Ministry of Public Housing,
Spatial Planning, Environment
And Infrastructure

Ministerie van Volkshuisvesting, Ruimtelijke
Ordening, Milieu en Infrastructuur

Nature Policy Plan

2021 – 2025

“We the people of Sint Maarten:
RESOLVED to provide for the continuing preservation of nature and the environment”.

Constitution of Sint Maarten

Nature Policy Plan Sint Maarten 2021 – 2025

Ministry of Public Housing, Spatial Planning, Environment and Infrastructure (Ministry of VROMI)

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Summary

Located in the Caribbean region, a biodiversity hotspot, Sint Maarten is home to species unique to the island and many species and habitats that are globally threatened. It is estimated that Sint Maarten is home to some 400 individual species of conservation importance that are listed for protection under international, regional and local initiatives. With a magnificent natural environment, it is not surprising that millions of tourists visit Sint Maarten each year, and thus the majority of the population being employed in the tourism industry and this being the main economic pillar of the island. However, interventions are needed to restore and maintain a clean, healthy and resilient natural environment to continue supporting a prosperous tourism industry, a robust economy, and ultimately maintaining a high quality of well-being for the citizens of Sint Maarten.

Development practices in recent years have removed critical areas of habitat for the flora and fauna of Sint Maarten, resulting in a significant reduction of biodiversity, leaving degraded and stressed habitats that are more vulnerable to natural disaster. The protection of natural areas is an important mechanism to mitigate threats to nature, prevent the decline of biodiversity, increase resilience to change and provides significant contributions to global conservation efforts. At present, Sint Maarten is home to one marine park and one wetland of recognized international importance: the Man of War Shoal Marine Park and the Mullet Pond section of the Simpson Bay Lagoon.

Notwithstanding these advancements regarding the protection of biodiversity, there are still significant challenges concerning terrestrial biodiversity conservation, public awareness, zoning and planning, and the enforcement of legislation as it pertains to nature (and environment). The terrestrial, marine and intertidal ecosystems of Sint Maarten are experiencing many threats including unbridled economic development (development or conversion of land use), pollution (terrestrial runoff of nutrients, sediments, fuels, heavy metals, litter, solid waste dumping, and sewage runoff), unsustainable fishing practices, as well as impacts of climate change and invasive species.

It can be said that in Sint Maarten we have taken nature for granted for the sake of economic growth. Without planned intervention, Sint Maarten may become a regional example of how unsustainable development destroys nature leaving small islands urbanized, degraded, polluted and unattractive to critical tourism dollars. This policy aims to embody a shift in attitude from perceiving the protection and conservation of nature as a hindrance to economic development, towards one that views nature as an essential asset for the sustainable development of Sint Maarten. This policy embraces the value of nature as a tool to develop resilience towards a changing climate and an asset necessary for economic growth and stability, and citizen well-being. Thus, the vision for nature on Sint Maarten through this policy is:

A future where the value of the nation's natural resources and characteristics are fully appreciated and sustainably managed, especially in terms of their contribution to economic well-being, strengthening resilience to (natural) disasters and supporting human well-being.

This Nature Policy Plan Sint Maarten 2021 – 2025 provides a framework for the management and development of nature on Sint Maarten for the coming five years, to guide government entities, non-governmental organizations, industry, research and the community. The main objective is to ensure that nature is managed in a sustainable way so that the ecosystems and ecosystem services can be preserved and, where possible, enhanced. Rooted in international agreements, conventions and regional agreements Sint Maarten is committed to, as well as national legislation on nature and biodiversity, this policy embraces clear strategic objectives with an integrated approach including focuses on communication, education and awareness, active research and monitoring, and cooperation with stakeholders.

In order to embody the aforementioned shift in attitude and in recognizing the unique local context, the formulation and implementation of this policy is guided by four key principles: the integration of the environment and development; the precautionary principle; collective responsibility for the environment; and a one-island approach. **Table 1** puts forward the policy objectives of this Nature Policy Plan Sint Maarten 2021 – 2025 that were developed in collaboration with stakeholders and originates from the relevant local, regional and international obligations that Sint Maarten must adhere to, considers previous Nature Policy Plans, and takes into account the Aichi Biodiversity Targets and the Sustainable Development Goals (SDGs). The chapters of this policy will further detail these policy objectives, and where possible, present specific activities towards the policy objectives and put forward effect indicators to monitor and evaluate progress towards achieving the objective.

Table 1: *Policy Objectives Nature Policy Plan Sint Maarten 2021 – 2025.*

POLICY OBJECTIVES	
1	Increased conservation, restoration and management of biodiversity.
2	Improved research and monitoring to provide an evidence-base for effective policy.
3	Increased sustainability and resilience of tourism sector.
4	Increased communication, education and public awareness of nature.
5	Legislative improvements to reflect current situation, with effective enforcement.
6	Nature integrated into development strategies.
7	Increased local, regional and international cooperation for nature.
8	Sustainable financing for nature.
9	Climate Change integrated into national planning and nature harnessed for adaptation.

Brown Pelican (Pelecanus occidentalis)
Photo by: Mark Yokoyama

1. Introduction

Sint Maarten, an autonomous constituent country within the Kingdom of the Netherlands, is part of an island in the Caribbean shared with Saint Martin being a part of the Republic of France. The Caribbean region represents one of the greatest centers of biodiversity in the world. Sint Maarten alone is home to species unique to the island and many species and habitats which are globally threatened. With its expansive bays, green hills, pristine white sand beaches and internationally recognized ponds, it comes as no surprise that millions of tourists visit Sint Maarten each year. This has resulted in the majority of the population being employed in the tourism industry and this becoming the main economic pillar of the island. However, interventions are needed to restore and maintain a clean, healthy and resilient natural environment to continue supporting a prosperous tourism industry and a robust economy, and ultimately maintaining a high quality of well-being for the citizens of Sint Maarten.

Sint Maarten has a magnificent natural environment, characterized by great biological diversity, supporting an abundance of globally and locally important species and ecosystems. The center and east of Sint Maarten is characterized by a hilly landscape with three main ridges which are accented by orchids, ferns, bromeliads, orange sage, white cedar and gum trees. These hills are surrounded by coastal lowlands accentuated by a number of ponds and lagoons whose vegetation provide refuge and roosting areas for a remarkable diversity of bird species, including our national bird, the brown pelican. In the west, the Simpson Bay Lagoon represents one of the largest inland lagoons of the West Indies, contributing significantly to the scenic character of the island. The surrounding waters offer attractive natural harbors with coral reefs and expansive seagrass beds, which provide ideal foraging grounds for a diversity of globally endangered marine species. These natural landscapes are a source of great aesthetic value that contribute to setting Sint Maarten apart from our island neighbors.

Healthy ecosystems provide communities with essential ecosystem services such as clean air, water, food, building materials, coastal protection and recreational opportunities. Sustainable development, and thus also the management and protection of the natural environment, poses a distinct challenge to Small Island Developing States (SIDS)[1] due to their inherent characteristics that set them apart from large developed countries. Some of these characteristic challenges include geographic and economic isolation, increasing population densities, fragile environments, vulnerability to external shocks, and an often small size with

[1] SIDS are a group of small island countries that tend to share similar sustainable development challenges.

a limited natural resources base and thus excessive dependence on international trade. These inherent characteristics of SIDS result in their rich diversity of ecosystems and species but also complicate the preservation and management thereof. Due to these characteristics, the effects of human actions on the natural environment are often more evident on small islands than in larger areas. Vulnerabilities are often further compounded by geographical locations in areas with higher susceptibility to the impacts of climate change and natural disasters.

In addition to these characteristics which contribute to the inherent vulnerability of SIDS, the characteristics unique to Sint Maarten make it especially vulnerable and further place a remarkable pressure on the nation's natural resources. One of these characteristics is the fact that Sint Maarten has an exceptionally high population density (1,192 persons per km^2), representing the highest population density in the Kingdom of the Netherlands and the Caribbean Region overall, placing it at the tenth highest country population density worldwide[2]. While SIDS conventionally exhibit narrow economic bases, Sint Maarten meets and supersedes this convention with around 80% of the economy relying on tourism. Sint Maarten also shares the small 87km^2 island with the French territory of Saint Martin. Sharing such a small landmass between two separately governing nations creates many difficulties for streamlining policies, regulations and enforcement. These characteristics and more contribute to Sint Maarten's unique character that warrants highlighting for the purpose of this Nature Policy Plan.

In the past decades, Sint Maarten has undergone significant and rapid changes to accommodate the rapidly intensifying population density and need for infrastructure to support the economic base of tourism. When coupled with the inherent challenges to sustainable development experienced by SIDS, this has resulted in a need to re-examine how we manage our natural resources. Therefore, it is essential that Sint Maarten establish a Nature Policy Plan to ensure that the distinct challenges to sustainable development and the management and protection of the natural environment are integrated into national planning to maintain the provisioning of essential ecosystem services for coming generations.

1.1 Background

As a signatory to the Convention on Biological Diversity (CBD), the Kingdom of the Netherlands is obligated to develop and implement national strategies, plans, or programs for the conservation and sustainable use of biological diversity. Prior to the dissolution of the Netherlands Antilles, the required nature strategies for the Dutch islands of the Caribbean were written as one document, from a Netherlands Antilles perspective. The Nature Policy Plan 2001 – 2005 (NPP-5) was the first formal nature policy plan of the Netherlands Antilles. To achieve the action points of the NPP-5, it was later extended by Ministerial Decree until 2010. Then for funding purposes, those NPP-5 priority action points deemed to be realistically achievable within a 3-year period were further elaborated and incorporated into the Nature and Environment Policy Plan 2004 – 2007 (also known as NEP Plan or NEPP-7).

