as national icons and poaching happens only on relatively low levels. Based on their high conservation value, all three sites are internationally acknowledged as IBAs; the MRFR is listed as a Natural National Heritage (NNH) Site, reefs and islets proposed as NNH sites. Minimal impact eco-, and science

tourism is occurring and has the potential to be responsibly expanded to contribute to local livelihoods and sustainable development. The same applies regarding, environmental and sustainable development education, training, research, and monitoring thus fulfilling the logistic support function of the NETMABR.

The ***Buffer Zone*** is determined as:

a. lands between Transition- and Core Zone unlikely to be used for commercial or residential purposes, vastly consisting of abandoned private and public properties, with limited agriculture and agroforestry, and
b. the proposed NETMPA, which will be a sustainably managed, multi-user site, extending from the shore to the 6 nautical mile (11.1km) boundary which demarcates the marine area managed by the THA (please note that no Transition Zone was designated outside this 11.1km seaward boundary, since it would not fall under THA authority; an outer Transition Zone band around the NETMPA and within the 11.1km was not designated because different zoning in this outer area would create highly impractical management conditions of the MPA in the future).
c. a 100m band on both sides of roads that touched or traversed the terrestrial Core Zone.

The conservation value of the terrestrial part of the Buffer Zone is almost similar to that of the Core Zone since many ecosystems, habitats, and species are shared. The marine area is home to many IUCN, EDGE, CMS, CITES species and hosts relatively intact coral – sponge co-dominated reefs. Low impact, small scale agriculture (very limited) as well as eco-, nature-, adventure-, and science tourism are occurring and have the potential to be responsibly and significantly expanded to contribute to local livelihoods and sustainable development; this applies especially to soft water sport activities. The area has a multitude of opportunities for demonstration projects and sustainable business development research (e.g., agroforestry, cocoa, honey, tea, sustainable fisheries, citizen-science mari- and aquaculture), including related multi-stakeholder capacity building and as such is more than equipped to fulfil the logistic support function.

The terrestrial **Transition Zone** was determined as the area within 250m on each side of any road. In the exceptional cases were a road touched or traversed a Core Zone, a 100m band on both sides of this road was designated as Buffer Zone. This area is already used or with the potential being used for residential, commercial, public and other infrastructure and activities; it includes all housing areas and agricultural access roads. Its conservation value is focused on cultural heritage and activities from Amerindian to contemporary and including culinary, art, craft, dance, music, etc. The area also includes the mangrove and grassy wetlands close to communities. The Transition Zone provides the economic base for the NETMABR residents including tourism, service sector, vending, and construction which are the dominant activities. As already demonstrated in some communities, there is great potential and a legal

as well as regulatory base to reducing the environmental footprint of human activities in the Transition Zone, and at the same time support sustainable development. Most communities have been exposed to research and monitoring activities, all to capacity building initiatives regarding cultural and natural heritage. Required facilities and facilitating community-based organisations exist throughout the Transition Zone and provide all prerequisites to fulfil the logistic function.

A 500m band of marine Transition Zone on the south-western Caribbean and Atlantic boundary of the NETMPA was designated. Purposefully, no marine Transition Zone was designated outside of the 11.1km boundary of the NETMPA (justification provided in above paragraph).

A different, but by no means contradictory, zonation regarding protected areas in the planned NETMABR is described in the NPASP, which was approved by Cabinet in early 2019. The NPASP lists one Terrestrial Scientific Reserve, one Terrestrial Special Conservation Reserve, one Terrestrial National Park, one Terrestrial Natural Landmark, five Terrestrial Natural Habitat or Species Management Reserves, two Coastal and Marine National Parks, eight Coastal and Marine Habitat or Species Management Reserves, and one Coastal and Marine Seascapes within the proposed NETMABR.

Only four of the above-mentioned areas are already legally protected: South- and North MRFR, Little Tobago and St Giles Islet Complex, all of which are in the NETMABR Core Zone.

While cabinet-approved, the other listed areas are not legally protected as yet and mainly situated in the Buffer Zone. Once they achieve legal protection, shifting them into the Core Zone might be considered.

The NPASP is supporting the NETMABR zoning and conflicts are not foreseen.

Existing And Proposed NNH Sites

Main Ridge Forest Reserve

The Main Ridge Forest Reserve, the oldest protected tropical forest globally (1776) and declared as a Natural National Heritage Site on 5 December 2019 (Grade B and C, Trinidad and Tobago Gazette No 173), is the mountainous backbone of Tobago and covers almost 13% of the island. At a length of 17 kilometres and a width between 2 to 6km, it expands from south-west to north-east for 3,958 hectares and reaches at Centre Hill elevations of approximately 573 metres. It is bordered by unprotected state and private lands, mostly comprising agricultural estates which act as a buffer zone between the protected and populated areas. Its historic significance as the first legally protected tropical forest reserve in the world is undisputed; the remarkable geology, biodiversity, ecological connectivity and location between two biogeographic regions are of high conservation value and attract eco-tourists, university

groups, and scientists from around the globe. The MRFR is deeply engrained into the culture of Tobago, illustrated by many folk tales, customs and events.



Figure Main Ridge Forest Reserve Visitor Centre

*The **Tobago Main Ridge Forest Reserve** depicts a milestone in the history of conservation as the oldest legally protected tropical forest globally. Therefore, it serves as a valuable addition to the Ibero MAB network and the SIDS MAB network. The MRFR has been established for conservation purposes and has been described by the Caribbean Journal as "a living example of the power of conservation, and one whose continued stewardship sends a daily message to the rest of the region". Its variety of forest types and micro-climates provides an abundance of ecological niches that are occupied by specialist plants and animals and traversed by ecological generalist species. It was established on April 13th, 1776 by an ordinance which states in part, that the reserve is "for the purpose of attracting frequent showers of rain upon which the fertility of lands in these climates doth entirely depend." The passage of the ordinance is attributed to Soame Jenyns, a member of the British parliament whose main responsibilities were trade and plantation. He was influenced by the ideas of the English scientist Stephen Hales who was able to show the correlation between trees and rainfall. It took Jenyns eleven years to convince the parliament that this was indeed a valid endeavour. Scientific American has commented: "...the protection of Tobago's forest was the first act in the modern environmental movement". This can be considered a landmark in the history of conservation and preservation of the environment. The living testimony is the survival of the Forest Reserve itself.*

