Evaluation of Viability for UNESCO Recognition of Natural Heritage in North East Tobago

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Contents

Abbreviations

AHNP	**A**lejandro de **H**umboldt **N**ational **P**ark
BBRRS	**B**elize **B**arrier **R**eef **R**eserve **S**ystem
BJCM	**B**lue and **J**ohn **C**row **M**ountains
BR	**B**iosphere **R**eserve
CBD	**C**onvention on **B**iological **D**iversity
CBO	**C**ommunity **B**ased **O**rganisation
CI	**C**onservation **I**nternational
CITES	**C**onvention on **I**nternational **T**rade in **E**ndangered **S**pecies
CMS	**C**onvention on **M**igratory **S**pecies
CP	**C**ommunication **P**lan
CSNR	**C**entral **S**uriname **N**ature **R**eserve
CSO	**C**ivil **S**ociety **O**rganisation
DE	**D**epartment of the **E**nvironment
DGNP	**D**esembarco del **G**ranma **N**ational **P**ark
DIQE	**D**ivision of **I**nfrastructure**, Q**uarries and the **E**nvironment
EBSAs	**E**cologically or **B**iologically **S**ignificant **M**arine **A**reas
EDGE	**E**volutionarily **D**istinct and **G**lobally **E**ndangered
ERIC	**E**nvironmental **R**esearch **I**nstitute **C**harlotteville
ESA	**E**nvironmental **S**ensitive **A**rea
ESS	**E**nvironmental **S**ensitive **S**pecies
FAO	**F**ood and **A**gricultural **O**rganisation of the United Nations
GoRTT	**Go**vernment of the **R**epublic of **T**rinidad and **T**obago
GEF	**G**lobal **E**nvironmental **F**acility
IBAs	**I**mportant **B**ird and **B**iodiversity **A**reas
IFPAM	**I**mproved **F**orest and **P**rotected **A**rea **M**anagement Project
IUCN	**I**nternational **U**nion for the **C**onservation of **N**ature
KBAs	**K**ey **B**iodiversity **A**reas
MAB	UNESCO **M**an **a**nd the **B**iosphere Programme
MPA	**M**arine **P**rotected **A**rea
MRFR	**M**ain **R**idge **F**orest **R**eserve
NCUNESCOTT	**N**ational **C**ommission for **UNESCO** in **T**rinidad **a**nd **T**obago
NE Tobago	**N**orth**e**ast **T**obago
NETPAMT	**N**orth**e**ast **T**obago **P**rotected **A**rea **M**anagement **T**rust
NETIPAMTB	**N**orth**e**ast **T**obago **I**nterim **P**rotected **A**rea **M**anagement **T**rust **B**oard
NPAP	**N**ational **P**rotected **A**rea Systems **P**lan
NTTT	**N**ational **T**rust **of T**rinidad and **T**obago
NGO	**N**on-**G**overnmental **O**rganisation / Not-for-Profit Organisation (or Company)
OUV	**O**utstanding **U**niversal **V**alue
PA	**P**rotected **A**rea
QCC	**Q**ueen **C**ommonwealth **C**anopy
SEP	**S**takeholder **E**ngagement **P**lan

SSC	**S**pecies **S**urvival **C**ommission
TWT	**T**echnical **W**riting **T**eam
THA	**T**obago **H**ouse **of A**ssembly
SGP	**S**mall **G**rants **P**rogramme
UNEP	**U**nited **N**ations **E**nvironment **P**rogramme
UNDP	**U**nited **N**ations **D**evelopment **P**rogramme
UNESCO	**U**nited Nations **E**ducational, **S**cientific and **C**ultural **O**rganization
UWI	The **U**niversity of the **W**est **I**ndies
WCHC	**W**orld **C**onservation **M**onitoring **C**entre
WH	**W**orld **H**eritage
WHC	**W**orld **H**eritage **C**onvention / **W**orld **H**eritage **C**entre
WHS	**W**orld **H**eritage **S**ite
nWHS	**n**atural **W**orld **H**eritage **S**ite
WNBR	**W**orld **N**etwork of **B**iosphere **R**eserves
WP	**W**ork **P**lan
WWF	**W**orld **W**ildlife **F**und

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1. Executive Summary

1.1 Key Points

1. This document provides guidance regarding the selection of the most appropriate, desirable, acceptable and achievable form of UNESCO recognition for North-East (NE) Tobago's Natural Heritage which would simultaneously benefit conservation and sustainable development.
    a. The two forms of recognition considered are the UNESCO World Heritage List and the UNESCO Man and the Biosphere Reserve.
2. The UNESCO World Heritage Convention is the most important tool created by the international community of nations to protect the world's most significant cultural and natural heritage.
3. The UNESCO Man and the Biosphere (MAB) Programme aims to increasing people's ability to efficiently manage natural resources for the well-being of both human populations and the environment.
4. Therefore, the UNESCO MAB Programme fits the original purpose of seeking international UNESCO recognition better that a World Heritage Site designation.
5. NE Tobago is a rare and relatively intact Caribbean island ridge-to-ocean ecosystem boasting remarkable and accessible biodiversity and connectivity, while featuring species of two neighbouring biogeographical regions. It is clearly Trinidad & Tobago's most iconic conservation landscape.
6. However, a regional gap and comparative analysis referring to other UNESCO World Heritage Sites as well as key expert interviews indicate that there is currently no scientific evidence that NE Tobago possesses the global significance and highest level of Outstanding Universal Values to meet the criteria required by the UNESCO World Heritage Convention.
7. The criteria for a UNESCO Man and the Biosphere designation are more achievable and realistic for NE Tobago and do not necessarily require changes in local legislation.
8. Sustainable development of NE Tobago communities would be an integral part of a MAB programme which reduces the risk of stakeholder conflict.
9. There is significant data deficiency regarding NE Tobago natural heritage and further, focused research might reveal scientific justification for listing as a UNESCO World Heritage Site at a later stage.
10. Recommendations:
    a. Continue to pursue UNESCO MAB nomination for NE Tobago.
    b. Establishment of supporting factors such as the North East Tobago Management Trust, declaration of Natural National Heritage Sites and improved conservation regulations before the submission of the MAB application in September 2019.

1.2 Summary

In early 2018, the Division of Infrastructure, Quarries and the Environment (DIQE) of the Tobago House of Assembly (THA) contracted the Environmental Research Institute Charlotteville (ERIC) to execute a project titled "Undertake Technical Research, Writing and Project Management for Development of a UNESCO Nomination File for North East (NE) Tobago".

This assignment included the "Evaluation of Viability for UNESCO Recognition of Natural Heritage in North East Tobago", which is presented in the document at hand.

The main purpose of this evaluation is to provide guidance to the Tobago House of Assembly and other key stakeholders regarding the selection of the most appropriate, desirable, acceptable and achievable form of recognition for NE Tobago's Natural Heritage simultaneously benefitting conservation and sustainable development.

In order to manage time and resources this evaluation focused on the most critical elements of the UNESCO nomination requirements to allow for informed decision making. Therefore, the method included the following elements:

- Description of NE Tobago's Natural Heritage (Chapter 2),
- Conservation Threats and Opportunities (Chapter 3),
- Currently Pursued Recognitions of NE Tobago's Natural Heritage (Chapter 4),
- Regional Gap Analysis of Natural Heritage Values (Chapter 5),
- Regional Comparative Analysis of Natural Heritage Values (Chapter 5),
- Key Expert Interviews and Evaluation (Chapter 6), and
- An Evaluation of Man and the Biosphere versus World Heritage Site for NE Tobago (Chapter 7).

1.2.1 Key Findings

NE Tobago's Natural Heritage

Influenced by the neighbouring Antillean and South American regions, North-East Tobago is Trinidad & Tobago's most iconic conservation landscape.

Once integrated through a common designation, NE Tobago will be a rare example of a relatively intact Caribbean Island Ridge-to-Ocean ecosystem of approximately 80,000ha that includes the world's oldest tropical rainforest reserve (nominated as a Queens Commonwealth Canopy Site), two wildlife sanctuaries (Little Tobago and St. Giles Island), tropical moist and dry broad leaf forests, several candidate, natural National Heritage Sites, an anticipated marine protected area of coral-sponge co-dominated reefs and open ocean, nine small wetlands, eight islets, and three internationally acknowledged Important Bird Areas (Main Ridge Forest Reserve, St. Giles and Little Tobago).

It crosses five, closely connected ecosystems and is home to plants and animals of high conservation value including 71 IUCN at risk species, 38 endemic species, 9 EDGE species, 51 international migratory species and 69 CITES species. These include hawksbill sea turtles, the Eastern Glass Frog, manta rays, hammerhead sharks, the Tobago Greenlet, the White-tailed Sabrewing and the largest reported brain-coral colony in the Caribbean.

The recognition and accessibility of NE Tobago's outstanding natural history is demonstrated by over 17 local and international academic institutions that regularly conduct expeditions and research.
The terrestrial area is a mix of public lands both protected and unprotected, private lands, and local communities (13 villages with approx. 10,000 persons) which depend on this iconic landscape and stand to benefit substantially from its conservation and associated sustainable development opportunities. The marine area, which is by far the larger component, reaches from the coastline to 11.1km seawards and is managed by the Tobago House of Assembly.

Conservation Threats and Opportunities

The relatively low human population density, the high percentage of larger unused private estates, and its remoteness to industrial / commercial areas have provided a significant level of protection for NE Tobago's natural heritage in the past decades resulting in relatively intact and connected ecosystems. However, seven major conservation threats have been identified by various stakeholders and key experts:

- private (often unregulated) and public infrastructural development are not adhering to recommended environmental practices,
- valuable marine and natural resources are over-exploited and/or harvested illegally,
- solid and liquid waste are partly disposed of inadequately and/or illegally,
- community-based stakeholders have been disempowered in the past and not been able to contribute to sustainable management of natural resources,
- potential of ecosystem fragmentation through roads, utility corridors, unplanned tourism development and freshwater pollution,
- invasive species such as bamboo, lionfish and *Sargassum* seaweed, and
- climate change manifested by changes in long term, seasonal weather patterns, changes in biorhythms and coastal erosion.

Governmental and non-governmental stakeholders are currently collaborating to address these threats on all levels, from ecosystem monitoring to policy-making with various degrees of success. The intended, future, enhanced recognition of NE Tobago's natural heritage will be of significant support for these efforts.
It can be stated that the current conservation opportunities for NE Tobago have not been better since decades. The following windows have significantly opened:

- partnerships between the governmental (especially THA) and non-governmental sectors regarding conservation and the sustainable improvement of livelihoods are currently being fostered and are likely to reach policy level by 2020;
- civil society organisations, active in conservation and sustainable livelihoods, are present in NE Tobago and slowly but steadily improving their capacity to participate in the management of natural resources;

- future international recognition of NE Tobago's natural heritage, the presence of substantial private sector funding, access to a National Environmental Fund (the Green Fund), and significant potential for responsible tourism and sustainable agricultural development provide justified hope for sustained, long term financing opportunities;
- some of the private landowners, which control significant and ecologically important areas, have expressed interest in joining conservation efforts through easements or similar arrangements;
- academic and citizen science models for ecosystem health monitoring are increasingly developed and implemented; and
- all schools are reached by governmental and non-governmental educational conservation communication.

Currently Pursued Recognitions of NE Tobago's Natural Heritage

Three forms of improved recognition for NE Tobago's natural heritage are currently explored:

- National Natural Heritage Sites
- UNESCO Man and the Biosphere Reserve
- UNESCO World Heritage Site

Natural National Heritage Sites

Many attributes and locations of NE Tobago's natural heritage are of impressive natural beauty and / or national, historic, scientific, conservation or archaeological interest and can therefore be recognised as Natural National Heritage Sites which are protected under the National Trust of Trinidad and Tobago Act 1991.The organisation mandated to list and manage National Heritage Sites in Trinidad and Tobago is the National Trust of Trinidad and Tobago (NTTT). The NTTT has a special interest to secure additional international recognition for National Heritage Sites e.g. via UNESCO and has established relationships with the UNESCO Commission to Trinidad and Tobago to further this agenda. The acknowledgement of a Natural National Heritage Site is as well an important milestone towards achieving international recognition e.g. UNESCO.

Consequently, the NTTT started the process in early 2018 of listing the Main Ridge Forest Reserve as a Natural National Heritage Site and prepared a list of other potential sites including the St. Giles Islet Complex and Little Tobago.

The NTTT and the interim board of the proposed North-East Tobago Protected Area Management Trust (NETPAMT) are currently exploring options for collaborative agreements regarding management and funding.

UNESCO Man and the Biosphere Reserve (MAB)

MAB is an intergovernmental programme that aims to establish a basis for the improvement of relationships between people and their environments. It predicts the consequences of today's actions

on tomorrow's world and thereby increases people's ability to efficiently manage natural resources for the well-being of both human populations and the environment (UNESCO MAB, 2017).

The working unit of MAB is the Biosphere Reserve (BR), an international description of recognition from UNESCO for an area, which is deemed to demonstrate a "*balanced relationship between humans and the biosphere*".

Biosphere Reserves are internationally recognised areas comprising terrestrial, marine and coastal ecosystems and have three inter–connected functions:

- conservation,
- development, and
- logistic support.

A BR consists of three areas or zones: core, buffer and transition.

The *core zone* would usually be a protected area in which human activity is limited and where monitoring of conservation priorities would take place.

The *buffer zone* allows for appropriate activities such as research and scientific study, ecotourism, sustainable agriculture, education and training.

The *transition zone* contains human settlements, regular agricultural and other commercial activities which over time improve sustainability.

The global MAB site list is significant, demonstrating the value that many nation states place upon the designation. However, there are only two sites within the insular Caribbean (St Kitts & Guadeloupe).

The insular Caribbean is therefore significantly MAB under-represented which offers stakeholders in NE Tobago the opportunity to use a MAB designation as a branding and promotional tool for sustainable/responsible/eco-tourism development that can be utilised at various levels from the THA and NETPAMT to individual communities and private enterprises, to drive visitation from niche tourism sectors to NE Tobago.

Importantly, designation as a MAB Reserve does not necessarily require the formation of new laws.

As a first step to nominate any MAB site in Trinidad and Tobago, the Environmental Management Authority (2010) drafted a note to Cabinet titled: "*Establishment of a National Committee on the UNESCO Man and the Biosphere (MAB) Programme*" outlining the benefits, alignment with governmental policy and requirements to establish the committee.

The MAB application process is non-competitive in nature, as it does not require the nominated site to demonstrate being the globally most superlative example of any ecosystem or habitat.

The MAB application is still a sizeable undertaking that has at its core the description of 13 eligibility criteria required to qualify as a Biosphere Reserve. These criteria relate to the site's ecological health, biodiversity, size, ability to demonstrate sustainable development, zoning, and management.

This evaluation found that NE Tobago is very close to meeting all of the required criteria.

UNESCO World Heritage Site

The World Heritage Convention is the most important international tool created by the international community of nations to protect the world's most important cultural and natural heritage. World Heritage Sites (WHS) are cultural and/or natural sites considered globally unique. Achieving World Heritage Site status is by definition globally competitive, time intensive and requires significant commitment by the State Party in terms of human resource and finance to be made available, with the knowledge that successful inscription is not guaranteed.

Many WHS are iconic locations, the "global rock stars of natural and cultural heritage". This might suggest that WHS designation would offer a boost for attracting tourists and thereby enhance the economy for an inscribed site. Academic research, however, suggests that on average the tourism footfall impact of the designation is unlikely to exceed 0-3%. Only, those sites that allocated additional, sufficient financial resources to drive promotion can derive more significant economic benefits from attracting high value cultural visitors.

To be included on the World Heritage List, sites must demonstrate Outstanding Universal Value (OUV) which is considered to transcend national boundaries, be one of the most remarkable places on earth and irreplaceable.

In 2011, the Government of Trinidad and Tobago, put the Main Ridge Forest Reserve on the UNESCO Tentative List for WHS nomination citing Criteria V, VI, VII, IX and X.

In 2018, key experts agreed that only two (IX and X) of these five criteria were deemed as having any potential to justify OUV for NE Tobago, namely the following criteria:

> (ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
>
> (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Further assessment by UNESCO will place equal weight on additional aspects: integrity, authenticity (for cultural sites only) and the highest international standards of protection, care and management.

In the case of NE Tobago, this means that the site must contain all relevant ecological elements needed to maintain the values for which it has been listed, is large enough to include the key features of OUV, remain viable over time, is in a good state of conservation, must have adequate legal, internationally acceptable levels of protection, and a robust management system to ensure it is safeguarded.

This evaluation found that there is currently no scientific evidence that NE Tobago meets criteria IX and X, and applies the highest international standards of protection, care and management.

Regional Gap Analysis of Natural Heritage Values

The initial gap analysis aims to clarify the extent to which the ecological features that are typical for NE Tobago are already represented in other existing or potential WHSs.

Therefore, underrepresentation of substantial NE Tobago biodiversity values on the WHS list would justify a special status and urgency of protection and thus support a WHS nomination.
However, if similar features are already represented by other WHSs or are not substantial, a successful nomination would be unlikely, since other sites with underrepresented features would be given conservation and WHS nomination priority.
The gap analysis focused on the forest and marine ecosystems.
The substantial and dominant forest type in NE Tobago, biogeographically classified as tropical moist broadleaf forest, is well represented by existing WHS and has not been recommended for nomination by the International Union for the Conservation of Nature (IUCN). A clear priority for WHS nomination of similar forest ecosystem types is given to large areas of Coastal Venezuela Montane Forests which are biogeographically closest to NE Tobago.
Biogeographically, the proposed North East Tobago Marine Protected Area (NETMPA) falls within the Eastern Caribbean Eco Region which is part of the Tropical North-western Atlantic province. In global comparison to other provinces, the Tropical North-western Atlantic and coral reef ecosystems in general are well represented on the WHS list and not considered of highest priority. However, increased scientific research might assist in identifying marine OUVs for NE Tobago in the future.

Regional Comparative Analysis of Natural Heritage Values

A comparison of natural heritage values related to UNESCO criteria IX and X of eight terrestrial and four marine UNESCO WHS, all located in comparable, regional biogeographic regions were used for this initial analysis.
Based on the available, notably deficient data, it can be stated that the four analysed marine WHS in NE Tobago's eco-region seem to sufficiently represent all significant marine natural heritage values that are currently described for NE Tobago. However, marine natural heritage value differences based on the biogeographic location of NE Tobago and likely expressed by sponge-coral co-dominated reefs need to be further researched to determine possible OUVs.
Data found for eight different terrestrial WHSs is often lacking specific information. However, from the provided information it can be stated that NE Tobago does not have an OUV regarding endemic terrestrial or fresh water species. Also, the number of endemic plant species is not outstanding compared to these WHSs. NE Tobago ecosystem diversity is smaller or comparable. The only remarkable difference is that species from both, the South American continent and the Caribbean region, are simultaneously present in NE Tobago which is not the case for the other sites. However, such overlapping species are also well represented in the original areas (except for the few endemic species) and have therefore no present, scientifically documented OUV in NE Tobago. Further studies might reveal that the interaction of these species is unique to NE Tobago and might present OUV.

Key Expert Interviews and Evaluation

22 key experts were interviewed to gather expertise on substantiated information and opinion that could support the recognition of NE Tobago's natural and cultural heritage; nationally as National Heritage and internationally as a UNESCO World Heritage Site (WHS) and/or UNESCO Man and the Biosphere Reserve (MAB). The selected key experts represented relevant governmental agencies, the Food and Agricultural Organisation of the United Nations, academia, civil society, and statutory bodies. The majority of the key experts were of the opinion that UNESCO WHS OUV strength for NE Tobago is low to medium at best, while a UNESCO MAB nomination is favourable considering the level of documented natural and cultural heritage, stakeholder expectations, risk of conflict and management arrangements.

Evaluation of Man and the Biosphere Reserve versus World Heritage Site for NE Tobago

It is the understanding of the ERIC technical team, that an international recognition of NE Tobago's natural heritage through UNESCO is pursued by the THA and other key stakeholders to support:

A. the health of NE Tobago natural heritage and resources which provide essential ecosystem services for this and future generations, and
B. sustainable livelihoods and wellbeing in NE Tobago communities economically, educationally, and culturally.

For this purpose, MAB seems to be the more natural fit for NE Tobago, placing emphasis on the future state of a natural site focusing simultaneously on conservation and sustainable livelihoods.

The criteria for MAB designation seem to be much more achievable and realistic for NE Tobago; furthermore, MAB is non-competitive and does not require changes in local legislation to enact. The Ibero-American MAB Network, is actively seeking new MAB nominations from the insular Caribbean; therefore, there is institutional support for a MAB nomination for NE Tobago.

The structure and design of a MAB site includes zones that will allow for a high flexibility regarding the needs of all involved communities.

The context of NE Tobago's village communities seeking sustainable development strategies around marine and terrestrial ecotourism and niche agricultural products is an ideal fit for MAB to facilitate within a suitable management framework. While on the other hand, WHS would inherently result in higher restrictions and less focus on sustainable community development and mutually beneficial interaction with the natural resources and therefore the risk for social conflict is higher for WHS.

Due to the scientific research focus of MAB there is an opportunity to further build the already existing the science / eco-tourism niche of NE Tobago. The area has been visited by academics for decades in an ad hoc manner. MAB designation offers the opportunity to formalise this linkage and develop it further.

1.2.2 Key Recommendations

- Establishment of the National Committee on the UNESCO Man and the Biosphere (MAB) Programme;
- Initiation of formal communication with the UNESCO MAB Secretariat;

- Revision and implementation of the UNESCO Nomination Communication Plan developed in 2018;
- Community stakeholder consultations (February – March 2019);
- Creation of a NE Tobago Man and the Biosphere Reserve map indicating zones;
- Development of a NE Tobago Man and the Biosphere Reserve management plan;
- Establishment of the North East Tobago Protected Area Management Trust;
- Establishment of Natural National Heritage Sites in NE Tobago.
- Drafting MAB application (April – August 2019);
- Submission of draft MAB application (September 2019).

2. Description of NE Tobago Natural Heritage

Once integrated through a common designation, NE Tobago will be a rare example of a relatively intact Caribbean Island Ridge-to-Ocean ecosystem of approximately 80,000ha that includes the world's oldest tropical rainforest reserve (nominated as a Queens Commonwealth Canopy Site), two wildlife sanctuaries (Little Tobago and St. Giles Island), tropical moist and dry broad leaf forests, several candidate, natural National Heritage Sites, an anticipated marine protected area of coral-sponge co-dominated reefs and open ocean, nine small wetlands, eight islets, and three internationally acknowledged Important Bird Areas (Main Ridge Forest Reserve, St. Giles and Little Tobago).

It crosses five (5) ecosystems and is home to globally unique and endangered plants and animals including 72 IUCN at risk species, 37 endemic species, 12 EDGE criteria species, 52 international migratory (CMS) criteria species and 76 CITES criteria species. These include hawksbill sea turtles, the Eastern Glass Frog, manta rays, hammerhead sharks, the Tobago Greenlet, the White-tailed Sabrewing and the largest reported brain-coral colony in the Caribbean. Local communities depend on this iconic landscape and stand to benefit substantially from its conservation. Although vulnerable to climate change, there is significant scope for proactive climate change adaptation.

The area is a mix of public lands both protected and unprotected, private lands, and local communities. Public lands and the ocean are managed by local government and include the world's oldest protected rainforest reserve, the 3,958ha Main Ridge Forest Reserve, as well as the two wildlife sanctuaries: Little Tobago and St. Giles Island. These areas are protected under the Conservation of Wildlife Act (Chap. 67:01), the Forestry Act (Chap. 66:01) and the Forest (Prohibited Areas) Order, the management is empowered by the State Lands Act (Chap. 57:01). Private lands include small holdings and several large, inactive agricultural estates that connect the forest reserve to the ocean. Several estate owners have expressed an interest in making lands available for conservation.

Although relatively intact, the integrity of the Caribbean Island Ridge-to-Ocean ecosystem of NETobago is faced with a series of interrelated local and global threats such as pollution, climate change, and over-exploitation. In the absence of improved conservation, public protected areas, private lands and communities will all continue to experience this ongoing degradation. Fortunately, there are clear opportunities to reduce or reverse these negative trends by investing in private land management and use, civil society capacity, sustainable livelihoods, ecosystem monitoring and communication.

2.1 Location and Current Tenure Situation

Tobago is the smaller, 30,000ha sister island of the twin-island Caribbean Republic of Trinidad and Tobago, located at the southern tip of the Lesser Antilles. Although the island is small, the north-eastern end is relatively isolated with one quarter the population density of the rest of the island.

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.

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). Four large estate land-owners have recently expressed interest in making land available for conservation and sustainable development. 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 (**Error! Reference source not found.**). The main zoning components in NE Tobago are: residential, agriculture, small scale industry, and low-impact ecotourism.

Public Lands

Government-owned areas include a marine area (within the boundaries of a planned MPA (Figure 2)), a protected terrestrial area (a forest reserve called the Main Ridge Forest Reserve (Figure 1)), 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 Divisions of the local governing body, the THA. Notable policies are: the NE Tobago Management Plan, the Tourism Master Plan and the National Draft Tourism Policy (Table 1, Figure 1).

Based on an imminent change in legislation pertaining to protected areas, 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 areas. The required regulatory changes will be supported by a GEF-funded project, IFPAMTT, described in more detail in Government Sector.

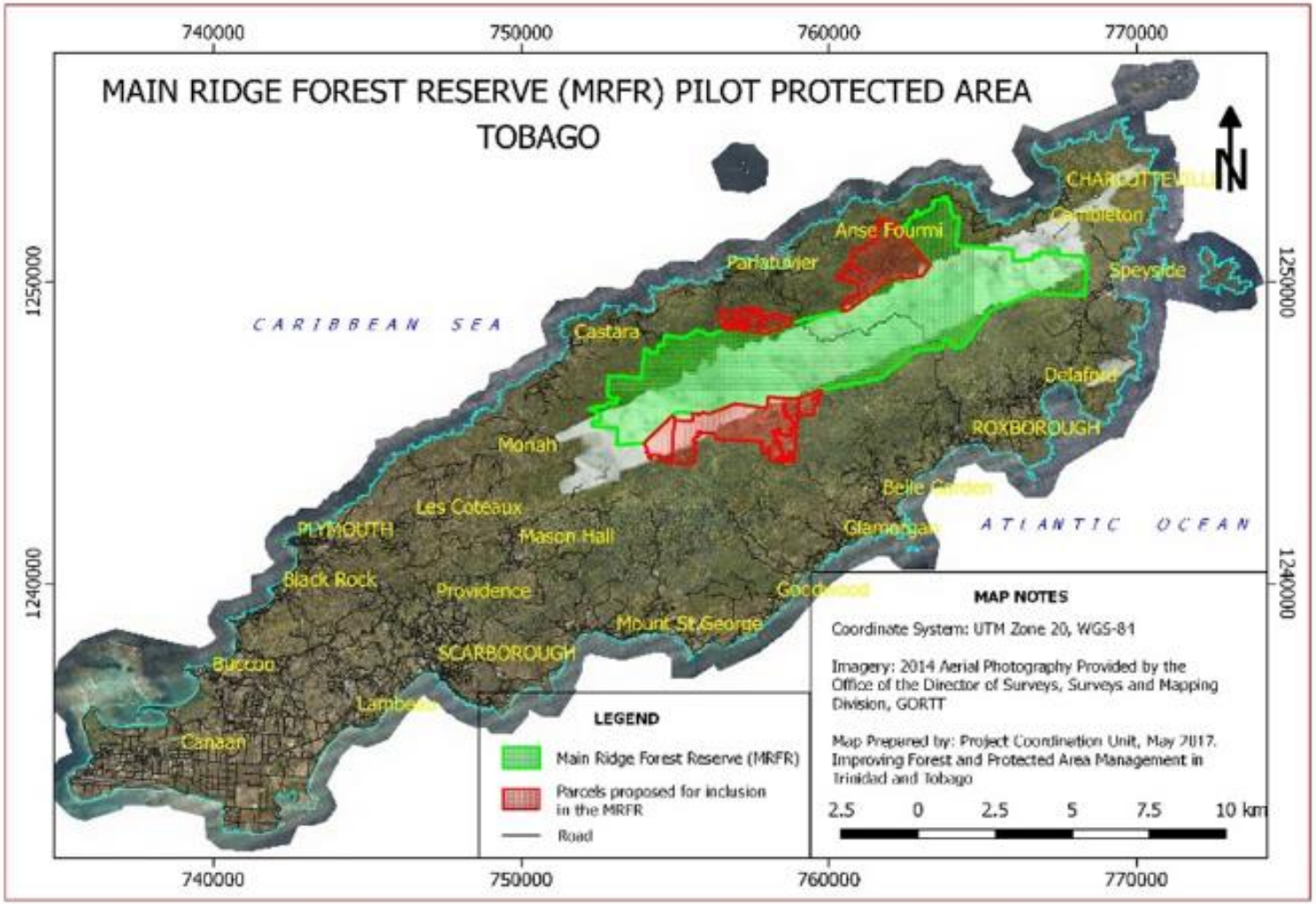


Figure 1:The green marked area shows the Main Ridge Forest Reserve in Tobago. Source: IFPAM Project Unit, 2018.

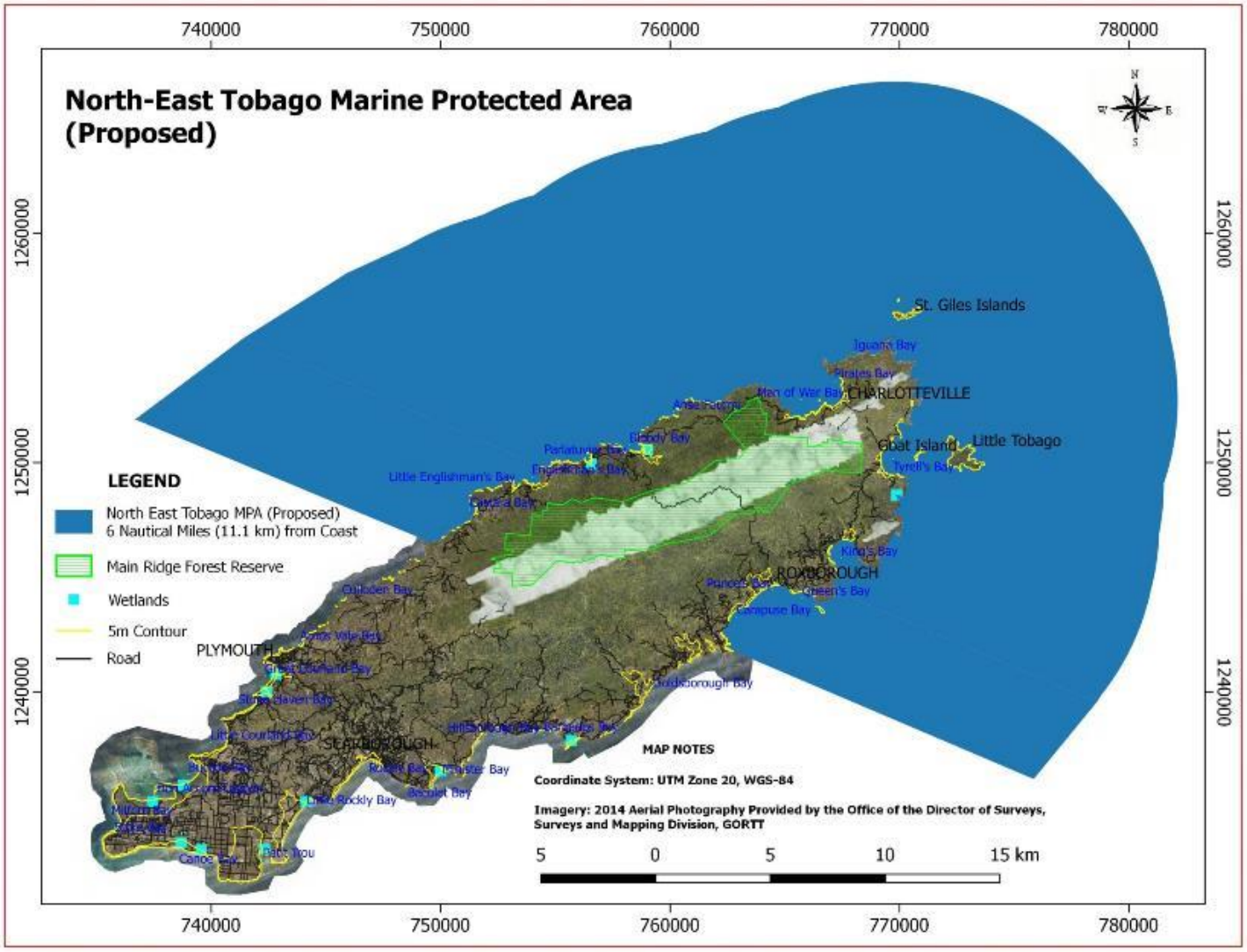


Figure 2: The blue marked area shows the proposed NE Tobago Marine Protected Area. Source: IFPAM Project Unit, 2018.

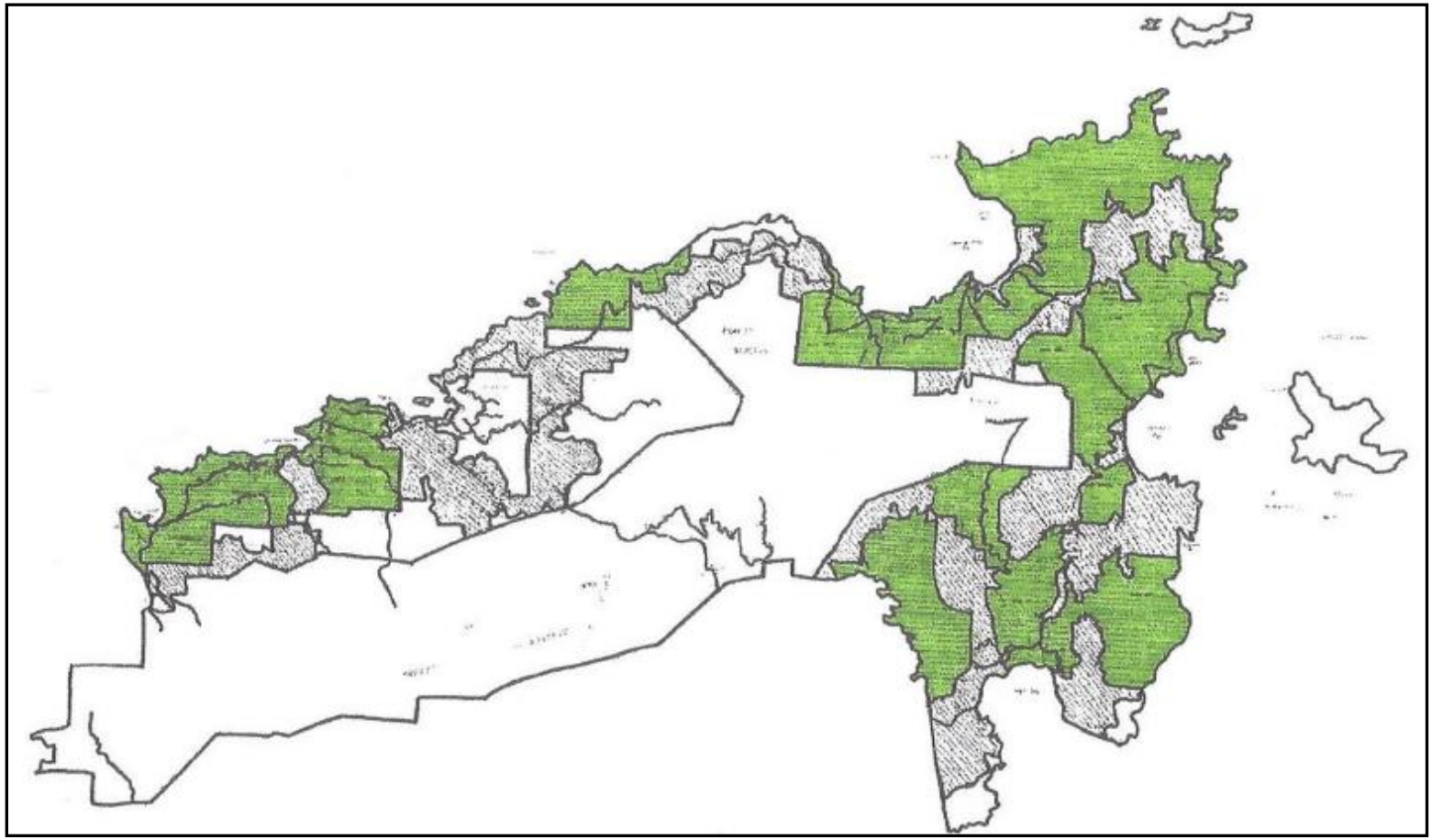


Figure 3: Simplified Land Tenure Map for North East Tobago. State Land is not shaded. Areas comprised of parcels of Private Land >40 ha are shaded in green. Areas comprised of parcels of private land <40 ha are shaded in grey. (KAIRI Consultants Ltd, 2003). Map adapted from the North East Tobago Development Plan, EDG & Kairi Consultants 2003

Table 1: Table of Areas of Current Tenure Types, Legislation and Responsible Authorities in North East Tobago.

Type	Area [ha]	Legislation	Responsible Authority
Public Unprotected Areas			
Marine Area	~62,000	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 the Environment, THA
Prohibited Areas	~300	Forests Acts 42/1015	
Game Sanctuary		Wildlife Act 16/1958	
Private Areas			
Private Lands	~4,500	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

2.2 Local Legislation and International Recognition.

2.2.1 Legislation

A series of existing, partly outdated, legislation governs the natural resources in NE Tobago. This includes, but is not limited to the following:

- Conservation of Wildlife Act (1980)
- Fisheries Act (1980) (which is currently updated including significant sustainable fisheries management and conservation components).
- Archipelagic Waters and EEZ Act (1986)
- Continental Shelf Act (1986)
- Territorial Sea Act (1986)
- Marine Preservation and Enhancement Act (1996)
- Forest Act (1999)
- Environmental Management Act (2000)
- Environmentally Sensitive Species Rules (2000)
- Forest (Prohibited Areas) Order (2006)
- National Environmental Policy (2006)
- State Lands Act (2006)
- National Forest Policy (2011)
- National Protected Areas Policy (2011)
- National Wildlife Policy (2013)

The Environmentally Sensitive Species (ESS) Rules apply to seven species recorded in NE Tobago

Table 2: The seven ESS species as defined by the ESS Rules, 2001.

Scientific name species	Common name species
Campylopterus ensipennis	White-tailed Sabrewing
Eudocimus ruber	Scarlet Ibis
Dermochelys coriacea	Leatherback Sea Turtle
Caretta caretta	Loggerhead Sea Turtle
Chelonia mydas	Green Sea Turtle
Eretmochelys imbricata	Hawksbill Sea Turtle
Lepidochelys olivacea	Olive Ridley's Sea Turtle

The recently (2018) finalised National Protected Area Systems Plan prepared by the Food and Agricultural Organisation of the United Nations for Trinidad and Tobago provides an excellent and detailed overview on the current legislation regarding protected areas in Trinidad and Tobago.

2.2.2 International Recognition

Currently, the only formal international acknowledgement of NE Tobago's natural heritage relates to three sites listed as Important Bird and Biodiversity Areas (IBA): the Main Ridge Forest Reserve, Little Tobago and the St Giles Island Complex.

The Main Ridge Forest Reserve was nominated as a Queen Commonwealth Canopy (QCC) site in early 2018.

Important Bird and Biodiversity Areas

Globally, over 12,000 Important Bird and Biodiversity Areas (IBAs) have been identified as places on earth of greatest significance for the conservation of the world's birds. All of these sites are also Key Biodiversity Areas (KBAs) for birds at the global or regional level. Since birds have been shown to be effective indicators of wider biodiversity, many IBAs are likely to be also KBAs for other animal and plant species. (BirdLife, 2018).

Queen Commonwealth Canopy

The Queen's Commonwealth Canopy (QCC) is an opportunity for the Commonwealth family to unite to save one of the world's most important natural habitats: forests. The QCC is committed to raising awareness of the value of indigenous forests and to saving them for future generations. It creates a network of forest conservation projects that brings collective credibility and integrity to individual Commonwealth initiatives. It raises the profile of the Commonwealth, demonstrating the capacity of its 53-member countries to act together as one to ensure forest conservation. Trinidad and Tobago are already a member with one site in Trinidad. It will use the Commonwealth network to facilitate a programme of knowledge exchange activities, share best practice and to create new, collaborative initiatives that contribute to forest conservation across the globe. (QCC, 2018).

2.3 NE Tobago's Natural Values

2.3.1 Ecological Value

As defined by (Millennium Ecosystem Assessment, 2005): "A well-defined ecosystem has strong interactions among its components and weak interactions across its boundaries". This is the case for NE Tobago where the ecosystems within the landscape are tightly interlinked but buffered from other social and ecological systems. To seaward, this buffer is the Caribbean Sea and the Atlantic Ocean. Landwards, the buffer is the topography and conservation status of the Main Ridge Forest Reserve, which has to date restricted extensive human development to the south-western end of the island. What is captured in between is a landscape 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.

For the purposes of this evaluation, ecological value is expressed in terms of five natural heritage areas that together constitute the landscape of NE Tobago: Ridges, Rivers, Reef, Islands, Ocean: R^3IO. Each of these natural heritage areas includes one or more related ecosystems.

Ecosystems are often valued for the services they provide to people. The Millennium Ecosystem Assessment uses four categories of: provisioning (e.g. artisanal fishery, small-scale agriculture, hunting), regulating (e.g. erosion control, coastal protection, water purification),

cultural (e.g. aesthetic beauty that supports eco-tourism) and supporting (e.g. nutrient cycling).
Ecosystem value is assessed here in these terms.

Ridges

The terrestrial area of NE Tobago is predominantly a tropical forest ecosystem. This is the 'Ridges' natural heritage area; its topography is characterised by steep ridges, ranging from sea level to a maximum elevation of 573m.
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 occurs 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.
Young secondary forests are found in areas affected by wildfires and landslides.
Tropical rainforests are among the world's most biodiverse ecosystems. Tobago's forest system constitutes a mix of South American and Antillean species. It is a critical habitat for many resident and migratory avian species and has been designated an Important Bird Area. Although rainforest is already of high conservation value, the site also hosts dry tropical forest, which is a rare ecosystem in the Caribbean. Dry tropical forest often situated in accessible coastal areas and easy to clear, is favoured for human habitation and significantly reduced throughout the Caribbean. NE Tobago's dry tropical forest is, however, currently relatively undisturbed, making it regionally valuable for conservation. NE Tobago's "Ridges" natural heritage area is threatened by uncontrolled fires likely leading to increasing areas of young secondary forest, including areas of introduced bamboo.
NE Tobago's tropical forests provide a suite of ecosystem services. Regulating services include watershed protection and land stabilisation on steep slopes. Provisioning services include timber, game for hunting, citrus and cocoa. Exploitation is largely informal and unregulated. The primary cultural service is aesthetic beauty which draws local, regional and international tourists.

Rivers

The 'Rivers' natural heritage area includes all terrestrial, fresh and brackish water ecosystems. In NE Tobago, riparian ecosystems, including rivers and their associated vegetation and processes, are a critical link within the landscape. They provide corridors for animal and nutrient movement from the ridges to the ocean.
Although there are nine largely permanent rivers in the area (Castara, Parlatuvier, Englishman's Bay, Bloody Bay, Charlotteville, Speyside, Kings Bay Louis D'or and Argyle Rivers), most watercourses are seasonal between dry and rainy seasons.

The site contains four temporary estuaries, as well as grassy wetlands. Some mangrove remains, principally at King's Bay, Louis D'or and smaller patches at Hermitage and Englishman's Bay. The approximate total size of the different, remaining, wetland types is about 38ha, see Table 3 .

Table 3: 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

All coastal wetlands are threatened by encroachment and high nutrient and pollution intake. These aquatic ecosystems in NE Tobago are critical habitats for Tobago's bird and amphibian and other aquatic species, which include five (5) endemic frog species.