Following the dissolution of the Netherlands Antilles in 2010, the Netherlands became responsible for forming nature policy for the BES islands (Bonaire, Sint Eustatius and Saba),

[2] https://worldpopulationreview.com/countries/countries-by-density/, and (STAT, 2017)

while Sint Maarten, Aruba and Curaçao became obligated to draft their own. Shortly thereafter, in 2011, the obligation to draft national biodiversity strategies and action plans was further enforced in the *Strategic Plan for Biodiversity 2011 – 2020* and accompanying Aichi Biodiversity Targets which were established to assist with achieving the goals of the CBD[3]. With the dissolution of the Netherlands Antilles and the heightened requirements for biodiversity conservation, an evaluation of the Nature Policy Plans for the Netherlands Antilles was commissioned[4]. This lead to the creation of the Nature Policy Plan Caribbean Netherlands 2013 – 2017, which included the incorporation of new threats such as climate change and invasive species[5]. The current Nature and Environment Plan Caribbean Netherlands 2020-2030 then succeeded this[6] and it is the intention that the separate BES islands use it as a guideline to develop their own, specific, implementation plans that function as the action plans for local nature and environmental policy on each island.

In the Sixth National Report of the Kingdom of the Netherlands to the CBD in 2019, it was found that only four of the twenty Aichi Biodiversity Targets have been achieved in the Dutch Caribbean. Further highlighting the need for conservation management actions in the Caribbean part of the Kingdom. Aside from international obligations, the formation of a Nature Policy Plan for Sint Maarten is a requirement through national legislation: The Nature Ordinance[7]. The aforementioned nature policy plans, their states of implementation, relevant literature, international obligations (see section 5.1.1), the national governing framework, as well as the specific needs of Sint Maarten were taken into account for the creation of this Nature Policy Plan Sint Maarten 2021 – 2025.

1.2 Premises and Strategy

This Nature Policy Plan Sint Maarten 2021 – 2025, hereinafter referred to as the Nature Policy Plan 2021 – 2025 or simply NPP-25, provides a framework for the management and development of nature on Sint Maarten for the coming five years. This NPP-25 aims to serve as a foundation for sound decision-making and provide support for the allocation of resources and funds as relates to nature. This NPP-25 embraces an integrated approach with focuses on communication, education and awareness, active research and monitoring, and cooperation with stakeholders. Nature is a vital resource for economic development; however, the link between nature and economy is crucial and often under-represented in national decision-making. An important underlying goal of this NPP-25 is to demonstrate the harmony and interconnectivity between nature, the economy and society by drawing attention to the socio-economic and human well-being benefits of sound nature management to promote the integration of nature into all sectors of society.

[3] Aichi Biodiversity Target 17: "By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan".
[4] (Debrot et al., 2011) A status report of nature policy development and implementation in the Dutch Caribbean over the last 10 years and recommendations towards the Nature Policy Plan 2012 – 2017.
[5] (MinEZ, 2013) Nature Policy Plan for The Caribbean Netherlands 2013 – 2017.
[6] (Ministries of Agriculture, Nature and Food Quality, Infrastructure and Water Management and Interior and Kingdom relations of The Netherlands, 2020) Plan Land and Water: Nature and Environment Plan Caribbean Netherlands 2020-2030.
[7] LANDSVERORDENING houdende regels inzake het beheer van de natuur en de bescherming van de daarin voorkomende dier- en plantsoorten, Article 2 in which is stated that once every five years, the minister draws up a national nature policy plan, which also implements the relevant international obligations.

2. Local Context

2.1 General Characteristics

Sint Maarten/Saint Martin is an island in the northeast Caribbean Sea, located south of Anguilla and northwest of Saint Barthélemy (**Figure 1**). The island is roughly divided in half between the French Collectivity of Saint Martin in the north (53 km^2) and Dutch Sint Maarten in the south (34 km^2). Where relevant, this policy will detail the natural characteristics of the island as a whole, however, the focus will remain on putting forward policy objectives for the natural environment of Dutch Sint Maarten.

***Figure 1**: Map of the island, divided into French Saint Martin and Dutch Sint Maarten.*

2.1.1 Geography

Together with Anguilla and Saint Barthélemy, Sint Maarten/Saint Martin is situated on the Anguilla Bank submarine plateau. The depth of the plateau is less than 30m, meaning that the coastal waters of the island is characterized by relative shallowness (18 – 27m). The terrestrial environment of the island is characterized by undulating coastlines with sheltered coves of white sand beaches, expansive wetlands, offshore islets along the east coast, dry landscape with lush peaks and landforms combining ancient volcanic deposit with more recent sedimentary geology (Fielding, 2017). Geologically speaking, Sint Maarten/Saint Martin has been referred to as two landforms connected by sand bars. These landforms can be considered as "Sint Maarten/Saint Martin proper" in the east and the "Low Lands" in the west.

These two parts are connected by curved sand bars which enclose the Simpson Bay Lagoon. Another sand bank separates the Great Salt Pond from the sea, where Philipsburg is situated.

2.1.2 Climate

The island is classified as having a tropical savanna climate with a dry season from January to April and a rainy season from August to December. Wind direction is predominantly from the east or the northeast, providing northeasterly trade winds which contribute to the islands mild climate of temperatures averaging 27°C (81°F). Currents typically run clockwise around the southeastern corner of the island. The eastern coast of the island is heavily wave exposed; the south and southwest coast are low energy coasts. Located in the Atlantic hurricane belt, the island experiences major hurricane conditions approximately once every 4 to 5 years. The average yearly rainfall is 1,047mm (41.2in), with 142 days of measurable rainfall.

2.1.3 Demography and Socio-Economy

The island of Sint Maarten/Saint Martin hosts a population of approximately 79,100 persons (38,600 on French Saint Martin and 40,500 on Dutch Sint Maarten). Inhabiting the smaller half of the island with a larger overall population, Sint Maarten has a remarkably high population density of 1,192 persons per km², placing it at the tenth highest country population density worldwide. The per capita Gross Domestic Product (GDP) of Sint Maarten is USD 25,381. Meanwhile, nearly 30% of the male working population (45% for female workers) earn less than NAf 2,000 (USD 1,200) per month.

While Dutch is the official language of Sint Maarten, English is the more widely spoken language. This helps support the tourism industry that accounts for approximately 80% of Sint Maarten's economy, providing a major source of employment for the population. With a high population density, a narrow economic base highly reliant on tourism, and estimates that only 10% of the land is suitable for domestic agricultural production, it is calculated that over 90% of food products are imported to the island. Coupled with no naturally occurring sources of oil and gas, and a utilities company relying solely on fossil fuels for energy generation, the island and the quality of life of its citizens is highly vulnerable to fluctuations in external markets.

2.2 Nature on Sint Maarten

Nature and natural landscapes are important for the unique character of the island and, if healthy, they provide a wealth of benefits for the island and its people. The island is home to several important ecosystems, which can be grouped into those that are terrestrial, marine, and intertidal in nature. This section will further elaborate on these groups of ecosystems, the essential ecosystem services that they provide and the species and biodiversity therein.

2.2.1 Terrestrial Ecosystems

The terrestrial ecosystems of Sint Maarten include seasonal evergreen forest, drought/mixed evergreen deciduous thorn woodland (vegetation), succulent evergreen shrubland, coastal vegetation, and caves and karst systems. The majority of Sint Maarten's terrestrial habitats consist of seasonal or drought/mixed evergreen deciduous vegetation communities. Seasonal evergreen forest represents some of the last remaining original vegetation of Sint Maarten. Several species, including orchids, bromeliads and ferns are restricted to this habitat. Most of this vegetation was removed during early plantation practices and subsequently recolonized by secondary drought/mixed evergreen deciduous vegetation (**Figure 2**). The last patches of original seasonal evergreen forest remain in the highest hilltops, ridges and steep slopes, making this special habitat of high conservation importance.

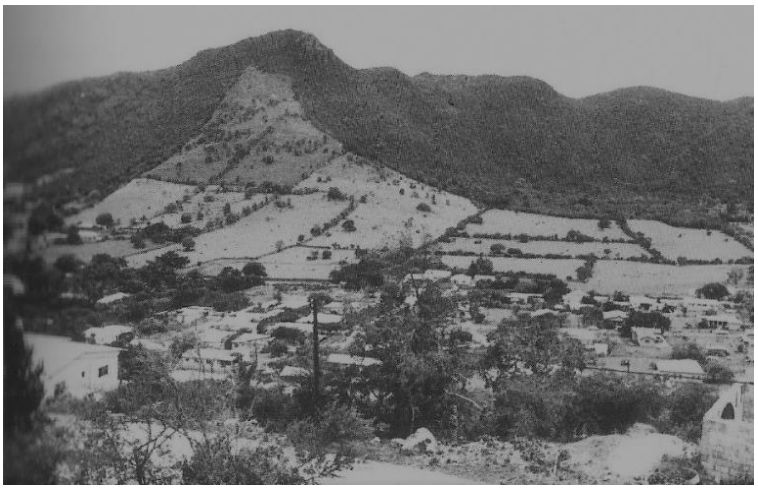


Figure 2: *Sentry Hill in the early 70's showing agricultural practices encroached high up the hillsides. (Speetjens, 2017).*

Although secondary, the dense drought/mixed evergreen deciduous vegetation is essential for the continued provisioning of ecosystem services and is therefore also of high conservation importance. The roots bind the slopes, absorb rainfall, and prevent soil runoff and erosion. Many animals are supported by this vegetation community. Birds and insects depend on the flowering and fruiting of plants for food and large insects live on the stems and branches. Some hills are characterized by karstic (limestone) ridges and caves. These uplifted fossilized coral reefs form caves which are a characteristic ecosystem of the island where many species find refuge. An example is the Billy Folly cave complex.