Figure Excerpt from NETMABR Nomination Form

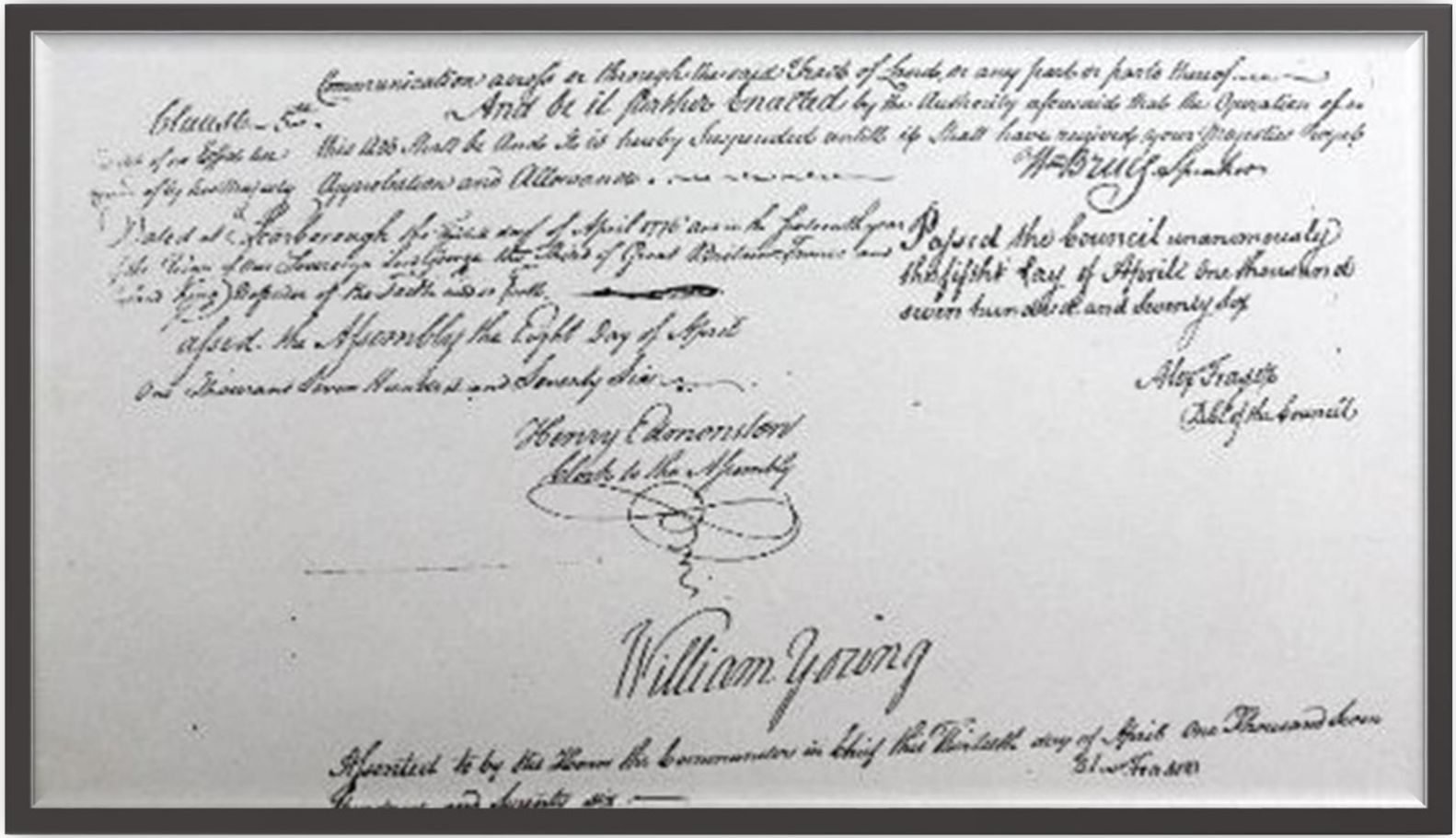


Figure Original declaration of the legal protection of the MRFR.

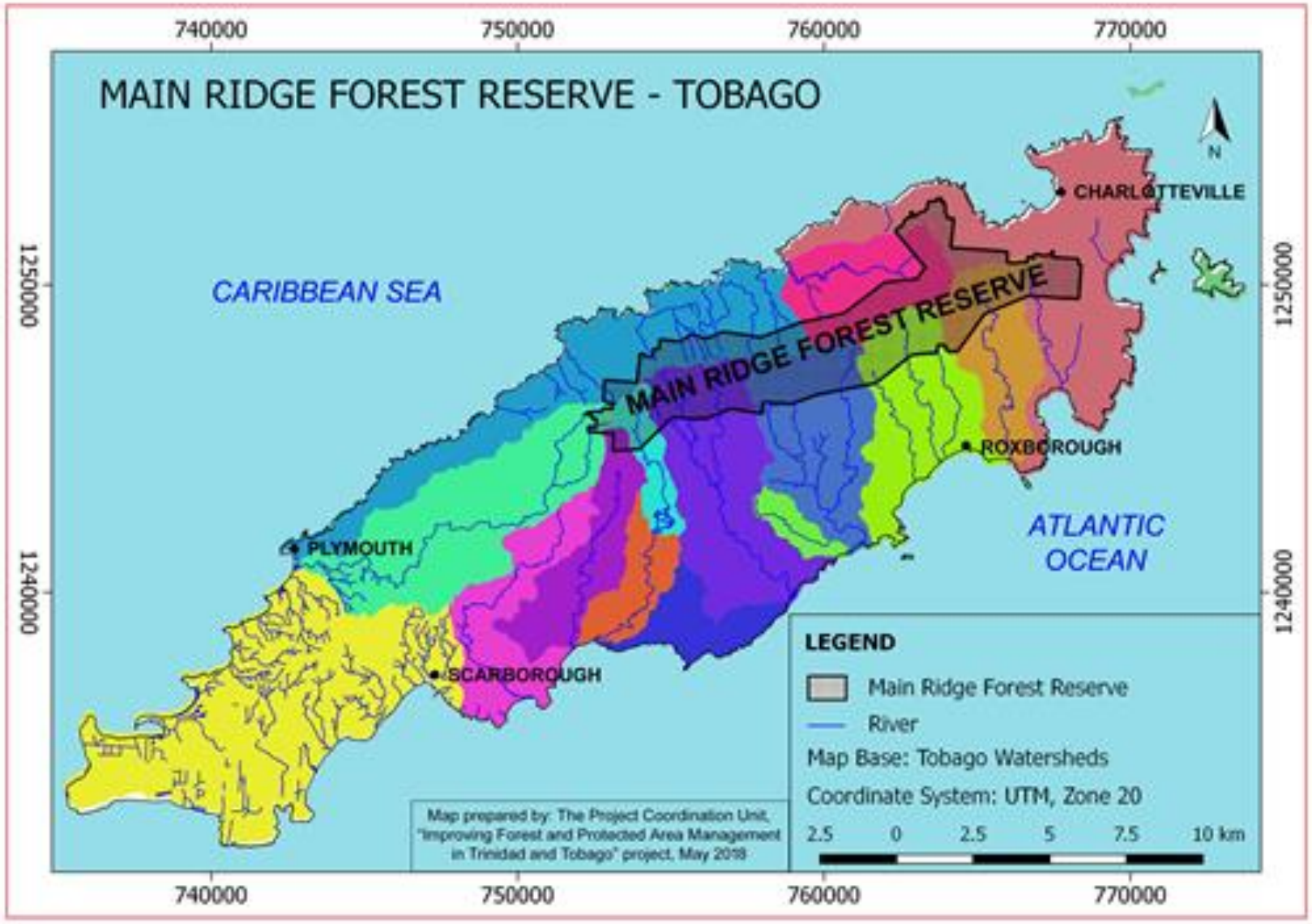


Figure Location of the Main Ridge Forest Reserve

NE Tobago Islets

In September 2021, the Tobago House of Assembly submitted two dossiers regarding the designation of NE Tobago's Islets and Reef as Natural National Heritage Sites to the National Trust of Trinidad and Tobago.

While the Main Ridge, Little Tobago, and St Giles are already protected under national law, the designation of Goat Island, Sisters Rocks and a band of fragile coastal reefs as Natural National Heritage Sites would for the first time provide these outstanding habitats and national icons with some level of legal protection. The proposed designation would further allow to include these sites into the NETMABR Core Zone, which would add a certain element of additional reputational protection.