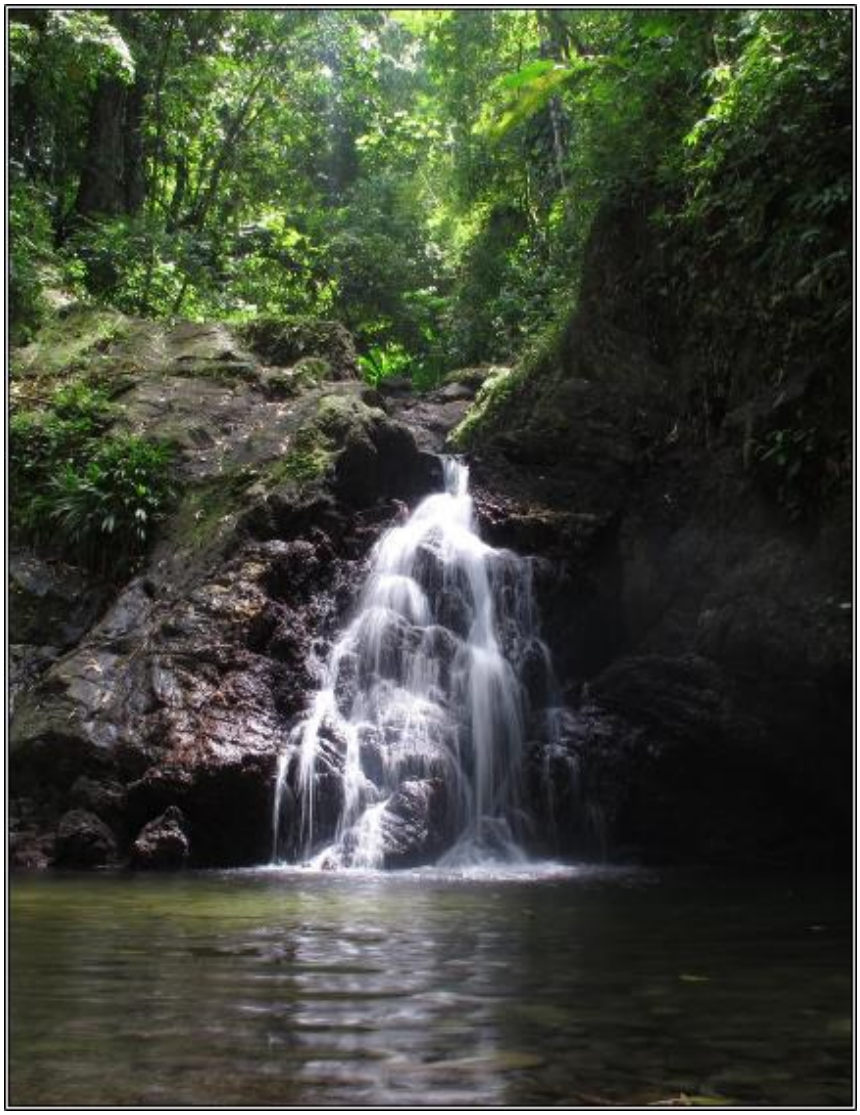


Figure 4: A waterfall located in North East Tobago. Photo: N. Cook.

River dams and wells are the main sources of freshwater for agriculture and potable water supply. Wetlands are essential for coastal protection, soil and sediment regulation and the retention of nutrients and solid waste. Terrestrial aquatic systems also support eco-tourism activities in NE Tobago.

Reefs

The 'Reefs' natural heritage area includes all marine ecosystems from beaches, through the littoral zone, to a 50m depth contour and covers roughly 300ha (ERIC 2016 estimate).

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 3.2 km across 15 beaches. Although a limited area, some of these beaches host an active rookery of critically endangered hawksbill sea turtles.

Figure 5: A critically endangered Lesser Electric Ray in sediment in Man-o-War Bay, Charlotteville. Photo: N.

The coastal marine environment harbours relatively healthy and robust Caribbean coral reef complexes, although these have been declining in recent years, in response to a combination of threats including a severe 2010 bleaching event.

A 2007 study by the World Resources Institute valued Tobago's coral reef services for tourism and recreation at between US$101 and 103 million annually. The value of coral reef fisheries was US$0.8 to 1.1 million annually and the value of shoreline protection was between US$18 and 33 million annually. A conservative estimate would place a value of roughly US$55 million annually for NE Tobago's reefs (World Resource Institute,2007). This assessment did not evaluate supporting services such as nutrient cycling.

Figure 6: Soft coral and sponge ecosystem, NE Tobago reef. Photo: N. Cook.

Islands

The 'Islands' natural heritage area includes the offshore islets of Goat Island (Belle Garden), Sugar Loaf, Little Tobago, Goat Island (Speyside), the St. Giles complex, Booby Island, Brother's Rocks, and Sister's Rocks. These small islets, although terrestrial, are ecologically dominated by the marine environment. Vegetation on the largest three is young secondary bush and remains a relatively undisturbed example of dry tropical forest reflecting both Antillean and South American influences. The islets are also critical for avian reproduction, reflected in the status of St. Giles Islands and Little Tobago Island as Important Bird Areas for supporting principally seabirds.

Table 4: Approximate sizes of North East Tobago's islets.

Islet	~ Size [ha]
Sisters	< 1
Brothers	< 1
Booby Rock	< 1
St. Giles	35
Little Tobago	110
Goat Island (Speyside)	4
Sugar Loaf	4
Goat Island (Belle Garden)	2

These islets are important for cultural services such as eco-tourism for birding, science tourism, and for provisioning services including the unregulated and illegal hunting of iguanas and seabirds.

Ocean

The 'Ocean' natural heritage area includes all marine ecosystems beyond a depth contour of 50m, extending to the edge of the planned MPA with an approximate size of 60,000ha. This is largely a marine pelagic ecosystem encompassing waters of both the Caribbean Sea and the Atlantic Ocean, and the interaction of the Guiana Current and the Caribbean System. The waters are frequented by a diversity of marine mammals, sharks, rays and commercially valuable fish species such as flying fish, mahi mahi, kingfish, various jack species, etc.

This 'Ocean' area and the coastal 'Reef' ecosystems are seasonally enriched by a freshwater - nutrient pulse from the Orinoco River. Both natural heritage areas are also the habitat for five of the world's seven species of sea turtles, including breeding habitat for leatherbacks and hawksbills

The 'Ocean' ecosystem provides critical services, notably provisioning for both artisanal and industrial fishing, as well as cultural services for sport fishing and yachting tourism. The ecosystem also provides regulating (water purification) and supporting (nutrient cycle) services.

Human Systems

Human systems, notably communities, form an integral part of the biogeochemical landscape. They are the main beneficiaries of ecosystem services, and the source of significant local effects on each component ecosystem. Most importantly for comprehensive, coherent and sustainable conservation to succeed, it must address not just ecosystem or endangered species, but also human well-being.

The Value of the Whole Landscape

In the Millennium Ecosystem Assessment, islands are treated as distinct systems. They are characterised by social and ecological isolation as well as a strong interaction between marine and terrestrial environments. Although each ecosystem described so far has value in terms of ecosystem processes and services, it is their proximity and interaction that makes the entire landscape a valuable conservation target. For example, coral reefs require clear water and a low nutrient environment. Healthy forests, estuaries and mangroves reduce soil run-off, and therefore minimise the nutrient, pollution, sedimentation and siltation that coastal coral reefs are exposed to. Similarly, healthy offshore island and coral reef ecosystems reduce the impact of storm events on coastal beaches and communities. Yet it is this complex interaction among social and ecological components that also increases the overall system's vulnerability to climate change, threatening the long-term value of each component as well as the landscape as a whole. For example, continued deforestation in upland watersheds, coupled with climate change-driven increases in precipitation intensity, will likely lead to increased soil erosion, increased peak run-off, and resulting increases in sedimentation of the coral reefs.

Figure 7: Island and ocean ecosystems of North East Tobago (left); Little Tobago (right), Two Rocks & Giles (background). Photo: N. Cook.

Table 5: Summary of North East Tobago's ecosystems and their ecological value

Conservation Area	Area [*ha*]	Ecosystems	Services
Ridges	~7,900	Tropical Forests	Regulating, Provisioning, Cultural
Rivers	<75	Fresh & Brackish Water (riparian, estuary and mangrove)	Provisioning, Regulating, Cultural, Supporting
Reefs	~300	Coastal Marine (coastal beaches, coral reefs, seagrass beds)	Cultural, Provisioning, Regulating, Supporting
Islands	~150	Offshore Islands	Cultural, Provisioning
Ocean	~62,000	Marine Pelagic	Provisioning, Supporting, Cultural

2.3.2 Biodiversity Value

NE Tobago harbours globally valuable biodiversity in terms of 'at risk' species, endemic species, migratory species, iconic species and commercial species. The value of NE Tobago's biodiversity comes from the diversity of the area's ecosystems. The area includes open ocean species such as the manta ray and hawksbill sea turtle, minute, florescent marine molluscs on the coral reef, iridescent hummingbirds, glass frogs, and extraordinary plant diversity in the tropical dry and moist broad leaf forests. Table 7 summarises the biodiversity value of the landscape.

Biodiversity Research and Education

Based on the high biodiversity value and the proximity of various ecosystems, NE Tobago has been frequently and repeatedly visited since the 1960s by scientists and student groups not only from the University of the West Indies and Trinidad and Tobago's Institute of Marine Affairs, but also from an increasing number of international institutions, see Table 6.

Table 6: Academic institutions conducting research or education programs in Northeast Tobago.

Academic Institution	Country	Research	Education
University of the West Indies	Trinidad and Tobago	x	x
University of Trinidad and Tobago	Trinidad and Tobago	x	x
Institute of Marine Affairs	Trinidad and Tobago	x	
University of Glasgow	UK	x	
Cardiff University	UK	x	x
Kleve Tourism School	Germany	x	
Hogeschool Van Hall Larenstein (Netherlands)	Netherlands	x	
Adam Mickiewicz University (Poland)	Poland	x	
Smithsonian Institution	USA	x	
Pacific Lutheran University	USA		x
Trinity College	USA		x

Academic Institution	Country	Research	Education
Northwood College	USA		x
Ohio State University	USA		x
New York State University	USA		x
Texas A&M University	USA		x
Austin University	USA		x
Florida State University	USA	x	

The area has hosted research programmes addressing herpetofauna, coral reefs, tropical forest biodiversity as well as studies related to research methods, sustainable tourism and resource use, policy planning and ecosystem services evaluation.

In April 2014 the Environmental Research Institute Charlotteville, established the first permanent research facility including resident scientists in NE Tobago and facilitates researchers and student groups from almost all of the above-mentioned institutions.

At Risk & Endemic Species

The proposed natural heritage area crosses five ecosystems, including two of the world's most biodiverse: coral reefs and tropical rainforests and thus captures significant biodiversity for a small island conservation area. As a result, few other natural heritage areas can invoke such biodiversity from ridge to ocean. Table 7 provides an overview of total numbers of species per group. Chapter 11 contains the first compilation of species occurring in NE Tobago which was compiled under this project.

Table 7: Summary of IUCN at-risk species, endemic species, EDGE species, CMS species and CITES species occuring in Tobago

Category			Number
IUCN RED LIST species	Critically Endangered	8	**71**
	Endangered	13	
	Vulnerable	31	
	Near Threatened	19	
ENDEMIC species			**38**
EDGE species			**9**
CMS species			**51**
CITES species			**69**

Figure 8: Critically endangered elkhorn coral in one of NETobago's reefs.

The site harbours 72 IUCN criteria species, 37 endemic species, 12 EDGE criteria species, 42 migratory species, 76 CITES listed species and several iconic species.

Most outstanding is the presence of critically endangered (CR) Hawksbill Sea Turtles, Staghorn and Elkhorn Corals, endangered (EN) Leatherback Sea Turtles, Green Sea Turtles, Loggerhead Sea Turtles, hammerhead sharks, star corals, vulnerable (VU) Olive Ridley Sea Turtles, snappers, manta rays, Bloody Bay Poison Frogs, Eastern Glass Frogs and Bloody Bay Litter Frogs. The latter three species are endemic. Near threatened (NT) species include the Rainbow Parrotfish, Blacktip Shark, Caribbean Reef Shark, Bull Shark, Lemon Shark and the White-Tailed Sabrewing. The conservation status of seven (7) endemic species remains unknown; these include the Tobago Greenlet, Charlotteville Robber Frog, Hailey's Parrot Snake, Tobago False Coral Snake, Tobago Coral Brotula, Tawny Blenny and Darksaddle Blenny. Biodiversity experts expect that further research will likely yield more endemic species, especially of plants, reptiles and amphibians.

Migratory Species

Although Trinidad and Tobago is not a signatory to the Convention on Migratory Species (CMS), NE Tobago hosts 51 species, marine and avian, that are listed in the Convention. These notably include Broad-winged Hawks, Great Black Hawks, Roseate Terns and Hawksbill and Leatherback Sea Turtles, all of which nest in the area. Manta rays are also an iconic migrant species that frequent NE Tobago waters.

Iconic Species

Many species are globally valuable for the recognition they receive in either public or scholarly spheres.

The Speyside Brain Coral

One of the most notable natural icons is the Speyside brain coral colony. This colony is the largest reported in the Western hemisphere and one of the larger brain coral colonies in the world, measuring 3m high by 5.3m wide. The colony is estimated at 2,000 years old.

The Speyside brain coral is a living monument to both the enduring power of living systems, such as coral reefs and their fragility in modern times. In spite of its extreme robustness and age, the colony suffered from both bleaching and subsequent disease during the 2010 coral reef bleaching event in Tobago, a reminder that in the face of global climate change, even the most enduring natural icons are at risk.

Figure 9: The Speyside brain coral. Photo: Mike Brennan

The Hawksbill Sea Turtle

The Hawksbill Sea Turtle is an iconic, endangered species that is a living embodiment of the interdependence of terrestrial and marine environments that the small island system represents. Like coral reefs, sea turtles represent an ancient evolutionary strategy that is at imminent risk from both global and local threats. Hawksbill sea turtles depend on a healthy ocean, safe coastal waters, and viable beaches for their lifecycle. Although Trinidad and Tobago are recognised internationally for Leatherback Sea Turtle nesting, recent evidence suggests that NE Tobago's small, isolated beaches host a similarly regionally significant rookery for Hawksbill Sea Turtles. While Leatherback Sea Turtles are Red Listed as vulnerable, Hawksbill Sea Turtles are critically endangered. Limited monitoring, combined with a local

tradition of consumption, local abundance and the publicity given nationally to Leatherbacks have led to the iconic value of North East Tobago's Hawksbill's being dramatically undervalued. There is significant scope to expand the profile of this iconic species in the conservation area.

Figure 10: Critically endangered Hawksbill Sea Turtle hatchlings at Man-o-War Bay, Charlotteville.

Iconic Birds and Marine Life

The area attracts international dive tourism for manta rays, and formerly for shark species, which may recover if fishing pressure is reduced.

Figure 11: Juvenile Tiger Shark recorded on Baited Underwater Remote Video in NE-Tobago, from ongoing research collaboration between ERIC and Global FinPrint.

Figure 12: Great Hammerhead recorded on baited underwater remote video in NE-Tobago, from ongoing research collaboration between ERIC and Global FinPrint.

NE Tobago also includes three of Trinidad and Tobago's seven important bird areas, which attract international and local tourists. Notable are the hummingbird diversity, the largest Magnificent Frigate Bird colony in the Caribbean on St. Giles Island and the extraordinary variety of seabirds on Little Tobago documented by Sir David Attenborough.

Commercial Species

Several species are valuable for legitimate commerce which includes coastal and pelagic fish species, as well as tree species used for timber products. Legitimate commercial species include mackerels, groupers, snappers and sharks exploited by artisanal fisheries, as well as small scale timber extraction and agro-forestry for crops such as cocoa and citrus. Notably, sharks are not commercially taken within the proposed natural heritage site; however commercially and illegally taken by international longline vessels operating further offshore. Other species are also valued for their trade illegally, either locally, nationally or internationally. These include sea turtles, songbirds and bush meat speciese hunted outside of the permitted season or in fully protected areas (e.g. islets)

Trinidad & Tobago is signatory to the CITES. The 69 listed CITES species include sea turtles, sharks and rays, coral and avian species. Sea turtle poaching remains a challenge as the meat is locally valued. Bush meat is also an important part of local culture. Hunting of wild game (manicou, agouti, tattoo etc.) and sea turtles has been actively pursued for several generations. A recent national two-year ban on hunting concluded in 2015. A 2012 change in national regulations placed a permanent ban on sea turtle harvesting. Both activities are locally valued and pursued, leading to tension between locals and regulators.

The proposed natural heritage area hosts globally relevant biodiversity by virtue of the variety of ecosystems it encompasses. This diversity is under threat from both species specific and systemic pressures which are discussed in Chapter 3.2. The most effective response to the interrelated challenges is coherent, landscape-scale conservation.

2.3.3 Conservation Value

The proposed natural heritage sites and UNESCO designation synergise with conservation-relevant initiatives and priorities at local, national, regional and global scales.

Local

Tobago is closely associated with the brand 'Clean, Green, Safe and Serene'. A concomitant appreciation for the island's natural heritage is reflected in the local government's policies, particularly as regards the tourism sector and potentials for ecotourism. These policies include the North East Tobago Management Plan (2003), and the Comprehensive Economic Development Plan 2.0 (2012) (KAIRI Consultants Ltd, 2012a) (KAIRI Consultants Ltd, 2012b). Additionally, local communities and landowners have expressed and demonstrated interest in conservation initiatives as evidenced by the activities of local environmental CBOs such as the Castara Tourism Development Association (CTDA, UNDP/GEF/SGP Project 2018)), and by the Charlotteville Estate Development Vision Plan (2012).

National

Within Trinidad and Tobago, NE Tobago's natural heritage area will be the only example of a combination of several adjacent protected areas. Similarly, it is the only example nationally of a complete Ridge-to-Reef ecosystem. The proposed designation is the logical succession of the national IFPAMTT Project in Tobago to implement recently amended national protected area and forest policies. By so doing, it also synergises with a range of associated national initiatives (see IFPAMTT Project summary). The proposed designation will be specifically designed to support sustainable livelihoods and business development and in so doing, it also synergises with the national Medium-Term Framework (2011), which has identified North East Tobago as one of the country's five growth poles.

Regional

Regionally, NE Tobago is a rare example of a Ridge-to-Ocean Caribbean Island landscape, including regionally at-risk ecosystems such as dry tropical forest, tropical rainforest, and coral reefs. The project area includes a small portion of the Caribbean Large Marine Ecosystem, an ecosystem and management unit that is used for conservation and management initiatives at the regional scale.

Global

Globally, the Main Ridge Forest Reserve is the oldest protected tropical forest in the world and has been called the 'first act in the modern environmental movement'. The proposed designation would result in a relatively rare example of Ridge-to-Reef conservation and

management that has been prioritised as an ideal, but rarely achieved, in programmes by UNEP and GEF.

There are three, globally important Bird Areas (IBAs) in Tobago: the Main Ridge Forest Reserve, St. Giles and Little Tobago. They are listed as IBA in the different criteria they have, see Table 8.

These sites are associated with the following IBA classification criteria:

- A1: Globally threatened species occur in the area
- A2: Restricted-range species
- A3: Biome-restricted species
- A4: Congregations ≥1% of global population

The full description of these criteria is given in Annex 11.

Table 8: Valid criteria per IBA.

Name IBA	A1	A2	A3	A4
Main Ridge TT005	✓	✓	✓	
St. Giles TT006				✓
Little Tobago TT007				✓

These are the brief descriptions of the IBA's with their importance to birds and other wildlife according to (White, 2018):

Main Ridge:

"*Birds:*

This IBA is significant for biome-restricted birds. All four biome-restricted species in Trinidad and Tobago (Northern South America and Northern Andes biomes) occur in this IBA including the Venezuelan Flycatcher Myiarchus venezuelensis and the Near Threatened White-tailed Sabrewing Campylopterus ensipennis (also a restricted-range species in the Tobago secondary EBA). The Tobago population of C. ensipennis was thought to have been extirpated by Hurricane Flora in 1963 but has since recovered to a population estimated at 800–1,200 birds, most of which inhabit the Main Ridge IBA.

Other biodiversity:

The Tobago-endemic frogs Manophryne olmonaeand (the Vulnerable) Pristimantis charlotvillensis occur, as does the Endangered Eleutherodactylus urichi (endemic to Trinidad and Tobago) and the Vulnerable Hyalinobatrachium orientale. Tobago-endemic reptiles occurring in the IBA include theocellated gecko Gonatodes ocellatus and the snakes Mastigodryas boddaerti dunni and Erythrolamprus ocellatus. Tobago's 16 endemic plant species probably occur in the IBA. " (White, 2018)

St. Giles:

"*Birds:*

This IBA is significant for its breeding seabird colonies. Globally important numbers of Red-billed Tropicbird Phaethon aethereus are present, as are regionally important numbers of

Audubon's Shearwater Puffinus lherminieri, Magnificent Frigatebird Fregata magnificens, Masked Booby Sula dactylatra and Red-footed Booby S. sula. Other seabirds such as Brown Booby S. leucogaster and Brown Noddy Anous stolidus also breed. However, recent population counts are below previous records.

Other biodiversity:

The terrestrial fauna of St Giles has not been studied but it may be similar to that of Little Tobago IBA." (White, 2018)

Little Tobago

"*Birds:*

This IBA is significant for nesting seabirds and biome-restricted birds. Two (of the 4) Northern South America biome-restricted species occur, namely Rufous-vented Chachalaca Ortalis ruficauda and Copper-rumped Hummingbird Amazilia tobaci. However, the island is renowned for its seabirds. Globally important populations of Red-billed Tropicbird Phaethon Aethereus and Laughing Gull Larus atricilla breed, and the numbers of Audubon's Shearwater Puffinus lherminieri, Brown Booby Sula leucogaster, Red-footed Booby S. sula and Bridle Tern Sterna anaethetus are regionally significant. Sooty Tern S. fuscata and Brown Noddy Anous stolidus are also present.

Other biodiversity:

Three restricted-range reptiles occur: ocellated gecko Gonatodes ocellatus and the snake subspecies Mastigodryas boddaerti dunni are endemic to Tobago and Little Tobago. The ground-lizard subspecies Bachia heteropa alleni is endemic to Tobago, Grenada and the Grenadines. " (White, 2018).

2.3.4 Carbon Value

One major source of standing carbon, the Main Ridge Forest Reserve which encompasses 3,958ha of tropical rainforest is already protected. While it does experience degradation, proving significant additionality of avoided carbon emissions would be a challenge. The areas between the Reserve and the coast are also heavily forested and proposed expansion of the MRFR and activities under the planned designation are expected to result in avoided deforestation. More calculation will be required based on the estimates of possible avoided deforestation and forest degradation.

These benefits can be quantified and used in future communication materials. In terms of earning finance through sale of carbon credits (e.g. REDD+), the transaction costs of organising a credit system for the natural heritage area could be prohibitive given the small volume of possible credits. The potential for generating REDD+ credits through future conservation activities is an option to be explored but is not anticipated to be central to the designation.

2.3.5 Climate Change Adaptation Demonstration Value

Climate change adaptation has been aptly described as “development in a hostile climate”. With the reliance of many human communities in the region on the services provided by local and regional ecosystems (e.g. fisheries; tourism; freshwater provision), climate change-driven disruption of these services threatens to undermine the socio-economic resilience of local communities. Tobago, together with the broader Caribbean region, is already experiencing the impacts of climate change, from ocean acidification and sea-level rise to an increase in annual average temperatures and general reduction in precipitation. Medium-term projections suggest a significant increase in climate-driven risk across a range of social and economic sectors, particularly the agricultural, water resource, marine and coastal resource, and human health sectors. NE Tobago’s extraordinary interlinked geophysical complexity, comprising ridge, rivers, reefs and ocean make it particularly vulnerable to negative climate impacts that may cascade from one component to the next (e.g. a climate change-driven increase in the intensity of precipitation events in key watersheds may result in elevated sedimentation and deposition onto a reef ecosystem already under increased pressure due to ocean acidification). Yet that complexity, if managed holistically and sustainably as envisaged for the natural heritage designation area, can also be an advantage, with one component supporting the next, increasing the resilience of the system as a whole. Climate change vulnerability assessments have become increasingly holistic in recent years, as the critical need to consider multiple sectors and stakeholders and their interconnectedness has become apparent, in order to ensure resulting recommendations for adaptation measures are robust.

3. Conservation Threats & Opportunities

Although relatively intact, the integrity of the Caribbean Island Ridge-to-Ocean ecosystem of NE Tobago is threated by a series of interrelated local and global threats such as pollution, climate change, and over-exploitation. Fortunately, there are clear opportunities to reduce or reverse these negative trends by increased recognition, investing in public and private land management and use, civil society capacity, and ecosystem monitoring and communication.
This section is an assessment of the direct threats and indirect barriers to conservation in NE Tobago. It concludes with an assessment of opportunities to leverage the system to greatest effect to achieve resilience in the conservation targets.

3.1 Natural Heritage Designation Areas

Natural Heritage Designation Areas are the key ecosystems and their associated values in NE Tobago. The proposed designation has five natural heritage areas: Ridges, Rivers, Reefs, Islands and Ocean. Together, these capture ecosystems across a geological ridge-to-ocean landscape harbouring a wide variety of endemic, threatened and critically endangered species and providing a variety of ecosystem services as presented in Chapter 2.3. These five areas currently span a variety of tenure and management arrangements as presented in Chapter 2.1.

3.2 Conservation Threats

The Natural Heritage Designation Areas are subject to a series of interconnected human and environmental threats and opportunities that can be addressed with a significant conservation initiative which should be linked to any pursued designation for NE Tobago.

Threats to Caribbean Island Ecosystems

NE Tobago shares threats to conservation and sustainable development to varying degrees with other Caribbean small islands. Of the 10 major conservation threats prioritised by the Caribbean Islands Biodiversity Hotspot assessment (CEPF, 2009), six play an important role in NE Tobago: residential & commercial development, climate change, human disturbance, over-exploitation, invasive alien species and pollution. The Millennium Ecosystem Assessment of Island Ecosystems also lists climate change, over-exploitation, habitat depletion, and pollution as the major threats to island systems globally.
The North East Tobago Management Plan adopted by the THA and the GoRTT, raises the concerns that very little up-to-date ecological information is broadly available, that marine water quality is declining, that natural resource user conflicts need to be addressed and that limited manpower and resources are available to manage unsustainable resource use patterns.
Most recently, the GEF / FAO IFPAMTT project document (2014) states that the terrestrial ecosystems of NE Tobago are considered regionally threatened and host biodiversity of global significance. Specifically listed are threats to the existing terrestrial and proposed marine protected areas in NE Tobago: hunting / overfishing, potential of un-managed levels of

tourism, wildfire, alien invasive species, climate change, unregulated costal development and pollution.

The same IFPAMTT project document identifies the main barriers to successful conservation in NE Tobago: an outdated legal and regulatory framework for establishing and managing protected areas, fragmented responsibilities and capacity of protected area staff, inadequate funding, lack of technical capacity to identify conservation gaps, minimal capacity on the ground with respect to practical approaches to effective biodiversity management and minimal experience with income-generating opportunities in protected areas.

A study commissioned for the IFPAMTT project development identified land-based pollution, uncontrolled coastal development, overfishing, sedimentation, invasive alien species and coral diseases as the major threats to the planned MPA in NE Tobago (Wothke et al., 2013). Mining, oil and gas activities were not mentioned as a major threat in the above documents. However, it should be noted that the effects of seismic surveys in NE Tobago waters on fish stock and mammals are under discussion.

As summarised in the GEF IFPAM project document (2014)

"Unless the financial flows to and from PA's are improved, better and effective management practises in place, fringes of PAs are further stabilised, and the stakeholders receive benefits, it is unlikely that the threats to biodiversity conservation will be properly addressed."

Direct Threats to North East Tobago Island Ecosystems

Seven major threats affect the natural heritage designation area:

1. Infrastructure Development

Construction activities associated with private (e.g. house renovations) and public (e.g. road works) infrastructure projects are a major concern. The majority does not adhere to good environmental practises such as waste management or mitigation of erosion of construction material and disturbed soil. Road construction activities notably contribute to sedimentation on reefs and sea grass beds via ravines and rivers. Infrastructure development is an active sector of the economy governed by inadequate legislation and limited enforcement. This parallels the 'Residential & Commercial Development' threat identified by the Caribbean Islands Biodiversity Hotspot assessment.

2. Over-Exploitation

Unsustainable resource use including hunting (poaching), logging and overfishing, threatens NE Tobago ecosystems. In spite of a two-year national hunting ban from 2014 to 2015, hunting remains a threat and is a socially accepted activity. The recent economic downturn and high prices for wild meat further increase the pressure on wildlife shifting hunting from a subsistence/traditional to an increasingly commercial activity. Sea turtle slaughter and egg poaching are still practised, in spite of 2012 legislation rendering the practice illegal. However, long term efforts by local conservation groups are beginning to show positive effects and sea turtle consumption is becoming increasingly unpopular. Illegal logging happens mostly on abolished estates. The damage caused by heavy equipment access just to extract several trees is extensive. Such logging activities are not commercial but instead are mostly small scale and could be considered praedial larceny.

Figure 13: Large male Iguana on Little Tobago, threatened by hunting. Photo: N. Cook.

3. Pollution

Pollution by solid waste, liquid waste and agricultural run-off is a significant issue in NE Tobago. Liquid waste, including grey and black water, and solid waste are of concern not only for conservation but also for human health. All grey water enters the rivers and ocean via communal drainage. Septic tanks are often not maintained or pumped leading to high levels of faecal coliform in waters adjacent to urban areas. Plastic packaging material is the main solid waste found alongside roads and in waterways associated with littering, and unrestricted illegal dumping at roadside sites. The amount of solid waste in the landscape is often hidden by rainy season vegetation and becomes more visible in drier conditions. Unrestricted, illegal dumping of construction waste is also an issue locally. This threat was also prioritised by the Caribbean Islands Biodiversity Hotspot assessment.

Despite the relatively small scale of agricultural activities, excessive use of fertilisers and self-prepared pesticide cocktails are common. Government-mandated insect vector control

initiatives also use aggressive and broad-spectrum pesticides, liberally dispersed in the area. Given the shallow soils, these synthetic chemicals, many of them banned in North America and Europe, end up in rivers and the coastal zone ecosystems.

Figure 14: Plastic waste in the Speyside wetland. Photo: N. Cook.

4. Climate Change

The effects of climate change, manifesting through changing and unpredictable weather patterns, are a significant threat to the target system. Related consequences include wild fires, landslides, coastal erosion and disrupted animal and plant life cycles. The dissolution of distinct wet and dry seasons over the past half-century poses a major challenge for organisms to adapt their life, and especially reproductive cycles. A good example is when increased rainfall in traditionally 'dry' seasons destroys the fragile flowers of flowering plants that flower during dry conditions. This in turn affects nectar-seeking pollinators and consequently fruit-seeking animals some months later.

While still under investigation, the reoccurring landfall of large amounts of *Sargassum* seaweed over several months at Tobago's Atlantic coast is likely linked to climate change and deforestation in the Amazon and Congo basins. It has a severe impact on the affected beaches. See Figure 15 and Figure 16.

Figure 15: *Sargassum* clean up activity in Speyside (Felix, 2016).

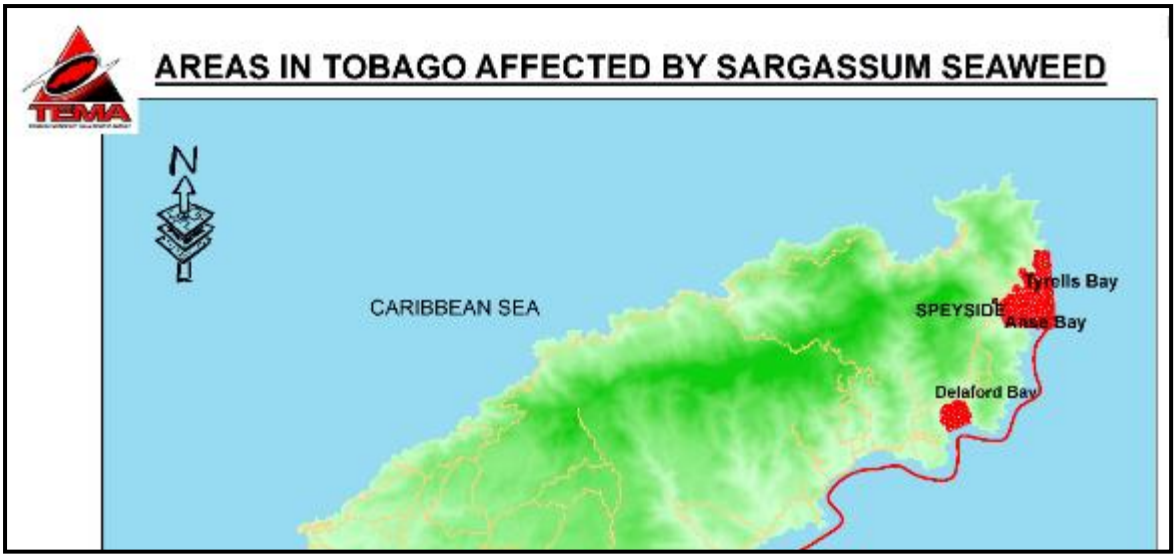


Figure 16: Major *Sargassum* seaweed landfall sites in NE Tobago (TEMA, 2015).

Long dry seasons increase the vulnerability of the various forest ecosystems to wildfires which are sometimes accidental, sometimes set on purpose for soil fertilisation or for land clearing. Wildfires can in turn lead to colonisation of the area by invasive bamboo and other, secondary

bush. Subsequent landslides in the rainy season are often a result of wildfires which destroy the plant cover that was previously stabilising the soil. Climate change-related issues were also identified by the Caribbean Islands Biodiversity Hotspot assessment.

5. Local Disempowerment

Local residents and stakeholders are only rarely inspired to undertake conservation-relevant practices. This is partly because intelligible, adequate and continuous environmental education is still in its infancy. While knowledge often exists, it is not successfully translated into a positive attitude and practise. This in turn is partially due to perceived and actual lack of ownership and empowerment on the part of residents in NE Tobago. Similarly, residents facing environmental challenges, such as developers violating laws by dumping waste illegally, are often not informed enough to take appropriate actions against those perpetrating the violations (e.g. seek assistance from the Environmental Police and/or the Environmental Commission of Trinidad and Tobago). Additionally, the lack of coherent and consistent conservation co-management often undermines good efforts in some areas by neglect in others. For example, efforts of CSOs to protect nesting sea turtles are undermined by a lack of law-enforcement regarding the use of turtle nets and turtle meat consumption.

6. Ecosystem Fragmentation

Road development, uncontrolled construction activities, partition of larger estates, and land clearing for small-scale agriculture have the potential to significantly and imstantly contribute to the fragmentation of ecosystems and associated ecological processes.

7. Invasive Species

Alien invasive species currently pose a notable, yet not sufficiently evaluated threat to NE Tobago ecosystems. As global ecosystem connectivity increases, this issue is likely to be an increasing challenge in the future. Lionfish are the most obvious invasive species in NE Tobago and are posing a significant threat to resident fish species due to their high fertility rate and enormous appetite. Local predators have not yet adapted to take advantage of this fish. However, the initially predicted mushrooming population increases have not (yet?) materialised. A less noticeable alien invasive species is the amphibian chytrid fungus, which poses a significant risk to the endemic amphibians of NE Tobago. A third category of alien invasive species that has a significant impact on local ecosystems includes feral pets and unrestrained livestock such as feral cats, roaming dogs, and unrestrained goats and yard fowl. Invasive alien species are a regional and indeed global issue prioritised by the Caribbean Islands Biodiversity Hotspot assessment.

Figure 17: An invasive Lionfish on a reef off Speyside, North East Tobago. Photo: N. Cook.

Connected Threats in a Connected System

Although threats to NE Tobago ecosystems have been grouped and prioritised here, it is important to recognise that these categories are an aid to planning and management. They are not distinct categories in the system. NE Tobago, from ridge to ocean, is a highly connected and increasingly dynamic system where threats and challenges are tightly interrelated. For example, poorly executed road works (Infrastructure Development) lead to changes in the vegetation adjacent to the road which becomes edge habitat leading, to 'Ecosystem Fragmentation'. Edge habitat is in turn more susceptible to 'Invasive Species'. Edge habitat also burns more easily and increases the effects of wildfires associated with dry conditions (Climate Change). Poor construction waste management and road design (Infrastructure Development) also leads to increased soil erosion and sedimentation (Pollution) associated with heavy rain events (Climate Change). The tightly interrelated nature of threats speaks to a project that acts simultaneously across ecosystems and social systems. To be effective, such a project must focus on broader challenges that can lead to effective leverage points or opportunities.

Barriers to Conservation in North East Tobago

Two barriers to long-term conservation in NE Tobago have been prioritised: fragmented management, and limited information and communication on social-ecological system trends. Both these barriers are also prioritised by the GoRTT's NPAP (National Protected Area Systems Plan), the IFPAMTT, and the Caribbean Islands Biodiversity Hotspot assessment. These barriers constitute indirect threats that exacerbate the interrelated direct threats to NE Tobago's ecosystems listed in the previous section. If these barriers are not dealt with, there is a high risk that the R^3IO system will succumb to the direct threats listed above.

1. Fragmented Management & Use

The principle barrier to addressing direct threats to the ecosystems of NE Tobago is fragmented management and use. The NPAP policy and the IFPAMTT project as well as ERIC's current assessment have all identified and prioritised this barrier for NE Tobago. Regulations and roles are unclear and consequently there is almost no "enforcement / implementation of regulations concerning natural resource use" as stated in the North East Tobago Management Plan. Fragmented formal and informal public and private land management and use create an environment where it is nearly impossible for a single stakeholder to meaningfully influence the direct threats that are degrading NE Tobago's ecosystems. This barrier has the following two components.

Government Sector

A *government component* involves the formal management of public lands and waters. This barrier includes outdated legislation and policy, a labyrinthine institutional structure, and limited government capacity and resources. Repeated government initiatives since the 1970s have failed to address this issue. Currently, there are 10 protected area categories with different management systems under different Acts governed by 10 different management authorities. These figures increase when the legal framework and authorities dealing with general natural resource use are considered. In terms of funding, the IFPAMTT project document (2014) estimates a US$16.7 million annual gap between current and ideal funding for national protected areas. This fragmentation has a host of direct effects, largely mediated through a lack of enforcement or implementation of government mandates for natural resource management.

This component is being addressed by a government-led initiative that began with a new NPAP in 2011. The policy calls for a wide range of actions to be undertaken by 2016. These include the "revision, development and declaration of supporting legal instruments [to] enact an enabling legislative framework", the establishment of a centralised authority "to administer the coordination and implementation of the National Protected Areas Policy for Trinidad and Tobago", and the establishment of protected areas under the new policy. In 2013, draft legislation, was prepared and circulated for public comment. It is currently awaiting passage into law. In 2014, the IFPAMTT project was launched to catalyse implementation of the NPAP; it is expected to close in 2019. The project had four components: improvement to legal and institutional arrangements, improvement to infrastructure, a sustainable financing system, and monitoring, evaluation and dissemination. The project intended the designation of six protected areas under the new legislation, including the Main Ridge Forest Reserve, and a new MPA in NE Tobago. As the IFPAMTT project is implemented through until 2019, these initiatives will hopefully bring coherence to government actions for conservation in NE Tobago.

Non-Government Sector

Fragmented management and use of land and waters also occurs in *non-government sectors*. The absence of a national land use planning framework combined with outdated regulations and limited enforcement means that private land management and use is largely unrestricted. There is a concomitant lack of mechanisms and incentives for private land owners to engage in or benefit from conservation. The current, forested state of most private land in NE Tobago is therefore not a result of public policies or priorities, but an artefact of the priorities and preferences of individual owners. Although this speaks to the conservation commitment of some land owners, it is a highly vulnerable state for long-term conservation. Land owners may choose to develop their land with infrastructure or agriculture that compromises the R^3IO system.

Informal management and use of the land and seascape, including public and private areas, is likewise unrestricted. As explained in the THA Comprehensive Economic Development Plan 2.0, Tobago hosts "longstanding insecure land tenure arrangements with as much as 83 percent of the lands of Tobago allegedly in informal tenure (the majority being family lands)". Informal but long-standing family lands, squatting, small agricultural plots, unregulated dumping, hunting, harvesting of timber and other forest products, and harvesting of fish from the marine environment all represent often legitimate uses of public and private territory that can nonetheless contribute to fragmentation and degradation of ecosystems.

With approximately 4,000ha of private land between the Main Ridge Forest Reserve and the proposed Marine Protected Area, and both legitimate and illegitimate civil society activities across public and private lands, the non-government sector is critical to successful long-term conservation of the R^3IO system. The NPAP and the IFPAMTT project acknowledge the importance of non-government stakeholders to the success of the NPAP. However, almost no funding is planned for these components. Additionally, there is a weak history of government agencies engaging civil society and the private sector in management resulting in limited opportunities and institutions for involvement of communities and civil society organisations in decision-making and management. An example is the struggles of the Stakeholder Management Committee for the Environmentally Sensitive Area of the Buccoo Reef in South West Tobago, which is limited to an advisory role. Another is the bequest by a North East Tobago landowner of St. Giles Island to the Tobago House of Assembly several decades ago, on the condition that the island be managed for conservation. To date this still has not occurred, in spite of the island being listed as an Important Bird Area.

Consequently, there is a significant gap in current efforts to secure long-term conservation of the R^3IO system. The government initiative will address outdated and inconsistent legislation and encourage coherent management of public areas. However, substantial additional effort will be required to secure conservation tenure on private lands and to include non-government stakeholders as both partners and beneficiaries. Without involvement of non-government stakeholders, long-term conservation will not succeed.

2. Limited Information and Communication on Social and Ecological Trends

Although fragmented management is the principal barrier to conservation in NE Tobago, another critical barrier is a lack of monitoring and communication. This issue captures two barriers to biodiversity conservation regionally as identified by the Caribbean Islands Biodiversity Hotspot assessment: limited technical and scientific knowledge and poor availability of information needed for effective decision-making, and lack of awareness of importance of biodiversity and ecosystem services. It is also prioritised by the IFPAMTT as one of four project components. Limited information and communication mean that it is difficult to: quantify conservation threats, foster informed discussions, prioritise management actions, measure the success of interventions, and inspire stakeholders to take action. Consequently, there is a second gap in current efforts to secure long-term conservation of the R^3IO system.

3.3 Conservation Opportunities

3.3.1 CSO and Government Collaboration

In the past, the conservation of natural heritage and creation of related sustainable livelihoods has not received the required governmental resource allocation. Initiated under the IFPAM project, civil society and governmental agencies have been collaborating increasingly over the past four years regarding PA management in NE Tobago. While the level of formalised and on-the-ground collaboration requires further significant improvement, it has never been as close before.

The planned establishment (2019) of the NE Tobago Protected Area Management Trust (NETPAMT), envisaged as a true collaboration between government agencies and civil society, will open new opportunities to secure human resources (e.g. community stakeholders, academic collaborators), as well as financial support through access to funding normally inaccessible for governmental agencies. The NETPAMT will be the first organisation of its kind in Trinidad and Tobago and an important role model for the management of other protected areas in the country and region.