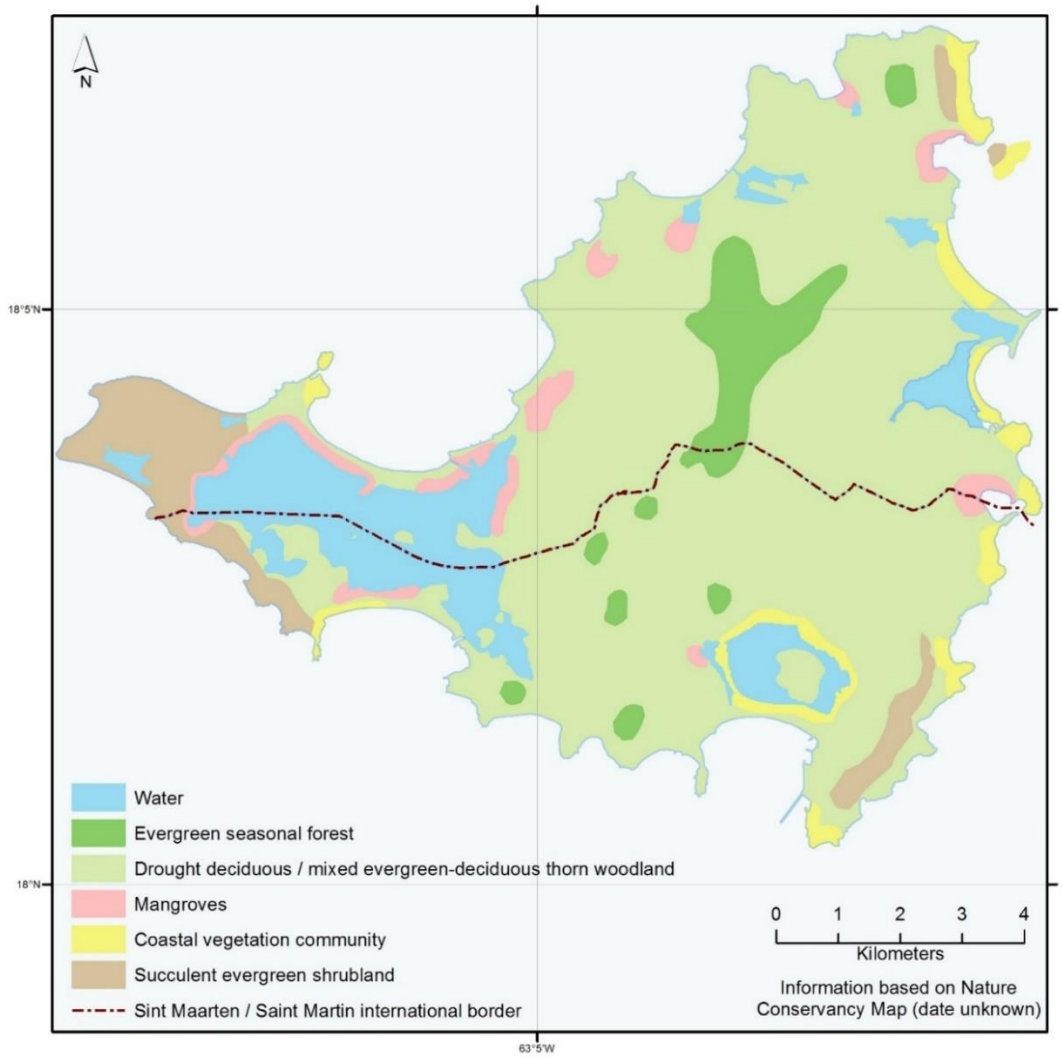


Figure 3: *The Nature Conservancy (TNC) Vegetation map of Sint Maarten (not completed).*

Coastal vegetation, also known as littoral woodlands and hippomane woodlands, are important to Sint Maarten as they provide excellent natural windbreaks and the roots stabilize the sand, helping to prevent beach erosion. This is important to protect economic development such as resorts, as well as residential and business properties. The plants of this ecosystem can tolerate extreme conditions and offer an important habitat for birds and small animals. Succulent evergreen shrubland is important on Sint Maarten as it provides fleshy leaves that many animals feed on. This habitat is also only found in the Low Lands and Geneve Bay-Back Bay and thus is highly valuable for biological and conservation purposes.

2.2.2 Marine Ecosystems

The waters surrounding Sint Maarten support ecosystems of open water, coral reefs, seagrass beds, sand and algal beds, and karst caves. Coral reefs are globally endangered. Most coral reefs on Sint Maarten are patch reefs; small isolated reef areas that develop from the substrate. The building blocks of the reef, hard corals, give protection to shore side developments by reducing wave energy as well as maintain the fishing industry by providing essential habitat for commercially and recreationally valued species. Hard corals and calcareous algae along with other organisms with shells produce coral sand that replenishes

the islands white sand beaches. Marine karstic (limestone) caves around Sint Maarten are a distinctive ecosystem with underground caves and tunnels. These provide habitat for many invertebrates and crustaceans, and are likely to be home to fish species though little is known about these ecosystems.

Due to the relatively shallow depths surrounding Sint Maarten, the marine environment is characterized by expansive seagrass beds. Seagrass ecosystems are considered to be amongst the most productive ecosystems in the world. The seagrass beds of Sint Maarten provide a biological filter system for the waters within the bays and lagoons. This contributes to the waters clear striking azure blue color, which is an essential feature that attracts visitors to the island. The seagrasses also prevent terrestrial sediments from reaching reefs where they would smother and kill coral reef organisms. Similar to coral reefs, seagrass beds also provide a nursery and habitat for certain commercially and recreationally valued species, such as the queen conch (*Lobatus gigas*) and lobster (*Panulirus argus*). Seagrasses are also essential for storm resilience as they help with coastal stabilization and hurricane protection by acting as an anchor for the sand beneath it.

2.2.3 Intertidal Ecosystems

Intertidal ecosystems, located at the interchange between land and sea, are important harbors of biodiversity and include mangroves, sandy beach and dune areas, rocky shores, and wetlands (ponds and lagoons). The beaches, in addition to the obvious importance to the tourism industry, are essential features in providing protection against storm waves. They also support fragile but important flora which binds the sand, prevents erosion and speeds further sand accumulation. Most rocky shores on Sint Maarten are the remains of ancient coral reefs. By acting as a barrier to the pounding waves, rocky shores provide essential protection from the sea. However, little is known about the many different plants and animals which inhabit the rock pools, and their importance within the wider environment.

Wetlands, taking the form of ponds and lagoons on Sint Maarten, are a critical feature of our natural environment. Wetlands are among the most productive environments of the world and they provide an important range of environmental, social and economic services. They are cradles of biological diversity that provide the water and productivity upon which countless species of plants and animals depend on for survival. By acting as a filter and buffer between land and sea, they protect our shores and coastal developments from wave action and reduce the impact of floods, as well as absorb pollutants and improve water quality. Sint Maarten's wetlands are also sources for great natural beauty that support important habitat for animals and plants.

Healthy mangroves are essential for the ecological functioning of wetlands. The mangroves lining the wetlands of Sint Maarten provide nursery habitat for many species before they are mature enough to migrate into the open sea and populate the reefs. Mangroves also contribute to the water management function of the wetlands by collecting water and runoff from the inland. Through this, they act as buffer and purifier between the terrestrial runoff and the sea and beaches. Mangroves are also essential for air filtration by removing carbon dioxide from the air through the process of photosynthesis.

2.2.4 Species and Biodiversity

Biodiversity is the diversity of life on Earth in all its forms and all its interactions, from the diversity of genes, to individual species, then communities of creatures and finally entire ecosystems. The greater the biodiversity of an area, the more resilient it will be to small changes which will have less of an impact on its stability. Biodiversity also forms the basis for the deliverance of ecosystem goods and services. These are the many and varied benefits that humans freely gain from the natural environment and from properly-functioning ecosystems, such as those services essential for humans like air to breathe, water to drink, and food to eat, but also services which contribute to well-being and economic development such as providing construction materials and resources for tourism development.

Sint Maarten/Saint Martin is home to relatively few species due to its inherent characteristics as a small oceanic island. These same characteristics are what result in these few species becoming globally unique. Consequently, the island contributes to the Caribbean Regional biodiversity hotspot by being home to species unique to the island and many species and habitats that are globally threatened. The most recent biological inventory of the terrestrial flora, fauna and habitats of Sint Maarten was conducted in 1997 (Rojer, 1997). The report concluded that Sint Maarten is home to some 822 native terrestrial species of flora and fauna. This is specifically 522 species of wild plants, 6 species of native mammals, 107 species of birds, 15 different species of terrestrial reptiles, 2 species of amphibians and some 170 invertebrates.

The same pressures of isolation and small island size that lead to fewer species also result in species adapting and evolving to the island's environment, producing globally unique species. A recent inventory has found that the island is home to 12 endemic species that are found nowhere else in the world (Bos et al., 2008)[8]. This includes the Anguilla bank bush anole (*Anolis wattsi pogus*)[9], a subspecies of tree lizard which resides in the hills and ravines, as well two plant species; *Calyptranthes boldinghgii* (commonly called Lid flower) and *Galactia nummelaria* (no common name known) (Stoffers, 1982/1979)[10].

Plants grow on most of the island but are limited to specific habitats. For example, epiphytic bromeliads and araceae are restricted to the moist seasonal evergreen forest on the hilltops while cacti are typically restricted to low-lying dry areas. Thus, it is important to know species-habitat composition to ensure that developments do not eradicate locally and regionally important species. The only native terrestrial mammals still present on the island are bats, with 6 species known (Rojer, 1997). They mainly live in the karstic (limestone) caves, eating insects, small fish and fruit though very little is known about the lives of these bats. The Billy Folly cave above Pelican is an important home to a number of bat species.

[8] 10 animals and 2 plants. This includes species found on both sides of the island. Due to the islands small size it is assumed that endemic species composition would be uniform.

[9] Named the Anguilla bank bush anole because its range used to include Anguilla and possibly Saint Barthélemy, but it is now extirpated from both islands. Thus, it is only located on St. Martin.

[10] Both plant species were collected only once by Boldingh early in the 20th century; *Calyptranthes boldinghgii* (Lid flower) in Low Lands and *Galactia nummelaria* in Guana Bay (Rojer, 1997).