The four islets of NE Tobago are demonstrably meeting the criteria of being designated as Properties of Interest under that National Trust Act:

1. **Little Tobago**, is a true national natural icon; there is no comprehensive publication about Trinidad and Tobago which would not include a picture and story about this islet. For decades, generations of families, school children, bird watchers, and ecotourists visited this internationally recognised Important Bird and Biodiversity Area (IBA) to observe, otherwise inaccessible, nesting, and brood-caring seabirds.
2. **Goat Island**, with its abandoned dwelling that inspires the imagination of people seeking peaceful relaxation in a marine retreat, is similarly embedded in everybody´s memory who ever ventured downhill into Speyside.
3. The **St Giles Island Complex** is, most likely, the largest breeding colony of Magnificent Frigate Birds in the Caribbean and also an internationally recognised IBA. This puts the islet on the bucket list for every birdwatching enthusiast that can take a choppy ride in a pirogue. London Bridge, a rocky outcrop of St Giles, with its landmark arch, which is clearly visible from Flagstaff Hill above Charlotteville, is a famous photo opportunity.
4. **Sisters Rocks**, also an important stop over for seabirds, is a similarly famous landmark, dive site, and photo opportunity. The memorable folk tale story about the demise of five sisters flying off from Tobago is part of NE Tobago´s cultural heritage and is told to almost every visitor.

Being an integral part of the NETMABR, the islets are recommended for improved conservation status by the Cabinet approved National Protected Areas Systems Plan (NPASP) (20 June 2019) and deeply ingrained in the island's culture and the pride of every Tobagonian.

Based on the above justification, Little Tobago, Goat Island, the St Giles Island Complex, and the Sisters Rocks qualify as Grade B and C of Properties of Interest under the National Trust Act of Trinidad and Tobago (NTTT).

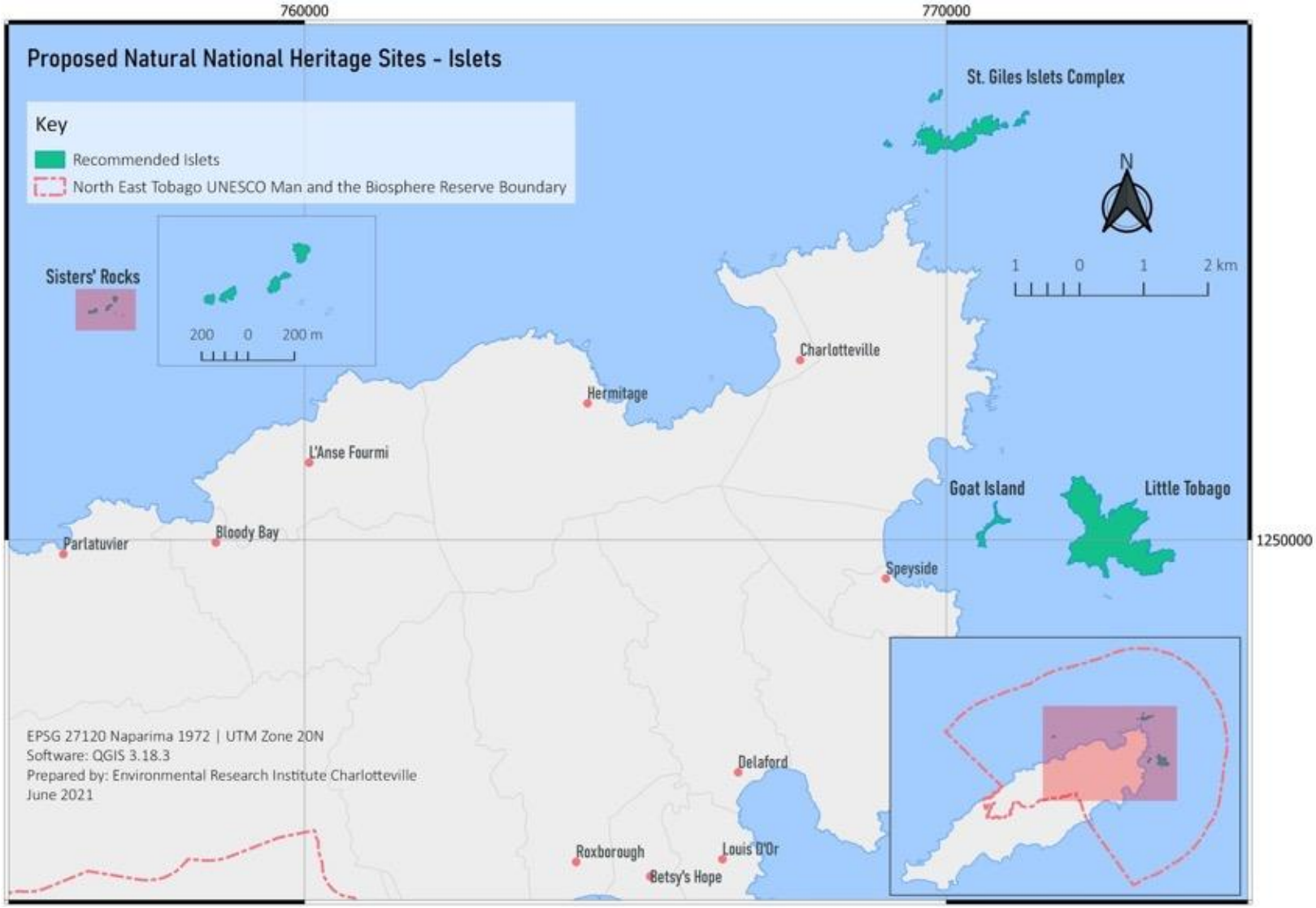


Figure Proposed Islets (as identified in the NPASP) for Natural National Heritage Site Status in the North East Tobago UNESCO Man and the Biosphere Reserve

Little Tobago, also known as "Bird of Paradise Island" is located 1.54km east of Speyside (shortest distance) and is Tobago's largest islet located at 770690N 1250190E with an area of 118.78ha. Its length of 1.93km stretches from north-west to south-east while its breadth of 1.5km stretches from north-east to south-west, with elevations reaching up to 137m above sea level. Infrastructure on the island includes a renovated (2023) jetty for access, shelter for visitors, a staircase leading from the jetty to an empty cabin and two lookouts (Lookout 2 and Alexandria Bay Lookout). The remains of a field station constructed for visiting scientists that was destroyed by Hurricane Flora (1963) and a series of dams of possible colonial origin emptying into Alexandria Bay, can still be seen.