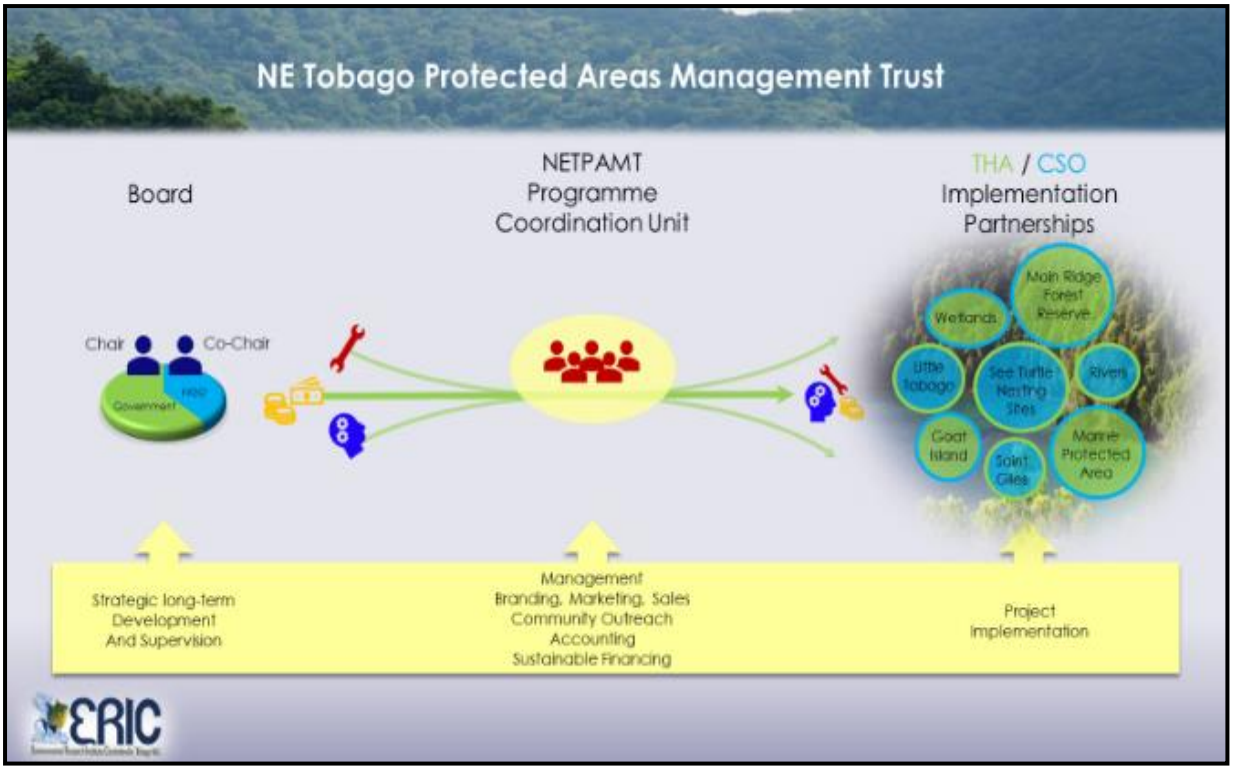


Figure 18: Potential Structure for North East Tobago Protected Areas Management Trust.

3.3.2 Funding

As part of Trinidad and Tobago, NE Tobago has access to a regionally unique combination of funding, which are tightly linked to the envisaged, demonstrably successful collaboration of government and civil society manifested in NETPAMT.

- Notably, in 2000, the Government of Trinidad and Tobago established the Green Fund, a National Environmental Fund. It is capitalised by a 0.3% Green Fund Levy on gross sales or receipts on every dollar spent in Trinidad & Tobago (ad infinitum). Funds are kept separate from other taxes but represented in National accounts. The Green Fund is used for conservation of the environment, remediation and restoration activities, (e.g. reforestation as well as for environmental education and public awareness of environmental issues). It is administered by the Ministry of Planning; statutory bodies, NGOs and CBOs can apply for funding and NETPAMT would be eligible. The funds' financial resources are significant and could finance the transition phase for PA management in NE Tobago; ad infinitum funding is not possible.
- Global hydrocarbon mining / energy companies are operating in Trinidad and Tobago, some of which have sustained interest in the exploitation of NE Tobago offshore hydrocarbon (mainly gas) resources. Historically, these companies are an important funding partner for the entire civil society sector in Trinidad and Tobago and have already demonstrated their interest to support conservation and sustainable livelihoods in NE Tobago.

- Contrary to many other global places of high natural and cultural heritage value, NE Tobago's natural, social, cultural, and security environment provides significant opportunities for well-designed responsible tourism entrepreneurship, adding to income stream generation, supporting conservation activities and livelihoods.

3.3.3 Private Land Management & Use

First, there is an opportunity to influence private land tenure, management and use. Several factors allow for this:

1. Private land tenure in North East Tobago is dominated by a series of large estates, as detailed in Chapter 2.1. These estates are currently forested, undeveloped and encompass land of high conservation value. Notably, some of this land maintains critical ecosystem connectivity within the R^3IO system between the Main Ridge Forest Reserve and the forested North East tip of the island. Several owners have expressed interest in conservation and conservation-relevant development. The intended various forms of acknowledging natural heritage sites in NE Tobago provides owners of private land and buildings with the opportunity to include all or parts thereof under the legislation and protection of the various designations.
2. There are viable opportunities for sustainable, conservation-relevant land use and development throughout the area. Examples include eco-tourism, science-tourism and agroforestry. A precedent nationally, is the Brasso Seco Tourism Action Committee, a CBO for a small village in Trinidad's Northern Range which produces and markets its own, locally produced cacao and coffee (www.brassosecoparia.com).
3. The Tobago House of Assembly has engaged in the establishment of the North East Tobago Protected Area Management Trust (NETPAMT), envisaged as a non-for-profit, co-management organisation responsible for all protected areas in NE Tobago; it can be anticipated that the NETPAMT will be fully established in 2019. Furthermore, there are some current legal and regulatory mechanisms available to formalise conservation tenure and management.
4. Finally, the NPAP provide explicit mechanisms for establishing and incentivising conservation tenure and management of private lands. When instituted, these will create an enabling, legal, regulatory framework for a variety of formal conservation tenure and management arrangements.

The lack of government funding and resources allocated to address this opportunity creates an excellent leverage point for private sector investment to secure long-term conservation in NE Tobago in synergy with ongoing government initiatives on public lands.

3.3.4 Civil Society Capacity

Second, there is an opportunity to ensure the capacity of civil society and private enterprises to both contribute to and benefit from conservation in NE Tobago.

1. NE Tobago has several active CBO's with environmental mandates. These organisations, such as North East Sea Turtles, the Environmental Research Institute Charlotteville and the

Castara Tourism Development Association, are currently pursuing conservation-relevant activities and have demonstrated a willingness to engage with conservation and sustainable development. These groups currently have limited capacity but have demonstrated, through several projects, the ability to improve with experience.

2. There are viable opportunities for conservation-relevant income-generating opportunities for CBO's and local entrepreneurs, such as eco-tour guiding, art & craft, herbal spa treatments, diving and volunteer tourism. An example nationally is the Nature Seekers CBO that operates on the East coast of Trinidad, generating income through guiding eco-tours to observe nesting leatherback sea turtles, recreational activities and reforestation projects.

3. Finally, the NPAP include explicit requirements for co-management of public protected areas. Consequently, as the NPAP is implemented, there will be a need for competent local individuals and organisations to undertake co-management roles. Public protected area management will be compromised if such roles are not effectively filled.

If civil society capacity is not built, or the risky transition to sustainable livelihoods is not actively and reliably supported, past experience has shown that conservation co-management will not occur, and that long-term conservation is unlikely. A local example is the Belle Garden Wetland Association, a small community-based organisation that sought to develop and co-manage a wetland for conservation on the Atlantic coast of Tobago. Inadequate and inconsistent funding combined with overly onerous requirements exceeded the capacity of the organisation which subsequently dissolved. The wetland remains unmanaged.

Although the NPAP and IFPAMTT will create an enabling environment, and indeed require co-management of public protected areas, virtually no funds are currently allocated to developing co-management capacity. Consequently, there is an opportunity for private sector investment to secure long-term conservation of the R^3IO system, including both private and public lands by building local capacity to meet co-management roles. At the same time, capacity building would also support local livelihoods, sustainable development and adaptability in face of climate change.

3.3.5 Monitoring & Communication

Finally, there is an opportunity to coordinate monitoring and communication of social and ecological trends in the R^3IO system, informing decisions and promoting a sense of ownership for stakeholders. Several factors contribute:

1. The Environmental Research Institute Charlotteville is undertaking sustained ecosystem health monitoring and communication to inform discussion and decisions for conservation and sustainable development in NE Tobago. This mandate is manifest through ongoing programmes such as Reef Check (see Figure 19) and Forest Check monitoring in collaboration with local community members.

2. Several CBOs (e.g. North East Sea Turtles, Speyside Eco Marine Park Rangers, Roxborough Police Youth Club) are collaborating with the national Turtle Village Trust to collect sea turtle nesting data.
3. NE Tobago has, since the 1960's, attracted academics from around the world to both study and teach tropical ecology and related topics. This legacy of research continues. Examples include coral reef research, herpetology, botany and climate change vulnerability.
4. Local CBOs, as well as local schools, have consistently shown an interest in collecting, learning about, and disseminating information about their social and ecological environment.
5. Finally, the NPAP and most importantly, the IFPAMTT prioritise monitoring and communication. The latter includes provisions for a central database for biodiversity, and a management information system with data that will be publicly available. Similarly, a government initiative to standardise biodiversity indicators for the country will ensure that monitoring data is used to inform conservation management.

Figure 19: ERIC's NE Tobago community-based field technicians collecting Reef Check data. Photo: N. Cook.

There is an opportunity for private sector investment to influence long-term conservation by supporting monitoring and communication.

Table 9: Summary of direct threats, barriers, and opportunities for conservation in North East Tobago.

Direct Threats	Barriers	Opportunities
1. Infrastructure Development **2.** Over-Exploitation **3.** Pollution **4.** Climate Change **5.** Local Disempowerment **6.** Ecosystem Fragmentation **7.** Invasive Species	**1.** Fragmented Management **2.** Limited Information and Communication on Social and Ecological Trends	**1.** CSO/Government Partnerships **2.** Funding Opportunities **3.** Private Land Management & Use **4.** Civil Society Capacity & Resilient Landscape **5.** Monitoring & Communication

4. Currently Pursued Recognitions for NE Tobago Natural Heritage

4.1 National Heritage Sites

4.1.1 Background

Many attributes and locations of NE Tobago's natural heritage are of impressive natural beauty and / or national, historic, scientific, conservation or archaeological interest.

Natural sites of national importance can be recognised as Natural National Heritage Sites and be protected under the National Trust of Trinidad and Tobago Act, 1991.

Most importantly, protection under this Act would allow for improved management of these national gems, raising local and international awareness, creating sustainable income generating opportunities and demonstrate a national legal commitment to potential donor agencies.

Currently, only cultural sites are listed as National Heritage Sites in Trinidad and Tobago; the only site listed in Tobago is Fort King George in Scarborough.

4.1.2 Administration

The organisation mandated to list and manage National Heritage Sites in Trinidad and Tobago is the National Trust of Trinidad and Tobago (NTTT).

The NTTT is a statutory body under the Ministry of Planning and Development, but it is deemed to be a charitable institution of a public character as defined by the National Trust Act, 1991. It is a membership organisation and conducts education and outreach projects; however, such activities are very limited in NE Tobago.

The NTTT was established for the purpose of:

(a) listing and acquiring such property of interest as the Trust considers appropriate;

(b) permanently preserving lands that are property of interest and as far as practicable, retaining their natural features and conserving the animal and plant life;

(c) preserving, maintaining, repairing and servicing or, arranging for the preservation of property of interest other than land and where such property of interest comprises buildings, augmenting the amenities of such buildings and their surroundings;

(d) making provision for the access to and enjoyment of property of interest by the public;

(e) encouraging research into property of interest including, where applicable, any animal, plant or marine life associated therewith;

(f) compiling photographic or architectural records of property of interest;

(g) making the public aware of the value and beauty of the heritage of Trinidad and Tobago; and

(h) advising the Government on the conservation and preservation of property of interest and on any or all the matters referred to above.

There are eight stages required to list and legally protect a National Heritage Site:

Stage 1: Nomination of the Heritage Site & Information Gathering. Nominations can

come from the Regional Corporations, City Councils, National Trust members, individuals, members of the public and other orgs.

Stage 2: Identification & Inclusion of Heritage Site on the Heritage Asset Register

Stage 3: Approval for inclusion on the Inventory of Properties of Interest

Stage 4: Preparation of Dossier for Heritage Site by the National Trust

Stage 5: Presentation and Acceptance of Dossier by the National Trust Council

Stage 6: Decision Made by the National Trust Council to list as a Heritage Site

Stage 7: Gazette Notice & inform owner of Intention to list as a Heritage Site & publish in at least three issues of a daily newspaper

Stage 8: List published in the Gazette and Heritage Site listed on Index of Listings at the Registrar General.

Based on the above, the NTTT is mandated to list both built and natural heritage that are of national significance. Once listed, in accordance with Section 8 of the National Trust of Trinidad and Tobago Act (No. 11 of 1991 and Amendment No. 31 of 1999) the property is deemed a heritage property and is entitled to legal protection from alteration, damages, injury, defacing or demolition.

In addition, the NTTT has a special interest to secure additional international recognition for National Heritage Sites e.g. via UNESCO and has fostered established relationships with the UNESCO Commission to Trinidad and Tobago to further this agenda.

To move forward with international recognition of NE Tobago's natural heritage (e.g. as a UNESCO World Heritage Site or UNESCO Man in the Biosphere Reserve) a site must be under protection and ideally should be listed as a National Heritage Site under the National Trust Act.

Consequently, the NTTT started the process in early 2018 of listing the Main Ridge Forest Reserve as a natural National Heritage Site and prepared a list of other potential sites including the St. Giles Islet Complex and Little Tobago.

Concurrently, it is the intention of the Tobago House of Assembly to vest all protected areas in NE Tobago, including National Heritage Sites, into the North East Tobago Protected Area Management Trust (NETPAMT) by 2020.

Therefore, the exact role of the NTTT regarding National Heritage Sites in NE Tobago needs to be established via an agreement between the THA, the NTTT and the NETPAMT.

4.1.3 Criteria

For each nominated site a dossier needs to be developed outlining the significance of the site to Trinidad and Tobago as a nation. For natural sites, the dossier should include information about boundaries, site description, biodiversity, ecology, geology, micro climate connectivity, aesthetic value, cultural value / use, threats, historical background, stakeholders, legal and regulatory aspects as well as a concise recommendation for future and sustainable management.

4.2 UNESCO World Heritage Site

4.2.1 Background

The World Heritage Convention is the most important international tool created by the international community of nations to protect the world's most important cultural and natural heritage. World Heritage Sites (WHS) are cultural and/or natural sites considered to be of 'Outstanding Universal Value' (OUV).

These places or buildings are thought to:

- have special importance for humanity, and
- represent unique, or the most significant or best, examples of the world's cultural and/or natural heritage.

Achieving World Heritage Site status is by definition globally competitive, whilst the application process is extremely comprehensive requiring the collaborative involvement of a great number of national and local stakeholders over an extended period of time (usually a minimum of 2-3 years). There is therefore a significant commitment required by the State Party in terms of human resource and finance to be made available, with the knowledge that successful inscription is not guaranteed. Maintaining inscription and promoting it successfully in order to drive increased tourism numbers is an additional and sizeable ongoing commitment of human and financial resources.

As the World Heritage List is a collection of the superlative it must, by definition, be finite with a rigorous assessment process that is ultimately competitive in nature. As the Operational Guidelines (2008) for WHS note, "*the Convention is not intended to ensure the protection of all properties of great interest, importance or value, but only for a select list of the most outstanding of these from an international viewpoint*".

Each natural World Heritage Site nomination therefore includes a global comparative analysis that requires comparison of the nominated site against other examples of the same or similar biome within its own and similar biogeographical regions.

Marketing value of World Heritage Site status

Many World Heritage Sites are iconic locations, the "*global rock stars of natural and cultural heritage*" that represent "*an irreplaceable legacy that the global community has decided to protect for the future*." This might suggest that from a promotional and marketing stand point WHS designation would offer a boost for attracting tourists and thereby enhance the economy for an inscribed site.

Academic research, however, suggests that the socio-economic benefits of WHS designation have been largely overstated (Rebanks Consulting, 2010) with little evidence that greater visitor numbers are a guaranteed by-product of designation, in fact the report states: "*The recent evidence suggests that the tourism footfall impact of the designation is unlikely to exceed 0-3%*"(Ibid exec summary pg3) further to which the report confirms "*that if you ask questions about the generic economic or tourism impact of unfiltered samples of WHSs you will by definition get unimpressive or negligible impact results. This is for one simple reason… namely that most WHSs are not trying to achieve significant socio-economic results, they are*

overwhelmingly about preservation of heritage." The report goes on to suggest that of existing WHSs those that pursued nomination for socio-economic benefits represent only 5-10% of the total. However, those sites that did prioritise socio-economic benefits and allocated sufficient financial resources to drive promotion upon inscription can derive more significant economic benefits from attracting high value cultural visitors.
The evidence, however, is clear: World Heritage site inscription alone does not drive increased footfall to a designated site.

4.2.2 Administration

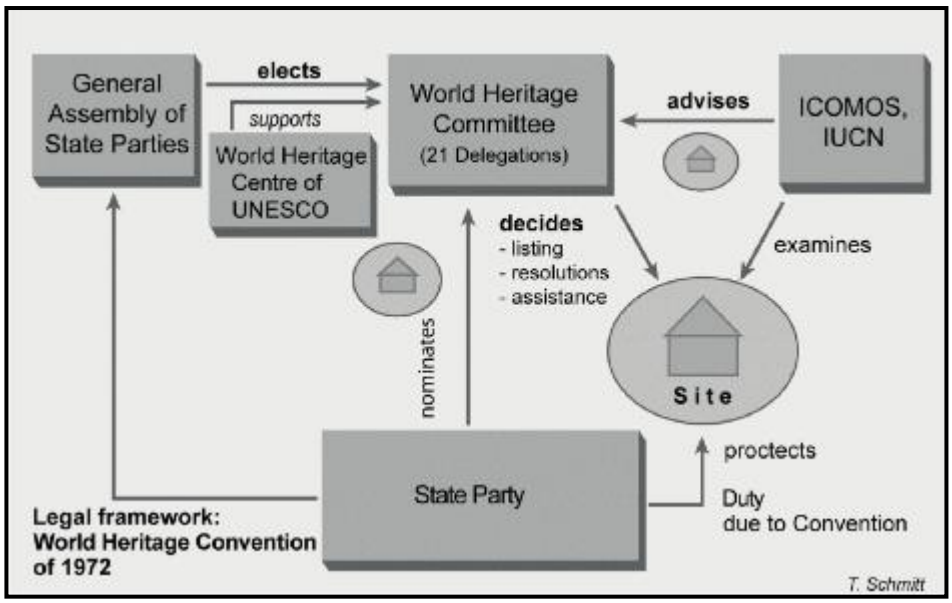


Figure 20: Nomination process for WHS designation, adapted from Schmitt (2011).

The nomination process and actors involved in this process are summarised in the above flow chart:
State Parties undertake actions within the WHS programme voluntarily and sites remain under national jurisdiction.
The State Party nominates its chosen site to the World Heritage Committee (WHC) through the WHS application process. The WHC decision making, however, relies upon the technical expertise of the International Union for the Conservation of Nature (IUCN) for guidance on natural World Heritage Sites (nWHS) and the International Council on Monuments and Sites (ICOMOS) for cultural World Heritage Sites (cWHS). The work of both these entities in the context of WHS is based upon the provision of in depth, current and accurate technical research that helps to guide the conservation priorities to produce a balanced and credible WH list.
IUCN publications produced that influence the evaluation of NE Tobago include:

- (Bertzky, et al., 2013): "Terrestrial Biodiversity and the World Heritage List - Identifying broad gaps and potential candidate sites for inclusion in the natural World Heritage network"

- (Abdulla, Obura, Bertzky, & Shi, 2013): "Marine Natural Heritage and the World Heritage List - Interpretation of World Heritage criteria in marine systems, analysis of biogeographic representation of sites, and a roadmap for addressing gaps"

IUCN and ICOMOS experts are also used to assess every nomination and to draw up recommendations to either inscribe the site on the WHS list or provide detailed feedback on areas of weakness and how to bolster the strength of a nomination for potential future submission. IUCN or ICOMOS experts can also be contracted to assist in providing technical expertise within the nomination process.
For NE Tobago, the ERIC evaluation team includes IUCN technical specialist and natural World Heritage Site expert Ms Josephine Langley whose prior experience undertaking scoping exercises for various potential natural WHS in the Caribbean region is central to the NE Tobago evaluation exercise.
The influence of IUCN and ICOMOS is therefore highly significant upon the WH list and nominated sites simply cannot be inscribed without their endorsement.

OUV Periodic Review
The WH Committee requires the State Party via its management authority to undertake a robust and comprehensive periodic review of the site every six years, during which process weaknesses of the management system and threats to OUV will be highlighted. Should threats that have previously been raised still pose a risk to the integrity of the site and a threat to the OUV the WH Committee can undertake a process of Reactive Monitoring which allows for outside experts sanctioned by the WH Committee to come and assess and make recommendations for action.
Should this prove unsuccessful and the threats to OUV remain extant the site can be added to the Danger Listing. Danger listing is obviously best to be avoided due to the negative publicity that it can place upon the site, management and the State Party who can perceive danger listing as a poor reflection on their inability to properly manage and protect their site/s.

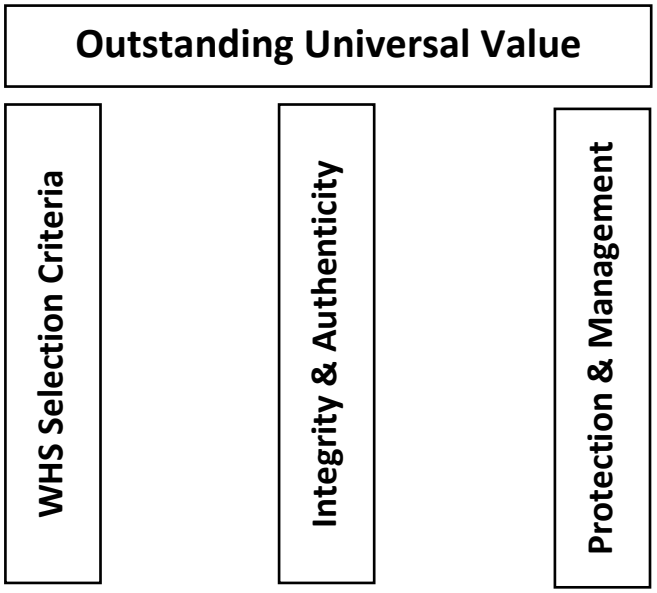
Delisting
The action to delist a WHS is extremely rare and to date only two sites have been delisted:

1. **Arabian Oryx Sanctuary** in Oman was delisted in 2007 after the Kingdom of Oman unilaterally reduced the size of the sanctuary by 90% to allow for hydrocarbon exploration to take place. The number of critically endangered Arabian Oryx had already dwindled from 450 to only four breeding pairs by the time of delisting (WHC, 2007).
2. **Dresden Elbe Valley** in Germany was delisted in 2009 due to the OUV being irreparably reduced through the building of a four-lane bridge that bisects the World Heritage Site (WHC, 2009).

Clearly, the negative impacts of delisting including potential reputational damage to the State Party are to be avoided.

4.2.3 Criteria

To be included on the World Heritage List, sites must demonstrate Outstanding Universal Value (OUV). It is the OUV that sets a WHS apart from all other designations of protected area. In order to meet the designation of OUV there are three pillars that must be present:



The first pillar is that the site must meet at least one out of ten selection criteria. Of the ten WHS criteria, six represent cultural values and four natural values.

The second pillar is that the site meets integrity and authenticity (latter for cultural sites only) criteria.

The third pillar is that the site has sufficient legal protection and robust management structures in place.

In the case of NE Tobago and more specifically the MRFR, the Government of Trinidad and Tobago listed the MRFR in 2011 on the UNESCO WHS Tentative List citing five of the 10 above mentioned selection criteria. In 2018, key experts (see Chapter 6) could only identify two (IX and X) of these five criteria as potentially justifiable.

The 10 WHS selection criteria are:

(i) to represent a masterpiece of human creative genius;

(ii) to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;

(iii) to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living, or which has disappeared;

(iv) to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
(v) to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
(vi) to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);
(vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
(viii) to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
(ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
(x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

In order to qualify as a UNESCO WHS, NE Tobago would therefore be required to demonstrate Outstanding Universal Value for Criteria IX and X.

Outstanding Universal Value is considered to transcend national boundaries and to be of importance for future generations and can be explained through the common sense understanding of each word namely:

Outstanding: exceptional, or **superlative**; the most remarkable places on earth.
Universal: outstanding from a **global** perspective; not only from a national or regional perspective.
Value: uniqueness, rarity or **irreplaceability**

The "value" is *arguably the most important concept for assessing the potential of a site to be considered of OUV* (Bertzky, et al., 2013). This definition of value when considered for biodiversity criteria for island ecosystem WHS properties usually relate to the level of endemism. By way of example, The Socotra Archipelago in Yemen exhibits over 90% endemics in its reptile species and 95% of its snails, whilst the Rainforests of the Atsinanana (Madagascar) are listed because they have extremely rare forest types on steep terrain, with enormously rich biodiversity reflecting peculiarities of geology and location (criterion ix) and globally outstanding endemism at 80–90 per cent of species present (criterion x).

Whilst meeting at least one of the ten eligibility criteria is central to OUV status any assessment by IUCN of the nomination will place equal weight on the other two pillars of integrity and authenticity (for cultural sites) and the highest international standards of protection, care and management.

Integrity: The WHS Operational Guidelines also make clear that to be deemed to have OUV, a natural site must also meet conditions of integrity. This refers to wholeness and intactness of the site; broadly speaking whether a natural World Heritage site:

- contains all the relevant ecological, geological and/or scenic elements needed to maintain the values for which it has been listed;
- is large enough to include the key features of OUV and to remain viable over time, and
- is in a good state of conservation.

Authenticity only relates to cultural sites and is therefore not considered in the context of NE Tobago.

Protection, Care and Management: The third pillar underpins the requirement specified in the Operational Guidelines that each World Heritage site must have:

- adequate legal protection; and
- a robust management system to ensure it is safeguarded

The fact that a property has been accepted onto the WHS List implies that the World Heritage Committee considers it to have strong enough legal protection and that "*legislative and regulatory measures at national and local levels should assure the survival of the property and its protection against development and change that might negatively impact the Outstanding Universal Value, or the integrity and/or authenticity of the property"* (UNESCO/IUCN, 2012, Paragraph 98).

The expectation of effective protection and management is unsurprisingly therefore an explicit requirement to guarantee OUV: "*…new applications for natural World Heritage status would normally be expected to meet the IUCN definition of a protected area with its implied high levels of protection through legal or other effective means. Protected area status alone is not sufficient; however, and natural World Heritage sites are expected to be adequately managed. A wide range of management considerations including management capacity and planning systems as well as sustainable finance will have been considered in making recommendations to the World Heritage Committee about listing a site and management effectiveness will continue to be considered in the various monitoring and reporting requirements of the World Heritage Committee* (UNESCO/IUCN, 2012)."

What the above paragraph demonstrates is that the site is required to meet **at minimum** the IUCNs definition of protection (see box below) and in addition it must be supported by active management, financial sustainability, monitoring and reporting to demonstrate protection is ongoing and sufficiently robust to ensure the OUV is not compromised over time. An internationally high level of management responsibility is therefore necessary to achieve inscription and sustain it.

> **IUCN Definition of a Protected Area:** A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal* or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. (IUCN Definition 2008)

*In order to be effective IUCN recognises that PAs must be supported by a firm legal infrastructure. The IUCN Environmental Law Programme (ELP) was developed to assist in the development of robust National and International legal frameworks to support PAs though creating and improving PA law and creating or modernising national legislation in this field. The ELP is made up of the IUCN Environmental Law Centre (ELC) in Bonn, Germany and the World Commission on Environmental Law (WCEL), which is a global network of environmental law and policy experts who volunteer their knowledge and services to IUCN activities. The ELP offers through its website a set of educational tools for teaching and learning about protected areas law and governance. (Lausche, et al., 2015).

Even without application for WHS, however, consultation with the ELC/WCEL is potentially recommended for assisting in the formal legal drafting of the relationship between the NTTT, THA and the NETPAMT relating to PA status and management of the National Heritage Sites in NE Tobago and as a prerequisite for any UNESCO nomination.

4.3 UNESCO Man and the Biosphere Reserve (MAB)

4.3.1 Background

MAB is an intergovernmental scientific programme, launched in 1971 by UNESCO that aims to establish a basis for the improvement of relationships between people and their environments; it predicts the consequences of today's actions on tomorrow's world and thereby increases people's ability to efficiently manage natural resources for the well-being of both human populations and the environment (UNESCO MAB, 2017).

The working unit of MAB is the Biosphere Reserve (BR), an international description of recognition from UNESCO for an area in the world, which is deemed to demonstrate a "*balanced relationship between humans and the biosphere*" (Ibid).

Biosphere Reserves are internationally recognised areas comprising terrestrial, marine and coastal ecosystems. Each reserve promotes solutions reconciling the conservation of biodiversity with its sustainable use by local communities. BR are nominated by national

governments and remain under the sovereign jurisdiction of the states where they are located.

BR are intended to be model regions for demonstrating successful approaches to protection and sustainable development at a regional level. MAB sites are established with the goal to:

- harmonise conservation of biological and cultural diversity with economic and social development, and
- make a tangible contribution to the transition to green societies and support national governments efforts to attain the Sustainable Development Goals (SDGs).

Biosphere Reserves have three inter–connected functions:

- **Conservation**: protecting cultural diversity and biodiversity, including genetic variation, species, ecosystems and landscapes and securing services provided by such diversity;
- **Development**: fostering economic and human development that is environmentally and socially sustainable and culturally appropriate; and
- **Logistic support**: facilitating demonstration projects, environmental education and sustainable development education and training, research, and monitoring.

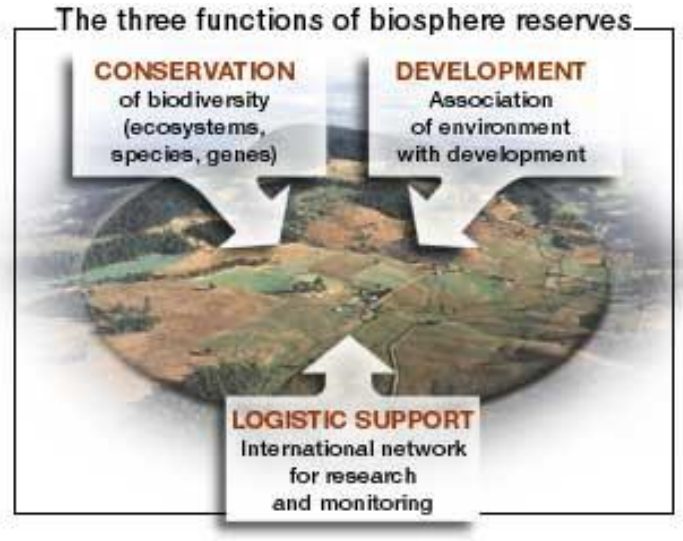


Figure 21: Schematic overview of three functions of biosphere reserves. (GWS, 2008).

A BR consists of three areas or zones – The core, buffer and transition zones.

The core zone would usually be a protected area in which human activity is strictly limited where monitoring of conservation priorities would take place.

The buffer zone allows for appropriate activities such as research and scientific study, ecotourism, education and training whilst;

The transition zone contains human settlements, agricultural and other commercial activities synonymous with human settlement.

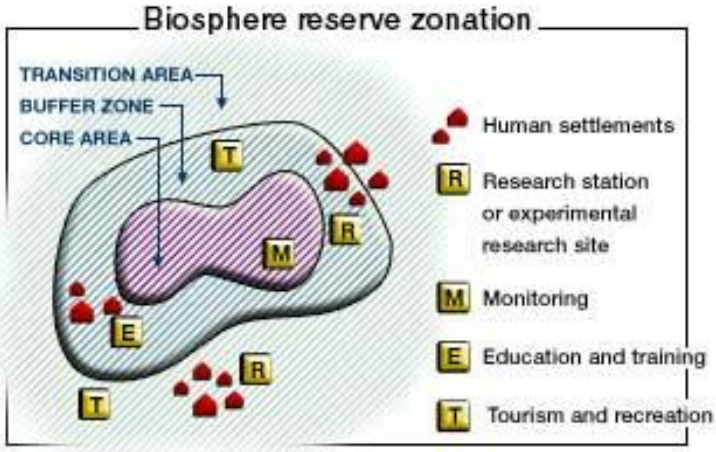


Figure 22: Schematic overview of biosphere reserve zonation. (GWS, 2008).

UNESCO with its national BR committee and individual BR management partners promotes the work undertaken within the BR through online video campaigns such as #proudtoshare in order to further spread best practices and bring heightened awareness of the BR to the global community. The Palawan, Philippines BR #proudtoshare video demonstrates an excellent example of how MAB provides a framework for building the connection between national policy and laws with regional management plans and local stakeholder engagement for successful conservation married to sustainable economic development. The individual MAB reserves also undertake promotion and marketing activities to highlight their role in bringing people and environment together.

A very customer-facing example of this is the MAB Reserve Isle of Man in the UK. Their website (see: (Isle of Man, 2018)) is very user friendly and aimed at the general public rather than academics or civil servants.

Although not as well-known as WHS, the Man and the Biosphere Programme (MAB) has a significant World Network of Biosphere Reserves (WNBR) which serves as a management tool for various municipal regions to improve strategies for sustainable development. As the pressures upon ecosystems increase with growing populations and climate change, the need for upgraded relationships between people and their natural surroundings will only increase. The WNBR list is significant, demonstrating the value that many nation states place upon the designation. As of January 2018, there are 669 biosphere reserves in 120 countries; however, only two sites within the insular Caribbean (St Kitts & Guadeloupe)

The insular Caribbean is therefore significantly MAB under-represented which offers stakeholders in NE Tobago the opportunity to use a MAB designation as a branding and promotional tool for sustainable/responsible/eco-tourism development that can be utilised at various levels from the THA and NETPAMT down to individual communities and private enterprises to drive visitation from these niche tourism sectors to NE Tobago.

The **MAB mission** for the period 2015-2025 is to:

- develop and strengthen models for sustainable development in the WNBR;
- communicate the experiences and lessons learned, facilitating the global diffusion and application of these models;
- support evaluation and high-quality management, strategies and policies for sustainable development and planning, as well as accountable and resilient institutions;
- help Member States and stakeholders to urgently meet the Sustainable Development Goals through experiences from the WNBR, particularly through exploring and testing policies, technologies and innovations for the sustainable management of biodiversity and natural resources and mitigation and adaptation to climate change. (MAB Strategy 2015-2025 & Lima Action Plan)

4.3.2 Administration

The International MAB Programme

Like World Heritage, the MAB programme is organised under an international agreement through UNESCO. Also, like WH, State Parties undertake actions within the MAB programme voluntarily and sites remain under national jurisdiction. The MAB institutional structure is outlined in Figure 23.

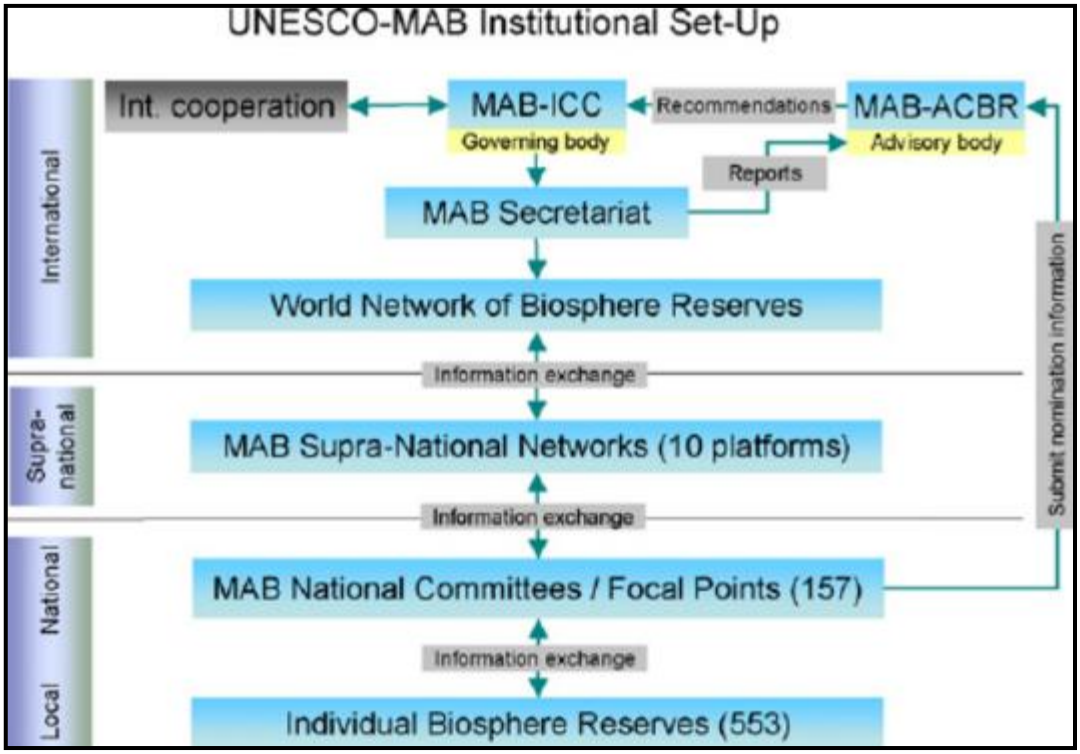


Figure 23: Diagram of the MAB institutional structure. (Schliep & Stoll-Kleemann, 2009)

The MAB International Coordinating Council (ICC) is the governing body that meets biannually and consists of 34 Member States elected by UNESCO's General Conference. The ICC elects a chair and five vice-chairpersons from each of UNESCO's geopolitical regions that constitute

the MAB Bureau which undertakes the responsibilities of the ICC between its biannual meetings. The MAB International Advisory Committee for Biosphere Reserves is the primary scientific and technical Committee body advising the ICC. The MAB Secretariat is the administrative centre for MAB based at UNESCO's Division of Ecological and Earth Sciences in Paris, the Secretariat work closely with the different field offices and Supranational Networks (e.g. IberoMAB – Iberian Peninsula and Latin America/ Caribbean region) around the world to coordinate the work of the MAB programme at the regional, national and individual Biosphere Reserve levels.

MAB is funded through the regular budget of UNESCO and mobilises funds-in-trust granted by Member States, bilateral and multilateral sources, and extra-budgetary funds provided by countries, the private sector and private institutions.

UNESCO's intergovernmental structure provides MAB with a framework to help national governments support the planning and implementation of research and training programmes with technical assistance and scientific advice.

MAB-related activities are nationally financed however the programme can grant seed funding to assist countries in developing projects and/or to secure appropriate partnership contributions.

MAB offers fellowship opportunities co-sponsored by a number member states to assist the technical development of individuals seeking to build a profession within the field of the UNESCO programme priorities. These opportunities would be available to local staff to apply for.

Importantly, designation as a MAB Reserve does not necessarily require the formation of new laws, as evidenced by the examples from a Swedish study on the MAB Reserve Process (Sandsrom & Olson, 2013) which states:

"Overall surprisingly, there has emerged little negative opinion [from local stakeholders] contrary to the establishment of the Eastern Slopes of Lake Vättern as a Biosphere Reserve, bearing in mind the wide variety of stakeholders and the large number of private landowners found in the area. A reason that so few critical voices made themselves heard, is that nomination to a Biosphere Reserve does not incorporate any new laws limiting the uses of land."

Establishment on the Trinidad and Tobago MAB Focal Point / National Committee

On 13 September 2010 the Environmental Management Authority drafted a note to Cabinet (Annex 1) titled: "*Establishment of a National Committee on the UNESCO Man and the Biosphere (MAB) Programme***".**

The draft note states inter alia: "*Member States of UNESCO establish MAB focal points or National Committees which should proactively work the Global Environment Facility (GEF) National Focal Points, the United Nations Development Programme (UNDP) Resident Representatives and national contacts for the various development banks and/or economic development bodies, and/or the private sector, to develop projects involving biosphere reserves. In Trinidad and Tobago, the Environmental Management Authority has been*

designated by the National Commission for UNESCO as the focal point for the MAB programme, having taken over from the former focal point, the Institute of Marine Affairs. Once a MAB National Committee has been appointed, the focal point ceases to exist, as the MAB National Committee consists of a wider representation of interests".

Additionally, it outlines the MAB benefits, linkage to international agreements and national policy: "the World Network of Biosphere Reserves *provides context-specific opportunities to combine scientific knowledge and governance modalities to a) reduce biodiversity loss; b) improve livelihoods; c) enhance social, economic and cultural conditions for environmental sustainability; and 4) therefore contribute to the pursuit of the Millennium Development Goals (MDGs), in particular MDG 7 on environmental sustainability. These ideals fall squarely into place with the Government of Trinidad and Tobago's focus on the people and sustainable development"*.

The Draft Note to Cabinet further recommends the composition of the MAB National Committee; however, with a remarkably weak representation of the civil society sector and no explicit representation of the Tobago House of Assembly. This should critically be reconsidered, especially based on the outcomes of the IFPAM project and the potential of NE Tobago to be the nation's first and largest MAB Biosphere Reserve.

4.3.3 Criteria

The MAB application process is non-competitive in nature, as it does not require the demonstration of OUV or any site being the most superlative example of any ecosystem or habitat. This removes the requirement for a comparative analysis within the MAB application, a major expense of resources is therefore avoided.

The MAB application is still a sizeable undertaking that has at its core the description of seven eligibility criteria required to qualify as a BR.

The eligibility criteria taken from the Biosphere Reserve Nomination Form (2013) are shown in Table 10.

Table 10: The eligibility criteria taken from the Biosphere reserve Nomination From (2013).

	MAB Eligibility Criteria	NE Tobago
1	**Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions**	✓
2	**Be of significance for biological diversity conservation**	✓
3	**Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale**	✓
4	**Have an appropriate size to serve the three functions of biosphere reserves**	✓
5	**A legally constituted core area/s devoted to long term protection of sufficient size to meet long term conservation objectives**.	✓
6	**Buffer zone/s clearly identified & surrounding or contiguous to the core area/s, where only activities compatible with the conservation objectives can take place**".	Possible
7	**Outer transition area where sustainable resource management practices are promoted and developed**	✓
8	**Organisational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve**".	Ongoing re IFPAM
9	**Able to describe arrangements in place or foreseen**	✓
10	**Mechanisms to manage human use and activities in the buffer zone or zones**	✓
11	**Management policy or plan for the area as a biosphere reserve**	IFPAM as basis
12	**Designated authority or mechanism to implement this policy or plan**	NETMAPT
13	**Programmes for research, monitoring, education and training**	✓

5. Initial Comparative and Gap Analysis

Both, a comparative and a gap analysis are key ingredients for a UNESCO WHS nomination.
This chapter contains a preliminary, mainly regional comparison of NE Tobago's natural heritage values uniqueness and irreplaceability with those of other sites.
Furthermore, this chapter aims to clarify if a UNESCO WHS nomination for NE Tobago would fill a gap amongst existing UNSECO WHSs with regionally and globally significant natural heritage, or if similar values are already covered by other WHSs. The initially more regionally focused evaluation will assist to determine if it would be justifiable to invest in a global assessment. An exhaustive global comparative analysis should only be undertaken if the Tobago House of Assembly (THA) would decide that an UNESCO WHS Nomination is the preferred option to recognise NE Tobago's natural heritage and simultaneously provide livelihood benefits for the resident communities.
While uniqueness, irreplaceability and the potential to fill a globally significant natural heritage gap are some of the keys for a successful WHS nomination, a MAB nomination does not necessarily require the same level of uniqueness, irreplaceability and conservation priority.

Nevertheless, the analysis at hand will provide important information which also will be useful for a potential UNESCO MAB nomination, listing of National Heritage Sites, other local or international nominations, branding and marketing, as well as fund seeking purposes.

5.1 Initial Gap Analysis

The initial gap analysis aims to clarify to what extent the ecological features that are typical for NE Tobago are already represented in other existing or potential WHSs.
IUCN uses broad gaps in biogeographic coverage in guiding the search for outstanding properties to realms and biomes whose distinctive biodiversity values are not yet included on the WHS list (Bertzky, et al., 2013).
Therefore, underrepresentation of substantial NE Tobago biodiversity values on the WHS list would justify a special status and urgency of protection and thus support a WHS nomination. However, if similar features are already represented by other WHSs or are not substantial, a successful nomination would be rather unlikely, since other sites with underrepresented features would be given conservation and WHS nomination priority.

Three IUCN publications ((Bertzky, et al., 2013), IUCN (2004), (Abdulla, Obura, Bertzky, & Shi, 2013)) aimed at identifying WHS candidate sites for consideration until the early 2020's and were the main references for this initial gap analysis.
Bertzky (2013) used three approaches to evaluation:

- Species irreplaceability analysis: this approach identifies the world's most irreplaceable protected areas for species conservation based on the IUCN / UNEP-WCMC World Database on Protected Areas and the IUCN Red List of Threatened Species;

- Rapid screening of Alliance for Zero Extinction sites (AZEs): this approach identifies the most irreplaceable (in terms of number of 'trigger species') AZEs that are protected but not yet covered by biodiversity WH sites;
- Rapid screening of non-biodiversity WH sites: this approach identifies, based on the species irreplaceability analysis, existing WH sites with potentially important biodiversity values that are not yet recognised under biodiversity criteria.