There are no endemic bird species on the island. Of the approximately 170 species of birds recorded on the island, 47 are resident and nesting birds and 123 are migrants and non-nesting visitors (Brown and Collier, 2006; inventory updated from (Rojer, 1997)). Sint Maarten is classified as an important breeding area for seabirds since the small isolated offshore rocky islets, like Pelikan Rock, provide an ideal habitat for endangered species. These areas have been listed by Birdlife International as Important Bird Areas (IBAs) and important for the protection of biodiversity. Lagoons and ponds around the island provide essential stopover habitat for migratory birds and several water birds breed in these areas.

The islands surrounding waters are rich in marine biodiversity supporting sea creatures including fish and migratory species such as dolphins, whales and sea turtles. The reefs include 20 species of coral that are breeding grounds for many coral reef fish. Countless species of crustaceans, worms, anemones, jellyfish, molluscs, echinoderms (cucumbers and starfish), sponges and tunicates also live on the reefs and form part of this intricate and highly evolved ecosystem. The beaches are important nesting sites for several species of sea turtles, including the most endangered sea turtle, the hawksbill (*Eretmochelys imbricata*), and the largest sea turtle of the western Atlantic, the leatherback (*Dermochelys coriacea*) as well as the green sea turtle (*Chelonia mydas*). Seagrass beds provide a nursery and habitat for commercially and recreationally valued species such as the queen conch (*Lobatus gigas*) and lobster (*Panulirus argus*), as well as foraging grounds for the aforementioned sea turtles.

A number of the species and habitats found on and around the island are globally and locally threatened. It is estimated that the island is home to some 400 individual species of conservation importance which are listed for protection under international, regional and local initiatives[11]. The IUCN Red List of Threatened Species is the most comprehensive inventory of the global conservation status of biological species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies and forms the basis for identifying the species that require protection, both locally and internationally. According to an inventory prepared in 2016, of the species occurring on the island, 62 appear on the IUCN Red List as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU).

There have also been a number of flagship species identified for Sint Maarten. These are species whose preservation is identified as important to the people of Sint Maarten, they are ambassadors for nature and environmental protection and include the brown pelican (*Pelecanus occidentalis*), the Anguilla bank bush anole (*Anolis wattsi pogus)*, sea turtles, the guavaberry bush (*Myrciaria floribunda*), bromeliads, and orchids. See **Appendix 1** for a list of local species protected through international conventions ratified through Sint Maarten legislation, their IUCN Red List status as well as species that are locally endemic and those of which have become extinct.

[11] According to data (Excel sheet) collected for 2016 draft Nature Policy Plan Sint Maarten.

2.3 Threats

While Sint Maarten has made some advancements regarding the protection of its biodiversity, particularly with regards to marine biodiversity and wetland conservation in recent years, there are still significant challenges concerning terrestrial biodiversity conservation, public awareness, zoning and planning, and the enforcement of legislation as it pertains to nature (and environment). While a thorough threat analysis has not been performed, it is clear that terrestrial, marine and intertidal ecosystems experience threats and that unbridled economic and spatial development, climate change and invasive species are major threats to the natural environment and biodiversity of Sint Maarten[12].

2.3.1 Terrestrial Threats

Figure 4: *Development in the hillsides.*

Threats to the terrestrial nature of Sint Maarten include invasive fauna, development or conversion of land use, erosion, and waste. Historically, the nature of Sint Maarten was disturbed primarily by activities related to agriculture, breeding of livestock and harvesting of salt. Nowadays the rapid tourist development and the large and increasing population density mean that nature and the remaining green spaces are experiencing direct threats from spatial developments (**Figure 4**). Approximately, 84% of Sint Maarten's land cover is parcelled for private ownership or for long-lease purposes[13]. These developments and the accompanying roads are encroaching and excavating higher into the hills and threatening the remaining untouched habitats such as seasonal evergreen forests. Leading to habitat loss, fragmentation and deterioration as well as increasing the incidences of erosion, landslides and water management complications. Due to these developmental pressures, it is unsure if the same number of plant species exists today and especially the current status of the two endemic plant species is unknown. Development in the hills also threatens the habitat of Sint Maarten's endemic Anguilla bank bush anole (*Anolis wattsi pogus*).

[12] (DCNA, 2013) DCNA Management Success Report 2012.

[13] This percentage does not take into consideration the 12.4% of Sint Maarten which is covered in terrestrial waters; ponds and lagoons.

2.3.2 Marine Threats

Threats to the marine environment of Sint Maarten include invasive flora and fauna, pollution, unsustainable fishing practices, rising sea temperatures (leading to coral bleaching), recreational activities and poaching of protected species. Pollution can enter the marine environment in the form of terrestrial runoff of nutrients, sediments, fuels, heavy metals, and other pollutants such as litter, solid waste dumping and sewage runoff. Increased hard-surfacing of land, lack of proper drainage and sewerage connections increase the incidences of terrestrial runoff to the marine environment.

Other marine based pollutants include the release of foreign ballast water, the use of harmful marine products (such as anti-fouling containing TBT[14]), oil spills, bilge and sewage pumping from ships. Unsustainable fishing practices are those that will not maintain fish stocks for the long term. For example, by overfishing a particular reef or removing an important key species, such as sharks. When corals are stressed by changes in conditions such as temperature, light, or nutrients, they expel the symbiotic algae living in their tissues, causing them to turn completely white and die from large scale bleaching. Recreational activities cause noise pollution which disturb marine life and the anchoring of ships can cause direct damage to corals and seagrass fields.

2.3.3 Intertidal Threats

Due to the overlap of land and sea at the intertidal zone, these ecosystems experience the threats faced by both terrestrial and marine ecosystems. However, the main threats to intertidal ecosystems on Sint Maarten is the continued development and conversion of land use and pollution (terrestrial runoff and sewage). In the 1920s Dutch Sint Maarten boasted some 19 ponds but due to developmental pressures, only 4 remain today: Little Bay Pond, Fresh Pond, Great Salt Pond, and Red Pond. Developments extend right up to the coast with few beaches and bays left undeveloped, majorly affecting the functioning of these intertidal ecosystems. The Simpson Bay Lagoon has changed drastically in recent years due to developmental pressure (**Figure 5**). Meanwhile, development continues leaving a landscape with few areas where the green hills continue to the sea. Currently, there is legally no formal requirement to perform Environmental Impact Assessments (EIAs) before development or to perform ecological compensation for the nature values lost as a result of development. This has resulted, often unintentionally, in the loss of major ecological values.

"… The total economic value of the Simpson Bay Lagoon will decrease to zero in the next 30 years if current pollution and degradation continue at present rates without planned interventions." (Duijndam, 2019)

[14] Tributyltin (TBT) is an umbrella term for a class of organotin compounds. For years, TBT was used as a biocide in anti-fouling paint. However, it is currently banned in most countries because it slowly leaches out into the marine environment where it is highly toxic toward non-target organisms. It is not banned on Sint Maarten.

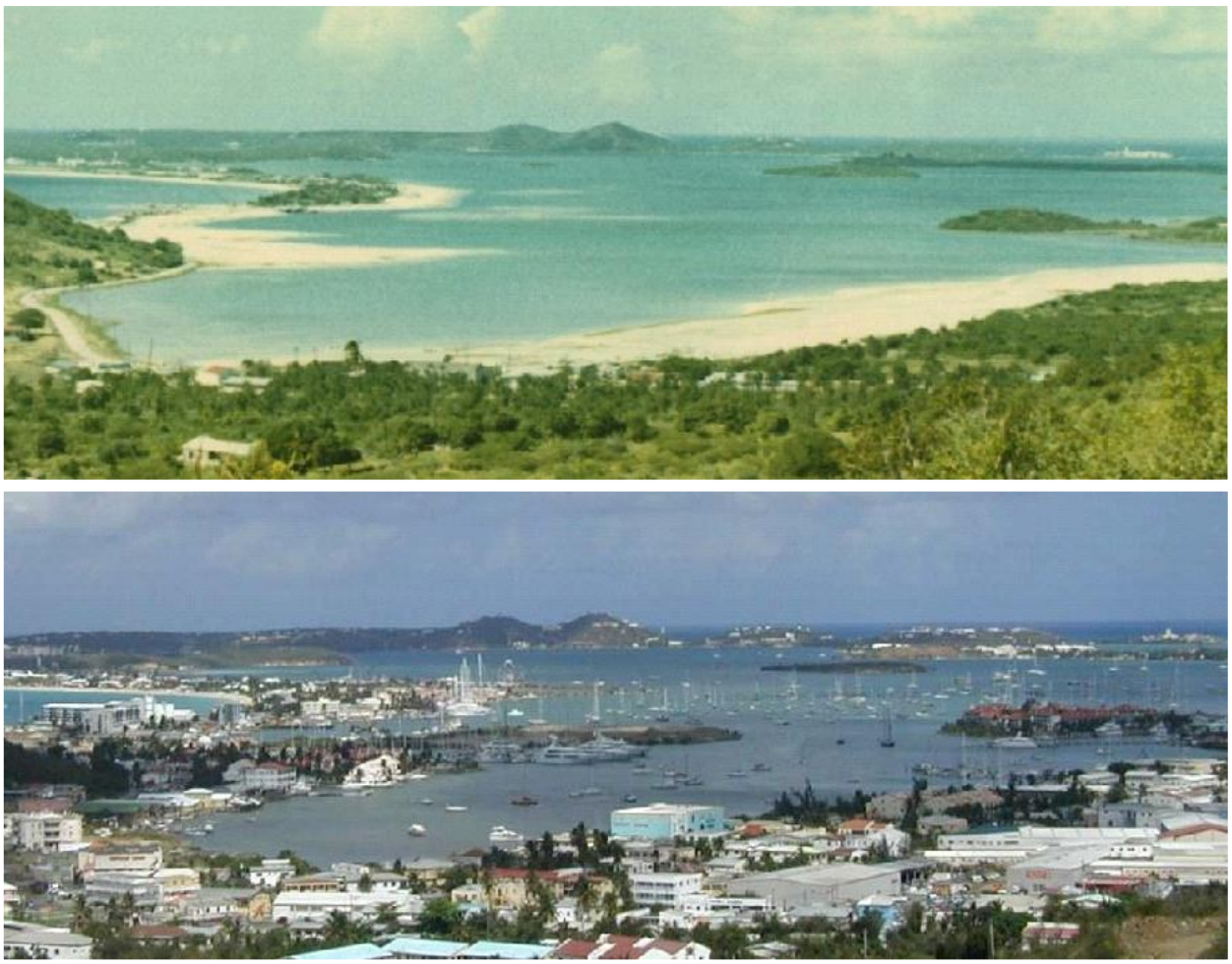


Figure 5: *The Simpson Bay Lagoon from the 1970s to the 21st century (Source: A. Caballero).*