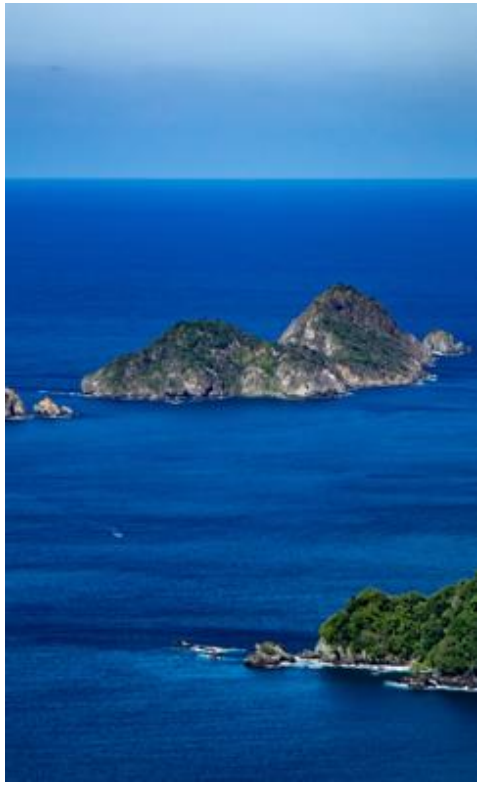
Figure Proposed Natural National Heritage Site and Coordinates - Little Tobago

Goat Island is a rocky islet with a surface area of 5.53ha, located between Speyside and Little Tobago at 759355N 1247058E. It is an estimated 825m at shortest distance from Speyside's coastline and 986m, shortest distance from Little Tobago. The length from the north to south is estimated at 756m and 230m at the widest cross-section of the island. The only infrastructure present is an abandoned two-story house with an adjoining, demolished jetty. During high tide, the sea floods a narrow channel alongside the jetty, seemingly splitting the island into two separate land masses.



Figure Proposed Natural National Heritage Site and Coordinates - Goat Island

St Giles Islet Complex, also called “St Giles and Melville Islands” is located 766m off the north-eastern tip of Tobago at 770197N 1256329E. St Giles main island is surrounded by several small outlying rocks, including the prominent land marks London Bridge and Marble Island. London Bridge is an arch located 446m west of St Giles and 962m from Tobago at 769104N 1256168E. Marble Island is a stack located 387m north of St Giles and 1.55km from Tobago at 769782N 1256889E. St Giles Island measures approximately 1.63km across from east to west and 410m at its widest cross-section spanning from north to south. Collectively, St Giles, London Bridge, and Marble Island cover an area of 29.84ha.



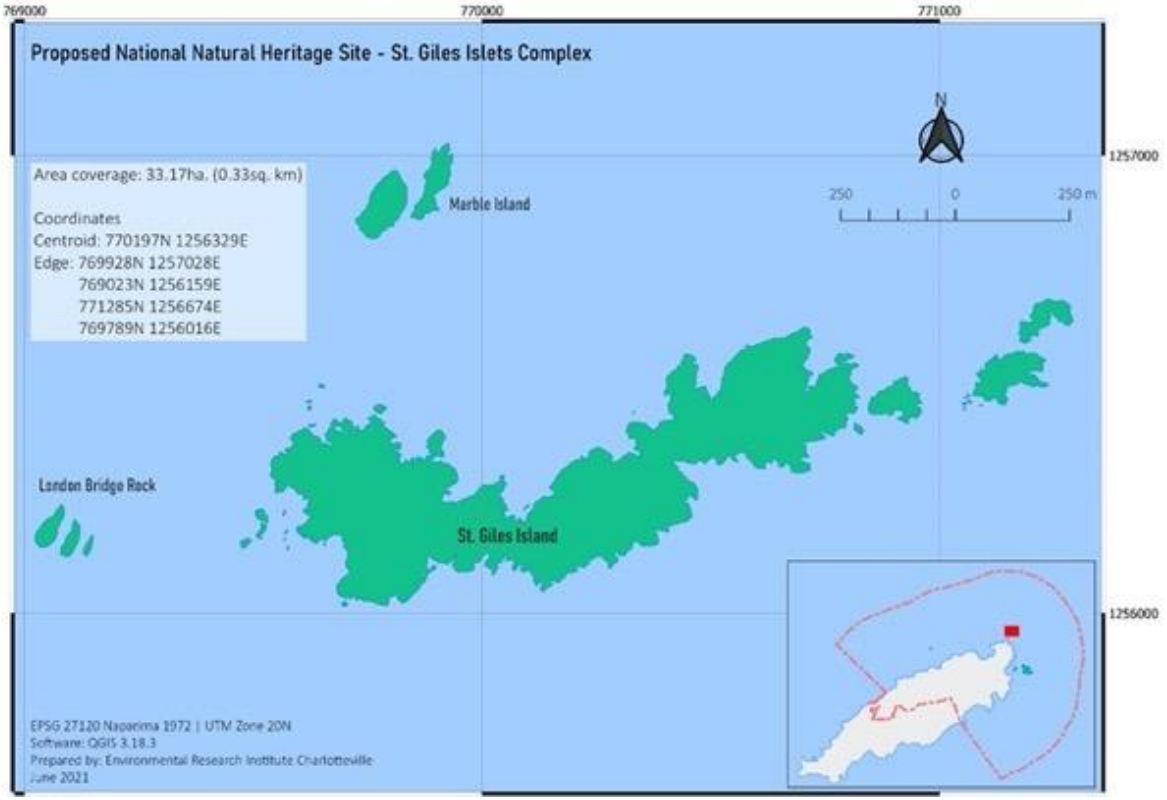


Figure Proposed Natural National Heritage Site and Coordinates - St Giles Islets Complex.

Sisters' Rocks is located approximately 2.86km off the nearest coastline of Parlatuvier at 756894N 1253649E, comprising of a cluster of five rocks Altogether, they cover an area of 33.17ha, making them the smallest islets proposed for Natural National Heritage site status.