The IUCN 2004 strategy paper was based on:

- Udvardy's Biogeographical classification,
- IUCN/SSC habitat classification,
- WWF Ecoregions,
- Conservation International Biodiversity Hotspots", and
- BirdLife International Endemic Bird Areas; and IUCN/WWF Centres of Plant Diversity

Abdulla (2013) used an analysis of the current distribution of marine WH sites, identified biogeographic gaps with an emphasis on Key Biodiversity Areas (KBAs) and the concept of Ecologically or Biologically Significant Marine Areas (EBSAs) (adopted by the Convention on Biological Diversity (CBD)), and provided guidance on potential approaches to prioritise these gaps for nomination and designation of marine WHS in order to achieve a more appropriate global biogeographic representation of Outstanding Universal Value. In contrast to terrestrial environments (Bertzky, et al., 2013), it was not yet possible for Abdulla (2013) to do global analyses of the marine World Heritage network and to identify priority sites using the same algorithms of irreplaceability.

5.1.1 Summary Gap Analysis

The substantial and dominant forest type in NE Tobago, biogeographically classified as tropical moist broadleaf forest, is well represented by existing WHS and has not been recommended for nomination. A clear priority for WHS nomination is given to large areas of Coastal Venezuela Montane Forests which are biogeographically closest to NE Tobago.

Biogeographically, the proposed NETMPA falls within the Eastern Caribbean Eco Region which is part of the Tropical North-western Atlantic province. In global comparison to other provinces the Tropical North-western Atlantic and coral reef ecosystems in general are well represented on the WHS list and not considered of highest priority. However, increased scientific research might assist in identifying marine OUVs for NE Tobago in the future.

5.1.2 Terrestrial Gap Analysis

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 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).

The IUCN 2004 strategy paper states (inter alia) that:

- the biomes most commonly found in WH sites are Mountains, Humid Tropical Forests, Tropical Dry Forests and Mixed Island Systems; and
- There are major gaps in the WH coverage of the following biomes: Tropical Grassland/Savanna; Lake Systems; Tundra and Polar Systems; Temperate Grasslands; and Cold Winter Deserts.

This analysis did not recommend Trinidad and Tobago dry or moist forests for WHS nomination, giving priority to Madagascar moist forests, forests in southern Chile and southern Argentina, dry and moist forests in New Caledonia, and Western Ghats forests.

Bertzky (2013) states that the tropical and subtropical broadleaf forests are well represented and the biome with by far the largest number (71) of biodiversity WHSs. However, the tropical and subtropical dry broadleaf forest, represented by very small areas of deciduous seasonal forests on Little Tobago, St Giles are underrepresented on the WHS list (Bertzky, et al., 2013) and require conservation attention (which partly contradicts the IUCN 2004 statement).

In alignment with IUCN (2004) and Bertzky (2013) did not recommend Trinidad and Tobago's dry or moist forests for WHS nomination. However, he recommended sites in Martinique and Guadeloupe which aim to preserve the nature of the Antilles and their fauna and flora, both marine and terrestrial. The Guadeloupe park covers 17,300 hectares of tropical forest and 3,700 hectares in a humid and marine environment.
Additional clear priority is given to vast areas in the Coastal Venezuela Montane Forests for extension via serial WHS nomination (including the Paria Peninsula) based on most irreplaceable biodiversity, listing as Alliance for Zero Extinction sites (AZEs), and a broad gap amongst the Global 200 terrestrial priority ecoregions.

Based on the IUCN publications the level of WHS representation for tropical dry broadleaf forests is ambiguous; however, they are not recommended for WHS nomination and NE Tobago's small patches of dry forest are not substantial enough for global recognition.

5.1.3 Marine Gap Analysis

The literature-based biogeographical classification of NE Tobago' marine environment is ambiguous due its geographic location on the boundary of two ecoregions: the Eastern Caribbean and the Guianan.
However, for the purpose of this evaluation, the area of NE Tobago under review (the proposed NETMPA) 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

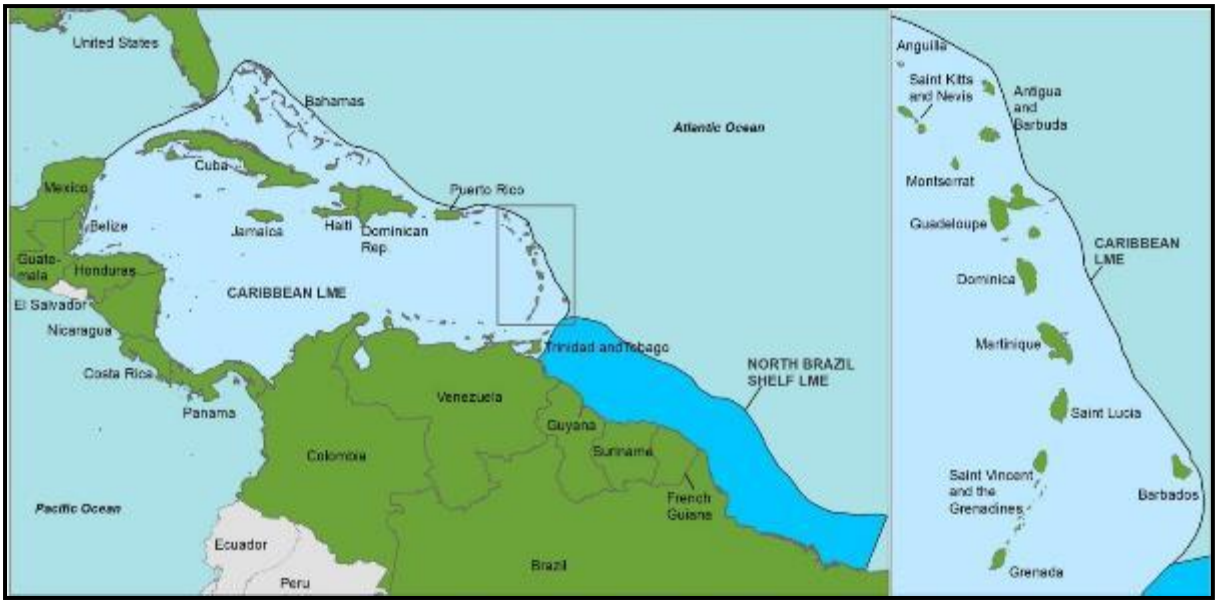


Figure 24: The two ecoregions (Caribbean LME and North Brazil Shelf LME) are given in bright blue and blue. (CLME+ Hub, 2018)

According to Abdulla (2013), current marine WHS do not sufficiently represent global marine biogeographical features and OUVs. However, tropical ecosystems are relatively well represented as opposed to temperate and polar ecosystems; biogeographical provinces with the highest number of mWHS include the Tropical Northwestern Atlantic (5).
The identified 28 "gap provinces", nearshore and continental biogeographic provinces (Spalding, et al., 2007) do not include areas in the Tropical Northwestern Atlantic e.g. the Eastern Caribbean Ecoregion, which would include NE Tobago.

While Abdulla did not engage in identifying priority sites due to data deficiency, the IUCN 2004 strategy paper stated that there are already 20 sites containing coral reefs (of then 46 sites in total) and focused less on detailed gap analysis but provided clear nomination priorities for marine sites, based on recommendations by Conservation International (CI), IUCN/SSC, WWF and BirdLife International as follows:

- Red Sea Corals,
- Andaman Sea,
- Benguela Current,
- Marine sites within the following WWF ecoregions: Fiji, Palau and Tahiti,
- Gulf of California,
- Maldives/Chagos Atolls.

However, Abdulla 2013 also states that the north-western Atlantic has only 0.5% WHS coverage, and as such its potential to capture an adequate cross section of the marine values and features is relatively low and therefore should be considered with secondary priority for

WHS nomination. He encouraged state parties to increase their efforts (e.g. research and protection), with the support of IUCN, the UNESCO World Heritage Centre, and regional and global marine scientists and conservationists, to identify and nominate marine sites of potential OUV.

A potential OUV for the NETMPA could be the presence of substantial populations of globally threatened and / or flagship species. However, the critically endangered, endangered, EDGE and flagship species present in the NETMPA do not represent a globally or regionally substantial part of the population nor is the protection of these species currently sufficiently enforced and supported.
Data deficiency is a major issue and should be addressed as a priority to support conservation efforts in NE Tobago's marine environment.

5.2 Initial Comparative Analysis

One of the key requirements in the preparation of a UNESCO WHS nomination is a so-called "comparative analysis", which is not required for a MAB Nomination.
The purpose of such an analysis is to demonstrate the importance of a property in its national and international context (WHC, 2008) by comparing the property under all relevant WH criteria to similar properties, whether on the WH List or not, and outline the reasons that make the property stand out globally.
Based on the (mostly local) Key Expert Stakeholder interviews conducted by ERIC in May and June 2018, only WH criteria IX and X were relevant for NE Tobago. There was no indication of sufficient justification of relevance for the other criteria (V, VI, VII), which were previously listed on the UNESCO Tentative List for Tobago (2011).
It is important to note that the MRFR's historical conservation significance does not fall under any of the ten WH criteria, is not an OUV in this context and was therefore not considered for the comparative analysis.
Therefore, the initial comparative analysis was undertaken against Criteria IX and X which are interpreted as follows:

a) **Criterion (ix):** be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.
(Interpretation: This criterion relates to connectivity from ridge to reef; ecological processes associated with tropical moist broadleaf forest versus tropical dry broadleaf forest versus mangroves versus seagrass beds. Inter-relationship between biotic and abiotic environment (geology, watershed, climate, sediment, currents etc)).

b) **Criterion (x):** contain the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation.

(*Interpretation: This covers different taxonomic groups' population size, density, diversity of species, sub species, habitats (including those for various lifestages), and overall importance for conservation.*
It further considers species listed as/on:

- *endemic,*
- *IUCN Red List,*
- *endemic species, evolutionarily distinct and globally endangered species,*
- *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),*
- *Convention on the Conservation of Migratory Species of Wild Animals (CMS)).*

For this initial comparative analysis natural heritage values of existing marine and terrestrial WHS in the same biogeographical Eco Regions as NE Tobago were described; at the end of each description it will be determined if NE Tobago can demonstrate scientifically documented and significant OUVs that are not already covered by another site.
Once such OUVs can be identified, a further and more comprehensive global comparative analysis would be warranted.

5.2.1 Marine Comparative Analysis

A comparison of marine natural heritage values related to UNESCO criteria IX and X of four UNESCO WHS, all located in the Caribbean Large Marine Ecosystem (CLME), were used for this initial analysis:

- the Pitons Management Area (Saint Lucia),
- the Belize Barrier Reef Reserve System (Belize),
- the Sian Ka'an (Mexico), and
- the Desembarco del Granma National Park (Cuba),

N.B.: It should be noted that the available information about these comparable WH sites is data deficient, often outdated and in many cases only available in incomparable formats. ERIC contacted the management organisations of all four sites via email and by phone; unfortunately, it was not possible to obtain updated and comparable information from these organisations.

Summary:
Based on the available, notably deficient, data it can be stated that the four analysed marine WHS in NE Tobago's eco-region seem to sufficiently represent all significant marine natural heritage values that are currently described for NE Tobago.
However, marine natural heritage value differences based on the bio-geographic location of NE Tobago and likely expressed by sponge-coral co-dominated reefs need to be further researched to determine possible OUVs.

Pitons Management Area, Saint Lucia

Marine Are Size: 875 ha.

Description: "The Marine Management Area is roughly 11km long and 1km wide along the shore. It comprises a steeply sloping continental shelf with healthy fringing and patch reefs covering more than 60 % of the marine area, boulders and sandy plains. The diverse marine and coastal habitats harbour important marine life. Hawksbill turtles are seen inshore, and whale sharks and pilot whales offshore. The PMA is found within the Soufriere Volcanic Centre and encompasses a wide range of its diverse geological features, including geothermal activity with hot springs (Sulphur Springs) and fumaroles.

Coral reefs cover almost 60% of the site's marine area. A survey has revealed 168 species of finfish, 60 species of cnidaria, including corals, eight molluscs, 14 sponges, 11 echinoderms, 15 arthropods and eight annelid worms" (WHC UNESCO, 2004).

- Regarding IUCN Red List: one critically endangered, two endangered, seven vulnerable, and nine near threatened species are listed.
- EDGE: no edge species listed.
- CITES: 39, mostly coral, species are inscribed at the CITES Appendix

There is no documentation of mangrove or sea grass areas in the Pitons Management Area. There is no documentation stating that there are endemic marine species or endemic sea bird species (MAFF St.Lucia, 2000).

Comparison: This site is located in the same Eco Region (64) as NE Tobago and shows quite similar features. However, the proposed NETMPA harbours a higher number of marine endemics, IUCN listed and EDGE species and is furthermore characterised by sponge – coral co-dominated reefs. It is likely that this difference is significantly based on data deficiency for both areas. Therefore, it would be premature to declare a significant superiority of NE Tobago's natural heritage values justifying WH OUV.

Belize Barrier Reef Reserve System

Marine Area Size: 96,300 ha.

Description: Inscribed as UNESCO WHS in 1996 the property includes seven protected areas: Bacalar Chico National Park and Marine Reserve, Blue Hole Natural Monument, Half Moon Caye Natural Monument, South Water Caye Marine Reserve, Glover's Reef Marine Reserve, Laughing Bird Caye National Park and Sapodilla Caye Marine Reserve.

12% (96,300ha) of the entire Reef Complex is covered in the Belize Barrier Reef Reserve System (BBRRS). One of the most pristine reef ecosystems in the Western Hemisphere. Significant habitat for threatened species such as marine turtles, manatees and the American marine crocodile included. There are three offshore atolls, several hundred sand cays, mangrove forests, coastal lagoons and estuaries.

Illustrating a classic example of reef types, including fringing, barrier and atoll reef types, the BBRRS contains an intact ecosystem gradient ranging from the terrestrial to the deep ocean. Including littoral, wetland, and mangrove ecosystems, to seagrass beds interspersed with lagoonal reefs, to the outer barrier reef platform and oceanic atolls, this ecological gradient provides for a full complement of life-cycle needs, supporting critical spawning, nesting, foraging, and nursery ecosystem function."
246 taxa of marine flora, over 500 species of fish, 65 scleractinian corals, 45 hydroid and 350 molluscs have been recorded in the BBRRS.
Numerous endangered species are protected within the boundaries of the BBRRS including; the West Indian manatee, the American crocodile and three species of sea turtle. The property also provides valuable habitat for three species of groupers, and the red-footed booby. The BBRRS is also home to endemic species including several Yucatan birds, island lizards, several fishes, tunicates, and sponges, making it an area with one of the highest levels of marine biodiversity in the Atlantic." (WHC UNESCO, 1996).

Comparison: Located in the same biogeographical sub-region, the Caribbean LME, the Belize WHS is significantly more comprehensive covering similar marine natural heritage values as the proposed NETMPA to a much greater extent. However, there is no note of sponge-coral co-dominated reefs in for Belize, which indicates that this feature deserves scientific attention and documentation.

Sian Ka'an, Mexico

Marine Area Size: 120,000ha.
Description: "There is a great diversity of marine life, including the West Indian Manatee, four species of nesting marine turtles and hundreds of fish species. About a third of the property is comprised of highly diverse and productive mangrove communities, of vital importance to fisheries in the broader region. Hundreds of forested islands, locally known as "Petenes", emerge from the flooded marshes, some reaching over a kilometre in diameter. A geological, biological and cultural particularity are the "Cenotes", deep natural sinkholes harbouring fascinating life forms, many of them endemic. This karst phenomenon results from collapsing limestone exposing groundwater. The area links marine, coastal and terrestrial ecosystems.
It boasts tropical forests, palm savannah, pristine wetlands, lagoons, extensive mangrove stands, and sandy beaches and dunes. A small population of the vulnerable West Indian Manatee occurs in the coastal waters. Some 330 bird species have been recorded, 219 of them breeding in Sian Ka'an. The isolation of some of the "Cenotes" led to the evolution of several species which are locally endemic to single sinkholes. With some 80 recorded species of reef-building coral the portion of the Mesoamerican Reef within the property is one of the richest in Mexico. Jointly with the many other aquatic habitats it harbours more than 400 species of fish and a wealth of other marine life (WHC UNESCO, 1987)

Comparison: The area is an outstanding example for ridge to reef ecosystem connectivity of impressive size, featuring a significantly higher diversity of ecosystems and endemic species count than NE Tobago. However, there is no note of sponge-coral co-dominated reefs at Sian Ka'an.

Desembarco del Granma National Park, Cuba

Marine Area Size: 6396 ha**.**

Description: The site includes spectacular limestone terraces up to 180 meters below sea level, coastal cliffs and a wide spectrum of karst phenomena such as giant sinkholes, cliffs, canyons and caves. The site is globally important to study geomorphologic and physiographic aspects and ongoing geological processes also regarding climate change and the influence of morpho structural differentiation of insular territories. The site conserves valuable plant and animal species both terrestrial and marine and some are restricted to the property in their global distribution. The marine areas contain coral formations like the coral reef of Cabo Cruz, sea grass beds and mangrove stands are found along the shores.

"The site includes deep front reefs and coral crests in extremely clear waters on old submarine terraces. The reefs of DGNP are much smaller and less diverse than those of the Belize Barrier Reef and Sian Kaan World Heritage Sites in Belize and Mexico. However, the marine component of the DGNP is not the major focus of this nomination, and the unique aspect of the DGNP reefs, like its terrestrial ecosystems, is that they are growing on a system of ancient reef terraces." (WHC, 1999). "There is much development of coral formations (mainly deep front reefs and coral crests) and fauna (both pelagic and on the sea shelf) in clear waters. It is remarkable the presence of four species of marine chelonians (*Caretta caretta, Chelonia mydas, Lepidochelis olivacea*, and *Eretmochelis imbricata*) and the colonies of queen conch (*Strombus gigas*)" (WHC, 1999).

Comparison: This site demonstrates the significance of study geomorphologic and physiographic aspects and ongoing marine geological processes (Criterion IX). There is currently no evidence that processes of similar outstanding value can be found in NE Tobago.

5.2.2 Terrestrial Comparative Analysis

A comparison of terrestrial natural heritage values related to UNESCO criteria IX and X of eight UNESCO WHS, all located in the Lesser Antillean, Humid Guiana, Guyana, Roraima biogeographical provinces, were used for this initial analysis:

- the Alejandro de Humboldt National Park (AHNP), Cuba
- Desembarco del Granma National Park (DGNP), Cuba
- Sian Ka'an, Mexico
- Canaima National Park, Venezuela
- Pitons Management Area, Saint Lucia
- Blue and John Crow Mountains (BJCM), Jamaica
- Morne Trois Pitons National Park, Dominica

- Central Suriname Nature Reserve (CSNR), Suriname

Summary:
Data found for eight different nWHS sites is mostly lacking specific information. However, from the provided information there can be stated that NE Tobago does not have an OUV in endemic terrestrial or fresh water species. Also, the number of endemic plant species is not outstanding compared to these sites. The ecosystem diversity is smaller or comparable to these sites. The only remarkable difference is that species from both, the South American continent and the Caribbean region, are simultaneously present in NE Tobago which is not the case for the other sites. However, such overlapping species are also well represented in the original areas (except for the few endemic species) and have therefore no present, scientifically documented OUV in NE Tobago. Further studies might reveal that the interaction of these species is unique to NE Tobago and might present OUV in the future.

Alejandro de Humboldt National Park (AHNP), Cuba

Terrestrial area size: 66,700 ha with a 34,330ha terrestrial buffer zone.
Description: The AHNP is located in the Nipe-Sagua-Baracoa Mountains on the north coast of Eastern Cuba. It is the largest and best-conserved remnant of forested mountain ecosystems in the Caribbean. It is also among the most important sites in the Western Hemisphere for its endemic flora and one of the most biologically diverse tropical island sites on earth. This area is embedded in the much larger Cuchillas del Toa Biosphere Reserve which exceeds 200,000 ha.
The highest point is 1.175m above sea level at El Toldo Peak. The AHNP is in the country's rainiest and coolest region with important rivers and forested mountains and boasts remarkable freshwater biodiversity. With many new species likely to be discovered, AHNP boast an impressive list of more than 1,300 seed plants and 145 species of ferns, of which more than 900 are endemic to Cuba and more than 340 locally endemic, respectively. The degree of endemism of vertebrates and invertebrates is likewise extremely high. About a third of the mammals and insects, a fifth of the birds, and vast majority of the reptiles, and amphibians are Cuban or even local endemics. (WHC, 2001).

Comparison: The AHNP contains a great ecosystem diversity (17 are listed with 28 plant formations) with a very high endemism count with species found on Cuba but also to the park itself. The site shares the lower montane rainforest with NE Tobago; however, is considerably larger.
The AHNP is significantly important for endangered, endemic, and migratory bird species. However, AHNP does not have the overlap of two bioregions like NE Tobago.

Desembarco del Granma National Park (DGNP), Cuba

Terrestrial area size: 26,180ha with a 9,287ha terrestrial buffer zone.

Description: This national park is located at the Southwestern tip of Cuba. It is found in the tectonically active zone between the Caribbean and the North American Plate. The area rises up to 460m above sea level. These are uplifted terraces with steep and remarkable cliffs and karstic holes. This site is listed on the World Heritage list under natural criteria (i) and (iii). According to still incomplete data, 512 flora species appear in these areas, with 60% of endemism, more than 50 of them are local. As to fauna, there are 13 mammals (23% of endemism), 110 birds (22.7% of endemism), 44 reptiles (90.9% of endemism), and 7 amphibians (85.7% of endemism). There are no reliable figures concerning invertebrates though they are estimated as important, the populations of molluscs and butterflies stand out among invertebrates. (WHC, 1999).

Comparison: This area has a higher floral endemism rate and a comparable faunal endemism rate to NE Tobago. Due to the characteristic and shape of the DGNP the area (e.g. steep cliffs) is more unique than the mountainous area of NE Tobago.
DGNP does not have the overlap of two bioregions like NE Tobago.

Sian Ka'an, Mexico

Terrestrial area size: >400,000ha.

Description: Sian Ka'an has roughly 120km of coastline and the altitude varies from sea level up to only ten meters above sea level. It boasts diverse tropical forests (e.g. semi-evergreen), palm savannah and one of the most pristine wetlands in the region and extensive mangrove stands (175,000ha). A total of 1,200 plant species can be found in this area.
All characteristic vertebrate species of the Yucatán area are thought to be found in this region which include the jaguar, puma, ocelot, margay and jaguarundi, Caribbean manatee and the Geoffroy's spider monkey. More than 300 species of birds can also be found of which large nesting colonies of frigate birds, brown pelicans and roseate spoonbills. Also, the rare jabiru stork nests in this site. Three species are threatened with extinction: tapir, manatee and the peccary (WHC, 1987).

Comparison: There is no description of endemism, but large numbers of flora and fauna species are present in this area. These include a nesting colony of Frigate birds (which also nest on St. Giles in NE Tobago) and brown pelicans. The forests here do not have the same type of forest as in NE Tobago.

Canaima National Park, Venezuela

Terrestrial area size: 3,000,000ha

Description: Canaima National Park is spread over 3 million ha in south-eastern Venezuela along the border between Guyana and Brazil. Roughly 65% of the park is covered by table mountain (tepui) formations. The tepuis constitute a unique biogeological entity and are of

great geological interest. The sheer cliffs and waterfalls, including the world's highest (1,000 m), form a spectacular landscape. It meets all four criteria of the natural World Heritage list (WHC, 1994).

Comparison: There is no documentation on the forest types or number of (endemic) species within this park.

Pitons Management Area, Saint Lucia

Terrestrial area size: 2034 ha.

Description: "*The site includes the Pitons, two volcanic spires rising side by side from the sea (770m and 743m high respectively), linked by the Piton Mitan ridge. The volcanic complex includes a geothermal field with sulphurous fumeroles and hot springs*." (UNESCO, 2004)

"*The dominant terrestrial vegetation is tropical moist forest grading to subtropical wet forest with small areas of dry forest near the coast and on steep slopes, and areas of wet elfin woodland on the summits. On the Pitons especially, small undisturbed natural forests remain, preserved by the steepness of the land. At least 148 plant species have been recorded on Gros Piton and 97 on Petit Piton and the intervening ridge. Among these are several endemic or rare plants, including eight rare species of tree. Some 27 bird species, including 5 endemics, are known from Gros Piton, along with 3 indigenous rodents, 1 opossum, 3 bats, 8 reptiles and 3 amphibians*." (WHC UNESCO, 2004)

Comparison: The site includes a geothermal field with sulphurous fumeroles and hot springs which cannot be found in NE Tobago. Vegetations seems similar to NE Tobago, however the South American influences regarding the forest composition, secondary forest and bush, wet lands and mangroves are lacking in Saint Lucia. The level of endemism and the number of species of international conservation interest seem less than in NE Tobago.

Blue and John Crow Mountains (BJCM), Jamaica

Terrestrial area size: 26.252ha nominated property, 28.494 ha buffer zone, together 48.649,93 ha.

Description: The site, located in the south-east of Jamaica, spans elevations from 850m to 2256m. The montane ecosystems include Mor Ridge Forest, which is characterised by a deep layer of acidic humus with bromeliads on the ground and endangered tree species, Mull Ridge Forest, Wet Slope Forest (cloud forest), Gully Forest, Very Wet-, High Altitude- and Dry Slope Forest. Above 2000m Elfin Woodland with trees that appear stunted and gnarled are heavily coated with epiphytes including hanging mosses, ferns and tiny orchis. There are three variants of limestone ecosystems, the Dry Limestone Scrub Forest and Upper- and Lower Wet Limestone Forest.

The property hosts 13 species of mammals, 20 reptiles (18 endemics), eight species of fish, 1,162 species of flowering plants, 13 gymnosperms, 260 species of ferns (21 endemic, found in the Blue Mountains), 101 lower plants (bryophytes, liverworts, mosses), 25 endemic bird species and 10 species of frogs, all island endemics and 5 of them endemic to the site.

"*Several reptile species (1 turtle, up to 7 snakes and 16 lizards, according to the supplementary information) and 9 species of bat are also found. Importantly, BJCM provides a permanent or winter home to an estimated 220 resident and migrant bird species. It also provides habitats for many invertebrate species, including a high diversity of snails, velvet worms and aquatic invertebrates. The BJCM contains two of Jamaica's five Alliance for Zero Extinction sites, hosting a significant number of globally endangered species."*
275 vascular plant species and 14 varieties of flowering plants in the park are endemic to Jamaica. 11 of Jamaica's 21 endemic frogs are found in BJCMNP and 5 of this 11 are found only in the park and nowhere else on the island". (WHC UNESCO, 2015)
"The *previous IUCN evaluation concluded that BJCMNP had the "highest number of endemic land bird species among sites in the oceanic islands of the world" while also stressing its importance in migratory bird species both from the Northern and Southern Hemispheres."* (WHC UNESCO, 2015)

Comparison: BJCMJ includes a higher number of species in general and a higher number of endemic species than NE Tobago. Also, it has the highest number of endemic land bird species and migratory bird species from the northern and southern hemispheres visiting the area.

Morne Trois Pitons National Park, Dominica

Terrestrial Are Size: 6857 ha.
Description: The property is the basaltic spike-like remains of a former volcano within eight kilometres of the sea and the landscape is characterised by volcanic piles and a fumarole with hot springs, mud pots, sulphur vents and the Boiling Lake (world's second largest). There is a lava tube in the middle of the forest and freshwater lakes, one of them located in the crater of an extinguished volcano.
The site includes headwaters of most major streams and rivers in the southern half of the island, large tracts of almost intact tropical forest and associated fauna, particular important for imperial and red necked amazons and other species of conservation concern.
The site's vegetation zones include elfin/cloud forest at the highest elevations with mosses, ferns shrubs and stunted trees covered by lichens. Montane thicket is transitional between elfin and montane forests and dominated by spindly trees. Montane rain forest is mostly covered by non-vascular epiphytes. Mature rain forest and secondary forest cover the rest of the area.
There are at least seven mammal species (all introduced), 50 birds, 12 reptiles and amphibians, 12 crustaceans and a wide variety of moths, 55 species of butterflies and other insects. Birds include one species listed as endangered and one listed as vulnerable on the IUCN Red List. One species of lizard and one frog species are endemic to the park. (WHC UNESCO, 1997)

Comparison: There is the compilation of volcanic physical features like fumaroles, hot springs, mud pots and sulphur vents which are not present in NE Tobago. The species diversity seems to be less than in NE Tobago, especially the number of species of international conservation interest,

Central Suriname Nature Reserve (CSNR), Suriname

Terrestrial area size: 1,600,000 ha

Description: The area is entirely situated within the Guayana Shield and mainly consisting primary tropical forests in west-central Suriname. It protects the upper watershed of the Coppename River and the headwaters of the Lucie, Oost, Zuid, Saramaccz and Gran Rio rivers and covers a range of topography and ecosystems of notable conservation value due to its pristine state. There are montane and lowland forests which contain a high diversity of plant species (more than 5,500 vascular plant species were collected). These are uninhabited and completely undisturbed. The fauna found there are typical of the region and include the jaguar, giant armadillo, giant river otter, tapir, sloths, eight species of monkeys and 400 bird species. Of the 1,890 vertebrate species known in Suriname, at least 65 (3%) are endemic to Suriname and most likely to occur also in the CSNR. Plant species are well documented and of the roughly 5,800 known species about 50% is likely to be endemic to the Guayanan Shield area. The highest point in the reserve is 1,230m above sea level and found at Juliana Top in the Wilhelmina Mountain Range in the south. (WHC, 2000).

Comparison: There is no description of which tropical rain forest types are present in the area. Due to the altitude variation it is likely that the lowland rainforest, lower montane rainforest and the xerophytic rainforest are present in the area. The amount of endemic plant species is high; the description of faunal species is lacking detail.

6. Key Expert Interview Results

Please note: a separate and detailed report regarding the Key Expert Interviews was prepared and submitted to DIQE on 30 July 2018.

Between May and July 2018, 22 key experts were interviewed to gather expertise on substantiated information and opinion that could support the recognition of NE Tobago's natural and cultural heritage; nationally as National Heritage and internationally as a UNESCO World Heritage Site (WHS) and/or UNESCO Man and the Biosphere Reserve (MAB).

The selected key experts represented relevant governmental agencies, the Food and Agricultural Organisation of the United Nations, academia, civil society, and statutory bodies.

All participants received a pre-interview briefing document outlining the purpose of the interview, explaining the relevant terminologies, and key questions.

In July 2018, the experts were contacted again to verify that their statements were recorded correctly, provide an opportunity to make further comments and express an opinion on the possibility to nominate NE Tobago as a UNESCO Man and the Biosphere Reserve.

Overall, it can be stated that, based on the conducted interviews, the vast majority of the key experts were of the opinion that UNESCO WHS OUV strength for NE Tobago is low to medium at best, while a MAB nomination is favourable considering the level of documented natural and cultural heritage, stakeholder expectations, risk of conflict and management arrangements.

Key Results:

- 14 of 22 experts were of the opinion that the UNESCO WHS OUV strength for NE Tobago is low.
- Seven experts stated that the OUV strength for NE Tobago is on a medium level, or that they believed that that the OUV strength was high, however did not provide examples or documented values. These statements were grouped together as "Medium Strength".
- Only one expert was of the opinion that NE Tobago would meet UNESCO WHS OUVs and provided relevant documented values; however, these were mainly based on a relatively low number of endemic herpetofauna.

Percentages of the shared opinions of experts are given in Figure 25.

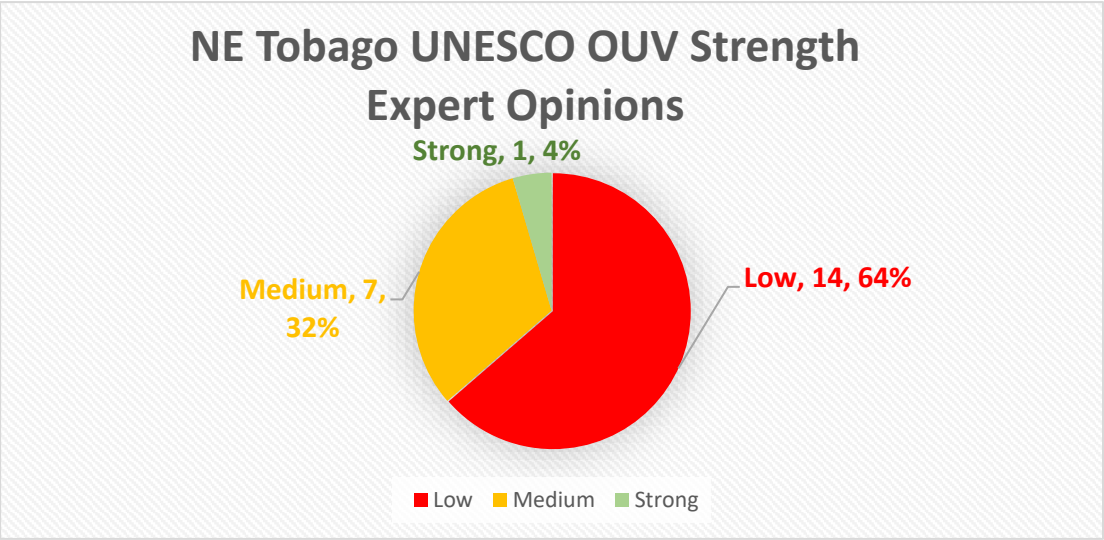


Figure 25: Opinions of experts about the UNESCO OUV strength.

UNESCO World Heritage Site

Regarding each criterion used for the UNESCO WHS Tentative List for the MRFR (WHC UNESCO, 2011), the interviews revealed the following:

Criterion V relates to globally outstanding examples of traditional human settlement.
The experts did not identify OUVs for Criterion V.

Criterion VI is associated with cultural values. To meet this criterion the site must directly or tangibly be associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.
The key experts described the cultural heritage of NE Tobago as nationally important. Especially, the Heritage Festivities (e.g. Moriah), the traditions linked to harvest, folklore connected to natural heritage, and wedding and burial ceremonies were mentioned.
However, all experts agreed that either
a) NE Tobago's cultural heritage does not meet the UNESCO OUV requirements of internationally exceptional significance, irreplaceability and common importance for present and future generations of all humanity, or
b) Tobago's cultural heritage could potentially compare globally as an OUV, but unfortunately was never properly documented, historical records are inaccessible and the research to evaluate the potential validity of cultural OUVs would require significant resources and time (see interview with Dr Rita Pemberton).

Criterion VII relates to superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.
The experts did not identify OUVs for Criterion VII.

Criteria IX and X are related and associated with natural values.

Criterion IX relates to an outstanding example representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.

Criterion X relates to the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation.

All experts agreed that NE Tobago is a place of exceptional natural heritage. This overarching opinion is based on the:

a. historical significance of the Main Ridge Forest Reserve,
b. relatively intact and regionally exceptional ridge to reef ecosystem connectivity,
c. geologic history and location between the South American and Caribbean terrestrial biomes,
d. variety of intact forest types (especially the threatened tropical dry forest)
e. close proximity and accessibility of terrestrial and aquatic ecosystems,
f. (relatively low) number of endemic and endangered species and their relatively intact habitats,
g. regionally exceptional coral-sponge co-dominated reefs,
h. regionally significant (and rodent-free) sea bird colonies,
i. international recognition for the MRFR as a Queen's Commonwealth Canopy site,
j. listing of MRFR, Little Tobago and St Giles complex as internationally Important Bird and Biodiversity Areas,
k. significant ecosystem services provided by natural resources, and
l. importance as a stop-over for a significant number of migratory birds.

However, only one of the 21 natural heritage experts, was of the opinion that NE Tobago would meet UNESCO WHS OUVs for either criterion IX or X and this was mainly based on a low number of endemic herpetofauna.

14 natural heritage experts were of the opinion that the UNESCO WHS OUV strength for NE Tobago is low, and six ranked it at a medium level.

The justification for this ranking was mainly based on the understanding that while the natural heritage of NE Tobago is exceptional on a national and to a certain extent regional level, the described features are not globally significant enough, unique, irreplaceable and representative to be of common importance for present and future generations of all humanity.

As such NE Tobago would not qualify as a superlative natural phenomenon of similar importance as for example the Great Barrier Reef, the Everglades, the Galapagos Islands or the Yellowstone Park.

Furthermore, some experts voiced the opinion that the currently documented floral and faunal composition of NE might not remain as exceptional, once more field research is conducted in NE Venezuela and a detailed comparison with NE Venezuela biodiversity and

ecosystems has been undertaken. A WHS status for NE Tobago could be lost if these research gaps are closed.

It was also stated that current legislation, management structures, enforcement and monitoring require upgrading to ensure a UNESCO recognition could be achieved and maintained in the long term. This is especially the case for a WHS which is quite restrictive regarding resource use and human activities and as such has a higher conflict potential than the alternative UNESCO Man and the Biosphere nomination.

UNESCO Man and the Biosphere Reserve (MAB)

UNESCO's alternative recognition for natural heritage (containing cultural elements as well) is the Man and the Biosphere Programme.

Biosphere Reserves (BR) are areas comprising terrestrial, marine and coastal ecosystems. Each reserve promotes solutions reconciling the conservation of biodiversity with its sustainable use. BRs are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Their status is internationally recognised.

Considering the underlying purpose of these two programmes it could be said that WHS represent humanity's concern for its past, whilst MAB represents its concern for the future. WHS puts the onus on the local population to NOT develop, to keep things the same, whereas MAB acknowledges development as natural and helps to guide local stakeholders towards sustainable development practices, appreciating the necessity for economic development.

During the interview verification process, key experts were asked if MAB would be a preferred alternative to a WHS nomination.

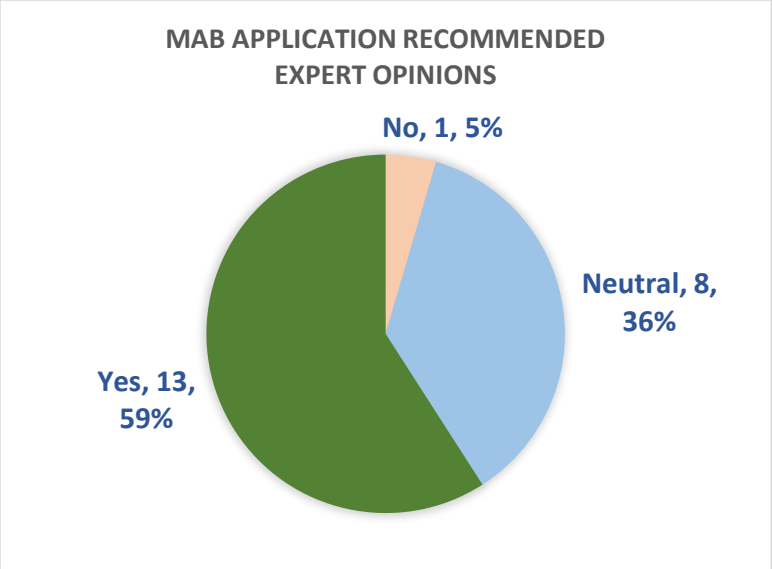


Figure 26: Expert recommendation regarding a MAB nomination for NE Tobago.

Of the 22 experts, 13 supported a MAB nomination, while 8 did not answer or had a neutral opinion; one thinks that WHS is the preferred nomination (however, stating limited knowledge on MAB), see Figure 26.

Positive recommendations were mainly based on:

- the status of management of NE Tobago and the strategy of the UNESCO's Man in the Biosphere (building knowledge on practice based sustainable development and sharing it globally),
- the overall suitability of MAB to NE Tobago,
- the opportunity for a ridge to reef management approach that incorporates community-based resource management and supports sustainable livelihood opportunities,
- the opportunity for exchanging experiences, building capacity and promoting best practices for the area, and by extension the island and country,
- the expectations of stakeholders, and
- its flexibility and compatibility with current use and currently proposed protected areas designations.

7. MAB – WHS and their fit for NE Tobago

When evaluating which of the above described UNESCO designations would be the best fit for NE Tobago, several key areas should be taken into consideration:

1. **What is the purpose?**
   It is understanding of the ERIC technical team, that an international recognition of NE Tobago's natural heritage through UNESCO is pursued to support:
   A. the health of NE Tobago natural resources which provide essential ecosystem services for this and future generations, and
   B. sustainable livelihoods and wellbeing in NE Tobago communities economically, educationally, and culturally.

2. **Which designation is more suitable for the purpose?**
   WH is placing emphasis on the past and present state of a natural site strongly focusing on the conservation of the identified Outstanding Universal Values with some level of consideration of human interaction.
   MAB is placing emphasis on the future state of a natural site focusing simultaneously on conservation and sustainable livelihoods.
   Therefore, MAB seems to be the more suitable for NE Tobago since it addresses the purpose stated above.

3. **What is achievable?**
   The pursuit of World Heritage Site status, although attractive for the international recognition that it brings, is unlikely to be successful for NE Tobago at this time. The lack of clearly identified OUV and the result of the comparative analysis, indicating a low level of irreplaceability are the main reason for this.
   Like WHS, MAB has a comprehensive application process which takes considerable time and resources to put together; however, it is non-competitive and does not require changes in local legislation to enact. In addition, the level of preparation for the legal framework and management structures required to be in place prior to nomination are unlikely to be in place within the available time frame for this round of WHS nominations for sites upon the tentative list.
   A MAB application is not required to be on a tentative list with an accompanying time frame for applications to be received, therefore reducing application pressures considerably.
   As detailed in the section above, the criteria for MAB designation seem to be much more achievable and realistic for NE Tobago. Furthermore, the Ibero-American MAB Network (IberoMAB), created in 1992 and comprised of 22 countries from Latin American and the Caribbean, Spain and Portugal, is actively seeking new MAB nominations from the insular Caribbean, there is therefore institutional support for a MAB nomination from Tobago.
   NB. With further scientific study of marine ecosystem biodiversity and DNA mapping of terrestrial species it may be possible in the future to demonstrate that the ecosystems of NE Tobago are sufficiently unique to demonstrate OUV. This should be considered in a decade long time frame for realistic sufficient data to be collected, analysed and published before

reconsidering application; furthermore, it could be an explicit objective of the MAB designation to encourage the necessary scientific research to pursue this over time.

4. **Which designation is more flexible?**
   While WHS allows for "buffer zones" around the WHS site, the structure and initial design of a MAB sites includes core, buffer and transition zones that should be identified in a participatory process and allow for a high flexibility regarding the needs of involved communities.

5. **What is the impact on communities and livelihoods?**
   The OUV of a WHS site warrants a high level of protection and therefore a higher level of restrictions of human activity than for a MAB site. In fact, human activity is a prerequisite for MAB inscription, thereby ensuring local populations are not marginalised by nomination but embraced by it and supported in their efforts to explore sustainable livelihood opportunities. The MAB Strategy 2015-2025 Strategic Objective 2.3 suits the context of NE Tobago: "*Biosphere reserves act as models to explore, establish and demonstrate innovative approaches that foster the resilience of communities and opportunities for youth, through livelihood diversification, green businesses and social enterprise, including responsible tourism and quality economies."* (UNESCO, 2015).
   MAB is specifically designed to facilitate research and development of best practices for balancing the development needs of local communities with the pressures of conservation and protection of the environment. The context of NE Tobago's village communities seeking sustainable development strategies around marine and terrestrial ecotourism and niche agricultural products is therefore an ideal fit for MAB to facilitate within a suitable management framework.

6. **What is the risk of social conflicts?**
   Actual or perceived restrictions pose a risk of social conflict between users and managers of a site. For WHS as well as for MAB, stakeholder involvement in the preparation of nomination documents including boundaries, management plans, usage etc. are an integral part. However, WHS would inherently result in higher restrictions and less focus on sustainable community development and mutually beneficial interaction with the natural resources. Therefore, it can be stated that the risk for social conflict is higher for WHS.