2.3.4 Climate Change

Scientific evidence is revealing that the climate of the Caribbean region is already changing in ways that signal the emergence of a new climate regime. One characterized by repeated and prolonged droughts, ocean acidity, increases in air and sea temperature, an increase in the number of very hot days, intense rainfall events causing repeated localized flooding, overall unpredictability of weather and rising sea levels that are consuming the beautiful beaches upon which tourism and sensitive species, such as sea turtles, depend. The Caribbean region is identified as amongst the most vulnerable to the effects of climate change and this vulnerability is further compounded by limited financial, technical, and institutional capacity for adaptation (Simpson et al., 2010). The most recently relevant impact of climate change to the region is the increasing intensity of tropical storms and hurricanes. The devastating impacts experienced by the island as a result of Hurricane Irma in 2017 have bolstered the dire need to increase resilience and adaptive capacity in the face of a rapidly changing climate.

Climate change presents a major threat to the natural environment and ecosystem services of Sint Maarten. The consequences for terrestrial, marine and intertidal ecosystems are predicted to be extensive including: further losses to the coral reefs, decline of biodiversity, erosion of coasts, beaches and terrestrial areas, salinification of groundwater sources, vegetation zones moving towards higher altitudes, subsequent losses in hilltop vegetation and flora, increases in various disease vectors, changes in ocean currents, fish recruitment and

migration and supporting the establishment of invasive species. In addition, disturbances such as fires, floods and insect plagues are expected to become more frequent as conditions change. In essence, climate change will exacerbate the threats currently experienced by the natural environment of the island and negatively impact the provisioning of ecosystem goods and services upon which the community of Sint Maarten depend. To reduce an ecosystems vulnerability to climate change, it is essential to reduce the other threats already affecting it; thereby increasing the overall resilience of the ecosystem.

2.3.5 Invasive Species

***Figure 6**: Invasive Lionfish (Pterois volitans).*

With increased global mobility and a changing climate, the introduction of invasive species into isolated communities is becoming a worldwide problem. Typically, invasive species have no natural predator in their new environment, grow and reproduce quicker, and spread aggressively to the detriment of native species and communities. Recent inventories have documented no less than 211 exotic alien species in the wild for the Dutch Caribbean, of which 93 make a home on Sint Maarten/Saint Martin. This includes 10 introduced marine species (Debrot et al., 2011), 38 terrestrial plants (van der Burg et al., 2012), 29 terrestrial and freshwater animals (van Buurt and Debrot, 2012), and 16 agricultural pests and diseases (van Buurt and Debrot, 2011). See **Appendix 2** for an inventory of the recorded invasive species on the island.

The impacts of climate change on the island mean that the conditions of the natural environment may become more favorable to invasive species than to native species. Meanwhile, the specific impacts that an introduced invasive species could have on the local environment are unpredictable and possibly wide ranging. Therefore, there is a need now more than ever to effectively manage current invasive species populations and prevent new introductions for the well-being of the natural environment and human health.

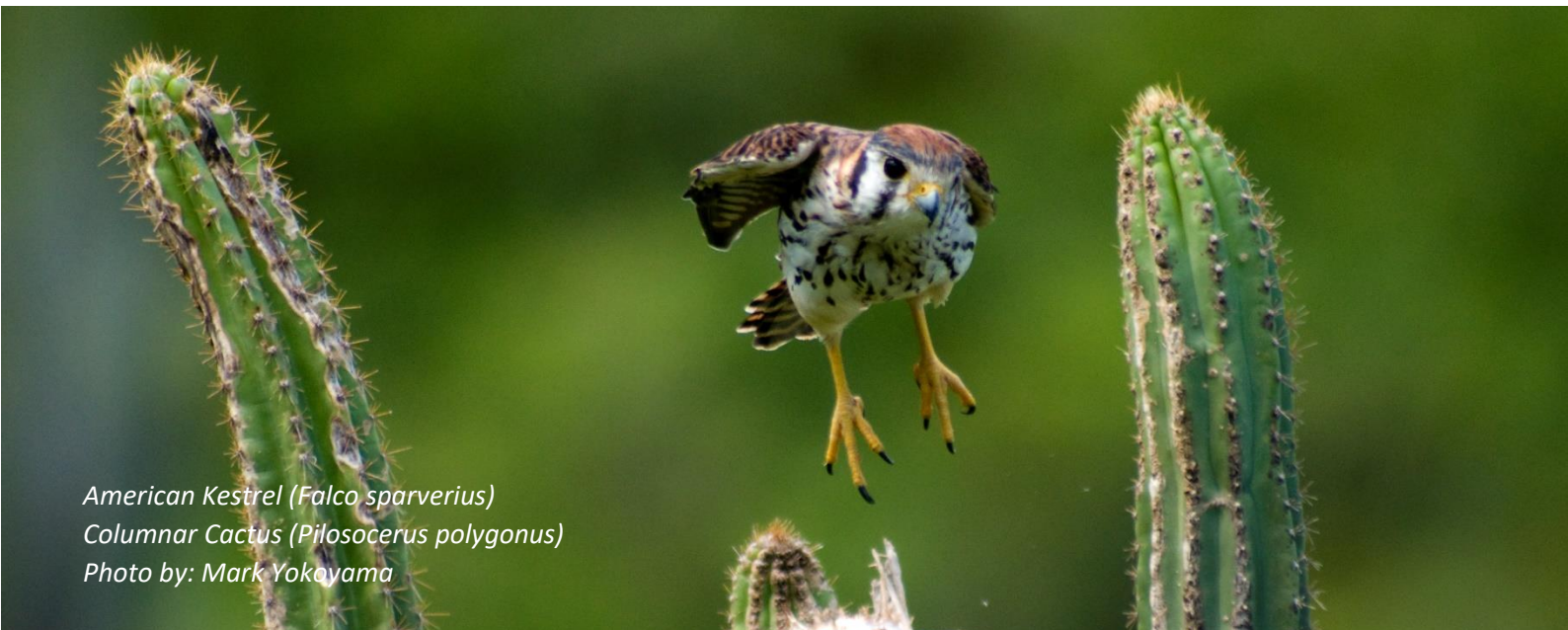
2.4 Nature as an Economic Resource

One of the greatest misunderstandings of our time is that there is somehow a choice between economic development and sustaining the natural environment. However, the reality is somewhat different; all economic activity is dependent on the services and benefits provided by nature. From the creation of oxygen in the air, to the recycling capacity of soil, to the abundance of life forming the genetic variety that underpins our food, pharmaceutical industries and much more. Yet these services are often taken for granted and imagined as free and limitless. However, without them, costly interventions would be needed to compensate for the lost service. Rather than taking for granted the hidden value of nature, a country should keep stock of and protect their natural capital.

Nature on Sint Maarten is an essential resource for economic development. Sint Maarten relies on a tourism-driven economy, which in-turn depends for a large part on the natural capital of the island. Tourists and investors come to islands like Sint Maarten from all over the world to enjoy the white sand beaches, the clear ocean water, vibrant colorful coral reefs, and natural landscapes of unique flora and fauna. Therefore, protection of Sint Maarten's natural environment will safeguard the island's natural capital and sustain the provisioning of ecosystem services and keep the economic engine of tourism afloat.

In 2010, the economic importance of the coral reefs of Sint Maarten was demonstrated when the goods and service they provide was estimated to be worth approximately USD$58 million annually to the economy (Bervoets, 2010). This value then increased to approximately USD$67 million in 2015 when the research was repeated to reflect an increase in coral reef associated values since the establishment of the Man of War Shoal Marine Protected Area in 2010 (Bervoets, 2015). This research highlighted that the protection and proper management of nature is an important measure to increase the economic output of nature to the economy of Sint Maarten.

Similarly, in 2019, the economic importance the Simpson Bay Lagoon was highlighted when it was calculated that it provides an annual value of $20 million worth of goods and services to the community of Sint Maarten (Duijndam, 2019). However, this research also found that the total economic value of the Simpson Bay Lagoon will decrease to zero in the next 30 years if current pollution and degradation continue at present rates without planned interventions.



American Kestrel (Falco sparverius)
Columnar Cactus (Pilosocerus polygonus)
Photo by: Mark Yokoyama

2.5 Current Protected Areas

The creation of protected areas is an important mechanism to mitigate threats to nature, prevent the decline of biodiversity and provides significant contributions to global conservation efforts. At present, Sint Maarten is home to one marine park and one wetland of recognized international importance. These are the Man of War Shoal Marine Park and the Mullet Pond section of the Simpson Bay Lagoon. However, neither have been established as a nature park through the The Nature Ordinance to enable maximum protection[15]. At present there are no terrestrially protected areas (nature parks), aside from the protection afforded to Fort Amsterdam through zoning plans which designate the area as a registered historical site and as a nature conservation zone.