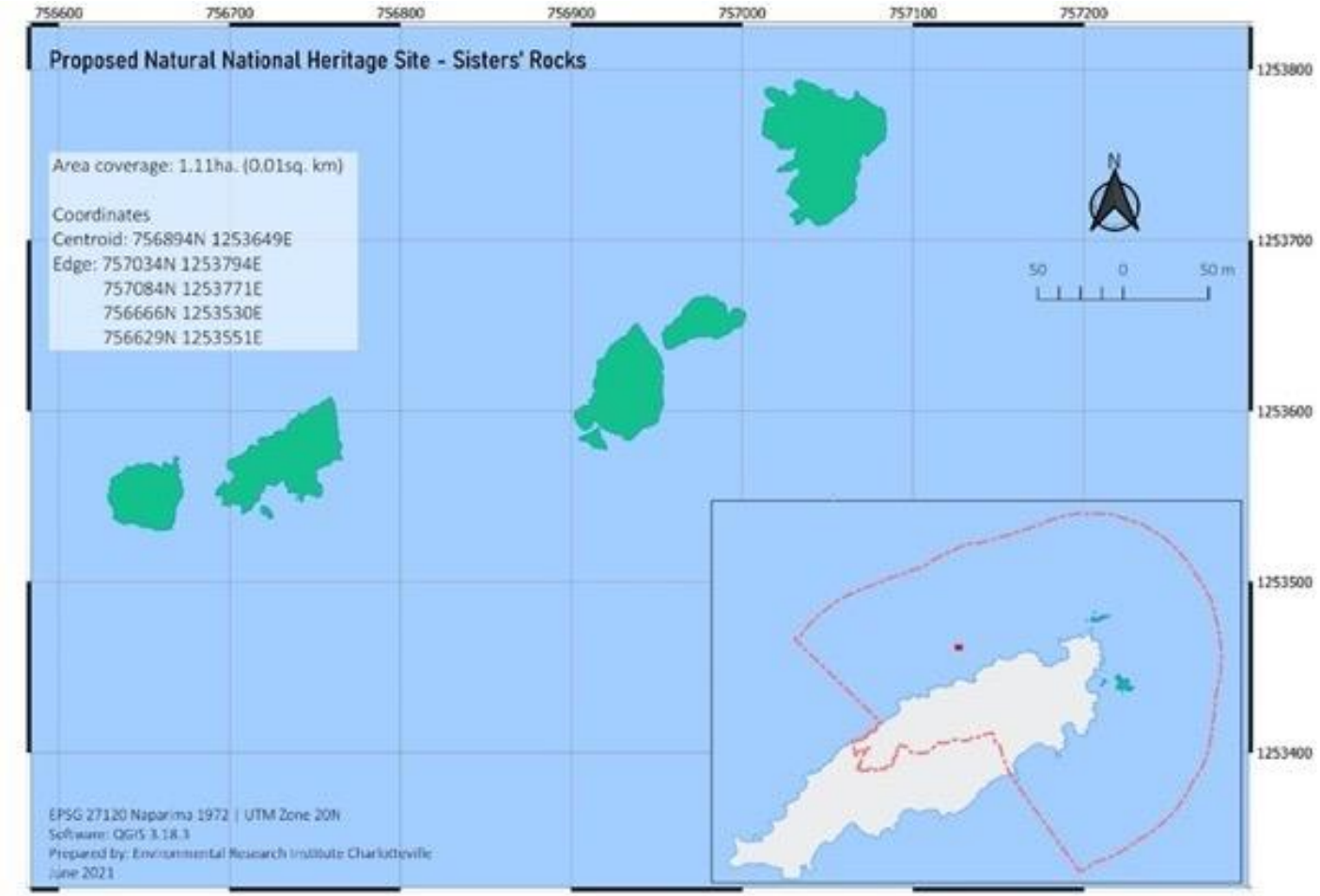


Figure Proposed Natural National Heritage Site and Coordinates - Sisters' Rocks.

Reefs

The coastal reefs of NE Tobago are the most intact reefs of Trinidad and Tobago, of impressive natural beauty, and regionally outstanding. Their significant eco-system services are undisputed; the remarkable biodiversity, ecological connectivity, and location between two biogeographic regions are of high conservation value and attract eco-tourists, divers, snorkellers, school- and university groups as well as scientists from around the globe. Demonstrably, the reefs of NE Tobago are deeply ingrained in our island's culture and the pride of every Tobagonian. Their local, national, regional and international importance for conservation is demonstrated by their inclusion in the NETMABR.

Furthermore, in August 2021, the Ministry of Planning and Development announced that Trinidad and Tobago has officially become a member of the Global Ocean Alliance and the High Ambition Coalition for Nature and People, becoming a part of a 54 country-strong alliance, which aims to protect at least 30 per cent of the global ocean in Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measures (OECMs) by 2030, known as the "30by30 target". By declaring the coastal fringe reefs of North-east Tobago, a Natural National Heritage Site, Trinidad and Tobago come closer to this pledge.

Based on the above, the coastal reefs within the NE Tobago UNESCO MAB Reserve qualify as Grade B and C of Properties of Interest under the National Trust Act of Trinidad and Tobago.

The dossier to justify the National Heritage Site status proposed that only band of reef substrate and its associated organisms extending 50m from the coastline should be considered. Transient fish species occurring in surface water were not considered.

The proposed band of NE Tobago's fringing reefs covers an area of 494.54ha and spans from Castara on the leeward side of the island, heading northeast to Charlotteville and then southwest to Belle Garden on the windward side. This area begins and ends at the borders of the proposed NE Tobago Marine Protected Area. The reef extends over a length of 98.36km of the island's coastline (including islets) and ranges from depths of less than 1m near intertidal rocky shores to approximately 50m. The proposed band for Natural National Heritage site status extends 50m from the coastline and only encompasses those nearshore areas where reefs are known to exist. Major bays in NE Tobago especially at Castara, Parlatuvier, Bloody Bay, Charlotteville, Speyside, Delaford and Roxborough are excluded as they support safe harbour for fishing vessels and are highly exposed to anthropogenic threats.

The proposed band partially overlaps with reefs recommended for elevated protected areas status within the proposed NE Tobago Marine Protected Area according to the National Protected Areas Systems Plan (NPASP). Such sites comprise of Englishman's Bay,

Sisters' Rocks, Charlotteville and Batteaux Bay. The reefs surrounding St. Giles Islets Complex, Goat Island and Little Tobago are also included (Figure). These NPASP recommended regions cover an area of 1,056.24ha of the marine environment.

Recognising that the proposed protected area excludes spear fishers who target demersal species associated with the reefs, it is further proposed that 35% of the band of reefs be opened to support spear fishers' livelihoods once they are certified and licensed by the Department of Marine Resources and Fisheries. This will cover an area of approximately 390ha.

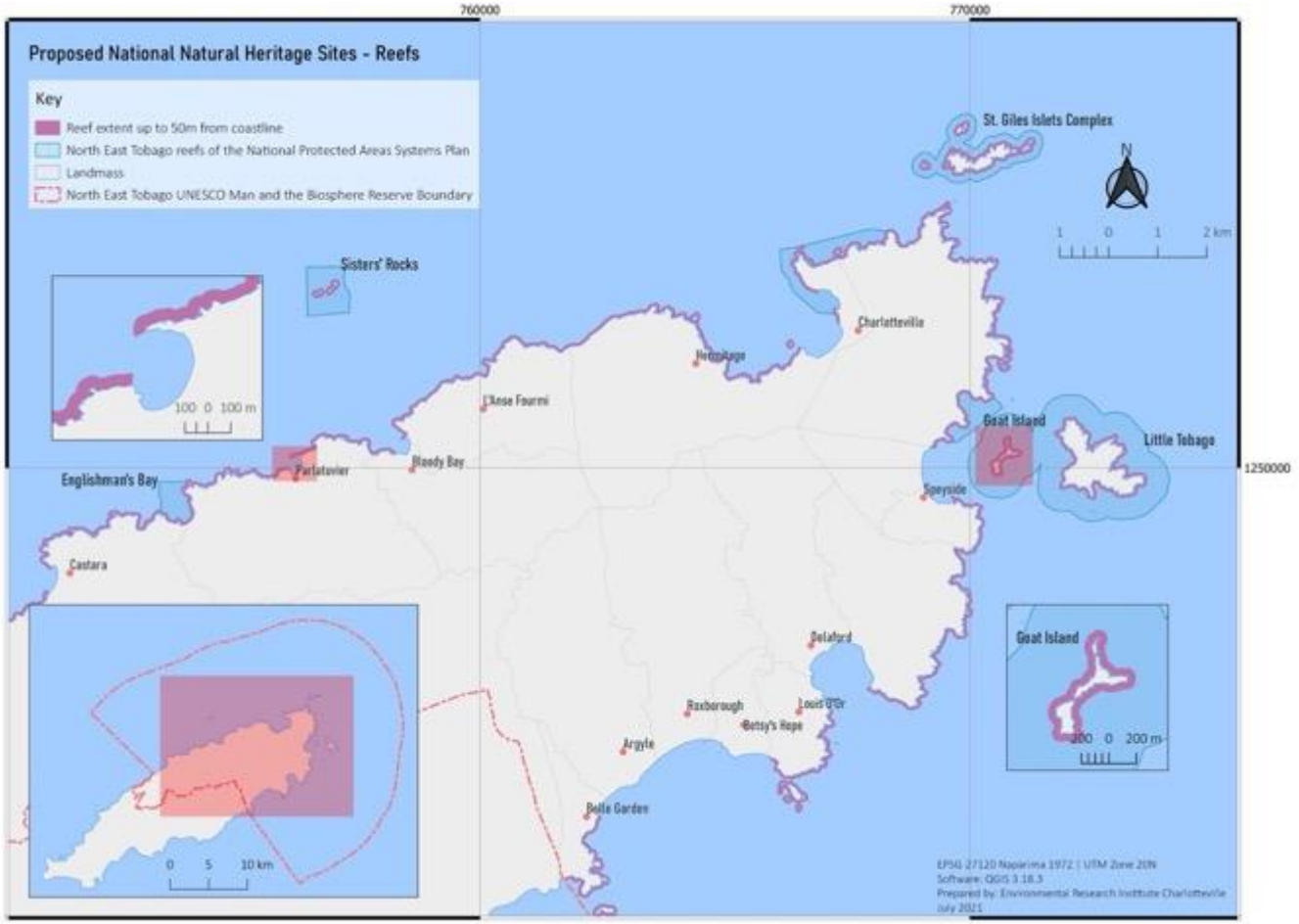


Figure Proposed NNHS - Reefs.