7. **What are the legal requirements?**
   The required level of legal protection for a WHS site is relatively high in order to secure the optimal protection of OUVs; in the case of NE Tobago it is very likely that changes to existing law would be required and certainly the full implementation of existing law would need to be demonstrated.
   On the other hand, the existing laws and regulations, as well as the intention to nominate National Heritage Sites in NE Tobago, would initially fulfil the legal requirements for a MAB nomination.

8. **What are the tourism/investment marketing benefits?**

Due to the scientific research focus of MAB there is an opportunity to build the science tourism niche of NE Tobago. The area has been visited by academics for decades in an ad hoc manner. MAB designation offers the opportunity to formalise this linkage and develop it further.

The support and guidance structure within the International MAB programme can greatly assist managers of the NE Tobago Protected Area Trust with access to funding, training and knowledge transfer opportunities that would greatly assist in capacity building for the management team.

Table 11: Comparison WHS versus MAB for NE Tobago.

	WHS	Qualify?	MAB	Qualify?
Suitability	Preserves the past	✓	Conserves the future	✓
Achievability	OUV lacking, poor comparative analysis results	X	An ideal site for Biosphere reserve	✓
Flexibility	NE Tobago needs to fit into rigorous WHS framework	X	MAB framework flexible to local realities	✓
Community/Livelihood impacts	Tight controls on development that impact OUVs	X	Designed to enhance livelihoods derived from natural location	✓
Risk of local Conflicts	Medium to high	X	Low to medium	✓
Legal Framework	Requires robust & specific legislation*	X	Existing legislation should be initially sufficient	✓
Provides automatic international marketing boost	No requires concerted marketing and promotional strategy	X	No requires concerted marketing and promotional strategy	X

*e.g. Physical Planning Act #29 of 2001, Saint Lucia. Pitons Management Area Management Plan, 2003.

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9. Annex 1: EMA MAB Draft Note to Cabinet 13 September 2010

Cabinet No……
E:
(UNESCO) -/-/-
13th September 2010

Draft Note for Cabinet

Establishment of a National Committee on the UNESCO Man and the Biosphere (MAB) Programme

The matter for the consideration of Cabinet is the establishment of a National Committee on the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Man and the Biosphere (MAB) Programme.

2. UNESCO's MAB Programme was launched in 1970 and initiated work in 14 project areas covering different ecosystem types. The MAB governing body, the International Coordinating Council, consists of 34 Member States elected by UNESCO's biennial General Conference. MAB's work over the years has concentrated on the development of the World Network of Biosphere Reserves (WNBR).

3. MAB proposes an inter-disciplinary research agenda and capacity-building, aiming to improve the relationship of people with their environment globally. It targets the ecological, social and economic dimensions of biodiversity loss and the reduction of this loss. It uses its WNBRs as vehicles for knowledge-sharing, research and monitoring, education and training and participatory decision-making.

4. Today, with more than 500 sites in 105 countries, the WNBR provides context-specific opportunities to combine scientific knowledge and governance modalities to a) reduce biodiversity loss; b) improve livelihoods; c) enhance social, economic and cultural conditions for environmental sustainability; and 4) therefore contribute to the pursuit of the Millennium Development Goals (MDGs), in particular MDG 7 on environmental sustainability. These ideals fall squarely into place with the Government of Trinidad and Tobago's focus on the people and sustainable development.

5. With these in mind, Member States of UNESCO establish MAB focal points or National Committees which should proactively work the Global Environment Facility (GEF) National Focal Points, the United Nations Development Programme (UNDP) Resident Representatives and national contacts for the various development banks and/or economic development bodies, and/or the private sector, to develop projects involving biosphere reserves. In Trinidad and Tobago, the Environmental Management Authority has been designated by the National Commission for UNESCO as the focal point for the MAB programme, having taken over from the former focal point, the Institute of Marine Affairs. Once a MAB National

Committee has been appointed, the focal point ceases to exist, as the MAB National Committee consists of a wider representation of interests.

6. MAB National Committees should also serve as a technical body for ensuring quality control, transparency and accountability. They should ensure appropriate liaisons amongst government authorities, academics and NGOs at the national level, as well as cooperation with the MAB National Committees of other countries (**Appendix 1 – Guidelines for the establishment of MAB National Committees**).

7. The MAB National Committee, as its first task, should seek to promote the concept of Biosphere Reserves (BRs) in the form of a Workshop for stakeholders. A Biosphere Reserve is an international description of recognition from UNESCO for an area in the world, which is deemed to demonstrate a "balanced relationship between humans and the biosphere" (UNESCO). As such, Biosphere Reserves are designed to a) conserve biodiversity (i.e., protected areas); b) ensure worldwide coverage of the world's biodiversity; and c) advance the practical and technical knowledge required to achieve sustainable development (**Appendix 2 – What is a Biosphere Reserve**).

8. The Man and the Biosphere National Committee should comprise representatives of the following:

- The Environmental Management Authority (EMA) - **Committee Chair**
- The Institute of Marine Affairs (IMA)
- The National Institute of Higher Education, Research, Science and Technology (NIHERST)
- The United Nations Development Programme (UNDP)
- The University of the West Indies (UWI)
- The University of Trinidad and Tobago (UTT)
- The Ministry of Planning, Social and Economic Restructuring and Gender Affairs
- The Ministry of Agriculture and Food Production
- The Ministry of Tourism
- A Non-Governmental Organisation (NGO)
- A Community-based Organisation (CBO)
- The Private Sector
- The National Commission for UNESCO - **Secretariat**

(See Appendix 2 – Guidelines, for Functions of the National Committee)

9. The English-speaking Caribbean is presently the only region in the world without a Biosphere Reserve. However, Jamaica had Caribbean representation on the International Advisory Committee, and its National Commission for UNESCO has sought to have at least 4 Caribbean countries establish Biosphere Reserves. A mission by a UNESCO MAB team comprising a UNESCO Consultant and the Jamaica representative is therefore planned, to visit several Caribbean islands including Trinidad and Tobago, with the intention of meeting with government stakeholders; holding discussions with CBOs and NGOs; and conducting site visits to possible BRs (**Appendix 3 – letter from the Jamaican National Commission for UNESCO**).

10. The Environmental Management Authority, as designated local MAB focal point, has expressed keen interest in the possibility of Trinidad and Tobago having one of the first Caribbean BRs, and is therefore desirous of setting up a MAB National Committee before the UNESCO mission takes place. **Appendix 4** proposes a budget for meetings and a stakeholder Workshop for the MAB National Committee.

11. Provision to be made in the 2010/11 Budget Estimates, to cover the expenditure of TT $ 62,475.00 to be incurred, should fall under:

Heads 26	-	Minister of Education
Sub Head 02	-	Goods and Services
Item 001	-	General Administration
?Sub Item No.?	-	Cabinet-Appointed Committees?

12. The Minister of Education recommends and Cabinet is asked to agree to:

i) the establishment of a National Committee on the UNESCO Man and the Biosphere (MAB) Programme;

ii) the composition of the MAB National Committee; and

iii) the provision of funds totalling TT $62,475 to conduct annual meetings and an annual workshop on the Man and the Biosphere Programme.

Appendix 4 - ESTIMATED BUDGET

THE National Committee on the UNESCO MAB PROGRAMME
Meetings and Workshop on the Man and the Biosphere Programme

	$TT
Monthly meetings: (12 @ $1000.00/meet)	12,000.00
Annual Workshop:	
Rental of Venue	1,000.00
Lunch @ $65.00 x 100 stakeholders	6,500.00
Honorarium for Presenters $3,000 x 4	12,000.00
Printing of Materials	6,000.00
Stationery	3,500.00
Workshop Folders	4,500.00
Audio Visual /I.T.	4,000.00
Report on C.D	10,000.00
Contingency (5%)	2,975.00
TOTAL	**62,475.00**

10. Annex 2: Species List of Biodiversity Conservation Value

This annex lists species for five conservation relevant categories: IUCN Red List species, endemic species, EDGE, CMS and CITES species.

IUCN RED LIST SPECIES IN NE TOBAGO

IUCN Critically Endangered – 8

Category	Taxonomy		IUCN Status Criteria	Global Trend	Source
	Taxa/ Species	***Common Name***			
Hard Corals	*Acropora cervicornis*‡	Staghorn Coral	A2ace	Stable	IUCN Red List
	Acropora palmata‡	Elkhorn Coral	A2ace	Stable	IUCN Red List
Marine Turtles	*Eretmochelys imbricata*†‡	Hawksbill Turtle	A2bd	Extensive subpopulation declines	IUCN Red List
Marine Fish	*Pristis pristis*	Largetooth Sawfish	A2cd	Decreasing	IUCN Red List
	Isogomphodon oxyrhynchus	Daggernose Shark	A2ad+3d+4ad	Decreasing	IUCN Red List
Vascular Plants[1]	*Phyllanthus mimicus Webster*		B1ab(iii)	Unknown	IUCN Red List
	Maxillaria broadwayi (Cogn) RE Schult.		B1ab(iii)	Unknown	IUCN Red List
	Roupala tobagensis Sleumer		B1ab(iii)	Unknown	IUCN Red List

[1] Endemic species
† Migratory species
‡ CITES species

IUCN Endangered – 13

Category	Taxonomy		IUCN Status Criteria	Global Trend	Source
	Taxa/ Species	***Common Name***			
Terrestrial Birds	*Carduelis cucullata*‡	Red Siskin	A2d	Decreasing	IUCN Red List
Frogs	*Pristimantis urichi**	Urich's Litter forg	B1ab(iii)	Decreasing	IUCN Red List
	Flectonotus fitzgeraldi¥	Tree Frog	B1ab(iii)	Decreasing	IUCN Red List
Hard Corals	*Montastraea annularis*¥‡	Boulder Star Coral	A2ace	Decreasing	IUCN Red List
	Montastraea faveolata¥	Star Coral	A2ace	Decreasing	IUCN Red List
Reptiles	*Amerotyphlops trinitatus*	Lineated Blind Snake/ Trinidad Worm Snake	B1ab(iii)	Unknown	IUCN Red List
	Chelonia mydas†‡	Green Turtle	A2bd	Decreasing	IUCN Red List
Marine fish	*Epinephelus striatus*	Nassau Grouper	A2ad	Decreasing	IUCN Red List
	Thunnus thynnus	Atlantic Bluefin Tuna	A2bd	Decreasing	IUCN Red List
Freshwater fish	*Anguilla rostrata*	American Eel	A2bd	Decreasing	IUCN Red List
Sharks and Rays	*Sphyrna lewini*†‡	Scalloped Hammerhead	A2bd+4bd	Unknown	IUCN Red List
	Sphyrna mokarran†‡	Squat-headed Hammerhead Shark	A2bd+4bd	Decreasing	IUCN Red List
Vascular Plants[2]	*Xylosma sanctae-annae Sleumer*	Wild Cerise	B1ab(iii)+2ab(iii)	Unknown	IUCN Red List

*Endemic species
¥ EDGE species
† Migratory species
‡ CITES species

IUCN Vulnerable – 31

Category	Taxonomy		IUCN Status Criteria	Global Trend	Source
	Taxa/ Species	***Common Name***			
Birds	*Hydrobates leucorhous*	Leach's storm-Petrel	A2bce+3bce+4bce	Decreasing	IUCN Red List
Reptiles	*Lepidochelys olivacea*[†‡]	Olive Ridley Turtle	A2bd	Decreasing	IUCN Red List
	Dermochelys coriacea[†‡]	Leatherback Turtle	A2bd	Decreasing	IUCN Red List
	Caretta caretta[†‡]	Loggerhead Turtle	A1abd	Decreasing	IUCN Red List
Marine fish	*Lutjanus cyanopterus*	Canteen Snapper	A2bd	Decreasing	IUCN Red List
	Hyporthodus flavolimbatus	Yellowedge Grouper	A2bd+4bd	Decreasing	IUCN Red List
	Epinephelus itajara	Atlantic Goliath Grouper	A2bcd	Decreasing	IUCN Red List
	Mycteroperca interstitialis	Sweetlip/Yellowmouth Grouper	A4bd	Decreasing	IUCN Red List
	Lachnolaimus maximus	Hogfish	A2bd	Decreasing	IUCN Red List
	Rhomboplites aurorubens	Vermilion Snapper	A2bd	Decreasing	IUCN Red List
Marine mammals	*Physeter macrocephalus*[†‡]	Sperm Whale	A1d	Unknown	IUCN Red List
Hard Coral	*Dendrogyra cylindrus*[¥]	Pillar Coral	A4ce	Stable	IUCN Red List
	Dichocoenia stokesii[¥]	Elliptical Star Coral	A4c	Decreasing	IUCN Red List
	Montastraea franksi[¥]	Star Coral	A4ce	Decreasing	IUCN Red List
	Oculina varicosa[¥]	Large ivory Coral	A2ac	Unknown	IUCN Red List
	Agaricia lamarcki[‡]	Lamarck's sheet Coral	A4ce	Decreasing	IUCN Red List
	Mycetophyllia ferox[‡]	Rough cactus Coral	A4ce	Decreasing	IUCN Red List
Sharks and Rays	*Manta birostris*[†‡]	Manta Ray	A2abd+3bd+4abd	Decreasing	IUCN Red List
Frogs and Toads	*Mannophryne olmonae*[*]	Bloody Bay Poison Frog	D2	Stable	IUCN Red List

Category	Taxonomy		IUCN Status Criteria	Global Trend	Source
	Taxa/ Species	***Common Name***			
	Hyalinobatrachium orientale tobagoense[*]	Tobago Glass Frog			Murphy et al 2018
	Pristimantis turpinorum[*¥]	Turpin's Litter frog	D2	Stable	IUCN Red List
Vascular Plants[3]	*Justicia tobagensis (Urb.) Wassh*[*].		D2	Unknown	IUCN Red List
	Odontonema brevipes Urban[*]		D2	Unknown	IUCN Red List
	Duguetia tobagensis (Urb.) R. E. Fr. [*]		D2	Unknown	IUCN Red List
	Dicranopygium insulare (Gleas.) Harl. [*]		B1ab(iii)+2ab(iii)	Unknown	IUCN Red List
	Rhynchospora ebracteata (Standl.) H.Pfeiff[*]		D2	Unknown	IUCN Red List
	Phyllanthus acacioides Urb. [*]		D2	Unknown	IUCN Red List
	Besleria seitzii Krug &Urb. [*]		B1ab(iii)	Unknown	IUCN Red List
	Cybianthus pittieri Agostini[*]		D2	Unknown	IUCN Red List
	Pilea tobagensis Urb. [*]		D2	Unknown	IUCN Red List
	Marcgravia elegans [*]		B1ab(iii)	Unknown	IUCN Red List

[*]Endemic species
[¥] EDGE species
[†] Migratory species
[‡] CITES species

IUCN Near Threatened – 19

Category	Taxonomy		IUCN Status Criteria	Global Trend	Source
	Taxa/ Species	***Common Name***			
Marine fish	*Scarus guacamaia*	Rainbow Parrotfish		Decreasing	IUCN Red List
	Balistes vetula	Queen Triggerfish		Decreasing	IUCN Red List
	Lutjanus synagris	Lane Snapper		Decreasing	IUCN Red List
	Mycteroperca bonaci	Black Grouper		Decreasing	IUCN Red List
	Lutjanus analis	Mutton Snapper		Decreasing	IUCN Red List
Sharks and Rays	*Carcharhinus limbatus*	Blacktip Shark		Unknown	IUCN Red List
	Carcharhinus perezi	Caribbean Reef Shark		Decreasing	IUCN Red List
	Aetobatus narinari	Spotted Eagle Ray		Decreasing	IUCN Red List
	Carcharhinus leucas	Bull Shark		Unknown	IUCN Red List
	Negaprion brevirostris	Lemon Shark		Unknown	IUCN Red List
	Galeocerdo cuvier	Tiger Shark		Unknown	IUCN Red List
Terrestrial Birds	*Campylopterus ensipennis*	White-tailed Sabrewing (Hummingbird)‡	B1ab(i,ii,iii)	Decreasing	IUCN Red List
	Calidris pusilla	Semipalmated Sandpiper	A2bcd	Decreasing	IUCN Red List
	Tryngites subruficollis†	Buff-breasted Sandpiper	C2a(i)	Decreasing	IUCN Red List
	Sclerurus albigularis	Gray-throated Leaftosser	A3c	Stable	IUCN Red List
Vascular Plants[4]	*Podocarpus trinitensis Buchh. & Gray*			Unknown	IUCN Red List
	Werauhia broadwayi (L.B. Smith) J.R. Grant			Unknown	IUCN Red List

[4] Endemic species
‡ CITES species

Category	Taxonomy		IUCN Status Criteria	Global Trend	Source
	Taxa/ Species	***Common Name***			
	Aegiphilia obovate Andr.				Van den Eynden, Oatham and Johnson, 2008
	Melocactus broadwayi‡	Turk's Cap		Unknown	IUCN Red List

ENDEMIC SPECIES - 38

Category	Taxonomy		IUCN Conservation Status	Source
	Taxa/ Species	***Common Name***		
Crustacean	*Pseudobiffarius caesari*	Ghost Shrimp	Unknown	Heard and Manning 2000
Amphibians	*Hyalinobatrachium orientale tobagoense*	Tobago Glass Frog	Vulnerable	Murphy 2018
	Mannophryne olmonae	Bloody Bay Poison Frog	Vulnerable	Murphy et al 2018, IUCN SSC Amphibian Specialist Group 2013
	Pristimantis charlottevillensis	Charlotteville Litter Frog	Least Concern	Murphy 2018
	Pristimantis turpinorum	Turpin's Litter Frog	Vulnerable	Murphy 2018
Insects & Terrestrial invertebrates	*Anacroneuria isleta*	Stonefly		GoTT 2018, DeWalt 2018 (Catalogue of Life)
Marine Fish	*Obilbichthys tobagoensis*	Tobago Coral Botula	Unknown	Government of Trinidad and Tobago
	Starksia sella	Darksaddle Blenny	Unknown	Government of Trinidad and Tobago
Reptiles	*Bachia flavescens*	Tobago Square-scaled Bachia		Murphy 2018
	Gonatodes ocellatus	Ocellated Gecko		Murphy 2018
	Erythrolamprus ocellatus	Red Snake	Unknown	Murphy 2018
	Leptophis haileyi	Hailey's Parrot Snake	Unknown	Murphy 2018
	Erythrolamprus sp.	Tobago Stream Snake		Murphy et al 2018
Terrestrial Bird	*Hylophilus* insularis	Tobago Greenlet	Least Concern	IUCN Red List
Terrestrial Mammals	*Myotis attenboroughi*	Attenborough's myotis	Least Concern	ERIC 2018, Moratelli 2017
Vascular Plants	*Aegiphilia obovate* Andr.		Near Threatened	Van den Eynden, Oatham and Johnson, 2008

Category	Taxonomy		IUCN Conservation Status	Source
	Taxa/ Species	***Common Name***		
	Besleria seitzii Krug &Urb.		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Cybianthus pittieri Agostini		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Dicranopygium insulare (Gleas.) Harl.		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Duguetia tobagensis (Urb.) R. E. Fr.		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Eugenia cruegeri		Least Concern	Van den Eynden 2006
	Gonolobus tobagensis Urb.		Near Threatened	Van den Eynden, Oatham and Johnson, 2008
	Henriettella tobagensis			Hassler 2018 (Catalogue of Life)
	Justicia flaviflora		Critically Endangered	IUCN, Van den Eynden, Oatham and Johnson 2008
	Justicia tobagensis (Urb.) Wassh.		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Macrolobium trinitense		Endangered	IUCN, Van den Eynden 2006
	Marcgravia elegans		Vulnerable	IUCN, Van den Eynden 2006
	Maxillaria broadwayi (Cogn) RE Schult.		Critically Endangered	Van den Eynden, Oatham and Johnson, 2008
	Maytenus monticola		Least Concern	IUCN, Van den Eynden, Oatham and Johnson 2008
	Odontonema brevipes Urban		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Phyllanthus acacioides Urb.		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Phyllanthus mimicus Webster		Critically Endangered	Van den Eynden, Oatham and Johnson, 2008

Category	Taxonomy		IUCN Conservation Status	Source
	Taxa/ Species	***Common Name***		
	Pilea tobagensis Urb.		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Podocarpus trinitensis Buchh. & Gray		Least Concern	Van den Eynden, Oatham and Johnson, 2008
	Rhynchospora ebracteata (Standl.) H.Pfeiff		Vulnerable	Van den Eynden, Oatham and Johnson, 2008
	Roupala tobagensis		Critically Endangered	Van den Eynden, Oatham and Johnson, 2008
	Werauhia broadwayi (L.B. Smith) J.R. Grant		Near Threatened	Van den Eynden, Oatham and Johnson, 2008
	Xylosma sanctae-annae Sleumer		Endangered	Van den Eynden, Oatham and Johnson, 2008

EDGE SPECIES - 9

Category	Taxonomy		IUCN Conservation Status	EDGE Score	Source
	Taxa/ Species	*Common Name*			
Reptiles	*Dermochelys coriacea*	Leatherback Turtle	Vulnerable	5.52	https://www.edgeofexistence.org/species/species-category/reptiles/search-species/leatherback/
	Chelonia mydas	Green turtle	Endangered	5.99	http://www.edgeofexistence.org/species/green-turtle/
	Eretmochelys imbricata	Hawksbill turtle	Critically Endangered	6.52	http://www.edgeofexistence.org/species/hawksbill-turtle/#overview
Hard Corals	*Dendrogyra cylindrus*	Pillar Coral	Vulnerable	28	www.edgeofexistence.org/coral_reef/species_info.php?id=1838
	Dichocoenia stokesii	Elliptical Star Coral	Vulnerable	37	www.edgeofexistence.org/coral_reef/species_info.php?id=1853
	Montastraea annularis	Boulder Star Coral	Endangered	8	www.edgeofexistence.org/coral_reef/species_info.php?id=1904
	Montastraea faveolata	Mountainous Star Coral	Endangered	8	www.edgeofexistence.org/coral_reef/species_info.php?id=1905
	Montastraea franksi	Star Coral	Vulnerable	43	www.edgeofexistence.org/coral_reef/species_info.php?id=1894
	Oculina varicosa	Large Ivory Coral	Vulnerable	47	www.edgeofexistence.org/coral_reef/species_info.php?id=1842

CMS SPECIES IN NE TOBAGO - 51

Category	Taxonomy		IUCN Conservation Status	CMS Listing	Source
	Taxa/ Species	*Common Name*			
Birds	*Anas discors*	Blue-winged Teal	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11290/legal
	Buteo platypterus	Broad-Winged Hawk	Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/66158/legal
	Buteogallus urubitinga	Great Black Hawk	Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/66295/legal
	Pandion haliaetus	Osprey	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11978/legal
	Arenaria interpres	Ruddy Turnstone	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11575/legal
	Calidris alba	Sanderling	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11570/legal
	Calidris pusilla	Semipalmated Sandpiper	Near Threatened	Appendix I	http://speciesplus.net/#/taxon_concepts/11296/legal
	Limnodromus griseus	Short-Billed Dowitcher	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11812/legal
	Tringa flavipes	Lesser Yellowlegs	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11963/legal
	Tringa macularia	Spotted Sandpiper	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11730/legal
	Tringa melanoleuca	Greater Yellowlegs	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11627/legal
	Sterna dougallii	Roseate Tern	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/11550/legal
	Tryngites subruficollis	Buff-Breasted Sandpiper	Near Threatened	Appendix I and II	http://speciesplus.net/#/taxon_concepts/11406/legal

Category	Taxonomy		IUCN Conservation Status	CMS Listing	Source
	Taxa/ Species	***Common Name***			
	Ardea alba	Great Egret	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11941/legal
	Cathartes aura	Turkey Vulture	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11488/legal
	Coragyps atratus	Black Vulture	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11748/legal
	Pluvialis squatarola	Black-bellied Plover	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/12017/legal
	Falco peregrinus	Peregrine Falcon	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11645/legal
	Dolichonyx oryzivorus	Bobolink	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11620/legal
	Sterna hirundo	Common Tern	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11502/legal
	Thalasseus maximus	Royal Tern	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11461/legal
	Thalasseus sandvicensis	Sandwich Tern	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11398/legal
	Numenius phaeopus	Whimbrel	Least Concern	Appendix II	https://speciesplus.net/#/taxon_concepts/11425/legal
Marine Turtles	*Chelonia mydas*	Green Turtle	Endangered	Appendix I and II	http://speciesplus.net/#/taxon_concepts/12155/legal
	Dermochelys coriacea	Leatherback Turtle	Vulnerable	Appendix I and II	http://speciesplus.net/#/taxon_concepts/11500/legal
	Eretmochelys imbricata	Hawksbill Turtle	Critically Endangered	Appendix I and II	http://speciesplus.net/#/taxon_concepts/11649/legal

Category	Taxonomy		IUCN Conservation Status	CMS Listing	Source
	Taxa/ Species	*Common Name*			
	Lepidochelys olivacea	Olive Ridley Turtle	Vulnerable	Appendix I and II	http://speciesplus.net/#/taxon_concepts/11662/legal
	Caretta caretta	Loggerhead turtle	Vulnerable		IUCN, CITES, CMS
Sharks and Rays	*Manta birostris*	Manta Ray	Vulnerable	Appendix I and II	http://speciesplus.net/#/taxon_concepts/11353/legal
Mammals	*Tadarida brasiliensis*	Mexican Free-tailed Bat	Least Concern		IUCN, Rahamut 2016, Gomes and Reid 2015
	Lasiurus blossevillii	Desert Red Bat	Least Concern		IUCN, Maharaj 2016, Gomes and Reid 2015
Marine Mammals	*Balaenoptera brydei*	Bryde's Whale			CCARO
	Delphinus capensis	Long Beaked Common Dolphin	Data Deficient		CCARO, IUCN, CITES, Scott 2016
	Megaptera novaeangliae	Humpback Whale	Least Concern		CCARO, IUCN, CITES, Bellemare 2014
	Feresa attenuata	Pygmy killer Whale	Data Deficient		CCARO, IUCN, CITES, Samooj 2016
	Globicephala macrorhynchus	Short-finned Pilot Whale	Data Deficient		CCARO, IUCN, CITES, Deonarine 2016
	Grampus griseus	Risso's Dolphin	Least Concern		CCARO, IUCN, CITES
	Orcinus orca	Orca/Killer whale	Data Deficient		CCARO, IUCN, CITES, Bengochea 2015
	Peponocephala electra	Melon-headed Whale	Least Concern		CCARO, IUCN, CITES, Bissoon 2015
	Pseudorca crassidens	False Killer Whale	Data Deficient		CCARO, IUCN, CITES, Khan 2015
	Sotalia guianensis	Guiana Dolphin	Data Deficient		CCARO, IUCN, CITES, Dunn 2012
	Stenella frontalis	Atlantic Spotted Dolphin	Data Deficient		CCARO, IUCN, CITES, Deacon, Naranjit and Higgins 2014, Singh 2015

Category	Taxonomy		IUCN Conservation Status	CMS Listing	Source
	Taxa/ Species	***Common Name***			
	Stenella longirostris	Spinner Dolphin	Data Deficient		CCARO, IUCN, CITES, Mohan 2015
	Steno bredanensis	Rough-toothed Dolphin	Least Concern		CCARO, IUCN, CITES, Chochan 2011
	Tursiops truncatus	Common Bottlenose Dolphin	Least Concern		CCARO, IUCN, CITES, Mohammed 2014
	Mesoplodon europaeus	Gervais' Beaked Whale	Data Deficient		CCARO, IUCN, CITES, Gobin 2012
	Kogia sp.	Pygmi Sperm Whale	Data Deficient		CCARO, IUCN, CITES
	Physeter macrocephalus	Sperm Whale	Vulnerable		CCARO, IUCN, CITES, Phillips 2015
	Stenella attenuata	Pantropical Spotted Dolphin	Least Concern		CCARO, IUCN, Ramkhelawan 2014
	Stenella coeruleoalba	Striped Dolphin	Least Concern		CCARO, IUCN, Baliram 2015
Insects	*Danaus plexippus*	Monarch			CMS

CITES SPECIES IN NE TOBAGO - 69

Category	Taxonomy		IUCN Conservation Status	CITES Listing	Source
	Taxa/ Species	***Common Name***			
Corals	*Acropora cervicornis*	Staghorn Coral	Critically Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/5528/legal
	Acropora palmata	Elkhorn Coral	Critically Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/3118/legal
	Montastraea annularis	Boulder Star Coral	Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/11134/legal
	Agaricia fragilis	Fragile Saucer Coral	Data Deficient	Appendix II	Alemu 2014, Clement, IUCN, CITES
	Agaricia lamarcki	Lamarck's Sheet Coral	Vulnerable	Appendix II	ERIC 2018 b, IUCN, CITES
	Helioseris cucullata	Sunray Lettuce Coral	Least Concern	Appendix II	Alemu 2014, Clement, CITES, van Bochove and McVee 2012, IUCN,
	Cladocora arbuscula	Tube Coral	Least Concern	Appendix II	Charles 2016, IUCN, CITES
	Dendrogyra cylindrus	Pillar Coral	Vulnerable	Appendix II	IUCN, CITES, van Bochove and McVee 2012, Moonsammy 2016,
	Dichocoenia stokesii	Elliptical Star Coral	Vulnerable	Appendix II	IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, Forrester 2016,
	Eusmilia fastigiata	Smooth Flower Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, Marson 2016
	Millepora alcicornis	Finger Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, Ramsaroop 1982, Anderson 2015
	Diploria clivosa	Knobby Brain Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012
	Diploria labyrinthiformis	Grooved Brain Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, van Bochove and McVee 2012, Ramsaroop 1982, Pitt 2016,
	Diploria strigosa	Symmetrical Brain Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012,

Category	Taxonomy		IUCN Conservation Status	CITES Listing	Source
	Taxa/ Species	*Common Name*			
	Favia fragum	Golfball Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Daniel 2016,
	Mussa angulosa	Spiny Flower Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982
	Mycetophyllia aliciae	Knobby Cactus Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012
	Mycetophyllia ferox	Rough Cactus Coral	Vulnerable	Appendix II	ERIC 2018 b, IUCN, CITES, van Bochove and McVee 2012
	Scolymia wellsi	Solitary Disk Coral	Data Deficient	Appendix II	Alemu 2014, Clement, IUCN, CITES
	Oculina varicosa	Large Ivory Coral	Vulnerable	Appendix II	IUCN, CITES
	Madracis decactis	Ten-ray Star Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012
	Porites astreoides	Mustard Hill Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, De Peaza 2015
	Porites furcata	Branched Finger Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012
	Siderastrea radians	Lesser Starlet Coral	Least Concern	Appendix II	Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982
Marine Mammals	*Delphinus capensis*	Long Beaked Common Dolphin	Data Deficient	Appendix II	CCARO, IUCN, CITES, Scott 2016
	Megaptera novaeangliae	Humpback Whale	Least Concern	Appendix I	CCARO, IUCN, CITES, Bellemare 2014,
	Feresa attenuata	Pygmy Killer Whale	Data Deficient	Appendix II	CCARO, IUCN, CITES, Samooj 2016,

Category	Taxonomy		IUCN Conservation Status	CITES Listing	Source
	Taxa/ Species	*Common Name*			
	Globicephala macrorhynchus	Short-finned Pilot Whale	Data Deficient	Appendix II	CCARO, IUCN, CITES, Deonarine 2016,
	Grampus griseus	Risso's Dolphin	Least Concern	Appendix II	CCARO, IUCN, CITES,
	Orcinus orca	Orca/Killer Whale	Data Deficient	Appendix II	CCARO, IUCN, CITES, Bengochea 2015,
	Peponocephala electra	Melon-Headed Whale	Least Concern	Appendix II	CCARO, IUCN, CITES, Bissoon 2015,
	Pseudorca crassidens	False Killer Whale	Data Deficient	Appendix II	CCARO, IUCN, CITES, Khan 2015
	Sotalia guianensis	Guiana Dolphin	Data Deficient	Appendix I	CCARO, IUCN, CITES, Dunn 2012
	Stenella frontalis	Atlantic Spotted Dolphin	Data Deficient	Appendix II	CCARO, IUCN, CITES, Deacon, Naranjit and Higgins 2014, Singh 2015
	Stenella longirostris	Spinner Dolphin	Data Deficient	Appendix II	CCARO, IUCN, CITES, Mohan 2015
	Steno bredanensis	Rough-Toothed Dolphin	Least Concern	Appendix II	CCARO, IUCN, CITES, Chochan 2011
	Tursiops truncatus	Common Bottlenose Dolphin	Least Concern	Appendix II	CCARO, IUCN, CITES, Mohammed 2014
	Mesoplodon europaeus	Gervais' Beaked Whale	Data Deficient	Appendix II	CCARO, IUCN, CITES, Gobin 2012
	Kogia sp.	Dwarf/ Pygmy Sperm Whale	Data Deficient	Appendix II	CCARO, IUCN, CITES,
	Physeter macrocephalus	Sperm Whale	Vulnerable	Appendix I	CCARO, IUCN, CITES, Phillips 2015
Marine Turtles	*Chelonia mydas*	Green Turtle	Endangered	Appendix I	http://speciesplus.net/#/taxon_concepts/11071/legal
	Dermochelys coriacea	Leatherback Turtle	Endangered	Appendix I	http://speciesplus.net/#/taxon_concepts/4062/legal
	Eretmochelys imbricata	Hawksbill Turtle	Critically Endangered	Appendix I	http://speciesplus.net/#/taxon_concepts/7257/legal
	Lepidochelys olivacea	Olive Ridley Turtle	Vulnerable	Appendix I	http://speciesplus.net/#/taxon_concepts/6938/legal
	Caretta caretta	Loggerhead Turtle	Vulnerable	Appendix I	IUCN, CITES
	Manta birostris	Manta Ray	Vulnerable	Appendix II	http://speciesplus.net/#/taxon_concepts/11277/legal

Category	Taxonomy		IUCN Conservation Status	CITES Listing	Source
	Taxa/ Species	*Common Name*			
Sharks and Rays	*Sphyrna lewini*	Scalloped Hammerhead Shark	Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/6544/legal
	Sphyrna mokarran	Squat-Headed Hammerhead Shark/ Great Hammerhead Shark	Endangered	Appendix II	http://speciesplus.net/#/taxon_concepts/9171/legal IUCN
	Pristis pristis	Largetooth Sawfish	Critically Endangered	Appendix I	IUCN, CITES
Birds	*Campylopterus ensipennis*	White-Tailed Sabrewing Hummingbird	Near Threatened	Appendix II	http://speciesplus.net/#/taxon_concepts/3652/legal
	Buteo platypterus	Broad-Winged Hawk	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/6413/legal
	Buteogallus anthracinus	Common Black Hawk	Least Concern	Appendix II	Avibase 2018, CITES, IUCN
	Buteogallus urubitinga	Great Black Hawk	Least Concern	Appendix II	Kenefick 2007, ERIC 2015
	Falco peregrinus	Peregrine Falcon	Least Concern	Appendix I	Kenefick 2007, CMS, IUCN Red List
	Milvago chimachima	Yellow-Headed Caracara	Least Concern	Appendix II	Avibase 2018, CITES
	Pandion haliaetus	Osprey	Least Concern	Appendix II	http://speciesplus.net/#/taxon_concepts/10360/legal IUCN
	Amazona amazonica	Orange Winged Parrot	Least Concern	Appendix II	IUCN, Avibase 2018
	Chrysolampis mosquitus	Ruby-Topaz Hummingbird	Least Concern	Appendix II	Avibase 2018, CITES, IUCN,
	Florisuga mellivora	White Necked Jacobin	Least Concern	Appendix II	Klomp & Prinz 2007, Kenefick 2007

Category	Taxonomy		IUCN Conservation Status	CITES Listing	Source
	Taxa/ Species	***Common Name***			
	Glaucis hirsuta	Rufous-Breasted Hermit	Least Concern	Appendix II	Klomp & Prinz 2007, IUCN, Avibase 2018
	Tyto alba	Barn Owl	Least Concern	Appendix II	Avibase 2018, CITES,
Reptiles	*Iguana iguana*	Green Iguana	Least Concern	Appendix II	CITES, Murphy et al 2018, IUCN Red List
	Epicrates maurus	Velvet Mapepire/ Rainbow Boa	Least Concern	Appendix II	Murphy et al 2018, IUCN Red List
	Boa constrictor	Macajuel/ Boa Constrictor		Appendix II	CITES, Murphy et al 2018
Plants	*Hylocereus lemairei*	Nightblooming Cereus		Appendix II	Boodram and Oatham 2006
	Melocactus broadwayi	Turk's Head	Near Threatened	Appendix II	Boodram and Oatham 2006, IUCN, Plants of the Eastern Caribbean,
	Pilosocereus lanuginosus	Kadushi Di Pushi	Least Concern	Appendix II	Boodram and Oatham 2006
	Caularthron bicornutum	Virgin Orchid		Appendix II	Boodram and Oatham 2006, CITES, Plants of the Eastern Caribbean
	Maxillaria broadwayi		Critically Endangered	Appendix II	Van den Eynden, Oatham and Johnson 2008,

11. Annex 3: IBA criteria

A1. Globally threatened species
Criterion: The site is known or thought regularly to hold significant numbers of a globally threatened species.
Notes: The site qualifies if it is known, estimated or thought to hold a population of a species categorized by the IUCN Red List as Critically Endangered, Endangered or Vulnerable. In general, the regular presence of a Critical or Endangered species, irrespective of population size, at a site may be sufficient for a site to qualify as an IBA. For Vulnerable species, the presence of more than threshold numbers at a site is necessary to trigger selection.

A2. Restricted-range species
Criterion: The site is known or thought to hold a significant component of a group of species whose breeding distributions define an Endemic Bird Area (EBA) or Secondary Area (SA).
Notes: This category is for species of Endemic Bird Areas (EBAs). EBAs are defined as places where two or more species of restricted range, i.e. with world distributions of less than 50,000 km2, occur together. More than 70% of such species are also globally threatened. Also included here are species of Secondary Areas. A Secondary Area (SA) supports one or more restricted-range species but does not qualify as an EBA because less than two species are entirely confined to it. Typical SAs include single restricted-range species which do not overlap in distribution with any other such species, and places where there are widely disjunct records of one or more restricted-range species, which are clearly geographically separate from any of the EBAs.

A3. Biome-restricted species
Criterion: The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome.
Notes: This category applies to groups of species with largely shared distributions which occur mostly or wholly within all or part of a particular biome and are, therefore, of global importance. As with EBAs, it is necessary that a network of sites be chosen to protect adequately all species confined to each biome and, as necessary, in each range state in which the biome occurs. The 'significant component' term in the Criterion is intended to avoid selecting sites solely on the presence of one or more biome-restricted species that are common and adaptable within the EBA and, therefore, occur at other chosen sites. Additional sites may, however, be chosen for the presence of one or a few species which would, e.g. for reasons of particular habitat requirements, be otherwise under-represented.

A4. Congregations
Criterion: The site is known or thought to hold congregations of ≥1% of the global population of one or more species on a regular or predictable basis.
Notes: This criterion can be applied to seasonal (breeding, wintering or migratory) congregations of any waterbird, seabird or terrestrial bird species. Sites can qualify whether thresholds are exceeded simultaneously or cumulatively, within a limited period. In this way, the criterion covers situations where a rapid turnover of birds takes place (including, for example, for migratory landbirds).
(BLI, 2018).

12. Annex 4: DRAFT Species List DRAFT

This annex gives a DRAFT version of the species lists per group present in the proposed UNESCO site, to be completed and verified by experts in January 2019.