2.5.1 Man of War Shoal Marine Park

The Man of War Shoal Marine Park is the only actively managed protected area on Sint Maarten (**Figure 7**). Approved in December 2010 by the Minister of Tourism, Economic Affairs, Traffic and Telecommunication (TEATT), the park marks a major step towards marine environmental protection for Sint Maarten. This park was then internationally recognized through the SPAW Protocol, which states that parties to the protocol shall establish a list of protected areas to create a regional network of protected areas and develop cooperation programs. The Man of War Shoal Marine Park covers 3,100 hectares (7,700 acres), representing 5.7% of the total marine waters of Sint Maarten. The Man of War Shoal Marine Park is home, migratory stopover and/or breeding site to numerous species of conservation importance. It includes not only a range of habitats from coral reefs to seagrass beds and open water, but also the Proselyte Reef, which was named after the HMS Proselyte, a 32-gun frigate that struck the reef and sank in 1801. It is an area with a relatively healthy population of marine mammals including migratory whales and dolphins, numerous species of sharks, sea turtles and numerous fish species. Studies conducted by Nature Foundation St Maarten have shown that biodiversity in the area and coral cover are high. The park is actively managed by Nature Foundation St Maarten through a Management Contract with the Minister of TEATT and a signed Service Agreement with the Minister of VROMI. In the Man of War Shoal Marine Park, it is prohibited to:

- feed animals;
- sink vessels or other objects;
- any type of fishing;
- to harass, touch or damage marine life;
- remove live or dead animals and plants;
- using or discharging biological or chemical products in to the sea;
- placing/moving/removing anchor buoys;
- anchoring/use of anchors.

[15] LANDSVERORDENING houdende regels inzake het beheer van de natuur en de bescherming van de daarin voorkomende dier- en plantsoorten, Article 10 in which is stated that nature parks are established in as far as possible by National Decree containing general measures.

Figure 7: *Map of the Man of War Shoal Marine Park (Nature Foundation St Maarten).*

2.5.2 Mullet Pond

Since September 2016, the Kingdom of the Netherlands has designated the Mullet Pond Section of the Simpson Bay Lagoon (outlined in **Figure 8**), a Ramsar wetland of international importance (Ramsar site no. 2270). This is the 55th Ramsar Site of the Kingdom of the Netherlands and the first located on Sint Maarten. The Mullet Pond is a permanent shallow marine area that holds some of the few intact seagrass beds and approximately 70% of the remaining mangrove forest on the Dutch side of the Lagoon. Mangroves and seagrass beds function as important nursery ground and habitat for juvenile fish species which develop in the Lagoon before moving out to the ocean and possibly populating the coral reefs of the Man of War Shoal Marine Park.

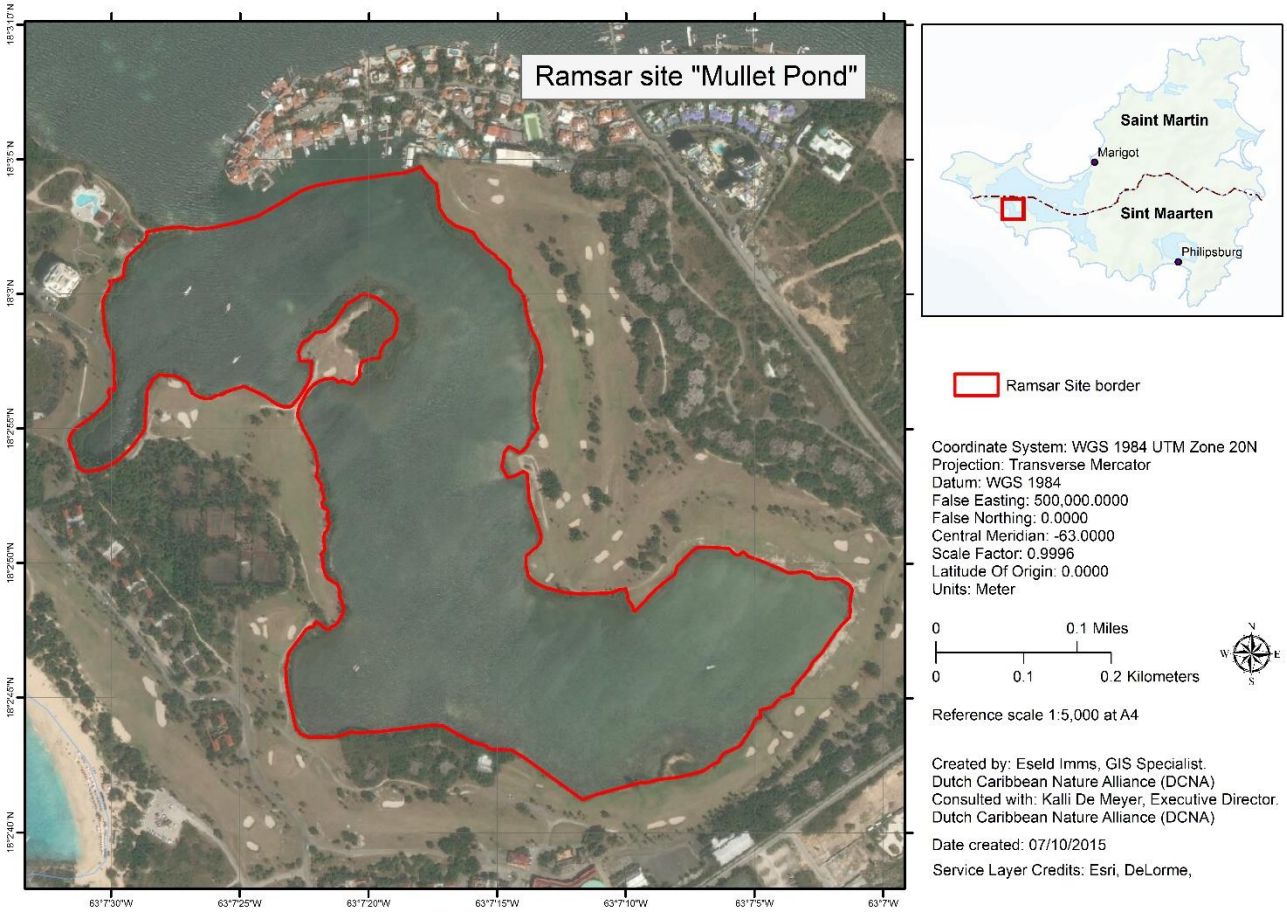


***Figure 8**: Map of the Mullet Pond Ramsar Site (from https://rsis.ramsar.org/ris/2270).*

The Mullet Pond is believed to be the last remaining habitat in the wider Simpson Bay area for the endemic Anguilla bank bush anole (*Anolis wattsi pogus*), and the last intact foraging grounds in the Lagoon for the globally endangered green turtle (*Chelonia mydas*). The mangroves of the Mullet Pond provide ecotourism benefits through kayaking activities and crucial coastal protection during hurricanes and tropical storms. These mangroves are also important for the cycling of nutrients in the larger Simpson Bay area. Despite the numerous benefits provided by the Mullet Pond, the area is under continuing pressure from development, destructive recreational activities, natural disasters and invasive alien species including the red lionfish (*Pterois volitans*). While this Ramsar designation internationally advocates for the importance and protection of this wetland, it does not afford it protection

on a national level. Nature Foundation St Maarten currently manages the Mullet Pond and advocates for its protection through national legislation.

2.5.3 Fort Amsterdam

Fort Amsterdam is afforded some protection from development as a registered historical site and through zoning plans which designate the area in general as a nature conservation zone[16]. However, this does not specifically take into account the value of this area as an Important Bird Area (IBA) for the roosting of brown pelicans (*Pelecanus occidentalis*) and the importance of conserving and managing the coastal and marine habitat surrounding the peninsula for preserving the habitat of this species that are fully protected through Sint Maarten Legislation.

[16] (VROMI, 1999) Ontwikkelingsplan Fort Amsterdam.

Blacktip Reef Shark (Carcharhinus melanopterus)
Photo by: Mark Yokoyama

3. Policy Objectives and Guiding Principles

This Nature Policy Plan Sint Maarten 2021 – 2025, NPP-25, is formed through requirements of the legislation of Sint Maarten. According to the The Nature Ordinance, the Minister will adopt a national Nature Policy Plan (*Natuurbeleidsplan*) and a Nature Plan (*Natuurplan*) once every five years. A Nature Policy Plan serves as a general framework for nature policy and should contain at least the nature and landscape priorities and objectives to be addressed, the nature protection values to be taken into account and a list of national parks, both terrestrial and marine. In complement to the Nature Policy Plan, the Nature Plan must outline the tangible activities that will be realized during the planning period to achieve the objective and priorities of the Nature Policy Plan. With rapid development and consequent rapid habitat loss over the years, the need for a holistic, realistic and enforceable nature strategy is critical. This NPP-25 will serve as the nationally required Nature Policy Plan, with the associated Nature Plan published separately.

This document was developed in collaboration with stakeholders and originates from the relevant local, regional and international obligations that Sint Maarten must adhere to, considers previous Nature Policy Plans, and takes into account the Sustainable Development Goals (SDGs)[17]. This document is intended for use as a reference document for decision-makers, policy-makers and a range of stakeholders in the public and private sectors. It should also form the basis for improved enforcement and for management planning of priority conservation species and areas, to help ensure that the goals of nature conservation and sustainable use are integrated in all government programs, policies and sectors of society.

One should note the distinction between nature and environment such that, environment pertains to the “grey” subjects of waste management, energy, soil pollution, water quality and so forth. Meanwhile, nature specifically addresses the “green” and “blue” subjects of species protection, habitat conservation, the monitoring and management of protected areas, and any direct threats thereto. Since these two areas are inextricably linked, this policy will be complemented by the formation of a separate Environmental Policy Plan.

This policy aims to promote and embody a shift in attitude from perceiving the protection and conservation of nature as a hindrance to economic development towards one that views nature as an essential asset for the sustainable development of Sint Maarten. This policy embraces the value of nature as a tool to develop resilience towards a changing climate and an asset necessary for economic growth and stability, and citizen well-being. Thus, the vision for nature on Sint Maarten through this policy is:

[17] The SDGs are a set of global development targets established by the United Nations that form the blueprint to achieve a better more sustainable future for all through entailing 17 strategic goals that address cross-cutting global challenges including poverty, inequality, climate, environmental degradation, prosperity, and peace and justice.