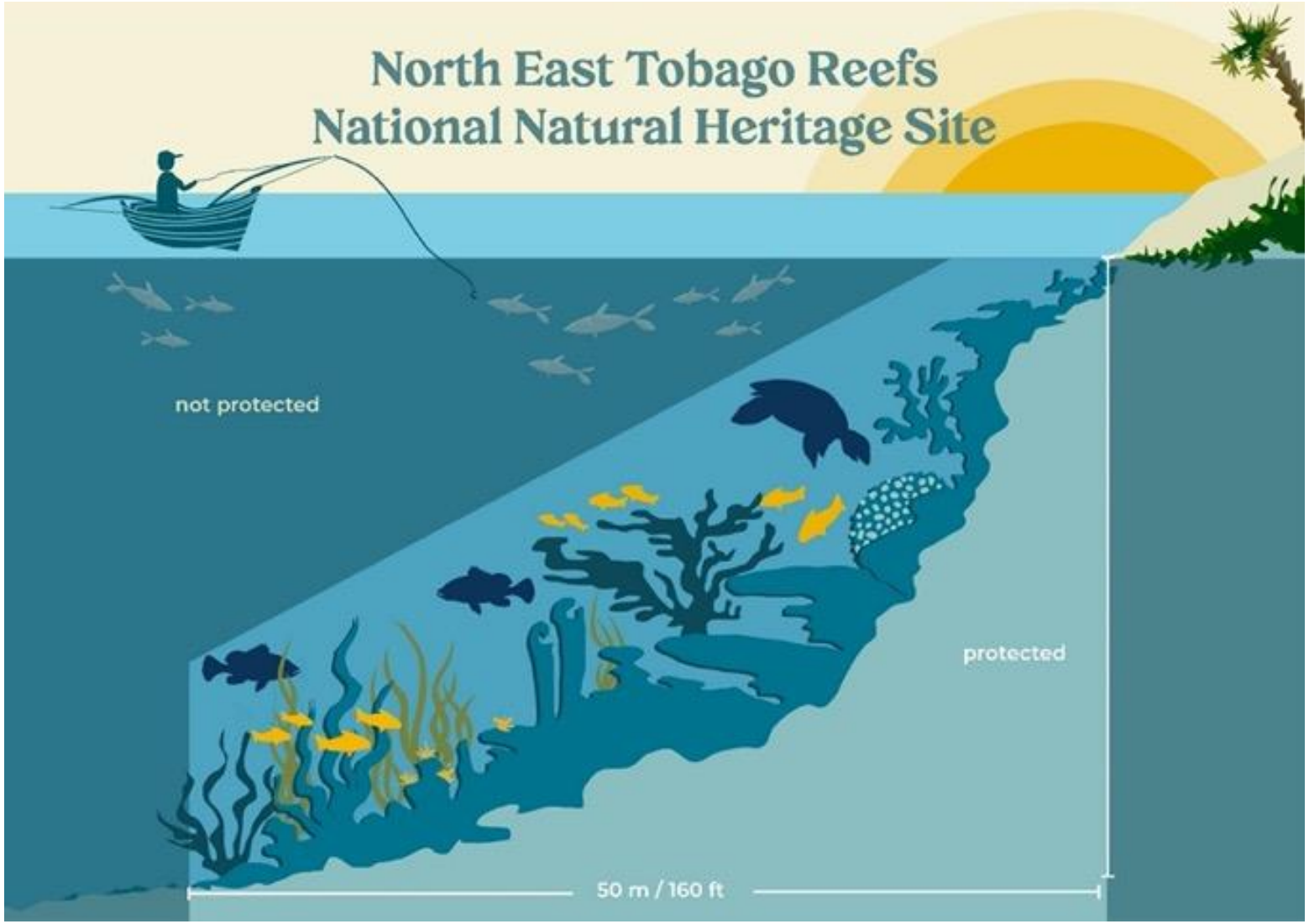


Figure Cross Section of Band of North-East Tobago Reefs Proposed as Natural National Heritage Site of Trinidad and Tobago



Figure Fringe Reef in Hermitage Bay with Arrows Demonstrating the Proposed Natural National Heritage Site

1.1.2 Cultural and Socioeconomic Background

Historical Background

Prior to the 1498 arrival of Christopher Columbus, the island of Tobago, or Aloubaéra as it was known then, was inhabited by Ariwakan and Kalinago peoples. These peoples, relatives of the natives found on the Orinoco Basin, persisted on the island undisturbed for centuries and did so even after Columbus's sighting of the island. In fact, though records are sketchy, historians suggest that they were present on the island while Dutch settlements were set up in 1632. It is believed that the natives survived, though in declining numbers until 1810 where there were only twenty left in the north coast of the island, all coming from one family. With little regard for the original occupants, Tobago is said to have changed hands over thirty times gaining notoriety as battlefield fuelled by aspirations of conquest by European powers like the British, French, Dutch, and Courlanders. Finally, in 1814 the island was rested in the hands of the British through the Treaty of Paris.

For decades, Tobago, at the hands of African slaves, was a model sugar producer. However, competition from larger and more fertile colonies like Brazil and Cuba in addition to persistent neglect and use of outdated technology along with the abolition of the slave trade and slavery (1838) all attributed



to the island's loss of profitability in the sugar trade. In 1889, following years of economic turmoil, the British made the decision to make Tobago an administrative ward of Trinidad, rooting the twin island state it is today. Following this, the island enjoyed relative prosperity as producer of cocoa, citrus, and coconut that was exported to Trinidad and neighbouring Caribbean islands; however, that all came to an untimely end in 1963 when hurricane Flora flattened the island.

Tobago's history from the almost forgotten lives of the natives, to its struggles with conquest, African slavery, and forging a new identity with Trinidad saw the island going through a process of indigenisation and creolisation making Tobago an isle described by historians as "sui generis", a society with characteristics of its own.

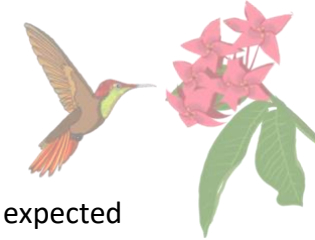
While aspects of the culture have been eroded through evolution, acculturation, and inadequate transmission, today NE Tobago represents the island's centre of cultural heritage conservation. It is important to note that given Tobago's small size, cultural practices and traditions are fairly homogeneous with little to no distinctions between villages.