PLANT SPECIES – DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Acanthaceae	*Blechum pyramidatum*							x		x	Boodram and Oatham 2013, BRAHMS 2018
Acanthaceae	*Odontonema brevipes*				3			x			BRAHMS 2018, IUCN
Acanthaceae	*Odontonema nitidum*							x			BRAHMS 2018
Acanthaceae	*Odontonema tubaeforme*							x			BRAHMS 2018
Acanthaceae	*Pachystachys riedeliana*							x			BRAHMS 2018
Acanthaceae	*Ruellia fulgida*							x			BRAHMS 2018
Acanthaceae	*Ruellia tuberosa*	Minnie root/Monkey gun						x			BRAHMS 2018
Acanthaceae	*Aphelandra pulcherrima*							x		x	Boodram and Oatham 2006, National Herbarium 2018, Boodram and Oatham 2013
Acanthaceae	*Justicia flaviflora*		E		1			x			IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006
Acanthaceae	*Justicia secunda*							x			BRAHMS 2018
Acanthaceae	*Justicia tobagensis*		E		3			x			GoTT 2018, IUCN
Acanthaceae	*Odontonema brevipes*		E		3			x		x	GoTT 2018, IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006
Agavaceae	*Furcraea hexapetala*							x			BRAHMS 2018
Alliaceae	*Nothoscordum gracile*							x			BRAHMS 2018
Amaranthaceae	*Alternanthera flavescens*									x	Boodram and Oatham 2013

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Amaranthaceae	*Blutaparon vermiculare*									x	Boodram and Oatham 2013
Amaryllidaceae	*Hymenocallis tubiflora*	Cocoa onion/Fountain lily						x			BRAHMS 2018
Anacardiaceae	*Mangifera indica*	Mango						x		x	Boodram and Oatham 2013, BRAHMS 2018
Anacardiaceae	*Spondias mombin*	Yellow mombin/Hogplum/Creole plum						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Beard 1944, Plants of the Eastern Caribbean, BRAHMS 2018
Annonaceae	*Duguetia lucida*	Balbac						x			BRAHMS 2018
Annonaceae	*Annona montana*	Wild soursop						x			BRAHMS 2018
Annonaceae	*Annona muricata*	Soursop						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Annonaceae	*Annona reticulata*	Custard apple						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Annonaceae	*Duguetia tobagensis*		E		3			x		x	GoTT 2018, IUCN, Beard 1944, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, BRAHMS 2018
Apocynaceae	*Apocynum sp*	Sacred lotus						x			BRAHMS 2018
Apocynaceae	*Forsteronia acouci*							x			BRAHMS 2018
Apocynaceae	*Mandevilla hirsuta*	Savanna flower						x			BRAHMS 2018
Apocynaceae	*Mandevilla subsagittata*							x		x	BRAHMS 2018
Apocynaceae	*Marsdenia macrophylla*							x			BRAHMS 2018
Apocynaceae	*Mesechites trifidus*							x			BRAHMS 2018
Apocynaceae	*Nerium oleander*	Oleander			5			x			BRAHMS 2018, IUCN
Apocynaceae	*Odontadenia macrantha*							x			BRAHMS 2018
Apocynaceae	*Odontadenia nitida*							x			BRAHMS 2018
Apocynaceae	*Prestonia exserta*							x			BRAHMS 2018
Apocynaceae	*Tabernaemontana oppositifolia*				3			x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Apocynaceae	*Tassadia obovata*							x			BRAHMS 2018
Apocynaceae	*Gonolobus tobagensis*		E		DD			x		x	IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006
Aquifoliaceae	*Ilex arimensis*	Biscuitwood	E					x			Catalogue of Life, BRAHMS 2018
Aquifoliaceae	*Ilex sideroxyloides*							x			BRAHMS 2018
Araceae	*Anthurium hookeri*							x		x	Charles et al 2011, BRAHMS 2018
Araceae	*Anthurium pentaphyllum*							x		x	National Herbarium
Araceae	*Anthurium willdenowii*							x			BRAHMS 2018
Araceae	*Philodendron fragrantissimum*							x			BRAHMS 2018
Araceae	*Philodendron lingulatum*							x			BRAHMS 2018
Araceae	*Philodendron ornatum*							x			BRAHMS 2018
Araceae	*Philodendron scandens*							x			BRAHMS 2018
Araceae	*Philodendron simsii*							x			BRAHMS 2018
Araceae	*Anthurium jenmanii*							x		x	Boodram and Oatham 2006, National Herbarium 2018, Boodram and Oatham 2013
Araceae	*Monstera adansonii*							x			BRAHMS 2018
Araceae	*Monstera obliqua*							x			BRAHMS 2018
Araceae	*Philodendron acutatum*							x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Araliaceae	*Dendropanax arboreus*							x			BRAHMS 2018
Araliaceae	*Oreopanax capitatus*	Mountain jereton						x			BRAHMS 2018
Araliaceae	*Panax mooreii*							x			BRAHMS 2018
Arecaceae	*Acrocomia aculeata*	Christmas palm						x			BRAHMS 2018
Arecaceae	*Attalea butyracea*	Trash palm						x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Arecaceae	*Bactris setulosa*	Samson wood			4			x			BRAHMS 2018, IUCN
Arecaceae	*Desmoncus orthacanthos*	Lattan/Climbing palm/Policeman						x			BRAHMS 2018
Arecaceae	*Geonoma interrupta*	Gully palm						x			BRAHMS 2018
Arecaceae	*Manicaria saccifera*	Sea coconut						x			BRAHMS 2018
Arecaceae	*Oenocarpus bataua*							x			BRAHMS 2018
Arecaceae	*Orbignya cohune*	Cohune nut						x			BRAHMS 2018
Arecaceae	*Prestoea acuminata*	Mountain cabbage						x			BRAHMS 2018
Arecaceae	*Roystonea oleracea*							x			BRAHMS 2018
Arecaceae	*Coccothrinax barbadensis*	Thatch palm						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, Charles et al 2011, BRAHMS 2018
Arecaceae	*Cocos nucifera*									x	Boodram and Oatham 2013
Arecaceae	*Euterpe broadwayi*	Manac no. 1						x			BRAHMS 2018
Arecaceae	*Roystonea oleracea*	Caribbean royal palm						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean
Arecaceae	*Synedrella nodiflora*									x	Boodram and Oatham 2013
Arecaceae	*Tilesia baccata*									x	Boodram and Oatham 2013
Aspleniaceae	*Asplenium cristatum*							x			BRAHMS 2018
Aspleniaceae	*Asplenium obtusifolium*							x			BRAHMS 2018
Aspleniaceae	*Asplenium pumilum*							x		x	National Herbarium
Aspleniaceae	*Asplenium serratum*							x			BRAHMS 2018
Aspleniaceae	*Asplenium sp*							x			BRAHMS 2018
Aspleniaceae	*Blechnum occidentale*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Aspleniaceae	*Diplazium grandifolium*							x			BRAHMS 2018
Aspleniaceae	*Hemidictyum marginatum*							x			BRAHMS 2018
Aspleniaceae	*Macrothelypteris torresiana*							x			BRAHMS 2018
Aspleniaceae	*Salpichlaena volubilis*							x			BRAHMS 2018
Aspleniaceae	*Thelypteris balbisii*							x			BRAHMS 2018
Aspleniaceae	*Thelypteris dentata*							x			BRAHMS 2018
Aspleniaceae	*Thelypteris glandulosa*							x			BRAHMS 2018
Aspleniaceae	*Thelypteris opposita*							x			BRAHMS 2018
Aspleniaceae	*Thelypteris poiteana*							x			BRAHMS 2018
Asteraceae	*Acanthospermum hispidum*							x			National Herbarium
Asteraceae	*Acmella uliginosa*				5			x			BRAHMS 2018, IUCN
Asteraceae	*Ageratum conyzoides*							x			BRAHMS 2018
Asteraceae	*Bidens cynapiifolia*							x		x	National Herbarium
Asteraceae	*Bidens pilosa*	Jumbie needle/Needle grass/Railway daisy						x			BRAHMS 2018
Asteraceae	*Chromolaena odorata*	Bitter bush/Christmas bush						x			BRAHMS 2018
Asteraceae	*Clibadium sylvestre*							x			BRAHMS 2018
Asteraceae	*Elaphandra verbesinoides*							x			BRAHMS 2018
Asteraceae	*Hebeclinium macrophyllum*							x			BRAHMS 2018
Asteraceae	*Mikania psilostachya*							x			BRAHMS 2018
Asteraceae	*Mikania sp*							x			BRAHMS 2018
Asteraceae	*Neurolaena lobata*	Zebapique						x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Asteraceae	*Ontanoa fructescens*							x			BRAHMS 2018
Asteraceae	*Oreophila sp*							x			BRAHMS 2018
Asteraceae	*Orthopappus angustifolius*							x			BRAHMS 2018
Asteraceae	*Oyedaea verbesinoides*				5			x			BRAHMS 2018, IUCN
Asteraceae	*Pseudelephantopus spicatus*	Devil broom						x			BRAHMS 2018
Asteraceae	*Synedrella nodiflora*	Porter bush						x			BRAHMS 2018
Asteraceae	*Cyrtocymura scorpioides*	Rokshan						x		x	National Herbarium, Boodram and Oatham 2013
Asteraceae	*Parthenium hysterophorus*	White top						x			GoTT 2016
Asteraceae	*Vernonia scorpioides*	Ruction bush						x		x	Boodram and Oatham 2006
Azioaceae	*Trianthema portulacastrum*									x	Boodram and Oatham 2013
Begoniaceae	*Begonia humilis*	L'Oseille/Lozeille						x			BRAHMS 2018
Bignoniaceae	*Anemopaegma karstenii*							x			BRAHMS 2018
Bignoniaceae	*Macfadyena unguis-cati*	Cat's claw						x			BRAHMS 2018
Bignoniaceae	*Newbouldia laevis*							x			BRAHMS 2018
Bignoniaceae	*Oroxylum indicum*							x			BRAHMS 2018
Bignoniaceae	*Tabebuia chrysantha*	Greenheart/Black poui						x			BRAHMS 2018
Bignoniaceae	*Tabebuia serratifolia*	Greenheart						x			BRAHMS 2018
Bignoniaceae	*Amphilophium paniculatum*							x			BRAHMS 2018
Boraginaceae	*Bourreria succulenta*	Cherry						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Boraginaceae	*Cordia collococca*	Common cherry			5			x		x	National Herbarium, Boodram and Oatham 2013

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Boraginaceae	*Tournefortia hirsutissima*							x			BRAHMS 2018
Boraginaceae	*Cordia curassavica*									x	Boodram and Oatham 2013
Boraginaceae	*Cordia panamensis*	Soapseed						x			BRAHMS 2018
Boraginaceae	*Cordia schomburgkii*							x			BRAHMS 2018
Boraginaceae	*Cordia sericicalyx*	Laylay/Mapoo						x			BRAHMS 2018
Bromeliaceae	*Aechmea aquilega*							x			BRAHMS 2018
Bromeliaceae	*Aechmea aripensis*							x			BRAHMS 2018
Bromeliaceae	*Aechmea mertensii*							x			BRAHMS 2018
Bromeliaceae	*Bromelia plumieri*	Agouti fig/Gouti fig/Manicou fig/Tatoo fig						x			BRAHMS 2018
Bromeliaceae	*Catopsis floribunda*							x			BRAHMS 2018
Bromeliaceae	*Guzmania lingulata*							x			BRAHMS 2018
Bromeliaceae	*Guzmania monostachia*							x			BRAHMS 2018
Bromeliaceae	*Tillandsia usneoides*	Old man's beard/Spanish moss						x			BRAHMS 2018
Bromeliaceae	*Vriesea broadwayi*			2	4			x			BRAHMS 2018, CITES, IUCN
Bromeliaceae	*Tillandsia flexuosa*									x	National Herbarium, Boodram and Oatham 2013
Bromeliaceae	*Werauhia broadwayi*		E		4			x		x	GoTT 2018, IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006
Bursuraceae	*Bursera simaruba*	Naked boy						x		x	Charles et al 2011, BRAHMS 2018, Boodram and Oatham 2013
Cactaceae	*Acanthocereus tetragonus*	Arching acanthocereus/Triangle cactus		2	5					x	National Herbarium
Cactaceae	*Opuntia boldinghii*	Boldingh's prickly pear			5			x			BRAHMS 2018
Cactaceae	*Opuntia cochenillifera*	Cochineal cactus/Cojoneel/Rachette.		2	DD			x			BRAHMS 2018, CITES, IUCN
Cactaceae	*Opuntia ficus-indica*	Tall prickly pear		2	DD			x			BRAHMS 2018, CITES, IUCN

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Cactaceae	*Opuntia wentiana*			2				x			BRAHMS 2018, CITES
Cactaceae	*Rhipsalis baccifera*	Mistletoe/Old man's beard		2	5			x			BRAHMS 2018, IUCN, CITES
Cactaceae	*Hylocereus lemairei*	Night-blooming cereus		*2*				x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, BRAHMS 2018
Cactaceae	*Hylocereus monacanthus*	Harjor/Night-blooming cereus		2	5					x	National Herbarium
Cactaceae	*Melocactus broadwayi*			*2*	4			x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, IUCN, Plants of the Eastern Caribbean, BRAHMS
Cactaceae	*Pilosocereus lanuginosus*			*2*	5			x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, IUCN, BRAHMS 2018
Caesalpiniaceae	*Senna bacillaris*									x	Boodram and Oatham 2013
Campanulaceae	*Centropogon cornutus*	Deer meat						x			BRAHMS 2018
Capparaceae	*Capparis flexuosa*	Mabouya						x		x	National Herbarium
Capparidaceae	*Capparis flexuosa*									x	Boodram and Oatham 2013
Caricaceae	*Carica papaya*	Papaya			DD					x	Boodram and Oatham 2013
Cecropiaceae	*Cecropia peltata*									x	Boodram and Oatham 2013
Celastraceae	*Cheiloclinium cognatum*							x			BRAHMS 2018
Celastraceae	*Elaeodendron xylocarpum*							x			BRAHMS 2018
Celastraceae	*Hippocratea volubilis*	Santo domingo nut						x			BRAHMS 2018
Celastraceae	*Maytenus tetragonus*							x		x	IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, Boodram and Oatham 2013
Celastraceae	*Peritassa laevigata*							x			BRAHMS 2018
Celastraceae	*Maytenus monticola*		E		5			x			IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, BRAHMS 2018
Celastraceae	*Maytenus tetragona*									x	National Herbarium

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Chrysobalanaceae	*Hirtella silicia*	Coco chat						x			BRAHMS 2018
Chrysobalanaceae	*Licania cruegeriana*							x			BRAHMS 2018
Chrysobalanaceae	*Licania heteromorpha*				5			x			BRAHMS 2018, IUCN
Chrysobalanaceae	*Licania leucosepala*							x			BRAHMS 2018
Chrysobalanaceae	*Licania membranacea*							x			BRAHMS 2018
Chrysobalanaceae	*Hirtella racemosa*	Cocochat						x			BRAHMS 2018
Clusiaceae	*Calophyllum lucidum*	Santa maria						x			BRAHMS 2018
Clusiaceae	*Clusia rosea*									x	National Herbarium
Clusiaceae	*Garcinia macrophylla*	Hatstand tree						x			BRAHMS 2018
Clusiaceae	*Marila grandiflora*	Coco mangue/Red mangue/Wild cocoa						x			BRAHMS 2018
Clusiaceae	*Clusia palmicida*	Parrot apple						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, BRAHMS 2018
Combretaceae	*Buchenavia tetraphylla*	Yellow olivier/Yellow sanders						x			BRAHMS 2018
Combretaceae	*Terminalia dichotoma*	Olivier						x			BRAHMS 2018
Commelinaceae	*Gibasis geniculata*							x			BRAHMS 2018
Commelinaceae	*Tripogandra multiflora*									x	National Herbarium
Commelinaceae	*Commelina diffusa*	Climbing dayflower			5					x	National Herbarium
Commelinaceae	*Commelina erecta*	White mouth dayflower			5					x	Boodram and Oatham 2013
Convolvulaceae	*Ipomea sp*									x	Boodram and Oatham 2013
Convolvulaceae	*Ipomoea phyllomega*							x			BRAHMS 2018
Convolvulaceae	*Iseia luxurians*							x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Convolvulaceae	*Operculina hamiltonii*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Convolvulaceae	*Operculina pteripes*							x			BRAHMS 2018
Convolvulaceae	*Operculina sericantha*							x			BRAHMS 2018
Convolvulaceae	*Operculina turpethum*							x			BRAHMS 2018
Costaceae	*Costus scaber*				5			x			BRAHMS 2018, IUCN
Cucurbitaceae	*Gurania lobata*	Estralog						x			BRAHMS 2018
Cucurbitaceae	*Melothria pendula*	Creeping cucumber/Wild cucumber						x			BRAHMS 2018
Cucurbitaceae	*Neoalsomitra sarcophylla*							x			BRAHMS 2018
Cucurbitaceae	*Psiguria umbrosa*									x	National Herbarium, Boodram and Oatham 2013
Cyatheaceae	*Cnemidaria spectabilis*							x			BRAHMS 2018
Cyatheaceae	*Cyathea pungens*			2				x			BRAHMS 2018, CITES
Cyclanthaceae	*Asplundia rigida*	Mammoo						x			BRAHMS 2018
Cyclanthaceae	*Evodianthus funifer*							x			BRAHMS 2018
Cyclanthaceae	*Dicranopygium insulare*		E		3			x		x	GoTT 2018, Van den Eynden, Oatham and Johnson 2008, UCN, Van den Eynden 2006
Cyperaceae	*Becquerelia cymosa*							x			BRAHMS 2018
Cyperaceae	*Cyperus confertus*									x	National Herbarium
Cyperaceae	*Cyperus thyrsiflorus*							x		x	National Herbarium
Cyperaceae	*Fimbristylis cymosa*				5			x			BRAHMS 2018, IUCN
Cyperaceae	*Kyllinga odorata*				5			x			BRAHMS 2018, IUCN
Cyperaceae	*Kyllinga pumila*							x			BRAHMS 2018
Cyperaceae	*Rhynchospora ciliata*							x			BRAHMS 2018
Cyperaceae	*Rhynchospora contracta*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Cyperaceae	*Rhynchospora polyphylla*							x			BRAHMS 2018
Cyperaceae	*Rhynchospora radicans*							x			BRAHMS 2018
Cyperaceae	*Scleria latifolia*							x			BRAHMS 2018
Cyperaceae	*Scleria melaleuca*							x			BRAHMS 2018
Cyperaceae	*Scleria pterota*							x			BRAHMS 2018
Cyperaceae	*Scleria secans*							x			BRAHMS 2018
Cyperaceae	*Cyperus laxus*							x			BRAHMS 2018
Cyperaceae	*Cyperus ligularis*									x	Boodram and Oatham 2013
Cyperaceae	*Cyperus luzulae*							x			BRAHMS 2018
Cyperaceae	*Cyperus odoratus*				DD			x			BRAHMS 2018, IUCN
Cyperaceae	*Cyperus simplex*							x			BRAHMS 2018
Cyperaceae	*Cyperus sphacelatus*							x			BRAHMS 2018
Cyperaceae	*Cyperus surinamensis*							x			BRAHMS 2018
Cyperaceae	*Fimbristylis dichotoma*				5			x			BRAHMS 2018, IUCN
Cyperaceae	*Hypolytrum longifolium*							x			BRAHMS 2018
Cyperaceae	*Kyllinga brevifolia*				5			x			BRAHMS 2018, IUCN
Cyperaceae	*Kyllinga nemoralis*	White water sage			5			x			BRAHMS 2018, IUCN
Cyperaceae	*Rhynchospora ebracteata*		E		3			x		x	Van den Eynden, Oatham and Johnson 2008, IUCN, Van den Eynden 2006
Dennstaedtiaceae	*Dennstaedtia obtusifolia*							x			BRAHMS 2018
Dennstaedtiaceae	*Hypolepis repens*							x			BRAHMS 2018
Dichapetalaceae	*Dichapetalum pedunculatum*							x			BRAHMS 2018
Dilleniaceae	*Doliocarpus dentatus*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Dilleniaceae	*Curatella americana*	Rough leaf						x			BRAHMS 2018
Dioscoreaceae	*Dioscorea polygonoides*							x			BRAHMS 2018
Ebenaceae	*Diospyros cayennensis*	Bois charbon								x	National Herbarium
Ebenaceae	*Diospyros inconstans*	Butterwood/Clean teeth						x		x	National Herbarium, Boodram and Oatham 2013
Elaeocarpaceae	*Sloanea laurifolia*	Lionwood						x			BRAHMS 2018
Elaeocarpaceae	*Sloanea stipitata*	Tobago yoke						x			BRAHMS 2018
Eriocaulaceae	*Paepalanthus bifidus*							x			BRAHMS 2018
Eriocaulaceae	*Paepalanthus jenmanii*							x			BRAHMS 2018
Erythroxylaceae	*Erythroxylum impressum*							x			BRAHMS 2018
Erythroxylaceae	*Erythroxylum cumanense*	Ironwood						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Erythroxylaceae	*Erythroxylum havanense*	Tea bush						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Euphorbiaceae	*Alchornea triplinervia*	Honeywood						x			BRAHMS 2018
Euphorbiaceae	*Omphalea diandra*							x			BRAHMS 2018
Euphorbiaceae	*Omphalea triandra*							x			BRAHMS 2018
Euphorbiaceae	*Sapium glandulosum*	Milkwood/Gum tree/Bird lime			5			x			BRAHMS 2018, IUCN
Euphorbiaceae	*Tragia volubilis*	Stinging nettle						x			BRAHMS 2018
Euphorbiaceae	*Codiaeum variegatum*									x	Boodram and Oatham 2013
Euphorbiaceae	*Hippomane mancinella*	Manchineel						x			BRAHMS 2018
Euphorbiaceae	*Tragia volubilis*									x	Boodram and Oatham 2013
Fabaceae	*Abarema jupunba*	Puni/Soapwood						x			National Herbarium
Fabaceae	*Andira inermis*	Black plum/Cabbage tree			5			x		x	National Herbarium, Boodram and Oatham 2013

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Fabaceae	*Brownea coccinea*	Tobago beau						x			BRAHMS 2018
Fabaceae	*Clathrotropis brachypetala*	Blackheart no. 1/Mayaro poui						x			BRAHMS 2018
Fabaceae	*Desmodium incanum*	Sweetheart/Wild pinder						x		x	Boodram and Oatham 2013, BRAHMS 2018
Fabaceae	*Erythrina poeppigiana*	Bois immortelle/Mountain immortelle						x			BRAHMS 2018
Fabaceae	*Flemingia strobilifera*	Kidney bush						x			BRAHMS 2018
Fabaceae	*Inga punctata*				5			x			BRAHMS 2018, IUCN
Fabaceae	*Lonchocarpus domingensis*	Dog root/Wild yoke						x			BRAHMS 2018
Fabaceae	*Lonchocarpus heptaphyllus*	White savonette						x			BRAHMS 2018
Fabaceae	*Neptunia plena*	Dead and awake			5			x			BRAHMS 2018, IUCN
Fabaceae	*Ormosia coarctata*	Jumbie Bead						x			BRAHMS 2018
Fabaceae	*Ormosia fastigiata*				5			x			BRAHMS 2018, IUCN
Fabaceae	*Ormosia monosperma*	Jumbie Bead						x			BRAHMS 2018
Fabaceae	*Pentaclethra macroloba*	Fine leaf/Wild tamarind						x			BRAHMS 2018
Fabaceae	*Piscidia carthagenensis*	Black mahoe								x	National Herbarium, Boodram and Oatham 2013
Fabaceae	*Senna alata*	Christmas candle/Wild senna						x			BRAHMS 2018
Fabaceae	*Senna bacillaris*	Christmas bush						x			BRAHMS 2018
Fabaceae	*Abrus precatorius*									x	Boodram and Oatham 2013
Fabaceae	*Clitoria falcata*							x			BRAHMS 2018
Fabaceae	*Inga ingoides*	Pois doux						x			BRAHMS 2018
Fabaceae	*Inga sapindoides*	Pois doux			5			x			BRAHMS 2018, IUCN
Fabaceae	*Macrolobium trinitense*		E		2			x			IUCN, Van den Eynden 2006
Fabaceae	*Rhynchosia phaseoloides*				5					x	Boodram and Oatham 2013

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Flacourtiaceae	*Casearia decandra*									x	Boodram and Oatham 2013
Gentianaceae	*Chelonanthus alatus*							x			BRAHMS 2018
Gentianaceae	*Enicostema verticillatum*							x			BRAHMS 2018
Gesneriaceae	*Codonanthe crassifolia*							x			BRAHMS 2018
Gesneriaceae	*Drymonia serrulata*							x			BRAHMS 2018
Gesneriaceae	*Nautilocalyx mimuloides*							x			BRAHMS 2018
Gesneriaceae	*Besleria seitzii*		E		3			x		x	IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, BRAHMS 2018
Gesneriaceae	*Chrysothemis pulchella*							x			BRAHMS 2018
Gesneriaceae	*Codonanthe caribaea*							x			BRAHMS 2018
Gesneriaceae	*Columnea scandens*							x			BRAHMS 2018
Gleicheniaceae	*Gleichenella pectinata*							x			BRAHMS 2018
Haemodoraceae	*Xiphidium caeruleum*							x			BRAHMS 2018
Heliconiaceae	*Heliconia bihai*	Balisier/Wild plantain						x		x	National Herbarium, Boodram and Oatham 2013
Heliconiaceae	*Heliconia hirsuta*							x			BRAHMS 2018
Heliconiaceae	*Heliconia spathocircinata*							x			BRAHMS 2018
Hymenophyllaceae	*Trichomanes elegans*							x			BRAHMS 2018
Hymenophyllaceae	*Trichomanes kapplerianum*							x			BRAHMS 2018
Hymenophyllaceae	*Trichomanes membranaceum*							x			BRAHMS 2018
Hymenophyllaceae	*Trichomanes osmundoides*							x			BRAHMS 2018
Hymenophyllaceae	*Trichomanes rigidum*							x			BRAHMS 2018

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Hymenophyllaceae	*Trichomanes rupestre*							x			BRAHMS 2018
Hymenophyllaceae	*Trichomanes trigonum*							x			BRAHMS 2018
Hypericaceae	*Vismia cayennensis*	Yellow wattle						x			BRAHMS 2018
Hypericaceae	*Vismia laxiflora*	Yellow wattle						x			BRAHMS 2018
Hypoxidaceae	*Hypoxis decumbens*	Star of Bethlehem						x			BRAHMS 2018
Lamiaceae	*Aegiphila obovata*	Goatwood	E		4			x			Van den Eynden 2006, IUCN, BRAHMS 2018
Lamiaceae	*Aegiphila perplexa*							x			BRAHMS 2018
Lamiaceae	*Aegiphila obovate*		E		*4*			x		x	Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, BRAHMS 2018
Lamiaceae	*Hyptis capitata*							x			BRAHMS 2018
Lamiaceae	*Hyptis pectinata*							x			BRAHMS 2018
Lauraceae	*Aiouea laevis*	Laurier mango						x			BRAHMS 2018
Lauraceae	*Aniba panurensis*	Laurier canelle						x			BRAHMS 2018
Lauraceae	*Cinnamomum triplinerve*	Maballe						x			BRAHMS 2018
Lauraceae	*Nectandra martinicensis*	Main Ridge laurier						x			BRAHMS 2018
Lauraceae	*Nectandra membranacea*	Black cedar						x			BRAHMS 2018
Lauraceae	*Nectandra patens*							x			BRAHMS 2018
Lauraceae	*Nectandra pearcei*	Large leaf mattack/Laurier mattack						x			BRAHMS 2018
Lauraceae	*Nectandra turbacensis*	St. Ann's Laurier						x			BRAHMS 2018
Lauraceae	*Neolitsea cassia*	Cinnamon						x			BRAHMS 2018
Lauraceae	*Ocotea aurantiodora*							x			BRAHMS 2018
Lauraceae	*Ocotea canaliculata*	Laurier tifay						x			BRAHMS 2018

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Lauraceae	*Ocotea eggersiana*	Small leaf mattak.						x			BRAHMS 2018
Lauraceae	*Ocotea fasciculata*	Laurier citron						x			BRAHMS 2018
Lauraceae	*Ocotea floribunda*	Laurier stinker/Spicy laurier/Spicy laurier mattack/Spicy mattack						x			BRAHMS 2018
Lauraceae	*Ocotea glomerata*	Laurier zaboca						x			BRAHMS 2018
Lauraceae	*Ocotea jacquinii*	Main Ridge laurier						x			BRAHMS 2018
Lauraceae	*Ocotea leucoxylon*	Black cedar no. 2						x			BRAHMS 2018
Lauraceae	*Ocotea oblonga*	Fine-leaf laurier						x			BRAHMS 2018
Lauraceae	*Ocotea tomentella*							x			BRAHMS 2018
Lauraceae	*Ocotea trinitatis*							x			BRAHMS 2018
Lecythidaceae	*Eschweilera decolorans*	Devilwood						x			BRAHMS 2018
Lindseaceae	*Lindsaea lancea*							x			BRAHMS 2018
Lindseaceae	*Odontosoria sp*							x			BRAHMS 2018
Loranthaceae	*Oryctanthus alveolatus*							x			BRAHMS 2018
Lycopodiaceae	*Lycopodiella cernua*							x			BRAHMS 2018
Lycopodiaceae	*Huperzia dichotoma*							x			BRAHMS 2018
Lycopodiaceae	*Huperzia linifolia*							x			BRAHMS 2018
Lythraceae	*Cuphea carthagenensis*							x			BRAHMS 2018
Lythraceae	*Cuphea denticulata*							x			BRAHMS 2018
Lythraceae	*Cuphea setosa*							x			BRAHMS 2018
Malpighiaceae	*Byrsonima spicata*	Rosewood						x			BRAHMS 2018
Malpighiaceae	*Mascagnia ovatifolia*							x			BRAHMS 2018
Malpighiaceae	*Mascagnia sepium*							x			BRAHMS 2018

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Malpighiaceae	*Tetrapterys discolor*							x			BRAHMS 2018
Malpighiaceae	*Heteropterys macrostachya*							x			BRAHMS 2018
Malpighiaceae	*Hiraea fagifolia*							x			BRAHMS 2018
Malpighiaceae	*Malpighia glabra*									x	Boodram and Oatham 2013
Malvaceae	*Ceiba pentandra*	Silk cotton			5			x			BRAHMS 2018, IUCN
Malvaceae	*Guazama ulmifolia*	Bastard cedar/Pigeon wood/West Indian elm						x			BRAHMS 2018
Malvaceae	*Malvastrum americanum*									x	National Herbarium
Malvaceae	*Ochroma pyramidale*	Corkwood/Down tree						x			BRAHMS 2018
Malvaceae	*Pachira aquatica*	Wild chataigne						x			BRAHMS 2018
Malvaceae	*Pachira brevior*							x			BRAHMS 2018
Malvaceae	*Pachira glabra*							x			BRAHMS 2018
Malvaceae	*Pachira insignis*							x			BRAHMS 2018
Malvaceae	*Prockia crucis*									x	National Herbarium, Boodram and Oatham 2013
Malvaceae	*Prockia crucis*							x			BRAHMS 2018
Malvaceae	*Sida acuta*	Nut broom						x			BRAHMS 2018
Malvaceae	*Sida glomerata*							x			BRAHMS 2018
Malvaceae	*Sidastrum multiflorum*							x			BRAHMS 2018
Malvaceae	*Triumfetta lappula*							x			BRAHMS 2018
Malvaceae	*Triumfetta semitriloba*				5			x			BRAHMS 2018, IUCN
Malvaceae	*Urena lobata*							x			BRAHMS 2018
Malvaceae	*Gossypium barbadense*	Long staple cotton/Sea island cotton			5					x	National Herbarium, Boodram and Oatham 2013
Malvaceae	*Hibiscus pernambucensis*									x	Boodram and Oatham 2013

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Malvaceae	*Malvastrum americanum*									x	Boodram and Oatham 2013
Marantaceae	*Calathea casupito*	Cachez-vous						x			BRAHMS 2018
Marantaceae	*Calathea lutea*	Duckna/Soharee						x			BRAHMS 2018
Marantaceae	*Stromanthe tonckat*							x			BRAHMS 2018
Marantaceae	*Maranta gibba*							x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, BRAHMS 2018
Marattiaceae	*Danaea alata*							x			BRAHMS 2018
Marattiaceae	*Danaea leprieurii*							x			BRAHMS 2018
Marcgraviaceae	*Marcgravia tobagensis*							x			BRAHMS 2018
Marcgraviaceae	*Norantea guianensis*							x			BRAHMS 2018
Marcgraviaceae	*Norantea spiciflora*							x			BRAHMS 2018
Marcgraviaceae	*Marcgravia elegans*		E		3			x			IUCN, Van den Eynden 2006, BRAHMS 2018
Marsileaceae	*Marsilea minuta*	Dwarf water clover			5			x			BRAHMS 2018, IUCN
Melastomaceae	*Clidemia trinitensis*							x			Van den Eynden 2006, BRAHMS 2018
Melastomaceae	*Nepsera aquatica*							x			BRAHMS 2018
Melastomaceae	*Pterolepis glomerata*							x			BRAHMS 2018
Melastomaceae	*Tococa broadwayi*							x			BRAHMS 2018
Melastomataceae	*Blakea pulverulenta*							x			BRAHMS 2018
Melastomataceae	*Clidemia dentata*							x			BRAHMS 2018
Melastomataceae	*Leandra clidemioides*							x			BRAHMS 2018
Melastomataceae	*Miconia centrodesma*							x			BRAHMS 2018
Melastomataceae	*Miconia fragrans*							x			BRAHMS 2018
Melastomataceae	*Miconia hypoleuca*							x			BRAHMS 2018

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Melastomataceae	*Miconia mirabilis*							x			BRAHMS 2018
Melastomataceae	*Miconia nervosa*							x			BRAHMS 2018
Melastomataceae	*Miconia plukenetii*							x			BRAHMS 2018
Melastomataceae	*Miconia prasina*							x			BRAHMS 2018
Melastomataceae	*Miconia racemosa*							x			BRAHMS 2018
Melastomataceae	*Miconia virescens*							x		x	Boodram and Oatham 2013, BRAHMS 2018
Melastomataceae	*Mouriri pseudogeminata*	Bois lisette						x			BRAHMS 2018
Melastomataceae	*Clidemia cruegeriana*							x			BRAHMS 2018
Melastomataceae	*Clidemia hirta*							x			BRAHMS 2018
Melastomataceae	*Clidemia pustulata*							x			BRAHMS 2018
Melastomataceae	*Clidemia urceolata*							x			BRAHMS 2018
Melastomataceae	*Conostegia icosandra*							x			BRAHMS 2018
Melastomataceae	*Henriettella tobagensis*		E					x			Catalogue of Life, BRAHMS 2018
Melastomataceae	*Mouriri rhizophorifolia*	White monkey bone						x			BRAHMS 2018
Meliaceae	*Carapa guianensis*	Crabwood			5			x			BRAHMS 2018, IUCN
Meliaceae	*Cedrela odorata*	Red cedar/West Indian cedar		3	3			x			BRAHMS 2018, CITES, IUCN
Meliaceae	*Guarea glabra*	Red wood			5			x			BRAHMS 2018, IUCN
Meliaceae	*Guarea guidonia*	Cramantee/ Red wood			5			x			BRAHMS 2018, IUCN
Meliaceae	*Trichilia pleeana*	Mora cypre						x			BRAHMS 2018
Menispermaceae	*Cissampelos pareira*	Graveyard bush/Velvet leaf						x		x	National Herbarium, Boodram and Oatham 2013
Menispermaceae	*Odontocarya tamoides*							x		x	Boodram and Oatham 2013, BRAHMS 2018
Menispermaceae	*Odontocarya tamoides*							x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean

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Menispermaceae	*Orthomene schomburgkii*							x			BRAHMS 2018
Menyanthaceae	*Nymphoides indica*				5			x			BRAHMS 2018, IUCN
Mimosaceae	*Calliandra sp*									x	Boodram and Oatham 2013
Mimosaceae	*Enterolobium cyclocarpum*	Monkey ear						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean
Mimosaceae	*Pithecellobium unguis-cati*	Money bush						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Monimiaceae	*Mollinedia ovata*							x			BRAHMS 2018
Moraceae	*Artocarpus altilis*	Bread yam/Breadfruit/Chataigne						x			BRAHMS 2018
Moraceae	*Brosimum alicastrum*							x			BRAHMS 2018
Moraceae	*Brosimum guianense*	Leopard wood/Letter wood						x			BRAHMS 2018
Moraceae	*Castilla elastica*							x			BRAHMS 2018
Moraceae	*Ficus guianensis*	Agalie/Figuier						x			BRAHMS 2018
Moraceae	*Ficus trigonata*				5			x			BRAHMS 2018, IUCN
Moraceae	*Ficus yoponensis*	Bowl dish/Figuier/Wild milking						x			BRAHMS 2018
Moraceae	*Ficus broadwayi*	Beefwood			5			x			BRAHMS 2018, IUCN
Moraceae	*Ficus nymphaeifolia*									x	Boodram and Oatham 2013
Moraceae	*Maclura tinctoria*	Old fustic			5					x	Boodram and Oatham 2013
Muntingiaceae	*Muntingia calabura*	Calabura						x			BRAHMS 2018
Myristicaceae	*Virola surinamensis*	Wild cedar/Wild nutmeg			2			x			BRAHMS 2018, IUCN
Myrsinaceae	*Conomorpha peruviana*							x			BRAHMS 2018
Myrsinaceae	*Cybianthus antillanus*							x			BRAHMS 2018
Myrsinaceae	*Cybianthus pittieri*		E		3			x		x	IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006

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Myrsinaceae	*Cybianthus rostratus*							x			BRAHMS 2018
Myrsinaceae	*Cybianthus surinamensis*							x			BRAHMS 2018
Myrtaceae	*Calyptranthes fasciculata*	Debasse						x			BRAHMS 2018
Myrtaceae	*Eugenia aeruginea*							x			BRAHMS 2018
Myrtaceae	*Eugenia confusa*	Wild coffee/Coffee guava						x			BRAHMS 2018
Myrtaceae	*Eugenia limbosa*							x			BRAHMS 2018
Myrtaceae	*Marlierea ferruginea*	Wild guava			5			x			BRAHMS 2018, IUCN
Myrtaceae	*Myrcia deflexa*	Wild guava						x			BRAHMS 2018
Myrtaceae	*Pleurothallis spiculifera*			2				x			BRAHMS 2018, CITES
Myrtaceae	*Psidium guajava*	Guava						x			BRAHMS 2018
Myrtaceae	*Eugenia albicans*	Wild gauva						x			BRAHMS 2018
Myrtaceae	*Eugenia cruegeri*		E		5			x			Van den Eynden 2006, IUCN
Myrtaceae	*Eugenia dussii*							x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, BRAHMS 2018
Myrtaceae	*Eugenia ligustrina*	Small Leaf								x	National Herbarium
Myrtaceae	*Eugenia ligustrina*									x	Boodram and Oatham 2013
Myrtaceae	*Eugenia monticola*	Papery leaf guava/Small leaf								x	National Herbarium, Boodram and Oatham 2013
Myrtaceae	*Eugenia procera*									x	National Herbarium
Myrtaceae	*Eugenia sp*	Black plum/Double-leaf wild guava								x	National Herbarium
Myrtaceae	*Eugenia trinervia*	Wild large leaf guava						x			BRAHMS 2018
Myrtaceae	*Myrcia decorticans*				5			x			BRAHMS 2018, IUCN
Myrtaceae	*Myrcia splendens*	Wild guava						x			BRAHMS 2018
Myrtaceae	*Myrcia stenocarpa*	Wild guava						x			BRAHMS 2018

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Myrtaceae	*Pimenta racemosa*	Bay rum tree						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Myrtaceae	*Psidium guajava*									x	Boodram and Oatham 2013
Myrtaceae	*Syzygium malaccense*				5					x	Boodram and Oatham 2013
Nelumbonaceae	*Nelumbium speciosum*							x			BRAHMS 2018
Nelumbonaceae	*Nelumbo nucifera*	Sacred lotus						x			BRAHMS 2018
Nepenthaceae	*Nepenthes sp*							x			BRAHMS 2018
Nyctaginaceae	*Guapira cuspidata*	Beefwood no. 2/Goodbread/Jiggerwood.						x			BRAHMS 2018
Nyctaginaceae	*Guapira eggersiana*	Banana wood/Goodbread						x		x	Boodram and Oatham 2013, BRAHMS 2018
Nyctaginaceae	*Guapira fragrans*									x	National Herbarium
Nyctaginaceae	*Guapira salicifolia*							x			BRAHMS 2018
Nyctaginaceae	*Guapira fragrans*									x	Boodram and Oatham 2013
Nyctaginaceae	*Pisonia pacurero*							x		x	Boodram and Oatham 2006
Nymphaeaceae	*Nymphaea amazonum*							x			BRAHMS 2018
Nymphaeaceae	*Nymphaea ampla*	White water lily						x			BRAHMS 2018
Nymphaeaceae	*Nymphaea rudgeana*							x			BRAHMS 2018
Nymphaeaceae	*Nymphaea stellata*	Water lily			5			x			BRAHMS 2018, IUCN
Nymphaeaceae	*Nymphaea zanzibariensis*							x			BRAHMS 2018
Ochnaceae	*Ochna atropurpurea*							x			BRAHMS 2018
Ochnaceae	*Ochna kirkii*							x			BRAHMS 2018
Ochnaceae	*Ochna mossambicensi*							x			BRAHMS 2018
Ochnaceae	*Ouratea guildingii*									x	National Herbarium

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Ochnaceae	*Ouratea guildingii*	Bois-baguette						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013, BRAHMS 2018
Olacaceae	*Schoepfia schreberi*							x			BRAHMS 2018
Oleaceae	*Chionanthus compactus*							x		x	Boodram and Oatham 2013, BRAHMS 2018
Oleaceae	*Nyctanthes arbor-tristis*	Coral Jasmine/Lady of the night no. 3/Tree of sadness.						x			BRAHMS 2018
Oleaceae	*Chionanthus compacta*							x		x	Boodram and Oatham 2006
Onagraceae	*Ludwigia octovalvis*	Wild clove			5			x			BRAHMS 2018, IUCN
Onagraceae	*Oenothera sp*							x			BRAHMS 2018
Ophioglossaceae	*Ophioglossum costatum*							x			BRAHMS 2018
Ophioglossaceae	*Ophioglossum macrorrhizum*							x			BRAHMS 2018
Ophioglossaceae	*Ophioglossum palmatum*							x			BRAHMS 2018
Ophioglossaceae	*Ophioglossum reticulatum*				5			x			BRAHMS 2018, IUCN
Orchidaceae	*Campylocentrum micranthum*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Catasetum macrocarpum*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Encyclia oncidioides*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Epidendrum carpophorum*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Epidendrum ibaguense*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Epidendrum nocturnum*							x			BRAHMS 2018
Orchidaceae	*Epidendrum rigidum*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Epidendrum strobiliferum*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Gongora quinquenervis*			2				x			BRAHMS 2018, CITES

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Orchidaceae	*Habenaria monorrhiza*			2	5			x			BRAHMS 2018, CITES, IUCN
Orchidaceae	*Malaxis umbelliflora*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Microchilus plantagineus*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Microchilus schultesianus*			2	2			x			BRAHMS 2018, IUCN, CITES
Orchidaceae	*Nidema ottonis*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Notylia angustifolia*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Notylia incurva*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Notylia punctata*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Octomeria apiculata*							x			BRAHMS 2018
Orchidaceae	*Octomeria graminifolia*							x			BRAHMS 2018
Orchidaceae	*Octomeria surinamensis*							x			BRAHMS 2018
Orchidaceae	*Octomeria tridentata*							x			BRAHMS 2018
Orchidaceae	*Oeceoclades maculata*			2	5			x			BRAHMS 2018, IUCN, CITES
Orchidaceae	*Oncidium altissimum*							x			BRAHMS 2018
Orchidaceae	*Oncidium citrinum*							x			BRAHMS 2018
Orchidaceae	*Oncidium farmeri*							x			BRAHMS 2018
Orchidaceae	*Oncidium luridum*	Brown bee orchid/Common bee						x			BRAHMS 2018
Orchidaceae	*Oncidium sarcotes*							x			BRAHMS 2018
Orchidaceae	*Oncidium x haematochilum*							x			BRAHMS 2018
Orchidaceae	*Orchida sp*							x			BRAHMS 2018
Orchidaceae	*Ornithidium coccineum*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Orchidaceae	*Ornithocephalus bicornis*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Ornithocephalus ciliatus*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Ornithocephalus gladiatus*							x			BRAHMS 2018
Orchidaceae	*Ornithocephalus kruegeri*							x			BRAHMS 2018
Orchidaceae	*Palmorchis pubescens*							x			BRAHMS 2018
Orchidaceae	*Pleurothallis discoidea*							x			BRAHMS 2018
Orchidaceae	*Pleurothallis spiculifera*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Prescottia stachyodes*							x			BRAHMS 2018
Orchidaceae	*Prosthechea fragrans*							x			BRAHMS 2018
Orchidaceae	*Sacoila lanceolata*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Sarcoglottis metallica*							x			BRAHMS 2018
Orchidaceae	*Caularthron bicornutum*	Virgin orchid		*2*				x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, CITES, Plants of the Eastern Caribbean, BRAHMS 2018
Orchidaceae	*Cranichis muscosa*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Jacquiniella globosa*			2				x			BRAHMS 2018, CITES
Orchidaceae	*Maxillaria broadwayi*		E	*2*	1			x		x	Van den Eynden, Oatham and Johnson 2008
Oxalidaceae	*Oxalis barrelieri*							x			BRAHMS 2018
Oxalidaceae	*Oxalis frutescens*							x			BRAHMS 2018
Oxalidaceae	*Oxalis frutescens*	Oseille-bois jaune						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Oxalidaceae	*Oxalis sepium*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Passifloraceae	*Passiflora biflora*							x			BRAHMS 2018
Passifloraceae	*Passiflora cyanea*							x			BRAHMS 2018
Passifloraceae	*Passiflora foetida*	Jumbie watermelon/Pop bush.						x			BRAHMS 2018
Passifloraceae	*Passiflora garckii*							x			BRAHMS 2018
Passifloraceae	*Passiflora laurifolia*	Belle apple/Water lemon								x	National Herbarium, Boodram and Oatham 2013
Passifloraceae	*Passiflora tuberosa*							x			BRAHMS 2018
Passifloraceae	*Passiflora vespertilio*							x			BRAHMS 2018
Passifloraceae	*Passiflora vitifolia*							x			BRAHMS 2018
Passifloraceae	*Passiflora cyanea*	Passion flower						x		x	Boodram and Oatham 2006, BRAHMS 2018, Boodram and Oatham 2013
Passifloraceae	*Passiflora suberosa*									x	Boodram and Oatham 2013
Pentaphylacaceae	*Ternstroemia oligostemon*							x			BRAHMS 2018
Phyllanthaceae	*Hieronyma alchorneoides*	Horseflesh						x			BRAHMS 2018
Phyllanthaceae	*Phyllanthus acacioides*		E		3			x		x	IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, BRAHMS
Phyllanthaceae	*Phyllanthus mimicus*		E		1			x		x	Van den Eynden, Oatham and Johnson 2008, UCN, Van den Eynden 2006
Phyllanthaceae	*Phyllanthus sp*							x			BRAHMS 2018
Phyllanthaceae	*Richeria grandis*							x			BRAHMS 2018
Phytolaccaceae	*Microtea debilis*	Alantokai/Alantu kai						x			BRAHMS 2018
Phytolaccaceae	*Trichostigma octandrum*							x			BRAHMS 2018
Phytolaccaceae	*Rivina humilis*									x	Boodram and Oatham 2013
Picramniaceae	*Picramnia pentandra*	Barr						x			BRAHMS 2018
Piperaceae	*Peperomia sp*							x			BRAHMS 2018

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								Main Ridge	NETMPA	Islets	
Piperaceae	*Piper aduncum*	Elder bush						x			BRAHMS 2018
Piperaceae	*Piper demeraranum*							x			BRAHMS 2018
Piperaceae	*Piper dilatatum*	Candle bush								x	National Herbarium
Piperaceae	*Piper dilatatum*	Candle Bush						x			BRAHMS 2018
Piperaceae	*Piper guayranum*	Candle bush						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Piperaceae	*Piper obliquum*							x			BRAHMS 2018
Piperaceae	*Piper peltatum*							x			BRAHMS 2018
Piperaceae	*Piper rugosum*							x			BRAHMS 2018
Piperaceae	*Piper tuberculatum*							x			BRAHMS 2018
Piperaceae	*Piper tuberculatum*	Candle bush						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Plantaginaceae	*Achetaria guianensis*							x			National Herbarium
Plantaginaceae	*Bacopa monnieri*				5			x			BRAHMS 2018, IUCN
Plumbaginaceae	*Plumbago zeylanica*									x	Boodram and Oatham 2013
Poaceae	*Acroceras zizanioides*	Oats grass			5			x			BRAHMS 2018, IUCN
Poaceae	*Andropogon bicornis*	Broom Grass						x			BRAHMS 2018
Poaceae	*Arundinella hispida*							x			BRAHMS 2018
Poaceae	*Axonopus compressus*	Carpet grass/Savanna grass						x			BRAHMS 2018
Poaceae	*Bambusa vulgaris*									x	Boodram and Oatham 2013
Poaceae	*Brachiaria fasciculata*									x	National Herbarium
Poaceae	*Cenchrus echinatus*	Burr grass						x			BRAHMS 2018
Poaceae	*Chloris radiata*	Pale Finger Grass						x			BRAHMS 2018
Poaceae	*Cynodon dactylon*									x	Boodram and Oatham 2013