A future where the value of the nation's natural resources and characteristics are fully appreciated and sustainably managed, especially in terms of their contribution to economic well-being, strengthening resilience to (natural) disasters and supporting human well-being.

3.1 Policy Objectives

Table 2 outlines the specific policy objectives of this Nature Policy Plan Sint Maarten 2021 – 2025 which were developed in collaboration with stakeholders and originates from the relevant local, regional and international obligations that Sint Maarten must adhere to, considers previous Nature Policy Plans, and takes into account the SDGs. The following Chapter(s) will elaborate on each Policy Objective (PO).

Table 2: *Policy Objectives Nature Policy Plan Sint Maarten 2021 – 2025.*

POLICY OBJECTIVES	
1	Increased conservation, restoration and management of biodiversity.
2	Improved research and monitoring to provide an evidence-base for effective policy.
3	Increased sustainability and resilience of tourism sector.
4	Increased communication, education and public awareness of nature.
5	Legislative improvements to reflect current situation, with effective enforcement.
6	Nature integrated into development strategies.
7	Increased local, regional and international cooperation for nature.
8	Sustainable financing for nature.
9	Climate Change integrated into national planning and nature harnessed for adaptation.

3.2 Guiding Principles

In order to embody the aforementioned shift in attitude and in recognizing the unique local context, the formulation and implementation of this NPP-25 is guided by four key principles; the integration of the environment and development; the precautionary principle; collective responsibility for the environment; and a one-island approach.

3.2.1 Integration of Nature and Development

This principle recognizes that while conservation of the natural environment is the overall goal, this should not be considered separate to the developmental needs of the island. This principle recognizes that nature underpins development as well as recognizes the challenges in integration and balancing the needs of the natural environment and the development needs of the community of Sint Maarten. The integration of the natural environment and development is essentially a principle of sustainability, and thus sustainable development. It is widely recognized that sustainable development rests on three equal pillars: environment, economy and society. Therefore, this principle also aims to ensure that nature on Sint Maarten is recognized as an essential asset towards economic development, especially as this pertains to maintaining the sustainability of the tourism-driven economy.

3.2.2 The Precautionary Principle

The Precautionary Principle recognizes that where there is a threat of significant reduction or loss of nature and environment, a lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat. Recognizing that delayed action will often result in it becoming too costly or impossible to avert the threat.

3.2.3 Collective Responsibility

Protecting, managing and sustainably using the natural environment and its goods and services is the collective responsibility of the community as a whole; from the individual to the collective levels.

3.2.4 One-Island Approach

The natural environment is not limited by borders and, especially a small island like Sint Maarten/Saint Martin, would benefit from a “one-island” conservation perspective. Therefore, this principle recognizes the need to collaborate with French Saint Martin to synchronize nature objectives and actions to the extent possible.

4. Priority Themes

4.1 Biodiversity Conservation, Restoration and Management

Conservation is the sustainable use of natural resources, or consumption at a rate lower than the natural replacement rate. The focus of conservation is on the needs and interest of present and future generations; including biological, cultural, recreational and economic needs and resilience to climate change. Conservation often carries the suggestion of complete protection and barriers to regular economic activities. However, this view is outdated and modern biodiversity conservation utilizes the idea of management whereby a nation's biodiversity is seen as a resource important for economic development, which thus requires proper management. Similarly, where necessary and possible, degraded ecosystems should be restored to recover ecosystem conditions that maintain their structure and function so that they can continue to deliver essential ecosystem services.

The Caribbean region is one of the most important hotspot of biodiversity simultaneously experiencing high level of threats (Myers et al., 2000). Sint Maarten contributes to this hotspot significantly, as it is home and migratory stop over to a number of species of conservation importance. Sint Maarten is also characterized by the presence of globally endangered ecosystems[18]. This makes protection of nature on Sint Maarten important, not just for the continuation of local biodiversity and the well-being of the local community, but also for the continuation of global biodiversity.

4.1.1 Species Protection

Protection of species is essential to conserve and manage the biodiversity within and between species. Some native, endangered and vulnerable flora and fauna species are currently protected through the conventions that Sint Maarten is party to[19]. At present, there are no species protected through (VROMI) national legislation not directly linked to these conventions, however, the law allows for national protection[20]. For example, none of the

[18] Like the Caribbean dry forest, which is among the most endangered tropical ecosystems on earth.

[19] See **Appendix 1** for a list of these protected species. Specifically, these are native plants and animals listed in Annex I of the Bonn Convention (CMS), Annexes I and II of the SPAW Protocol, Annex I of the CITES Convention and Annexes I and II of the Sea Turtle Convention.

[20] LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, houdende regels over het beheer en de bescherming van flora en fauna alsmede natuurparken, Article 16, sub 2 in which it states that indigenous animal and plant species that are not listed in the treaties referred to in the first paragraph may be designated as protected animal and plant species by national decree containing general measures.

endemic species of Sint Maarten receive national protection. Due to the characteristics of islands, it is possible that some species that are not considered to be threatened globally may be under threat locally. Therefore, it is important to identify locally threatened and sensitive species in a Sint Maarten specific Red List and create national legislation for their protection.

A significant threat to the survival of local species and the preservation of biodiversity is the introduction of invasive species. The fauna of Sint Maarten is said to be less biodiverse than some of the neighboring islands due to the aforementioned threats and due to imported invasive predators[21]. As a result, many native species have gone extinct[22]. Besides direct impacts to species biodiversity, invasive species impact the entire ecosystem by disrupting the natural food chain and can cause irreversible ecosystem change which could lead to further negative impacts such as landslides and erosion[23]. Managing and eradication of invasive species within marine environments is proven to be difficult and nearly impossible due to the nature of the ocean. Therefore, efforts for marine environments are focused on preventing introductions of foreign exotic species, rather than eradication[24]. It is essential to cooperate with Saint Martin in the creation of strategies to manage invasive species to ensure that methods are streamlined on both sides of the island.

4.1.2 Establishment of Protected Area

The establishment of protected areas is an important mechanism to prevent the decline of biodiversity since it conserves the direct ecosystem(s) within the protected area and the species therein. The Nature Ordinance, Article 10, states that by National Decree containing general measures, nature parks are established in as far as possible[25]. A number of initiatives exist to identify areas of conservation importance, by which several have been identified on Sint Maarten. These include Key Biodiversity Areas (KBAs), Important Bird Areas (IBAs), and turtle nesting sites. **Appendix 3** provides a map of the areas of recognized conservation importance for Sint Maarten.

Protecting multiple areas of recognized importance in one conservation zone is economically and ecologically efficient as this creates “hotspots” for biodiversity to flourish while also reducing management costs. It is also important to take into account species migration and the size and connectivity between conservation zones to avoid the isolation of species in areas that are too small to ensure their survival. Target 14.5 of the Sustainable Development Goals aims to conserve at least 10 per cent of coastal and marine areas by 2020. However, it more recently recognized that to adequately build the resilience of ocean life to adapt to climate

[21] Such as the mongoose (*Herpestes auropunctatus auropunctatatus*), dogs, cats, vervet monkey (*Chlorocebus pygerythrus*) and the black rat (*Rattus rattus*).

[22] Including the red-tailed hawk (*Buteo jamaicensis*), and two species of lizard, the Lesser Antillean iguana (*Iguana delicatissima*) and the original native population of the green iguana (*Iguana iguana*).

[23] For example, free roaming invasive goats (*Capra hirus*) that substantially deplete native vegetation cover which exacerbates the natural rate of soil erosion and landslides. Invasive flora also lead to increased erosion and landslides as they typically outcompete and replace native vegetation, which typically have intricate, deep, and healthy root systems, while invasive plants typically grow rapidly with weak, shallow, or tap roots, all of which increase erosion run-off.

[24] Invasive species in the marine environment mainly include the Indo-Pacific red lionfish (*Pterois volitans*) in the surrounding reefs and waters, tilapia in the Great Salt Pond and Fresh Pond and the invasive Mediterranean seagrass (*Halophila stipulacea*).

[25] These parks are established as meant by the requirements in the Ramsar convention, the SPAW Protocol, or the Biodiversity Convention.

change and buffer it from other threats like overfishing, strong protection of at least 30% of the ocean is needed by 2030. Reinforcing this international commitment, in October 2019, Sint Maarten signed the Overseas Countries and Territories (OCTs) Declaration on Oceans as a commitment to work for the conservation and sustainable use of marine biodiversity.

4.1.3 Restoration of Ecosystems

Criteria should be developed to evaluate the need and possibility for ecosystem improvement, restoration and/or creation. Where evaluated as necessary and possible, degraded ecosystems should be restored to recover ecosystem conditions that maintain their structure and function so that they can continue to deliver essential ecosystem services. The creation of ecosystems and habitats will work towards enhancing overall biodiversity and the deliverance of ecosystem services for the well-being of Sint Maarten citizens.

4.1.4 Sustainable Fisheries

Fisheries represent an economic activity that is directly dependent on the state of natural resources. A sustainable fishery is one that is harvested at a sustainable rate, where the fish population does not decline over time because of fishing practices. This will not only protect the economic activity of fishing but also protect the biodiversity of the oceans, and thus the marine environment and the ecosystem services which it provides such as healthy reefs for storm protection. While fishing is not a large economic activity on Sint Maarten, there is very little data known about the fishery workers and the state of the fisheries[26]. Fisheries traditionally falls within the Ministry of TEATT, however, due to the implications of fishing practices for biodiversity, it is important to establish an inter-ministerial collaboration on the topic.

[26] Some 150 persons are employed as skilled agriculture and fishery workers (STAT, 2017).