Ancient structures deteriorating in the periphery of everyday life serve as a reminder of the island's colonial past. The water wheel in Speyside nestled at the base of the foreboding hills to Charlotteville hide secrets of sugar plantations past. This water wheel immortalised in countless photographs and paintings is one of the best preserved. Time worn cocoa houses, guarded by idle cacao trees, serve as pictorial evidence of fond memories shared by the venerable in society, never failing to remind the youth of a taller time when cocoa was Queen. Even Great houses in places like Kings Bay and Richmond, though threatened by the elements still stand in firm rebellion; reminiscent of the temperament of the slaves that built them. These structures buttress NE Tobago in the past and provide reinforcement for the intangible culture of Tobagonians today.

A list of historical sites can be obtained from the Tobago Heritage Conservation Society.

Cultural Background

Perhaps one of the most distinguishing features of the people is their spirituality. Christianity, a legacy imparted by European colonisers by far attracts the most patrons, undoubtedly due to the Europeans quelling of African practices. African slaves who were brought to the island were stripped of their identity; their psyche was dismembered and discarded, replaced by a Eurocentric identity. African traditional worship was rooted in animism with the idea of ancestral worship and possession was prevalent, essentially accessibility to the spirit world formed the ethos of their practices. However, slaves were forbidden from practicing their religion therefore Christianity took hold. Major Christian denominations forming part of the Tobagonians religious heritage include Moravian, Anglican and Methodists. Their legacy can be seen with the numerous churches dotting the area from the 89-year-old Methodist

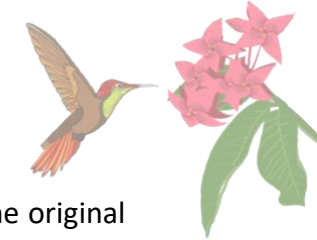


church in Roxborough to the peculiar round Anglican church in Bloody Bay.

Though the colonisers made violent attempts to chafe away the slaves' Africanness they resisted and so continued to practice elements of their religion in secret. This led to the development of syncretic practices evident in the Orisha and Spiritual Baptist traditions. Not only that but the practice of obeah and ancestral veneration today forms part of the African continuity. Obeah stems from the belief that persons are ordained with supernatural abilities and as such is an intercessor between man and the spirit world. It is believed that those who practice are gifted with third sight, healing powers and the ability to sway events in their favour. An historical example of obeah is demonstrated in the legend of Betsey, a slave master's wife on the Queen's Bay estate. It is said that the slaves were engaged in the practice of obeah and whenever they were beaten Betsey felt their pain. It is told that it was Betsey, a woman averse to slavery, hoped that slavery would be abolished thus the village's name of Betsey's hope. Even to this day despite obeah practices being shrouded in mystery, branded as devil worship, and eliciting fear and discontent in the majority, it is still an underground practice as a means of problem solving.

The nature of socialisation within the area also exhibits cultural authenticity. In West African tradition respect for the elders forms part of the moral complex of the people, this inclination has been transposed and preserved in the Tobago context. In NE Tobago, it is quite common for the young to refer to elders as ma/moms, uncle or tantie. In past years it was also expected that indiscipline portrayed by children outside of the homes and witnessed by elders to be reprimanded without repercussions from blood relatives. Furthermore, passing strangers on the street to this day without extending a timely greeting is frowned upon. These strong social bonds within the community give life to the frequently touted adage that it takes a village to raise a child.

Rituals surrounding death epitomise the unique sense of community responsibility embedded in the people. From the time of death villagers would gather at the home of the deceased to mourn with the family. This practice culminates in a formal wake the night before the funeral and continuing possibly up to nine nights beyond. This funeral tradition involves almost all in the village where men would cut wood for dirt oven fires and women would gather to bake bread and sweet bread, prepare salt fish and fry fish and make chocolate tea for the wake night proceedings. Typically, the male present at the baking would be bestowed the task of "manning the oven" During the night, a wake and bongo is kept. This ritual typically involves the reciting of prayers as well as the singing of Christian hymns with African influences. These would range from lively chanting, passionate shouting, and almost involuntary dancing to the hypnotic beats of African drums, shak shaks and other instruments. Moreover, the bongo would include limbo and other hypersexual dances. Another common sight would be men gathered playing card games. In death the



wake proceedings take on a life of its own, as though the spirit of the dead possesses those present casting dominions over all; leaving them devoid of will and subject to the volition of the activity itself. While the wake is still practiced the bongo is scarcely seen.

The harvest celebration held on various Sundays around the island is another divergent characteristic of Tobago and is closely linked to the Christian churches. The peasant communities had a day to celebrate the farming prosperity of the past year at church. On the day of the village celebration, persons would bring produce as an offering to the church where it was expected to be sold. It was not uncommon to see stacks of plantains and bananas, yams, cocoa, cane, and coconuts lining the perimeter of the church where prayers and hymns would be sung in adoration of God, thanking him for fertility. In the afternoon, cantata was held which was one of the most anticipated recreational activities. At the cantata the church choir decked in white uniforms and matching bonnet would perform harvest anthems; other villagers would also offer their talent whether it is through instrumentals, skits and monologues.

Today harvest celebrations have withstood time but not secularisation. Very few attend church services and fewer cantatas. Some villages such as Roxborough retain the original structure of morning service and afternoon cantata whereas others like Delaford and Belle Garden have been forced to merge affairs having both cantata and service in one. Further changes have been seen where individuals stay at home and prepare boastful meals and drinks for friends and strangers alike. Not only that but in many instances the feast spills over into Monday replacing the harvest dance. Despite the evolution of the harvest beyond the church, the underpinnings of thanksgiving and generosity remain.

Similarly, the fisherman festivals held to celebrate St Peter, the patron saint of fishermen, once a Christian tradition, has been retained as semblance of its former self. This celebration was isolated to Charlotteville where priests would bless the boats of the fishermen and a re-enactment of St Peter coming to shore was hosted. Eventually the celebration morphed into an all-weekend affair complete with street parties, J'ouvert, and sports day and spreading to communities like Speyside, Castara and even Delaford.

The cultural practices of North-east Tobagonians represent a society that is perched in the balance, resting in the threshold of so-called modernity and a heritage fashioned from a tumultuous past.

Folk Tales

Like the spirits in the Main Ridge Forest Reserve living in the holes of the roots of the very big trees, culture is everywhere even though it is not always seen. Folk stories about the Main Ridge Forest Reserve are experiences with the forest shared from generation to generation. If you desire a spirit's help, you should bring a silver coin and a sealed bottle of rum. You sacrifice the coin to the spirits by putting it next to the roots of the trees. You ask for what you desire and meanwhile you open the bottle of rum. For every sip you take, you should poor a sip to the roots of the tree. You share the bottle with the spirits and talk with them until the bottle is empty.

Back in times, the road through the Main Ridge Forest Reserve was originally a well-worn hunting trail; the communities along the coast used to travel by boat around the island to buy and sell their goods. When the hunting trail was developed into a more passable road, most of it by hand, the new road steered around the big and old trees honouring their cultural heritage and linkages.

Hunters in the Main Ridge Forest Reserve sometimes saw their dogs chasing phantoms they could not see. The legend told is that the dogs were chasing the forest spirits that wanted to lie down where the hunting people were resting, possibly in expectation of rum sacrifices. Another spirit, the Garby, turns the chase around. It defends the forest and allures the hunting hounds to run into unknown territory, never to be seen again. The springs and the rivers are believed to have certain powers against evil spirits. The well-known Silk Cotton Tree is one everyone should treat with respect: if you harm the tree, the folklore holds that you will suffer an unfortunate fate.