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Poaceae	*Dactyloctenium aegyptium*	Crowfoot grass								x	National Herbarium
Poaceae	*Digitaria insularis*	Sour grass								x	National Herbarium
Poaceae	*Digitaria violascens*							x			BRAHMS 2018
Poaceae	*Eragrostis patula*							x			BRAHMS 2018
Poaceae	*Eragrostis pilosa*							x			BRAHMS 2018
Poaceae	*Lasiacis divaricata*	Vine bamboo			5			x			BRAHMS 2018, IUCN
Poaceae	*Lasiacis ligulata*	Bamboo grass						x			BRAHMS 2018
Poaceae	*Lasiacis sorghoidea*							x			BRAHMS 2018
Poaceae	*Megathyrsus maximus*									x	Boodram and Oatham 2013
Poaceae	*Olyra caudata*							x			BRAHMS 2018
Poaceae	*Olyra ciliatifolia*							x			BRAHMS 2018
Poaceae	*Olyra ecaudata*							x			BRAHMS 2018
Poaceae	*Olyra latifolia*							x			BRAHMS 2018
Poaceae	*Opizia stolonifera*							x			BRAHMS 2018
Poaceae	*Oplismenus hirtellus*							x		x	Boodram and Oatham 2013, BRAHMS 2018
Poaceae	*Oplismenus hirtellus*									x	National Herbarium
Poaceae	*Orthoclada laxa*							x			BRAHMS 2018
Poaceae	*Panicum mertensii*	Cascadoux grass						x			BRAHMS 2018
Poaceae	*Panicum millegrana*				5			x			BRAHMS 2018, IUCN
Poaceae	*Panicum polygonatum*							x			BRAHMS 2018
Poaceae	*Panicum sp*							x			BRAHMS 2018
Poaceae	*Paspalum conjugatum*				5					x	Boodram and Oatham 2013
Poaceae	*Paspalum nutans*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Poaceae	*Paspalum paniculatum*							x			BRAHMS 2018
Poaceae	*Paspalum saccharoides*							x			BRAHMS 2018
Poaceae	*Paspalum vaginatum*				5			x			BRAHMS 2018, IUCN
Poaceae	*Paspalum vaginatum*	Seashore paspalum			5					x	Boodram and Oatham 2013
Poaceae	*Pennisetum ciliare*				5			x			BRAHMS 2018, IUCN
Poaceae	*Pennisetum clandestinum*	Kikuya grass			5			x			BRAHMS 2018, IUCN
Poaceae	*Pennisetum orientale*				5			x			BRAHMS 2018, IUCN
Poaceae	*Pennisetum pedicellatum*				5			x			BRAHMS 2018, IUCN
Poaceae	*Pennisetum purpureum*	Elephant grass			5			x			BRAHMS 2018
Poaceae	*Pharus latifolius*				5					x	Boodram and Oatham 2013
Poaceae	*Pharus parvifolius*							x			BRAHMS 2018
Poaceae	*Raddia guianensis*							x			BRAHMS 2018
Poaceae	*Schizachyrium condensatum*							x			BRAHMS 2018
Poaceae	*Setaria barbata*	Mary grass								x	National Herbarium
Poaceae	*Setaria barbata*	Mary grass						x			BRAHMS 2018
Poaceae	*Setaria parviflora*	Marsh brittlegrass			5			x			BRAHMS 2018, IUCN
Poaceae	*Setaria sulcata*	Gamalote grass						x			BRAHMS 2018
Poaceae	*Sporobolus tenuissimus*							x			BRAHMS 2018
Poaceae	*Urochloa fusca*									x	Boodram and Oatham 2013
Poaceae	*Chloris barbata*	Purple top						x			BRAHMS 2018
Poaceae	*Cyrtococcum trigonum*							x			BRAHMS 2018
Poaceae	*Digitaria ciliaris*	Crab grass						x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Poaceae	*Eleusine indica*	Dutch grass/Fowl foot grass			5			x			BRAHMS 2018, IUCN
Poaceae	*Ichnanthus pallens*							x			BRAHMS 2018
Poaceae	*Imperata contracta*							x			BRAHMS 2018
Poaceae	*Lasiacis sp*									x	National Herbarium, Boodram and Oatham 2013
Poaceae	*Neurolepis virgata*				1			x			BRAHMS 2018, IUCN
Poaceae	*Olyra latifolia*									x	National Herbarium, Boodram and Oatham 2013
Poaceae	*Oplismenus hirtellus*	Ribbon grass						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean
Poaceae	*Panicum maximum*	Guinea grass						x		x	Boodram and Oatham 2006, BRAHMS 2018
Podocarpaceae	*Podocarpus trinitensis*		E		4			x		x	Van den Eynden, Oatham and Johnson 2008, IUCN, Van den Eynden 2006
Polygalaceae	*Securidaca diversifolia*	Easter flower/Easter vine								x	National Herbarium, Boodram and Oatham 2013
Polygalaceae	*Securidaca diversifolia*	Easter flower/Easter vine						x			BRAHMS 2018
Polygonaceae	*Coccoloba ascendens*	Cuchape						x			BRAHMS 2018
Polygonaceae	*Coccoloba uvifera*									x	Boodram and Oatham 2013
Polygonaceae	*Coccoloba coronata*									x	National Herbarium
Polygonaceae	*Coccoloba cruegeri*	Grape						x			BRAHMS 2018
Polygonaceae	*Coccoloba dussii*							x			BRAHMS 2018
Polygonaceae	*Coccoloba venosa*	Mosquito bush						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Polypodiaceae	*Campyloneurum brevifolium*							x			BRAHMS 2018
Polypodiaceae	*Campyloneurum phyllitidis*							x			BRAHMS 2018
Polypodiaceae	*Elaphoglossum luridum*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Polypodiaceae	*Grammitis serrulata*							x			BRAHMS 2018
Polypodiaceae	*Grammitis taenifolia*							x			BRAHMS 2018
Polypodiaceae	*Lomariopsis fendleri*							x			BRAHMS 2018
Polypodiaceae	*Microgramma fuscopunctata*							x			BRAHMS 2018
Polypodiaceae	*Microgramma lycopodioides*							x			BRAHMS 2018
Polypodiaceae	*Microgramma nitida*							x			BRAHMS 2018
Polypodiaceae	*Microgramma persicariifolia*							x			BRAHMS 2018
Polypodiaceae	*Microgramma tobagensis*							x			BRAHMS 2018
Polypodiaceae	*Microgramma vacciniifolia*							x		x	National Herbarium
Polypodiaceae	*Nephrodium sp*							x			BRAHMS 2018
Polypodiaceae	*Nephrolepis biserrata*							x			BRAHMS 2018
Polypodiaceae	*Nephrolepis cordifolia*							x			BRAHMS 2018
Polypodiaceae	*Nephrolepis exaltata*							x			BRAHMS 2018
Polypodiaceae	*Nephrolepis hirsutula*							x			BRAHMS 2018
Polypodiaceae	*Nephrolepis rivularis*							x			BRAHMS 2018
Polypodiaceae	*Niphidium crassifolium*							x			BRAHMS 2018
Polypodiaceae	*Notholaena sp.*							x			BRAHMS 2018
Polypodiaceae	*Oleandra articulata*							x			BRAHMS 2018
Polypodiaceae	*Oleandra pilosa*							x			BRAHMS 2018
Polypodiaceae	*Olfersia cervina*							x			BRAHMS 2018
Polypodiaceae	*Phlebodium aureum*							x			BRAHMS 2018

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								Main Ridge	NETMPA	Islets	
Polypodiaceae	*Polybotrya osmundacea*							x			BRAHMS 2018
Polypodiaceae	*Polypodium dissimile*							x			BRAHMS 2018
Polypodiaceae	*Polypodium dulce*							x			BRAHMS 2018
Polypodiaceae	*Polypodium loriceum*							x			BRAHMS 2018
Polypodiaceae	*Polypodium polypodioides*							x			BRAHMS 2018
Polypodiaceae	*Stigmatopteris rotundata*							x			BRAHMS 2018
Polypodiaceae	*Tectaria incisa*							x			BRAHMS 2018
Polypodiaceae	*Tectaria trifoliata*							x			BRAHMS 2018
Polypodiaceae	*Cochlidium seminudum*							x			BRAHMS 2018
Polypodiaceae	*Cyclopeltis semicordata*							x			BRAHMS 2018
Polypodiaceae	*Elaphoglossum lingua*							x			BRAHMS 2018
Polypodiaceae	*Elaphoglossum longifolium*							x			BRAHMS 2018
Portulacaceae	*Talinum paniculatum*	Kre-kre bhaji								x	National Herbarium
Proteaceae	*Roupala montana*	Cut leaf bois bande						x			BRAHMS 2018
Proteaceae	*Roupala tobagensis*		E		1			x		x	Van den Eynden, Oatham and Johnson 2008 IUCN, Van den Eynden 2006
Pteridaceae	*Adiantum obliquum*							x			BRAHMS 2018
Pteridaceae	*Adiantum petiolatum*							x			BRAHMS 2018
Pteridaceae	*Adiantum terminatum*									x	National Herbarium
Pteridaceae	*Adiantum tetraphyllum*									x	Boodram and Oatham 2013
Pteridaceae	*Adiantum villosum*							x			BRAHMS 2018
Pteridaceae	*Anetium citrifolium*							x			BRAHMS 2018

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Pteridaceae	*Antrophyum lanceolatum*							x			BRAHMS 2018
Pteridaceae	*Hemionitis palmata*									x	National Herbarium
Pteridaceae	*Pityrogramma calomelanos*	White-backed fern						x			BRAHMS 2018
Pteridaceae	*Vittaria lineata*							x			BRAHMS 2018
Ranunculaceae	*Clematis guadeloupae*							x			BRAHMS 2018
Rhamnaceae	*Gouania polygama*	Soap bush/Soap vine						x			BRAHMS 2018
Rhizophoraceae	*Cassipourea guianensis*	Garlic wood/Wild mangue						x			BRAHMS 2018
Rhizophoraceae	*Cassipourea latifolia*							x			Van den Eynden 2006
Rubiaceae	*Alibertia edulis*							x			BRAHMS 2018
Rubiaceae	*Borreria eryngioides*							x			BRAHMS 2018
Rubiaceae	*Borreria remota*									x	Boodram and Oatham 2013
Rubiaceae	*Borreria verticillata*							x			BRAHMS 2018
Rubiaceae	*Chimarrhis cymosa*	Waterwood						x			BRAHMS 2018
Rubiaceae	*Chiococca alba*	Dandy root/David's root			5			x			BRAHMS 2018, IUCN
Rubiaceae	*Chione venosa*	Bois Bandé						x			BRAHMS 2018
Rubiaceae	*Diodia ocymifolia*							x			BRAHMS 2018
Rubiaceae	*Faramea occidentalis*	Wild coffee no. 7/Wild jasmine no. 1						x			BRAHMS 2018
Rubiaceae	*Genipa americana*	Ebo wood/Ibo ink						x			BRAHMS 2018
Rubiaceae	*Gonzalagunia spicata*							x			BRAHMS 2018
Rubiaceae	*Guettarda odorata*							x			BRAHMS 2018
Rubiaceae	*Guettarda scabra*				5			x			BRAHMS 2018, IUCN
Rubiaceae	*Guettarda tobagensis*							x			BRAHMS 2018

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Rubiaceae	*Ladenbergia oblongifolia*							x			BRAHMS 2018
Rubiaceae	*Malanea macrophylla*							x			BRAHMS 2018
Rubiaceae	*Neolaugeria resinosa*							x			BRAHMS 2018
Rubiaceae	*Notopleura guadalupensis*							x			BRAHMS 2018
Rubiaceae	*Notopleura parasitica*							x			BRAHMS 2018
Rubiaceae	*Notopleura perpapillifera*							x			BRAHMS 2018
Rubiaceae	*Notopleura uliginosa*							x			BRAHMS 2018
Rubiaceae	*Oldenlandia corymbosa*	Snake-needle grass			5			x			BRAHMS 2018
Rubiaceae	*Oldenlandia herbacea*	Snake-needle grass			5			x			BRAHMS 2018
Rubiaceae	*Oldenlandia lancifolia*							x			BRAHMS 2018
Rubiaceae	*Oldenlandiopsis callitrichoides*							x			BRAHMS 2018
Rubiaceae	*Palicourea croceoides*							x			BRAHMS 2018
Rubiaceae	*Palicourea guianensis*							x			BRAHMS 2018
Rubiaceae	*Palicourea rigida*							x			BRAHMS 2018
Rubiaceae	*Palicourea ternata*							x			BRAHMS 2018
Rubiaceae	*Psychotria capitata*							x			BRAHMS 2018
Rubiaceae	*Psychotria mapourioides*							x			BRAHMS 2018
Rubiaceae	*Psychotria muscosa*							x			BRAHMS 2018
Rubiaceae	*Randia armata*							x			BRAHMS 2018
Rubiaceae	*Rudgea hostmanniana*	Ashes wood/Bois tatoo						x			BRAHMS 2018
Rubiaceae	*Spermacoce ocymoides*							x			BRAHMS 2018

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Rubiaceae	*Tobagoa maleolens*							x			BRAHMS 2018
Rubiaceae	*Erithalis fruticosa*	Black torch/ Parrot apple						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Rubiaceae	*Gonzalagunia hirsuta*							x			BRAHMS 2018
Rubiaceae	*Randia aculeata*	White indigo berry						x		x	Boodram and Oatham 2006, BRAHMS 2018, Boodram and Oatham 2013. Plants of the Eastern Caribbean, BRAHMS 2018
Rutaceae	*Esenbeckia pilocarpoides*	Red gasparee						x			BRAHMS 2018
Rutaceae	*Zanthoxylum pentandrum*	Bosco						x			BRAHMS 2018
Salicaceae	*Casearia guianensis*	Clean teeth/Pipewood/Wild coffee						x			BRAHMS 2018
Salicaceae	*Casearia spinescens*							x			BRAHMS 2018
Salicaceae	*Casearia sylvestris*	Wild coffee						x			BRAHMS 2018
Salicaceae	*Oncoba brachyanthera*							x			BRAHMS 2018
Salicaceae	*Oncoba echinata*	Chaulmoogra oil tree						x			BRAHMS 2018
Salicaceae	*Oncoba spinosa*							x			BRAHMS 2018
Salicaceae	*Casearia decandra*	Biscuitwood/Pipewood/Wild cherry								x	National Herbarium
Salicaceae	*Casearia zizyphoides*									x	National Herbarium
Salicaceae	*Xylosma sanctae-annae*	Wild Cerise	E		2			x		x	Van den Eynden, Oatham and Johnson 2008, UCN, Van den Eynden 2006
Sapindaceae	*Matayba arborescens*							x			BRAHMS 2018
Sapindaceae	*Matayba guianensis*							x			BRAHMS 2018
Sapindaceae	*Paullinia alata*							x			BRAHMS 2018
Sapindaceae	*Paullinia cururu*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Sapindaceae	*Paullinia fuscescens*							x			BRAHMS 2018
Sapindaceae	*Paullinia pinnata*	Supple jack no, 1						x			BRAHMS 2018
Sapindaceae	*Paullinia pterocarpa*							x			BRAHMS 2018
Sapindaceae	*Paullinia tetragona*							x			BRAHMS 2018
Sapindaceae	*Sapindus saponaria*	Soapseed						x			BRAHMS 2018
Sapindaceae	*Serjania paucidentata*	Balbark vine						x			BRAHMS 2018
Sapindaceae	*Cupania americana*	Marakil						x			BRAHMS 2018
Sapindaceae	*Melicoccus bijugatus*	Spanish lime/Chennet						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Sapindaceae	*Nephelium lappaceum*	Rambutan				x		x			BRAHMS 2018, IUCN
Sapotaceae	*Manilkara bidentata*							x			BRAHMS 2018
Sapotaceae	*Pouteria coriacea*							x			BRAHMS 2018
Sapotaceae	*Sideroxylon foetidissimum*	Mastic						x			BRAHMS 2018
Sapotaceae	*Chrysophyllum argenteum*	Wild caimite						x			BRAHMS 2018
Sapotaceae	*Chrysophyllum cainito*	Star apple						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Sapotaceae	*Manilkara zapota*	Sapodilla/Sapotee								x	National Herbarium, Boodram and Oatham 2013
Schizaeaceae	*Lygodium venustum*							x			BRAHMS 2018
Schizaeaceae	*Lygodium volubile*							x			BRAHMS 2018
Selaginellaceae	*Selaginella flagellata*							x			BRAHMS 2018
Selaginellaceae	*Selaginella muscosa*							x			BRAHMS 2018
Selaginellaceae	*Selaginella tenella*							x			BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Selaginellaceae	*Selaginella umbrosa*							x			BRAHMS 2018
Simaroubaceae	*Picramnia pentandra*	Bitter bush/Barr						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Simaroubaceae	*Simaba multiflora*							x			BRAHMS 2018
Simaroubaceae	*Simarouba amara*	Boardwood						x			BRAHMS 2018
Smilacaceae	*Smilax cumanensis*	Goat wiss/Running picka						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Solanaceae	*Acnistus arborescens*	Wild Tobacco						x			BRAHMS 2018
Solanaceae	*Capsicum baccatum*									x	National Herbarium
Solanaceae	*Cestrum schlechtendahlii*							x			BRAHMS 2018
Solanaceae	*Nicandra physaloides*							x			BRAHMS 2018
Solanaceae	*Nicotiana alata*	Tobacco plant						x			BRAHMS 2018
Solanaceae	*Nicotiana plumbaginifolia*							x			BRAHMS 2018
Solanaceae	*Nicotiana rustica*							x			BRAHMS 2018
Solanaceae	*Nicotiana tabacum*	Tobacco						x			BRAHMS 2018
Solanaceae	*Solanum lanceifolium*									x	National Herbarium
Solanaceae	*Solanum nudum*							x			BRAHMS 2018
Solanaceae	*Cestrum alternifolium*	Jasmin batard						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Solanaceae	*Solanum adhaerens*							x		x	Boodram and Oatham 2006, Boodram and Oatham 2013
Solanaceae	*Solanum hirtum*							x		x	Boodram and Oatham 2006, Boodram and Oatham 2013

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Styracaceae	*Styrax glaber*							x			BRAHMS 2018
Symplocaceae	*Symplocos martinicensis*							x			BRAHMS 2018
Theophrastaceae	*Jacquinia armillaris*	Currant tree						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Tiliaceae	*Triumfetta lappula*									x	Boodram and Oatham 2013
Urticaceae	*Cecropia peltata*	Trumpet						x		x	National Herbarium
Urticaceae	*Cecropia schreberiana*							x			BRAHMS 2018
Urticaceae	*Pilea tobagensis*		E		3			x		x	IUCN, Van den Eynden, Oatham and Johnson 2008, Van den Eynden 2006, BRAHMS 2018
Urticaceae	*Pilea tobagensis*		E		3			x		x	GoTT 2018, IUCN
Verbenaceae	*Lantana camara*	Wild sage						x			BRAHMS 2018
Verbenaceae	*Lantana trifolia*							x			BRAHMS 2018
Verbenaceae	*Priva lappulacea*	Velvet bur								x	National Herbarium
Verbenaceae	*Stachytarpheta cayennensis*	Sweet broom/Vervain						x			BRAHMS 2018
Verbenaceae	*Stachytarpheta jamaicensis*	Blue top/Blue vevein						x			BRAHMS 2018
Verbenaceae	*Stachytarpheta urticifolia*							x			BRAHMS 2018
Verbenaceae	*Citharexylum spinosum*	Savannah berry/ Fiddlewood						x		x	Boodram and Oatham 2006, Boodram and Oatham 2013, Plants of the Eastern Caribbean, BRAHMS 2018
Verbenaceae	*Lantana radula*							x			BRAHMS 2018
Violaceae	*Rinorea riana*							x			BRAHMS 2018
Viscaceae	*Phoradendron trinervium*	Mistletoe						x		x	Boodram and Oatham 2006, Plants of the Eastern Caribbean, Boodram and Oatham 2013
Vitaceae	*Cissus verticillata*	Blister bush/Snake bush						x		x	Boodram and Oatham 2013, BRAHMS 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Vittariaceae	*Vittaria lineata*									x	National Herbarium, Boodram and Oatham 2013
Xyridaceae	*Xyris grisebachiana Malme*							x			Van den Eynden 2006
Zingiberaceae	*Renealmia alpinia*	Dye plant/Ink plant						x			BRAHMS 2018

MAMMAL SPECIES - DRAFT

Family	Species	Common Name	Endemic	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Cricetidae	*Necromys urichi*	Northern grass mouse			5			x			IUCN, Catalogue of Life
Cricetidae	*Rhipidomys venezuelae*	Venezuelan climbing mouse			5			x			IUCN, Catalogue of Life
Cricetidae	*Zygodontomys brevicauda*	Short-tailed cane rat			5			x			IUCN, Joseph 2015, Catalogue of Life
Cuniculidae	*Cuniculus paca*	Lowland paca/Lappe		3	5			x			Baptiste 2011, Catalogue of Life
Dasypodidae	*Dasypus novemcinctus*	Nine-banded armadillo/Tatu			5			x			IUCN, Varachhia 2011, Catalogue of Life
Didelphidae	*Didelphis marsupialis*	Common opossum			5			x			IUCN, Shripat 2011
Didelphidae	*Marmosa murina*	Linnaeus's mouse opossum			5			x			IUCN, Catalogue of Life
Didelphidae	*Marmosa robinsoni*	Robinson's mouse opossum			5			x			IUCN, Broomes 2015, Catalogue of Life
Echimyidae	*Makalata didelphoides*	Brazilian spiny tree-rat			5			x			IUCN, Catalogue of Life
Emballonuridae	*Peropteryx trinitatis*	Trinidad dog-like bat			DD			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Emballonuridae	*Saccopteryx bilineata*	Greater sac-winged bat			5			x			IUCN, Thomas 2016, Catalogue of Life
Emballonuridae	*Saccopteryx leptura*	Lesser sac-winged/White-lined bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Erethizontidae	*Coendou prehensilis*	Tree/Brazilian porcupine			5			x			IUCN, Charles 2011, Catalogue of Life
Herpestidae	*Herpestes auropunctatus*	Small indian mongoose		3	5			x			IUCN, Chong 2012, Catalogue of Life
Heteromyidae	*Heteromys anomalus*	Trinidad spiny pocket mouse			5			x			IUCN, Joseph 2012, Catalogue of Life
Molossidae	*Eumops auripendulus*	Black bonneted bat			5			x			IUCN, Alexander 2016, Catalogue of Life
Molossidae	*Molossus molossus*	Pallas's mastiff Bat			5			x			IUCN, Catalogue of Life
Molossidae	*Molossus rufus*	Black mastiff bat			5			x			IUCN, Borde 2012, Catalogue of Life

Family	Species	Common Name	Endemic	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Molossidae	*Nyctinomops laticaudatus*	Broad-eared bat			5			x			IUCN, Isaac 2016, Gomes and Reid 2015, Catalogue of Life
Molossidae	*Tadarida brasiliensis*	Mexican free-tailed bat			5		x	x			IUCN, Rahamut 2016, Gomes and Reid 2015, Catalogue of Life
Mormoopidae	*Mormoops megalophylla*	Peters's ghost-faced/Ghost-faced bat			5			x			IUCN, Watson 2016, Catalogue of Life
Mormoopidae	*Pteronotus parnellii*	Parnell's mustached bat			5			x			IUCN, John 2016, Catalogue of Life
Mormoopidae	*Pteronotus personatus*	Wagner's mustached bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Mustelidae	*Eira barbara*	Tayra		3	5			x			IUCN, CITES, Mohammed 2011, Catalogue of Life
Natalidae	*Natalus tumidirostris*	Trinidadian funnel-eared bat			5			x			IUCN, Ramnarine 2016, Gomes and Reid 2015, Catalogue of Life
Noctilionidae	*Noctilio leporinus*	Greater bulldog bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Ametrida centurio*	Little white-shouldered bat			5			x			Nowbutt 2016, Catalogue of Life
Phyllostomidae	*Artibeus jamaicensis*	Jamaican fruit bat			5			x			IUCN, Baksh 2015, Gomes and Reid, Catalogue of Life
Phyllostomidae	*Artibeus lituratus*	Great fruit-eating bat			5			x			IUCN,Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Carollia perspicillata*	Seba's short-tailed bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Centurio senex*	Wrinkle-faced bat			5			x			IUCN, Ramjattan 2015, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Chiroderma villosum*	Hairy big-eyed bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Dermanura cinerea*	Gervais's fruit-eating bat			5			x			IUCN, Gomes and Reid 2015
Phyllostomidae	*Dermanura glauca*	Silver Fruit-eating Bat			5			x			IUCN, Catalogue of Life
Phyllostomidae	*Diaemus youngi*	White-winged vampire bat			5			x			IUCN, Ali 2011, Catalogue of Life
Phyllostomidae	*Glossophaga longirostris*	Miller's long-tongued bat			DD			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Micronycteris megalotis*	Little big-eared bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Phyllostomus discolor*	Pale spear-nosed bat			5			x			IUCN, Scott 2016, Catalogue of Life

Family	Species	Common Name	Endemic	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Phyllostomidae	*Phyllostomus hastatus*	Greater spear-nosed bat			5			x			IUCN, Sampson 2016, Catalogue of Life
Phyllostomidae	*Sturnira lilium*	Little yellow-shouldered bat			5			x			IUCN, Nathan 2016, Gomes and Reid 2015, Catalogue of Life
Phyllostomidae	*Vampyrodes caraccioli*	Great stripe-faced bat			5			x			IUCN, Branche 2016, Catalogue of Life
Procyonidae	*Procyon cancrivorus*	Crab-eating raccoon			5			x			IUCN, Catalogue of Life
Sciuridae	*Sciurus granatensis*	Red-tailed squirrel	E		5			x			IUCN, Mohammed 2011, Catalogue of Life
Tayassuidae	*Tayassu tajacu*	Quenk/Collared peccary		2				x			IUCN, Assue 2011, Catalogue of Life
Vespertilionidae	*Eptesicus brasiliensi*	Brazilian brown bat						x			Gomes and Reid 2015, Catalogue of Life
Vespertilionidae	*Lasiurus blossevillii*	Desert red bat			5		x	x			IUCN, Maharaj 2016, Gomes and Reid 2015, Catalogue of Life
Vespertilionidae	*Myotis attenboroughi*	Attenborough's myotis	E					x			ERIC 2018, Moratelli 2017
Vespertilionidae	*Myotis keaysi*	Hairy-legged myotis bat			5			x			IUCN, Ramnarine 2005, Catalogue of Life
Vespertilionidae	*Myotis nigricans*	Black myotis bat			5			x			IUCN, Hardyal 2014, Gomes and Reid, Catalogue of Life
Vespertilionidae	*Rhogeessa io*	Thomas's yellow bat			5			x			IUCN, Gomes and Reid 2015, Catalogue of Life

BIRD SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Accipitridae	*Buteo platypterus*	Broad-winged hawk		2	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Accipitridae	*Buteogallus anthracinus*	Common black hawk		2	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Accipitridae	*Buteogallus urubitinga*	Great black hawk		2	5			x			Avibase 2018, CITES, IUCN, Murphy 2004, Catalogue of Life
Accipitridae	*Chondrohierax uncinatus*	Hook-billed kite		1,2	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Accipitridae	*Ictinia plumbea*	Plumbeous kite		2	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Alcedinidae	*Chloroceryle americana*	Green kingfisher			5			x			Avibase 2018, IUCN, Catalogue of Life
Alcedinidae	*Megaceryle alcyon*	Belted kingfisher			5			x			Avibase 2018, IUCN, Catalogue of Life
Anatidae	*Spatula discors*	Blue-winged teal			5			x			Avibase 2018, IUCN
Anatidae	*Anas bahamensis*	White-cheeked pintail			5			x			Avibase 2018, IUCN, Catalogue of Life
Anatidae	*Dendrocygna autumnalis*	Black-bellied whistling-duck		3	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Anatidae	*Nomonyx dominicus*	Masked duck			5			x			Avibase 2018, IUCN, Catalogue of Life
Apodidae	*Chaetura brachyura*	Short-tailed swift			5			x			Avibase 2018, IUCN, Catalogue of Life
Apodidae	*Chaetura cinereiventris*	Gray-rumped swift			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Ardea alba*	Great egret			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Ardeidae	*Ardea cocoi*	Cocoi heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Ardea herodias*	Great blue heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Bubulcus ibis*	Cattle egret			5			x			Avibase 2018, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Ardeidae	*Butorides virescens*	Green heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Egretta caerulea*	Little blue heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Egretta garzetta*	Little egret			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Egretta thula*	Snowy egret			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Egretta tricolor*	Tricolored heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Nyctanassa violacea*	Yellow-crowned night-heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Ardeidae	*Nycticorax nycticorax*	Black-crowned night-heron			5			x			Avibase 2018, IUCN, Catalogue of Life
Caprimulgidae	*Hydropsalis cayennensis*	White-tailed Nightjar			5			x			Avibase 2018, IUCN
Cardinalidae	*Spiza americana*	Dickcissel			5			x			Avibase 2018, IUCN, Catalogue of Life
Cathartidae	*Cathartes aura*	Turkey vulture			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Cathartidae	*Coragyps atratus*	Black vulture			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Charadriidae	*Charadrius semipalmatus*	Semipalmated plover			5			x			Avibase 2018, IUCN, Catalogue of Life
Charadriidae	*Pluvialis squatarola*	Black-bellied plover			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Charadriidae	*Vanellus chilensis*	Southern lapwing			5			x			Avibase 2018, IUCN, Catalogue of Life
Coerebidae	*Coereba flaveola*	Bananaquit			5			x			Avibase 2018, IUCN, Catalogue of Life
Columbidae	*Columbina talpacoti*	Ruddy ground-dove			5			x			Avibase 2018, IUCN
Columbidae	*Columba livia*	Rock pigeon			5			x			Avibase 2018, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Columbidae	*Leptotila verreauxi*	White-tipped dove			5			x			Avibase 2018, IUCN, Catalogue of Life
Columbidae	*Patagioenas cayennensis*	Pale-vented pigeon			5			x			Avibase 2018, IUCN, Catalogue of Life
Columbidae	*Patagioenas squamosa*	Scaly-naped pigeon			5			x			Avibase 2018, IUCN, Catalogue of Life
Columbidae	*Zenaida auriculata*	Eared dove			5			x			Avibase 2018, IUCN, Catalogue of Life
Cotingidae	*Pachyramphus polychopterus*	White-winged becard			5			x			Avibase 2018, IUCN, Catalogue of Life
Cracidae	*Ortalis ruficauda*	Rufous-vented chachalaca			5			x		x	BirdLife International, IUCN, Avibase 2018
Cuculidae	*Coccyzus americanus*	Yellow-billed cuckoo			5			x			Avibase 2018, IUCN, Catalogue of Life
Cuculidae	*Crotophaga ani*	Smooth-billed ani			5			x			Avibase 2018, IUCN, Catalogue of Life
Falconidae	*Caracara cheriway*	Crested caracara		2	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Falconidae	*Falco columbarius*	Merlin		2	5		x	x			Avibase 2018, CITES, CMS, IUCN, Catalogue of Life
Falconidae	*Falco peregrinus*	Peregrine falcon		1	5		x	x			Avibase 2018, CITES, CMS, IUCN, Catalogue of Life
Falconidae	*Milvago chimachima*	Yellow-headed caracara		2	5			x			Avibase 2018, CITES, Catalogue of Life
Falconidae	*Milvago chimachima*	Yellow headed caracara						x			Avibase 2018, Catalogue of Life
Fregatidae	*Fregata magnificens*	Magnificent frigatebird			5					x	IUCN, Avibase 2018, Murphy 2004, Catalogue of Life
Fringillidae	*Carduelis cucullata*	Red siskin		1	2					x	IUCN, Avibase 2018, Catalogue of Life
Fringillidae	*Euphonia violacea*	Violaceous euphonia			5			x			Avibase 2018, IUCN, Catalogue of Life
Furnariidae	*Dendrocincla fuliginosa*	Plain-brown woodcreeper			5			x			Avibase 2018, IUCN, Catalogue of Life

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								Main Ridge	NETMPA	Islets	
Furnariidae	*Sclerurus albigularis*	Gray-throated leaftosser			4			x			Avibase 2018, IUCN, Catalogue of Life
Furnariidae	*Sittasomus griseicapillus*	Olivaceous woodcreeper			5			x			Avibase 2018, IUCN, Catalogue of Life
Furnariidae	*Synallaxis cinnamomea*	Stripe-breasted spinetail			5			x			IUCN, Avibase 2018, Catalogue of Life
Galbulidae	*Galbula ruficauda*	Rufous-tailed jacamar			5					x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Hirundinidae	*Hirundo rustica*	Barn swallow			5			x			Avibase 2018, IUCN, Catalogue of Life
Hirundinidae	*Progne dominicensis*	Caribbean martin			5			x			Avibase 2018, IUCN, Catalogue of Life
Hirundinidae	*Tachycineta albiventer*	White-winged swallow			5			x			Avibase 2018, IUCN, Catalogue of Life
Icteridae	*Dolichonyx oryzivorus*	Bobolink			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Icteridae	*Leistes militaris*	Red-breasted meadowlark			5			x			Avibase 2018, IUCN, Catalogue of Life
Icteridae	*Molothrus bonariensis*	Shiny cowbird			5			x			Avibase 2018, IUCN, Catalogue of Life
Icteridae	*Molothrus oryzivorus*	Giant cowbird			5			x			Avibase 2018, IUCN, Catalogue of Life
Icteridae	*Psarocolius decumanus*	Crested oropendola			5			x			Avibase 2018, IUCN, Catalogue of Life
Icteridae	*Quiscalus lugubris*	Carib grackle			5			x			Avibase 2018, IUCN, Catalogue of Life
Jacanidae	*Jacana jacana*	Wattled jacana			5			x			Avibase 2018, IUCN, Catalogue of Life
Laridae	*Anous stolidus*	Brown noddy			5					x	BirdLife International, IUCN, Avibase 2018
Laridae	*Leucophaeus atricilla*	Laughing gull			5			x			Avibase 2018, IUCN, Catalogue of Life
Laridae	*Onychoprion anaethetus*	Bridled tern			5					x	Murphy 2004, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Laridae	*Onychoprion fuscatus*	Sooty tern			5			x			Avibase 2018, IUCN, Catalogue of Life
Laridae	*Rynchops niger*	Black skimmer			5			x			Avibase 2018, IUCN, Catalogue of Life
Laridae	*Sterna dougallii*	Roseate tern			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Laridae	*Sterna hirundo*	Common tern			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Laridae	*Thalasseus maximus*	Royal tern			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Laridae	*Thalasseus sandvicensis*	Sandwich tern			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Mimidae	*Mimus gilvus*	Tropical mockingbird			5			x			Avibase 2018, IUCN, Catalogue of Life
Momotidae	*Motmot bahamensis*	Trinidad motmot						x			Avibase 2018, GoTT 2018, Campbell 2012
Nyctibiidae	*Nyctibius griseus*	Common pootoo			5					x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Oceanodroma	*Oceanodroma leucorhoa*	Leach's storm-petrel			3			x			Avibase 2018, IUCN, Catalogue of Life
Pandionidae	*Pandion haliaetus*	Osprey		2	5		x	x			Avibase 2018, CITES, CMS, IUCN, Catalogue of Life
Parulidae	*Parkesia noveboracensis*	Northern waterthrush			5			x			Avibase 2018, IUCN, Catalogue of Life
Parulidae	*Protonotaria citrea*	Prothonotary warbler			5			x			Avibase 2018, IUCN, Catalogue of Life
Parulidae	*Setophaga magnolia*	Magnolia warbler			5			x			Avibase 2018, IUCN, Catalogue of Life
Parulidae	*Setophaga petechia*	Yellow warbler			5			x			Avibase 2018, IUCN, Catalogue of Life
Parulidae	*Setophaga pitiayumi*	Tropical parula			5			x			Avibase 2018, IUCN, Catalogue of Life
Parulidae	*Setophaga ruticilla*	American redstart			5			x			Avibase 2018, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Parulidae	*Setophaga striata*	Blackpoll warbler			5			x			Avibase 2018, IUCN, Catalogue of Life
Pelecanidae	*Pelecanus occidentalis*	Brown pelican			5			x			Avibase 2018, IUCN, Catalogue of Life
Phaethontidae	*Phaethon aethereus*	Red-billed tropicbird			5					x	IUCN, Avibase 2018, Murphy 2004, Catalogue of Life
Phaethontidae	*Phaethon lepturus*	White-tailed tropicbird			5					x	Murphy 2004, IUCN, Catalogue of Life
Phalacrocoracidae	*Phalacrocorax brasilianus*	Neotropic cormorant			5			x			Avibase 2018, IUCN, Catalogue of Life
Phasianidae	*Gallus gallus*	Red junglefowl			5			x			Avibase 2018, IUCN, Catalogue of Life
Picidae	*Colaptes rubiginosus*	Golden-olive woodpecker			5			x			Avibase 2018, IUCN
Picidae	*Dryobates kirkii*	Red-rumped woodpecker						x			Avibase 2018
Picidae	*Melanerpes rubricapillus*	Red-crowned woodpecker			5			x			Avibase 2018, IUCN, Catalogue of Life
Pipridae	*Chiroxiphia pareola*	Blue-backed manakin			5			x		x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Podicipedidae	*Podilymbus podiceps*	Pied-billed grebe			5			x			Avibase 2018, IUCN, Catalogue of Life
Podicipedidae	*Tachybaptus dominicus*	Least grebe			5			x			Avibase 2018, IUCN, Catalogue of Life
Procellariidae	*Puffinus lherminieri*	Audubon's shearwater			5					x	IUCN, Avibase 2018, Murphy 2004, Catalogue of Life
Psittacidae	*Amazona amazonica*	Orange winged parrot		2	5			x			IUCN, Avibase 2018, Catalogue of Life
Psittacidae	*Forpus passerinus*	Green-rumped parrotlet			5			x			Avibase 2018, IUCN, Catalogue of Life
Rallidae	*Fulica americana*	American coot			5			x			Avibase 2018, IUCN, Catalogue of Life
Rallidae	*Gallinula galeata*	Common gallinule			5			x			Avibase 2018, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Rallidae	*Porphyrio martinica*	Purple gallinule			5			x			Avibase 2018, IUCN, Catalogue of Life
Rallidae	*Porzana carolina*	Sora			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Actitis macularius*	Spotted sandpiper			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Arenaria interpres*	Ruddy turnstone			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Scolopacidae	*Calidris alba*	Sanderling			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Scolopacidae	*Calidris melanotos*	Pectoral sandpiper			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Calidris minutilla*	Least sandpiper			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Calidris pusilla*	Semipalmated sandpiper			4		x		x	x	IUCN, Avibase 2018, CMS, Catalogue of Life
Scolopacidae	*Gallinago delicata*	Wilson's snipe			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Limnodromus griseus*	Short-billed dowitcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Numenius phaeopus*	Whimbrel			5		x	x			Avibase 2018, CMS, IUCN, Catalogue of Life
Scolopacidae	*Tringa flavipes*	Lesser yellowlegs			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Tringa melanoleuca*	Greater yellowlegs			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Tringa semipalmata*	Willet			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Tringa solitaria*	Solitary sandpiper			5			x			Avibase 2018, IUCN, Catalogue of Life
Scolopacidae	*Tryngites subruficollis*	Buff-breasted sandpiper			4					x	IUCN, Avibase 2018, Catalogue of Life
Strigidae	*Asio clamator*	Striped owl		2	5					x	Klomp & Prinz 2007, IUCN, Avibase 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Strigidae	*Pseudoscops clamator*	Tobago striped owl		2	5			x			IUCN, Catalogue of Life
Sulidae	*Sula dactylatra*	Masked booby			5					x	Murphy 2004, Catalogue of Life
Sulidae	*Sula leucogaster*	Brown booby			5					x	BirdLife International, IUCN, Avibase 2018, Murphy 2004, Catalogue of Life
Sulidae	*Sula sula*	Red-footed booby			5					x	BirdLife International, IUCN, Avibase 2018, Murphy 2004, Catalogue of Life
Thamnophilidae	*Dysithamnus mentalis*	Plain antvireo			5			x			Avibase 2018, IUCN, Catalogue of Life
Thamnophilidae	*Formicivora grisea*	White-fringed antwren			5			x			Avibase 2018, IUCN, Catalogue of Life
Thamnophilidae	*Taraba major*	Great antshrike			5			x			Avibase 2018, IUCN, Catalogue of Life
Thamnophilidae	*Thamnophilus doliatus*	Barred antshrike			5			x			Avibase 2018, IUCN, Catalogue of Life
Thraupidae	*Cyanerpes cyaneus*	Red-legged honeycreeper			5					x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Thraupidae	*Tachyphonus rufus*	White-lined tanager			5			x			Avibase 2018, IUCN, Catalogue of Life
Thraupidae	*Thraupis episcopus*	Blue-gray tanager			5			x			Avibase 2018, IUCN, Catalogue of Life
Thraupidae	*Thraupis palmarum*	Palm tanager			5			x			Avibase 2018, IUCN, Catalogue of Life
Thraupidae	*Tiaris bicolor*	Black-faced grassquit			5			x			Avibase 2018, IUCN, Catalogue of Life
Thraupidae	*Volatinia jacarina*	Blue-black grassquit			5			x			Avibase 2018, IUCN, Catalogue of Life
Tinamidae	*Crypturellus soui*	Little tinamou			5			x			Avibase 2018, IUCN, Catalogue of Life
Trochilidae	*Anthracothorax nigricollis*	Black-throated mango		2	5					x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Trochilidae	*Campylopterus ensipennis*	White-tailed sabrewing		2	4			x		x	IUCN, Avibase 2018, Catalogue of Life
Trochilidae	*Chrysolampis mosquitus*	Ruby-topaz hummingbird		2	5			x			Avibase 2018, CITES, IUCN, Catalogue of Life
Trochilidae	*Florisuga mellivora*	White necked jacobin		2	5			x		x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Trochilidae	*Glaucis hirsuta*	Rufous-breasted hermit		2	5					x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Trochilidae)	*Amazilia tobaci*	Copper-rumped hummingbird			5			x		x	BirdLife International, IUCN, Avibase 2018, Handbook of birds of the world, Catalogue of Life
Troglodytidae	*Pheugopedius rutilus*	Rufous-breasted wren			5			x			Avibase 2018, IUCN, Catalogue of Life
Troglodytidae	*Troglodytes aedon*	House wren			5			x			Avibase 2018, IUCN, Catalogue of Life
Trogonidae	*Trogon collaris*	Collared trogon			5			x		x	Klomp & Prinz 2007, IUCN, Avibase 2018, Catalogue of Life
Turdidae	*Platycichla flavipes*	Yellow-legged thrush			5			x			IUCN, Avibase 2018, Catalogue of Life
Turdidae	*Turdus albicollis*	White-necked thrush			5			x			Avibase 2018, IUCN, Catalogue of Life
Turdidae	*Turdus flavipes*	Yellow-legged thrush			5			x			Avibase 2018, IUCN, Catalogue of Life
Turdidae	*Turdus nudigenis*	Spectacled thrush			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Cnemotriccus fuscatus*	Fuscous flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Elaenia flavogaster*	Yellow-bellied elaenia			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Legatus leucophaius*	Piratic flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Mionectes oleagineus*	Ochre-bellied flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Myiarchus tyrannulus*	Brown-crested flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Tyrannidae	*Myiarchus venezuelensis*	Venezuelan flycatcher			5			x			BirdLife International, IUCN, Avibase 2018, Ewing 2017
Tyrannidae	*Myiodynastes maculatus*	Streaked flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Myiopagis gaimardii*	Forest elaenia			5			x			Avibase 2018, IUCN, Catalogue of Life, Catalogue of Life
Tyrannidae	*Pitangus sulphuratus*	Great kiskadee			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Platyrinchus mystaceus*	White throated spadebill			5			x			IUCN, Avibase 2018, Catalogue of Life
Tyrannidae	*Platyrinchus mystaceus*	White-throated spadebill			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Tolmomyias flaviventris*	Yellow-breasted flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Tyrannus dominicensis*	Gray KIngbird			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Tyrannus melancholicus*	Tropical kingbird			5			x			Avibase 2018, IUCN, Catalogue of Life
Tyrannidae	*Tyrannus savana*	Fork-tailed flycatcher			5			x			Avibase 2018, IUCN, Catalogue of Life
Tytonidae	*Tyto alba*	Barn owl		2	5			x			Avibase 2018, CITES, Catalogue of Life
Vireonidae	*Hylophilus flavipes*	Scrub greenlet			5			x			Avibase 2018, IUCN, Catalogue of Life
Vireonidae	*Hylophilus insularis*	Tobago greenlet	E		5			x	x	x	IUCN, Catalogue of Life
Vireonidae	*Vireo griseus*	White-eyed vireo			5			x			Avibase 2018, IUCN, Catalogue of Life

REPTILE SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Boidae	*Boa constrictor*	Macajuel/Boa constrictor		1,2				x			Murphy et al 2018, CITES
Boidae	*Corallus ruschenbergerii*	Ruschenberger's treeboa		2	5			x			Murphy et al 2018, IUCN, CITES
Boidae	*Epicrates maurus*	Velvet mapepire/Rainbow boa		2	5			x			Murphy et al 2018, Herpetology of Trinidad and Tobago 2018, IUCN, CITES
Cheloniidae	*Chelonia mydas*	Green turtle		1	2	x	x		x		IUCN, CITES, CMS, Murphy et al 2018
Cheloniidae	*Eretmochelys imbricata*	Hawksbill turtle		1	1	x	x		x		IUCN, CITES, CMS, Murphy et al 2018
Cheloniidae	*Lepidochelys olivacea*	Olive Ridley Turtle			3				x		
Cheloniidae	*Caretta caretta*	Loggerhead Turtle			3				x		
Colubridae	*Drymarchon corais*	Yellow-tailed cribo/Cribo			5			x			Murphy et al 2018, IUCN
Colubridae	*Leptophis coeruleodorsus*	Oliver's parrot snake						x			Murphy et al 2018, Murphy et al 2013
Colubridae	*Mastigodryas dunni*	Tobago racer						x		x	Klomp & Prinz 2007, Murphy et al 2018, Charles 2011
Colubridae	*Oxybelis cf aeneus*	Brown vine snake						x			Murphy et al 2018
Colubridae	*Spilotes pullatus*	Tiger rat snake						x			Murphy et al 2018
Colubridae	*Tantilla melanocephala*	Black-headed snake						x			Murphy et al 2018
Dactyloidae	*Anolis aeneus*	Gray's speckled anole						x			Murphy et al 2018
Dactyloidae	*Anolis richardii*	Giant crown anole						x		x	Murphy et al 2018, Herpetology of Trinidad and Tobago 2018, Charles et al 2011
Dactyloidae	*Anolis tigrinus*	Twig anole						x			ERIC 2018, Murphy et al 2018
Dermochelyidae	*Dermochelys coriacea*	Leatherback turtle		1	3	x	x		x		IUCN, CITES, Murphy et al 2018, CMS
Dipsadidae	*Atractus fuliginosa*	Tobago ground snake	E					x			ERIC 2018, Herpetology of Trinidad and Tobago 2018, Murphy et al 2018
Dipsadidae	*Attractus trilineatus*	Three-lined ground snake						x		x	Murphy et al 2018

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Dipsadidae	*Erythrolamprus melanotus nesos*	Trinidad black-backed snake						x			Murphy et al 2018
Dipsadidae	*Erythrolamprus sp.*	Tobago stream snake	E					x			Murphy et al 2018
Dipsadidae	*Imantodes cenchoa*	Blunt headed tree snake						x			Murphy et al 2018
Dipsadidae	*Leptodeira annulata ashmeadi*	Cat-eyed snake						x			Murphy et al 2018
Dipsadidae	*Ninia atrata*	Coffee snake			5			x			Murphy et al 2018, IUCN
Dipsadidae	*Oxyrhopus petolarius*	False coral snake						x			Murphy et al 2018
Dipsadidae	*Pseudoboa neuwiedii*	Ratonel						x			Murphy et al 2018
Dipsadidae	*Sibon nebulatus*	Slug eating snake						x			Murphy et al 2018
Dipsadidae	*Erythrolamprus ocellatus*	Tobago false coral/Red snake	E		5			x			Klomp & Prinz 2007, IUCN, GoTT 2018, Murphy et al 2018
Gekkonidae	*Hemidactylus mabouia*	African house gecko						x			Murphy et al 2018
Gekkonidae	*Hemidactylus palaichthus*	Neotropical house gecko			5			x		x	Murphy et al 2018, Herpetology of Trinidad and Tobago 2018, IUCN, Charles 2011
Gymnophthalmidae	*Bachia triniatus*	Trinidad hex-scaled bachia						x		x	ERIC 2018 b, Murphy et al 2018, Charles 2011
Iguanas	*Iguana iguana*	Green iguana		2	5			x		x	IUCN, CITES, Murphy et al 2018, Herpetology of Trinidad and Tobago 2018, Charles et al 2011
Mabuyidae	*Copeoglossum aurae*	Greater windward skink			5			x			IUCN, Murphy et al 2018
Phyllodactylidae	*Thecadactylus rapicauda*	Turnip-tailed gecko						x		x	Murphy et al 2018, Herpetology of Trinidad and Tobago 2018, Charles et al 2011
Polychrotidae	*Polychrus auduboni*	Audubon's multi-coloured lizard								x	Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Sphaerodactylidae	*Gonatodes ocellatus*	Ocellated gecko	E		5			x		x	Klomp & Prinz 2007, ERIC 2018, IUCN, Murphy et al 2018, Charles 2011

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Sphaerodactylidae	*Gonatodes vittatus*	Streak lizard/Wiegmann's striped gecko			5			x			IUCN, Murphy et al 2018
Sphaerodactylidae	*Sphaerodactylus molei*	Tobago least gecko/Mole's dwarf gecko			5			x		x	IUCN, Murphy et al 2018, Charles 2011
Teiidae	*Ameiva atrigularis*	Zandolie/Giant Ameiva			5			x			IUCN, Murphy et al 2018
Teiidae	*Cnemidophorus cf. Lemniscatus*	Beachrunner/Rainbow whiptail						x		x	Murphy et al 2018, Charles 2011
Teiidae	*Tupinambis cryptus*	Matte/Cryptic golden tegu						x			Murphy et al 2018
Typhlopidae	*Amerotyphlops trinitatus*	Lineated blind snake/Trinidad worm snake			2			x			Murphy et al 2018, IUCN

AMPHIBIAN SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Arboranae	*Boana xerophylla*	Rattle-voiced treefrog						x			Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Arboranae	*Dendropsophus goughi*	Gough's treefrog						x			Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Arboranae	*Scinax ruber*	Lesser brown treefrog/Red snouted treefrog			5			x			Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Arboranae	*Trachycephalus typhonius*	Milky treefrog			5			x			Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Aromobatidae	*Mannophryne olmonae*	Bloody Bay poison frog/Tobago stream frog	E		3			x		x	Klomp & Prinz 2007, ERIC 2018, IUCN, Murphy et al 2018
Bufonidae	*Rhinella marina*	Marine/Cane toad			5			x		x	Murphy et al 2018, IUCN, Charles 2011
Centrolenidae	*Hyalinobatrachium orientale tobagoense*	Tobago glass frog	E		3			x			IUCN, Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Eleutherodactylidae	*Eleutherodactylus johnstonei*	Johnstone's litter frog						x			Downie et. al. 2017
Hemiphractidae	*Flectonotus fitzgeraldi*	Tree frog			2			x			IUCN, Murphy et al 2018
Leptodactylidae	*Engystomops pustulosus*	Tungara frog			5			x			Murphy et al 2018
Leptodactylidae	*Leptodactylus fuscus*	Whistling frog/Rufous frog			5			x			Charles 2011, Murphy et al 2018, Herpetology of Trinidad and Tobago 2018
Leptodactylidae	*Leptodactylus validus*	Garman's thin-toed frog			5			x			Murphy et al 2018
Strabomantidae	*Pristimantis charlottevillensis*	Charlotteville robber frog/litter frog	E		5			x			Klomp & Prinz 2007, IUCN, Murphy et al 2018
Strabomantidae	*Pristimantis turpinorum*	Turpin's litter frog	E		3			x			IUCN, Murphy et al 2018
Strabomantidae	*Pristimantis urichi*	Urich's litter frog			2			x			IUCN, Murphy et al 2018

INCSECT & TERRESTRIAL INVERTEBRATE SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Achatinidae	*Achatina fulica*	Giant African snail									GoTT 2016, Catalogue of Life
Apidae	*Apis mellifera*	Africanized honey bee						x			GoTT 2016, Catalogue of Life
Buthidae	*Microtityus rickyi*	Scorpion	E					x			GoTT 2018, Catalogue of Life
Buthidae	*Tityus trinitatis*	Scorpion	E					x			GoTT 2018, Catalogue of Life
Cerambycidae	*Piruapsis antennatus*	Longhorned beetle	E					x			GoTT 2018, Catalogue of Life
Chrysomelidae	*Cephaloleia brunnea*	Tortoise Beetle	E					x			GoTT 2018, Catalogue of Life
Chrysomelidae	*Cephaloleia rubra*	Tortoise Beetle	E					x			GoTT 2018, Catalogue of Life
Coenagrionidae	*Argia orichalcea*	Scarlet-eyed dancer						x		x	Catalogue of Life
Coenagrionidae	*Ischnura ramburii*	Rambur's forktail			5			x		x	IUCN, Catalogue of Life
Coenagrionidae	*Argia oculata*	Damselfly						x		x	Catalogue of Life
Coenagrionidae	*Argia pulla*	Purple dancer								x	Catalogue of Life
Coenagrionidae	*Argia translata*	Dusky dancer			5					x	IUCN, Catalogue of Life
Crabronidae	*Trypoxylon albitarse*							x			Starr and Bhukal 2017, Catalogue of Life
Formicidae	*Pheidole aripoensis*	Ant	E					x			GoTT 2018, Antweb.org, Catalogue of Life
Hesperiidae	*Polites vibex*	Whirlabout						x		x	Catalogue of Life
Libellulidae	*Dythemis sterilis*	Brown setwing								x	Catalogue of Life
Libellulidae	*Erythrodiplax umbrata*	Band-winged dragonlet			5			x			IUCN, Catalogue of Life
Libellulidae	*Erythrodiplax fusca*	Red-faced dragonlet			5			x		x	IUCN, Catalogue of Life
Libellulidae	*Micrathyria aequalis*	Spot-tailed dasher			5			x		x	IUCN, Catalogue of Life
Libellulidae	*Orthemis discolor*	Carmine skipper			5					x	IUCN, Catalogue of Life
Libellulidae	*Tramea calverti*	Striped saddlebags			5			x			IUCN, Catalogue of Life
Lycaenidae	*Leptotes cassius*	Cassius blue								x	Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Lycaenidae	*Strymon bebrycia*	Redlined hairstreak						x		x	Catalogue of Life
Nymphalidae	*Caligo teucer*	Cacao mort bleu	Teucer Owl butterfly							x	Klomp & Prinz 2007, Catalogue of Life
Nymphalidae	*Anartia amathea*	Scarlet peacock						x		x	Catalogue of Life
Nymphalidae	*Danaus plexippus*	Monarch					x	x			CMS, Catalogue of Life
Nymphalidae	*Dynamine theseus*	White sailor								x	Catalogue of Life
Nymphalidae	*Hermeuptychia hermes*	Hermes satyr						x		x	Catalogue of Life
Oonopidae	*Scaphiella simla*	Goblin spider	E					x			GoTT 2018, Catalogue of Life
Papilionidae	*Battus polydamas*	Gold rim								x	Catalogue of Life
Perlidae	*Anacroneuria isleta*	Stonefly	E					x			GoTT 2018, Catalogue of Life
Pieridae	*Phoebis sennae*	Cloudless sulphur						x		x	Catalogue of Life
Pieridae	*Pyrisitia venusta*	Little yellowie								x	Catalogue of Life
Pieridae	*Ascia monuste*	Cabbage white								x	Catalogue of Life
Tettigoniidae	*Cocconotus unicolor*	Katydid	E					x			GoTT 2018, Catalogue of Life
Theraphosidae	*Lasiodora trinitatis*	Tarantula	E					x			GoTT 2018, Revolvy.com
Theraphosidae	*Psalmopoeus cambridgei*	Tarantula	E					x			GoTT 2018, Catalogue of Life
Varroidae	*Varroa jacobsoni*	Varroa mite						x			GoTT 2016, Catalogue of Life

MARINE FISH SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Acanthuridae	*Acanthurus bahianus*	Ocean surgeon			5				x		Alemu 2014, Catalogue of Life
Acanthuridae	*Acanthurus chirurgus*	Doctorfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Acanthuridae	*Acanthurus coeruleus*	Blue tang			5				x		Alemu 2014, IUCN, Catalogue of Life
Aulostomidae	*Aulostomus maculatus*	West atlantic trumpetfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Balistidae	*Balistes vetula*	Queen triggerfish			4				x		Alemu 2014, IUCN, Catalogue of Life
Balistidae	*Melichthys niger*	Black triggerfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Bothidae	*Bothus lunatus*	Plate fish			5				x		Alemu 2014, IUCN, Catalogue of Life
Bythitidae	*Ogilbichthys tobagoensis*	Tobago coralbrotula	E		DD				x		GoTT 2016, IUCN, GoTT 2018, Catalogue of Life
Carangidae	*Caranx crysos*	Blue runner			5				x		Alemu 2014, IUCN, Catalogue of Life
Carangidae	*Caranx latus*	Horse-eye jack			5				x		Alemu 2014, IUCN, Catalogue of Life
Carangidae	*Caranx ruber*	Bar jack			5				x		Alemu 2014, IUCN, Catalogue of Life
Carangidae	*Caranx hippos*	Crevalle jack			5				x		GoTT 2016, IUCN, Catalogue of Life
Carangidae	*Elegatis bipinnulata*								x		Alemu 2014, Catalogue of Life
Carangidae	*Seriola rivoliana*	Longfin yellowtail			5				x		Alemu 2014, IUCN, Catalogue of Life
Carcharhinidae	*Carcharhinus leucas*	Bull shark			4				x		IUCN, Catalogue of Life
Carcharhinidae	*Carcharhinus limbatus*	Blacktip shark			4				x		IUCN, Catalogue of Life
Carcharhinidae	*Carcharhinus perezi*	Caribbean reef shark			4				x		IUCN, Catalogue of Life
Carcharhinidae	*Carcharhinus porosus*	Small tail shark			DD				x		GoTT 2016, IUCN
Carcharhinidae	*Galeocerdo cuvier*	Tiger shark			4				x		ERIC 2017
Carcharhinidae	*Isogomphodon oxyrhynchus*	Daggernose shark			1				x		IUCN, Catalogue of Life
Carcharhinidae	*Negaprion brevirostris*	Lemon shark			4				x		IUCN, Catalogue of Life
Carcharhinidae	*Rhizoprionodon sp.*	Sharpnose shark							x		ERIC 2017

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Chaenopsidae	*Acanthemblemaria johnsoni*	White-cheeked blenny	E		5				x		GoTT 2016, Catalogue of Life
Chaetodontidae	*Chaetodon capistratus*	Foureye butterflyfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Chaetodontidae	*Chaetodon ocellatus*	Spotfin butterflyfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Chaetodontidae	*Chaetodon sedentarius*	Reef butterflyfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Chaetodontidae	*Chaetodon striatus*	Banded butterflyfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Congridae	*Heteroconger camelopardalis*	Giraffe-spotted garden eel			5				x		IUCN, Catalogue of Life
Dasyatidae	*Hypanus americanus*	Southern stingray			DD				x		ERIC 2017
Diodontidae	*Diodon hystrix*	Spot-fin porcupinefish			5				x		Alemu 2014, IUCN, Catalogue of Life
Engraulidae	*Lycengraulis grossidens*	Atlantic sabertooth anchovy			5				x		Alemu 2014, IUCN, Catalogue of Life
Epinephelidae	*Epinephelus flavolimbatus*	Yellowedge grouper			3				x		GoTT 2016, IUCN, Catalogue of Life
Epinephelidae	*Mycteroperca interstitialis*	Sweetlip/Yellowmouth grouper			3				x		GoTT 2016, IUCN, Catalogue of Life
Exocoetidae	*Hirundichthys affinis*	Four-winged flyingfish			5				x		GoTT 2016, IUCN, Catalogue of Life
Ginglymostomatidae	*Ginglymostoma cirratum*	Nurse shark			DD				x		ERIC 2017
Gobiidae	*Goby Essex*								x		ERIC 2018 b
Haemulidae	*Anisotremus surinamensis*	Black margate			DD				x		Alemu 2014, IUCN, Catalogue of Life
Haemulidae	*Anisotremus virginicus*	Porkfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Haemulidae	*Haemulon aurolineatum*	Tomtate			5				x		Alemu 2014, IUCN, Catalogue of Life
Haemulidae	*Haemulon macrostomum*	Spanish grunt			5				x		Alemu 2014, IUCN, Catalogue of Life
Haemulidae	*Haemulon melanurum*	Cottonwick			5				x		Alemu 2014, IUCN, Catalogue of Life
Haemulidae	*Haemulon sciurus*	Bluestriped grunt			5				x		Alemu 2014, IUCN, Catalogue of Life
Haemulidae	*Haemulon steindachneri*	Latin grunt			5				x		Alemu 2014, IUCN, Catalogue of Life
Holocentridae	*Holocentrus adscensionis*	Squirrelfish			5				x		Alemu 2014, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Holocentridae	*Holocentrus coruscum*								x		Alemu 2014, Catalogue of Life
Holocentridae	*Myripristis jacobus*	Blackbar soldierfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Kyphosidae	*Kyphosus vaigiensis*	Brassy chub			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Bodianus rufus*	Spanish hogfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Thalassoma bifasciatum*	Bluehead wrasse			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Clepticus parrae*	Creole wrasse			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Halichoeres bivittatus*	Slippery dick			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Halichoeres garnoti*	Yellowhead wrasse			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Halichoeres maculipinna*	Clown wrasse			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Halichoeres radiatus*	Puddingwife wrasse			5				x		Alemu 2014, IUCN, Catalogue of Life
Labridae	*Lachnolaimus maximus*	Hogfish			3				x		Alemu 2014, IUCN, Catalogue of Life
Labrisomidae	*Starksia rava*	Tawny blenny	E		5				x		GoTT 2018, IUCN, Catalogue of Life
Labrisomidae	*Starksia sella*	Darksaddle blenny	E		DD				x		GoTT 2018, IUCN, Catalogue of Life
Lutjanidae	*Lutjanus analis*	Mutton snapper			4				x		IUCN, Catalogue of Life
Lutjanidae	*Lutjanus apodus*	Schoolmaster snapper			5				x		Alemu 2014, IUCN, Catalogue of Life
Lutjanidae	*Lutjanus cyanopterus*	Canteen snapper			3				x		Alemu 2014, IUCN, Catalogue of Life
Lutjanidae	*Lutjanus purpureus*	Redfish							x		GoTT 2016
Lutjanidae	*Lutjanus synagris*	Lane snapper			4				x		GoTT 2016, IUCN, Catalogue of Life
Lutjanidae	*Ocyurus chrysurus*	Yellowtail snapper			DD				x		Alemu 2014, IUCN, Catalogue of Life
Lutjanidae	*Rhomboplites aurorubens*	Snapper plumhead			3				x		GoTT 2016, IUCN, Catalogue of Life
Monacanthidae	*Aluterus scriptus*	Scribbled leatherjacket filefish			5				x		Alemu 2014, IUCN, Catalogue of Life
Monacanthidae	*Cantherhines macrocerus*	Whitespotted filefish			5				x		Alemu 2014, IUCN, Catalogue of Life
Monacanthidae	*Cantherhines pullus*	Orangespotted filefish			5				x		Alemu 2014, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Monacanthidae	*Monacanthus tuckeri*	Slender filefish			5				x		Alemu 2014, IUCN, Catalogue of Life
Mullidae	*Mulloidichthys martinicus*	Yellow Goatfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Mullidae	*Pseudupeneus maculatus*	Spotted goatfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Muraenidae	*Gymnothorax vicinus*	Brown conger			5				x		IUCN, Catalogue of Life
Muraenidae	*Uropterygius macularius*	Marbled moray							x		IUCN, Catalogue of Life
Muraenidae	*Echidna catenata*	Chain moray			5				x		IUCN, Catalogue of Life
Muraenidae	*Gymnothorax funebris*	Green moray			5				x		IUCN, Catalogue of Life
Muraenidae	*Gymnothorax ocellatus*	Caribbean ocellated moray			5				x		IUCN, Catalogue of Life
Myliobatidae	*Aetobatus narinari*	Spotted eagle ray			4				x		IUCN, Catalogue of Life
Myliobatidae	*Manta birostris*	Manta ray		2	3				x		IUCN, CITES, Catalogue of Life
Opistognathidae	*Opistognathus aurifrons*	Yellow-headed jawfish			5				x		Ali 2016, IUCN, Catalogue of Life
Ostraciidae	*Lactophrys polygonia*	Honeycomb cowfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Ostraciidae	*Lactophrys quadricornis*	Scrawled Cowfish			5				x		Alemu 2014, Catalogue of Life
Pomacanthidae	*Holacanthus ciliaris*	Queen angelfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacanthidae	*Holacanthus tricolor*	Rock beauty			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacanthidae	*Pomacanthus arcuatus*	Grey angelfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacanthidae	*Pomacanthus paru*	French angelfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Abudefduf saxatilis*	Sergeant-major			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Abudefduf taurus*	Night sergean			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Chromis cyanea*	Blue chromis			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Chromis multilineata*	Brown chromis			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Microspathodon chrysurus*	Yellowtail damselfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Stegastes diencaeus*	Longfin damselfish			5				x		Alemu 2014, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Pomacentridae	*Stegastes fuscus*	Dusky damselfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Stegastes leucostictus*	Beaugregory			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Stegastes partitus*	Bicolor damselfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Pomacentridae	*Stegastes planifrons*	Threespot damselfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Priacanthidae	*Pricanthus cruentatus*								x		Alemu 2014
Pristidae	*Pristis pristis*	Largetooth sawfish		1	1				x		IUCN, CITES, Catalogue of Life
Scaridae	*Scarus iseri*	Striped parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Scarus coelestinus*	Midnight parrotfish			DD				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Scarus coeruleus*	Blue parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Scarus guacamaia*	Rainbow parrotfish			4				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Scarus taeniopterus*	Princess parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Scarus vetula*	Queen parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Sparisoma atomarium*	Greenblotch parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Sparisoma aurofrenatum*	Redband parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Sparisoma chrysopterum*	Redtail parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Scaridae	*Sparisoma viride*	Stoplight parrotfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Sciaenidae	*Cynoscion jamaicensis*	Salmon/Jamacian weakfish			5				x		GoTT 2016, IUCN, Catalogue of Life
Sciaenidae	*Equetus punctatus*	Spotted Drum			5				x		Alemu 2014, IUCN, Catalogue of Life
Sciaenidae	*Micropogonias furnieri*	Cro-cro/Whitemouth croaker			5				x		GoTT 2016, IUCN, Catalogue of Life
Sciaenidae	*Pareques acuminatus*	High-hat			5				x		Alemu 2014, IUCN, Catalogue of Life
Scombridae	*Scomberomorus brasiliensis*	Carite/Spanish mackerel			5				x		GoTT 2016, IUCN, Catalogue of Life
Scombridae	*Scomberomorus cavalla*	Kingfish/King mackerel			5				x		GoTT 2016, IUCN, Catalogue of Life

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Scombridae	*Thunnus thynnus*	Atlantic bluefin tuna			2				x		IUCN, Catalogue of Life
Scorpaenidae	*Pterois sp*	Lionfish							x		GoTT 2016
Serranidae	*Paranthias furcifer*	Creole-fish			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Cephalopholis cruentata*	Graysby			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Cephalopholis fulva*	Coney			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Epinephelus adscensionis*	Rock hind			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Epinephelus guttatus*	Red hind			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Epinephelus itajara*	Atlantic goliath grouper			1				x		IUCN, Catalogue of Life
Serranidae	*Epinephelus striatus*	Nassau grouper			2				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Hypoplectrus gummigutta*	Golden hamlet			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Hypoplectrus nigricans*	Black hamlet			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Hypoplectrus puella*	Barred Hamlet			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Mycteroperca bonaci*	Black grouper			4				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Mycteroperca tigris*	Tiger grouper			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Rypticus saponaceus*	Greater soapfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Serranidae	*Serranus tigrinus*	Harlequin bass			5				x		Alemu 2014, IUCN, Catalogue of Life
Sphyraenidae	*Sphyraena barracuda*	Great barracuda			5				x		Alemu 2014, IUCN, Catalogue of Life
Sphyrnidae	*Sphyrna lewini*	Scalloped hammerhead		2	2				x		IUCN, CITES, Catalogue of Life
Sphyrnidae	*Sphyrna mokarran*	Squat-headed hammerhead shark		2	2				x		IUCN, CITES, Catalogue of Life
Synodontidae	*Synodus saurus*	Atlantic lizardfish			5				x		Alemu 2014, IUCN, Catalogue of Life
Tetraodontidae	*Canthigaster rostrata*	Caribbean sharpnose-puffer			5				x		Alemu 2014, IUCN, Catalogue of Life
Triakidae	*Mustelus sp.*	Smooth hound shark							x		ERIC 2017

MARINE MAMMAL SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Balaenopteridae	*Balaenoptera brydei*	Bryde's whale					x		x		CCARO
Balaenopteridae	*Megaptera novaeangliae*	Humpback whale		1	5		x		x		CCARO, IUCN, CITES, Bellemare 2014
Delphinidae	*Delphinus capensis*	Long beaked common dolphin		2	DD		x		x		CCARO, IUCN, CITES, Scott 2016
Delphinidae	*Feresa attenuata*	Pygmy killer whale		2	DD		x		x		CCARO, IUCN, CITES, Samooj 2016
Delphinidae	*Globicephala macrorhynchus*	Short-finned pilot whale		2	DD		x		x		CCARO, IUCN, CITES, Deonarine 2016
Delphinidae	*Grampus griseus*	Risso's dolphin		2	5		x		x		CCARO, IUCN, CITES
Delphinidae	*Orcinus orca*	Orca/Killer whale		2	DD		x		x		CCARO, IUCN, CITES, Bengochea 2015
Delphinidae	*Peponocephala electra*	Melon-headed whale		2	5		x		x		CCARO, IUCN, CITES, Bissoon 2015
Delphinidae	*Pseudorca crassidens*	False killer whale		2	DD		x		x		CCARO, IUCN, CITES, Khan 2015
Delphinidae	*Sotalia guianensis*	Guiana dolphin		1	DD		x		x		CCARO, IUCN, CITES, Dunn 2012
Delphinidae	*Stenella attenuata*	Pantropical spotted dolphin			5		x		x		CCARO, IUCN, Ramkhelawan 2014
Delphinidae	*Stenella coeruleoalba*	Striped dolphin			5		x		x		CCARO, IUCN, Baliram 2015
Delphinidae	*Stenella frontalis*	Atlantic spotted dolphin		2	DD		x		x		CCARO, IUCN, CITES, Deacon, Naranjit and Higgins 2014, Singh 2015
Delphinidae	*Stenella longirostris*	Spinner dolphin		2	DD		x		x		CCARO, IUCN, CITES, Mohan 2015
Delphinidae	*Steno bredanensis*	Rough-toothed dolphin		2	5		x		x		CCARO, IUCN, CITES, Chochan 2011
Delphinidae	*Tursiops truncatus*	Common bottlenose dolphin		2	5		x		x		CCARO, IUCN, CITES, Mohammed 2014
Hyperoodontidae	*Mesoplodon europaeus*	Gervais' beaked whale		2	DD		x		x		CCARO, IUCN, CITES, Gobin 2012
Physeteridae	*Kogia sp.*	Sperm whale		2	DD		x		x		CCARO, IUCN, CITES
Physeteridae	*Physeter macrocephalus*	Sperm whale		1	3		x		x		CCARO, IUCN, CITES, Phillips 2015

FRESHWATER FISH SPECIES - DRAFT

Family	*Species*	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Achiridae	*Achirus novoae*							x			Phillip et al 2013
Achiridae	*Trinectes paulistanus*	Slipper sole			5			x			Phillip et al 2013, IUCN, Mohammed et al. 2016
Anguillidae	*Anguilla rostrata*	American eel			2			x			IUCN, Mohammed et al. 2015, Phillip et al 2013, Phillip 1998, Fish base, IUCN
Eleotridae	*Eleotris pisonis*	Spinycheek sleeper			5			x			Fish base, IUCN, Mohammed et al. 2015, Phillip et al 2013, Phillip 1998
Eleotridae	*Gobiomorus dormitor*	Giant goby			5			x			IUCN, Mohammed et al. 2015, Phillip et al 2013, Phillip 1998
Gobiesocidae	*Gobiesox nudus*	Clingfish						x			Phillip et al 2013, Phillip 1998
Gobiidae	*Awaous banana*	River goby						x			Mohammed et al. 2015, Phillip et al 2013
Gobiidae	*Ctenogobius boleosoma*	Darter goby			5			x			Mohammed et al. 2015, IUCN
Gobiidae	*Sicydium plumieri*	Sand shark/Titi			DD			x			Phillip et al 2013, IUCN
Gobiidae	*Sicydium punctatum*	Spotted algae-eating goby/Sand shark			5			x			IUCN, Mohammed et al. 2015, Phillip et al 2013, Phillip 1998
Lutjanidae	*Lutjanus griseus*	Grey snapper			5			x			Mohammed et al. 2016
Lutjanidae	*Lutjanus jocu*	Dog snapper			DD			x			Mohammed et al. 2016, IUCN
Mugilidae	*Agonostomus monticola*	Mountain mullet			5			x			IUCN, Mohammed et al. 2015, Phillip et al 2013, Phillip 1998
Mugilidae	*Mugil hospes*	Hospe mullet			5			x			Mohammed et al. 2016, IUCN
Poeciliidae	*Micropoecilia picta*	Swamp guppy						x			Mohammed et al. 2015, Phillip et al 2013, Fish base
Poeciliidae	*Poecilia reticulata*	Guppy						x			Mohammed et al. 2015
Rivulidae	*Anablepsoides hartii*	Hart's rivulus						x			Mohammed et al. 2015, Phillip et al 2013

FRESHWATER INVERTEBRATE SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Atyidae	*Atya innocous*				5			x			Bass 2003, IUCN
Atyidae	*Atya scabra*	Jonga			5			x			Mohammed et al. 2016, IUCN
Atyidae	*Jonga serrei*				5			x			Mohammed et al. 2016, Bass 2003
Atyidae	*Potimirim glabra*				5			x			Mohammed et al. 2016, IUCN
Hydrobiidae	*Pyrgophorus parvulus*				5			x			Bass 2003, IUCN
Neritidae	*Neritina clenchi*							x			Bass 2003
Neritidae	*Neritina punctulata*							x			Mohammed et al. 2016
Neritidae	*Neritina usnea*							x			Bass 2003
Neritidae	*Neritina virginea*	Virgin nerite			5			x			Mohammed et al. 2016, Bass 2003, IUCN
Palaemonidae	*Macrobrachium acanthurus*	Cinnamon river shrimp			5			x			Mohammed et al. 2016, Bass 2003, IUCN
Palaemonidae	*Macrobrachium carcinus*	Bigclaw river shrimp			5			x			IUCN, Mohammed et al. 2016
Palaemonidae	*Macrobrachium crenulatum*				5			x			IUCN, Mohammed et al. 2016, Bass 2003
Palaemonidae	*Macrobrachium faustinum*				5			x			Bass 2003, IUCN
Portunidae	*Callinectes sapidus*	Blue crab						x			Mohammed et al. 2016
Pseudothelphusidae	*Eudaniela garmani*	Manicou crab			5			x			Mohammed et al. 2016
Pseudothelphusidae	*Rodriguezus garmani*				5			x			Mohammed et al. 2016, IUCN
Sesarmidae	*Armases roberti*							x			Mohammed et al. 2016
Thiaridae	*Melanoides tuberculata*				5			x			Mohammed et al. 2016, Bass 2003, IUCN
Thiaridae	*Tarebia granifera*				5			x			Mohammed et al. 2016, IUCN
Xiphocarididae	*Xiphocaris elongata*				5			x			IUCN, Mohammed et al. 2016, Bass 2003

MARINE INVERTEBRATE SPECIES - DRAFT

Family	Species	Common Name	Endemic to Tobago	CITES	IUCN	EDGE	CMS	Proposed UNESCO site			References
								Main Ridge	NETMPA	Islets	
Acroporidae	*Acropora cervicornis*	Staghorn coral		2	1				x		IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982
Acroporidae	*Acropora palmata*	Elkhorn coral		2	1				x		IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, James 2016
Actiniidae	Condylactis gigantea	Giant Caribbean sea anemone							x		Griffith 2016, Catalogue of Life
Agariciidae	*Agaricia agarictes*	Low relief lettuce/Leaf coral							x		Alemu 2014, Clement, van Bochove and McVee 2012, Ramsaroop 1982, Rampersad 2015
Agariciidae	*Agaricia fragilis*	Fragile saucer coral		2	DD				x		Alemu 2014, Clement, IUCN, CITES
Agariciidae	*Agaricia lamarcki*	Lamarck's sheet coral		2	3				x		ERIC 2018 b, IUCN, CITES
Agariciidae	*Agaricia tenuifolia*	Thin leaf lettuce							x		van Bochove and McVee 2012
Agariciidae	*Helioseris cucullata*	Sunray lettuce coral		2	5				x		Alemu 2014, Clement, CITES, van Bochove and McVee 2012, IUCN, Catalogue of Life
Anthothelidae	*Erythropodium caribaeorum*	Encrusting gorgonian							x		Ramsaroop 1982, Catalogue of Life
Anthothelidae	*Iciligorgia schrammi*	Black sea fan							x		Ramsaroop 1982, Catalogue of Life
Antipathidae	*Antipathes sp*	Black sea fan							x		Ramsaroop 1982
Antipathidae	*Antipathes sp*	Bottle brush coral							x		Ramsaroop 1982
Arcidae	Arca zebra	Turkey wing ark clam							x		Clarke 2017, Catalogue of Life
Briareidae	*Briareum asbestinum*	Corky sea finger							x		Ramsaroop 1982
Callianassidae	*Plexaurella nutans*	Giant slit-pore sea rod							x		Ramsaroop 1982, WORMS 2018, Catalogue of Life
Callianassidae	*Pseudobiffarius caesari*	Ghost shrimp							x		Heard & Manning 2000, WORMS 2018, Catalogue of Life
Clavelinidae	*Clavelina oblonga*	Tunicate							x		Cole 2012, Catalogue of Life

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Dendrophyllidae	*Tubastrea coccinea*	Orange cup							x		van Bochove and McVee 2012, Surujubally 2016
Diadematidae	*Diadema antillarum*	Long-spined Black Urchin							x		Augustine 2016, Catalogue of Life
Didemnidae	*Didemnum conchyliatum*	White speck tunicate							x		Cole 2012, Catalogue of Life
Echinometridae	Echinometra lucunter	Rock-boring urchin							x		Villafana 2015, Catalogue of Life
Ellisellidae	*Ellisella elongata*	Long sea whip							x		Ramsaroop 1982, Catalogue of Life
Ellisellidae	*Ellisella schmitti*	Bushy sea whip							x		Ramsaroop 1982, Catalogue of Life, WoRMS 2018
Faviidae	*Cladocora arbuscula*	Tube coral		2	5				x		Charles 2016, IUCN, CITES
Gorgoniidae	*Antillogorgia bipinnata*	Bipinnate sea plume							x		Ramnarinesingh 2016, Catalogue of Life
Gorgoniidae	*Gorgonia flabellum*	Venus sea fan							x		Ramsaroop 1982, Catalogue of Life
Gorgoniidae	*Gorgonia ventalina*	Common sea fan							x		Ramsaroop 1982, Phillips 2016, Catalogue of Life
Holothuriidae	*Holothuria mexicana*	Donkey dung sea cucumber			5				x		Martin 2016, IUCN
Holothuriidae	*Actinopyga agassizi*	West Indian sea cucumber			5				x		Bacchus 2016, IUCN
Littorinidae	Cenchritis muricatus	Beaded periwinkle							x		Thompson 2015, Catalogue of Life
Meandrinidae	*Dendrogyra cylindrus*	Pillar coral		2	3	x			x		IUCN, CITES, van Bochove and McVee 2012, Moonsammy 2016, Catalogue of Life
Meandrinidae	*Dichocoenia stokesii*	Elliptical star coral		2	3				x		IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, Forrester 2016, Catalogue of Life
Meandrinidae	*Eusmilia fastigiata*	Smooth flower coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, Marson 2016, Catalogue of Life

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Meandrinidae	*Meandrina meandrites*	Maze coral			5				x		Alemu 2014, Clement, IUCN, van Bochove and McVee 2012, Ramsaroop 1982, Williams 2016, Catalogue of Life
Merulinidae	*Montastraea annularis*	Boulder star coral			2				x		IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Merulinidae	*Montastraea faveolata*	Star coral			2				x		IUCN, van Bochove and McVee 2012, Catalogue of Life
Merulinidae	*Montastraea franksi*	Star coral			3				x		IUCN, van Bochove and McVee 2012, Catalogue of Life
Merulinidae	*Orbicella annularis*	Boulder Star coral				x			x		ERIC 2018 b, de Matas 2016, Catalogue of Life
Merulinidae	*Orbicella faveolata*	Mountainous star coral				x			x		ERIC 2018 b, Wilkinson 2017, Catalogue of Life
Milleporidae	*Millepora alcicornis*	Finger coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, Ramsaroop 1982, Anderson 2015, Catalogue of Life
Milleporidae	*Millepora complanata*	Fire coral							x		Ramsaroop 1982, Catalogue of Life
Montastraeidae	*Montastraea cavernosa*	Great star coral			5				x		Alemu 2014, Clement, IUCN, van Bochove and McVee 2012, Ramsaroop 1982, Vaughan 2015, Catalogue of Life
Mussidae	*Diploria clivosa*	Knobby brain coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Mussidae	*Diploria labyrinthiformis*	Grooved brain coral		2	5				x		Alemu 2014, Clement, IUCN, van Bochove and McVee 2012, Ramsaroop 1982, Pitt 2016, Catalogue of Life
Mussidae	*Diploria strigosa*	Symmetrical brain coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Mussidae	*Favia fragum*	Golfball coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Daniel 2016, Catalogue of Life
Mussidae	*Isophyllastrea rigida*	Rough star			5				x		Alemu 2014, Clement, van Bochove and McVee 2012, IUCN, Catalogue of Life
Mussidae	*Manicina areolata*	Rose							x		van Bochove and McVee 2012, Mohan 2016, Catalogue of Life

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Mussidae	*Mussa angulosa*	Spiny flower coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, Catalogue of Life
Mussidae	*Mycetophyllia aliciae*	Knobby cactus coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Mussidae	*Mycetophyllia ferox*	Rough cactus coral		2	3				x		ERIC 2018 b, IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Mussidae	*Mycetophyllia lamarckiana*	Ridged cactus							x		van Bochove and McVee 2012, Ramsaroop 1982, Catalogue of Life
Mussidae	*Scolymia cubensis*	Mushroom coral							x		Ramsaroop 1982, Catalogue of Life
Mussidae	*Scolymia wellsi*	Solitary disk coral		2	DD				x		Alemu 2014, Clement, IUCN, CITES
NA	*Solenastrea bournoni*	Smooth star							x		van Bochove and McVee 2012, Ramsaroop 1982, Catalogue of Life
NA	*Solenastrea hyades*	Knobby star							x		van Bochove and McVee 2012, Catalogue of Life
Oculinidae	*Oculina diffusa*	Diffuse ivory bush							x		van Bochove and McVee 2012, Catalogue of Life
Oculinidae	*Oculina varicosa*	Large ivory coral		2	3				x		IUCN, CITES, Catalogue of Life
Penaeidae	*Farfantepenaeus brasiliensis*	Red-spotted shrimp							x		GoTT 2016, Catalogue of Life
Penaeidae	*Farfantepenaeus notialis*	Pink shrimp							x		GoTT 2016, Catalogue of Life
Penaeidae	*Farfantepenaeus subtilis*	Brown shrimp							x		GoTT 2016, Catalogue of Life
Penaeidae	*Litopenaeus schmitti*	White shrimp							x		GoTT 2016, Catalogue of Life
Penaeidae	*Xiphopenaeus kroyeri*	Honey/Seabob shrimp							x		GoTT 2016, Catalogue of Life
Phymanthidae	*Phymanthus crucifer*	Red beaded aemone							x		Douglas 2015, Catalogue of Life
Plexauridae	*Eunicea clavigera*								x		Ramsaroop 1982, Catalogue of Life
Plexauridae	*Eunicea tourneforti*	Knobby candelabra							x		Ramsaroop 1982, Catalogue of Life

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Plexauridae	*Muricea elongata*	Orange spiny sea rod							x		Ramsaroop 1982, Catalogue of Life
Plexauridae	*Muriceopsis flavida*	Bottle-brush coral							x		Ramsaroop 1982, Catalogue of Life
Plexauridae	*Plexaura flexuosa*	Bent plexaura							x		Ramsaroop 1982, Catalogue of Life
Plexauridae	*Plexaura homomalla*	Black sea rod							x		Ramsaroop 1982, Stuart 2016, Catalogue of Life
Plexauridae	*Plexaurella dichotoma*	Double forked plexaurella							x		Ramsaroop 1982, Catalogue of Life
Plexauridae	*Plexaurella grisea*	Grey plexaurella							x		Ramsaroop 1982, Catalogue of Life
Pocilloporidae	*Madracis asperula*								x		Ramsaroop 1982, Catalogue of Life
Pocilloporidae	*Madracis decactis*	Ten-ray star coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Pocilloporidae	*Madracis formosa*	Eight-ray finger							x		van Bochove and McVee 2012, Catalogue of Life
Pocilloporidae	*Madracis mirabilis*	Yellow pencil							x		Alemu 2014, Clement, van Bochove and McVee 2012, Catalogue of Life
Polycitoridae	*Eudistoma capsulatum*								x		Cole 2012, Catalogue of Life
Polycitoridae	*Eudistoma clarum*								x		Cole 2012, Catalogue of Life
Polyclinidae	*Aplidium stellatum*	Atlantic sea pork							x		Cole 2012
Poritidae	*Porites astreoides*	Mustard hill coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, De Peaza 2015, Catalogue of Life
Poritidae	*Porites divaricata*	Thin finger							x		van Bochove and McVee 2012, Catalogue of Life
Poritidae	*Porites furcata*	Branched finger coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Catalogue of Life
Poritidae	*Porites porites*	Clubtip finger							x		van Bochove and McVee 2012, Taylor 2016, Catalogue of Life
Pyuridae	*Microcosmus anchylodeirus*								x		Cole 2012, Catalogue of Life

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Siderastreidae	*Siderastrea radians*	Lesser starlet coral		2	5				x		Alemu 2014, Clement, IUCN, CITES, van Bochove and McVee 2012, Ramsaroop 1982, Catalogue of Life
Sphenopidae	*Palythoa mammillosa*	Knobby zoanthidean							x		Ramsaroop 1982, Catalogue of Life
Strombidae	Lobatus gigas	Queen conch							x		Seepersad 2015
Stylasteridae	*Stylaster roseus*	Lace							x		van Bochove and McVee 2012, Catalogue of Life
Toxopneustidae	*Lytechinus variegatus*	Variegated sea urchin							x		Barnard 2016, Catalogue of Life
Toxopneustidae	*Tripneustes ventricosus*	West Indian sea egg							x		Ward 2015, Catalogue of Life
	Stephanococoenis intercepta	Blushing star							x		Alemu 2014, Clement, van Bochove and McVee 2012