Figure Silk cotton tree in Betsy's Hope



In 1963, Hurricane Flora caused massive forest devastation and the subsequent change from an agricultural-based to a hydrocarbon-based economy in the early 1970s led to an almost total decline in agriculture and the abandonment of vast areas with larger estates and smaller farms. Today, the MRFR, as Core Zone, is mainly ecologically intact and the surrounding private and public properties (Buffer Zone), are barely economically used. This is mainly due to the deterioration of agricultural access roads and predominant steep slopes which are making the area difficult to access and mechanisation impractical; however, this condition also provides a certain level of protection from intrusion.
The planned MPA, currently a Buffer Zone, is only used for artisanal fishing and recreational activities. There are no commercial ports or major shipping routes within its boundaries. However, it should be mentioned that this marine Buffer Zone is bordered by large areas where extraction of natural gas is occurring. This landscape, with a low population density, lack of large infrastructure, and the absence of major economic interests is an ideal prerequisite for the long-term conservation of the natural diversity of NE Tobago.

Socio-economic Background

Unfortunately, there is a significant socio-economic data deficiency for NE Tobago; additionally, the latest census data (published 2011) seem highly questionable.
The society is relatively young; young males are more vulnerable to social risks, while young females often achieve higher educational levels, which in itself causes inter-gender issues.
The pre-school system is underdeveloped and causes complaints by concerned parents.
Free primary and secondary education is available to all children; however, requires modernisation in infrastructure and pedagogy. While there are no tertiary or vocational learning institutions within the NETMABR, students can access those in south Tobago. Brain drain is a major issue, as many students seek education, and later, employment elsewhere.
The social welfare system covers the basic needs; however, is difficult to access for highly vulnerable persons.
There are three gas stations, three police stations, two health centres, two secondary and 12 primary schools, two libraries, one fire station, a newly constructed administrative complex, and seven community centres/multipurpose facilities.
The THA is the main employer (approx. 60%), especially through unemployment relief programmes as well as administrative and governmental services. Other relevant economic activities are fishing, vending, construction, repair services, gastronomy, agriculture, and tourism, all on a relatively small scale.



However, in order to understand the scale of the following, rough order of magnitude (ROM-25%/+75%), estimates can be made:
Income from **tourism**, based on room stock data and assumptions on average daily spending of visitors can be estimated at ~ 3,600,000 USD / year (pre-Covid).
The attractions within the proposed NETMABR appealing to international travellers are mostly nature-based, ranging from beautiful beaches, ridge to reef scenery, forest and marine biodiversity in combination with the experience of life in small Caribbean fishing villages.
Other attractions, such as cultural festivals and sport events, are targeting a more local and national clientele.
The main accommodation providers are small guest houses, privately-owned villas, and three small hotels with up to 25 rooms; three villages are the focal points for tourism:

- **Castara**: famous for its community-based tourism product and sustainability efforts;
- **Charlotteville**: the environmental science and educational tourism hotspot in Trinidad and Tobago; and
- **Speyside**: internationally renowned for diving at Goat Island and Little Tobago.

Income from **fishing,** can be based on an average fisherman/boat income of 1,800 USD / month and 180 active boats: ~ 3,900.000 USD / year in the NETMABR. The vast majority of fishing activities within a 11.1 (6nm) radius (Buffer Zone) around NE Tobago (which is the area managed by the DMRF (THA)), can be described as follows:

- artisanal fishing carried out by one-engine, 5m to 8m pirogues. On rare occasions small long-line fishing vessels (up to 15m) would visit the shore to collect ice and bait; those would start fishing within the future Buffer Zone on their way to the open ocean. Their home ports are in south-west Tobago (2 vessels) or Trinidad;
- there are seven fish landing sites with approximately 180 individually owned and operated boats;
- main targeted fish species include tunas, mackerels, mahi mahi, snappers, barracudas, and groupers. Sharks, rays, and marine mammals are not (yet) targeted. Lobster and (to a much lesser extent) queen conch are the only targeted invertebrates;
- due to over-exploitation of near shore reefs over the past decades, most fishing is conducted further out at sea (1km to 30km) either by pulling a single hook hand line or banking;
- the main near shore fishing is pot-fishing;
- net fishing is rare and only used for bait, beach seining, and when larger schools of mackerels reach the shore once or twice a year to spawn;



- less than five fishermen are using fillet nets tied on shore; monofilament nets are illegal. Fishing with dynamite or poison is not practised; and
- artisanal fishing in NE Tobago can be seen as a high-risk activity, many boats only have one engine, many fisherfolk are not able to swim and do not take professional care in preparation of emergency situations; it is an activity open to females, but mainly carried out by men.

Outside of the planned NETMABR, mainly in the Atlantic Ocean to the east, larger, international long-line vessels are fishing legally and illegally. It is highly likely that these activities have led to a significant reduction of the shark, mahi-mahi, and swordfish populations over the last 20 years. Catches from such vessels are off-loaded in Trinidad or other international ports.

Unsustainable fishing practises occur mainly due to the lack of gear-, size-, seasonal- or area- restrictions. Such practises include the few fillet nets, pot-fishing with a too small mesh diameter and pot ghost fishing, and SCUBA spear fishing (mainly by tourists from Trinidad and on an irregular small scale). Over the past 10 years the extraction of parrotfishes by free-dive spear-fishers has increased (especially during the pandemic). While significant amounts of lobster have been exported in the 90ties, lobster is now relatively rare and expensive as a result export has fully collapsed.
Detailed baseline data regarding agricultural activities are not available. Similar estimates, as those for the tourism and fisheries sector above, cannot be made since the activities are too diverse.
However, it can be stated that agricultural activities in the NETMABR are on a very small scale, almost exclusively situated within the Transition Area, and can be described as follows:

- the two largest farms (at Lois D'or and Kendall) are state farms, operated by the Department of Agriculture, each covering between 15 to 20ha;
- there is one operational, 100% organic certified (from the US Department of Agriculture), cocoa estate in Roxborough with approximately 10 ha under crop;
- small holdings between 0.5 to 5ha cover a total of 25 – 40ha spread throughout the area;
- 400 – 500 sheep and goats are reared in groups of 5 – 10 by single owners, mainly tied in the open at the side of roads;
- 75 – 100 cattle are reared in small groups, mainly tied in the open in the vicinity of roads;
- some individual households rear chicken for personal use;
- between 10 – 15 small pig farms with 5 – 10 pigs each;
- less than 5 small bee – keepers;

- the main short crops are corn, starchy root tubers, tomatoes, aubergine, ochro, peas, pak choi; and
- long term and tree crops include various types of bananas, citrus (in orchards) as well as mango, avocado, breadfruit and plums which are planted in residential areas or home gardens for private use and rarely on the market.

Agriculture is perceived by many persons as an unattractive, hard labour occupation, and is not able to attract youth or a larger scale.
There is strong competition with produce imported from Trinidad where production costs are lower and many persons prefer internationally imported fruits such as apples, grapes, pears and even bananas are imported from other Caribbean islands.
All of the above contributes to the situation, that the few remaining farmers are mostly male and above 50 years of age.



Figure Agricultural activity in NE Tobago (UNESCO / Jacob Bock)