POLICY OBJECTIVE 1

Increased conservation, restoration and management of biodiversity.

	Output Indicators	**Effect Indicators**
PO 1.1 Strengthen local conservation and protection of endangered, threatened or endemic species and ecosystems.		
	1.1.1 By 2023, there is published island specific Red List and, by 2025, there is additional legislation and policy instruments affected for the protection of sensitive species.	• Published Island specific Red List. • Maintained database of endemic, endangered and sensitive species. • Number of additional legislation and/or policy mechanisms enacted for the protection of endangered, threatened or endemic species.
	1.1.2 By 2023, there is proper management and enforcement of regulations under the CITES convention.	• Local CITES regulations and enforcement reviewed and updated where necessary. • Enhanced awareness of species controlled through CITES convention.
PO 1.2 Strengthen the protection of biodiversity from the impacts of invasive species.		
	1.2.1 By 2025, there is an established and implemented Invasive Species Management Plan.	• Published Invasive Species Management Plan. • Number of identified invasive species. • Number of invasive species actively and effectively managed. • Number of invasive species eradicated.
PO 1.3 Strengthen the protection of biodiversity through the creation and management of conservation and protected areas.		
	1.3.1 By 2024, there is at least one established and effectively managed terrestrial protected area.	• Number of nationally established terrestrial nature parks. • (Larger) Area of terrestrial land designated as nature park. • Improved protection of terrestrial biodiversity.
	1.3.2 By 2024, there is at least one additional Ramsar recognized wetland.	• Number of internationally recognized Ramsar sites. • (Larger) Area of valuable wetland biodiversity protected. • Improved protection of wetland biodiversity.
	1.3.3 By 2025, the area of the marine environment protected is expanded to 15% of national waters, leading up to 30% by 2030.	• Number of nationally established marine parks. • (Larger) Area of valuable marine biodiversity protected. • Improved protection of marine biodiversity.

PO 1.4 Protect biodiversity and ecosystems, and their significant role for our socio-economic well-being through robust regulations, management plans and cooperation.		
	1.4.1 By 2024, establish national legislation for protected areas and ensure international (SPAW) recognition of protected areas.	• (Larger) number of nationally established nature parks. • (Larger) Number of internationally recognized protected areas. • Increased recognition and support for nature conservation and protected areas management.
	1.4.2 By 2023, join the Dutch Caribbean marine mammal sanctuary.	• Signed agreement to join the Dutch Caribbean marine mammal sanctuary. • Improved support for the protection of marine biodiversity.
	1.4.3 By 2025, cooperation towards the management of the Dutch Caribbean EEZ.	• Improved cooperation and sustainable management of the Dutch Caribbean EEZ[27].
PO 1.5 The maintenance and improvement of biodiversity is promoted through ecosystem restoration practices.		
	1.5.1 By 2024, degraded ecosystems are identified and restored.	• Tree planting/ landscaping/ restoration policy published. • Number of degraded ecosystems identified. • Number of degraded ecosystems restored.
	1.5.2 By 2025, ecosystems and habitats are created where possible.	• Number of habitat creation areas identified. • Number of habitats created.
PO 1.6 Strengthen knowledge of local fisheries and work towards sustainable management of fisheries resources.		
	1.6.1 By 2024, develop a report on the state, use and management of the fisheries.	• Report on the state of the fisheries. • Number of gaps in legislation identified and addressed. • Number of gaps in legislation addressed.
	1.6.2 By 2025, there is work towards establishing sustainable fisheries policy plans, management plans, guidelines and best practices.	• Number of awareness materials developed and distributed. • Number of fisheries policies, management plans, guidelines and best practices developed.

[27] An exclusive economic zone (EEZ) is a sea zone over which a state has special rights regarding the exploration and use of marine resources, including energy production from water and wind.

4.2 Research and Monitoring

While a lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize threats to nature, sound research and monitoring should be carried out to the extent possible to provide an evidence-base for effective policy creation. By researching and monitoring the state of nature and its management on a continuous basis, policy and legislation can be assessed and updated to the current situation.

4.2.1 Research

Noteworthy research studies of the natural environment of Sint Maarten include assessments of the ponds (EcoVision/AID Environment, 1996a), the marine environment (EcoVision/AID Environment, 1996b) and the hillsides (EcoVision/AID Environment, 1996c) as well as the most recent biological inventory that was carried out in 1997 (Rojer, 1997). Since, there has been no further comprehensive study (or update thereto) of the natural environment of Sint Maarten with the exception of research carried out by and through the Nature Foundation St Maarten (mainly as issues arise), regional studies which incorporate Sint Maarten, research that has been referenced throughout this Policy Plan, or research related to assessing the impact of select developmental activities[28].

Currently identified research needs for Sint Maarten include a baseline biodiversity assessment, economic valuations of Sint Maarten's natural resources and an update to the report of the ponds of Sint Maarten. A baseline biodiversity assessment would provide an inventory of the ecosystems, flora and fauna present on the island at the time. This would establish a benchmark to be used as a foundation for measuring and comparing past and present scenarios and will be used in the creation of up-to-date policies and legislation to correctly reflect the changes in the natural environment. Information from such an inventory will also further guide and support the designation of protected areas by pinpointing areas of high conservation value. A vegetation mapping of Sint Maarten would be a first concrete step towards a baseline biodiversity assessment as vegetation types form the foundation upon which ecosystems are formed.

Additional economic valuations of the natural environment of Sint Maarten will demonstrate the importance of protecting the natural environment to the economy, and can be used to carry out cost benefit analyses of different development scenarios. This would help assess the

[28] To further search for studies relating to the natural environment of Sint Maarten, use the Dutch Caribbean Biodiversity Database (https://www.dcbd.nl/). An initiative of DCNA and Wageningen UR, this is the central repository for biodiversity related research and monitoring data from the Dutch Caribbean.

tradeoffs between different development scenarios by properly considering the role that nature plays towards human well-being. There is also a need to create an update to the ponds report of 1996. The report would provide an evaluation of the current state of the ponds, as well as their conservation needs, and is a requirement of the Ramsar convention. Research needs may change and evolve with time and as scientific understanding is improved.

4.2.2 Monitoring

A sensitive species is one that experiences multiple threats to their populations and/or habitat, has a small or declining population, may be of international or nationally recognized conservation importance, and are of management concern. An indicator species is one whose presence, absence or abundance reflects specific changes in environmental conditions. These species can signal a change in the biological condition of a particular ecosystem, and thus may be used as a proxy to diagnose the health of the ecosystem as a whole. Routine and proper monitoring of populations of sensitive and indicator species will allow for improved understanding of the state of the natural environment and its subsequent protection and management. Nature Foundation St Maarten currently conducts monitoring of species through the Service Agreement with the Minister of VROMI. Thus, this policy objective will work to ensure that monitoring activities support the creation of a continuously updated evidence-base for future policy creation.

POLICY OBJECTIVE 2

Improved research and monitoring to provide an evidence-base for effective policy.

	Output Indicators	**Effect Indicators**
PO 2.1 Robust research to support an evidence-base for effective policy creation.		
	2.1.1 By 2022, there is a published Vegetation Map of Sint Maarten.	• Vegetation Report published. • Vegetation zones clearly mapped. • Improved understanding of the ecosystems of Sint Maarten.
	2.1.2 By 2025, baseline biodiversity assessments carried out (update to 1996 EcoVision/AID Environment reports).	• (Steps towards) A comprehensive baseline biodiversity assessment of Sint Maarten. • Improved understanding of baseline situation.
	2.1.3 By 2025, additional economic valuations of Sint Maarten's natural resources carried out.	• Improved appreciation of the economic importance of Sint Maarten's natural resources. • Nature appreciated as a tool necessary for sustainable economic development.
PO 2.2 Active monitoring to maintain an evidence-base for effective policy creation.		
	2.2.1 By 2022, routine monitoring of populations of sensitive species.	• Routine monitoring and data collection of populations of sensitive species carried out. • Improved protection and management of populations of sensitive species. • Improved understanding of the state of the natural environment.
	2.2.2 By 2022, routine monitoring of populations of indicator species.	• Routine monitoring and data collection of populations of indicator species carried out. • Improved protection and management of populations of indicator species. • Improved understanding of the state of the natural environment.

4.3 Sustainable Tourism

Tourism, nature and environment are undeniably linked. Tourists and investors come to islands like Sint Maarten to benefit from the unique natural environment of white sand beaches, clear ocean water, vibrant colorful coral reefs, and natural landscapes of unique flora and fauna. Therefore, preservation and enhancement of the natural environment is essential to maintaining our tourism-driven economy. Thus, with the movement towards the sustainable development of Sint Maarten, it also becomes important to consider the overall sustainability of the tourism sector.

Ecotourism is defined as responsible travel to natural areas that conserves the environment and improves the well-being of local people. At present, there is limited focus of ecotourism opportunities in Sint Maarten's lively tourism sector. Thus, the promotion of ecotourism will further enhance and diversify the tourism product of Sint Maarten by preserving the natural resources upon which the industry depends and further attracting visitors that would not otherwise visit this island.

A powerful method to increase the sustainability of the current tourism sector is the promotion of ecolabel certification programs. These certification programs, such as the Green Key and Blue Flag programs, promote environmental standards within the tourism sector that are also attractive to consumers. To qualify for these ecolabels, hotels, restaurants, marinas and even beaches, must comply with a series of stringent environmental, educational, safety, and accessibility criteria. By supporting an ecolabel certified establishment, visitors are aware that they are helping to make a difference on an environmental and sustainability level.

To further promote sustainability of the tourism sector and enhance ecotourism visitors to Sint Maarten, it is important to create awareness of Sint Maarten's natural environment and available ecotourism amenities. For example, through the creation of a website dedicated to the natural environment as well as tangible brochures and signage highlighting the current natural features and ecotourism amenities. The continued creation and maintenance of ecotourism amenities will further bolster the diversification and sustainability of the tourism sector. Amenities such as bird/mangrove walks, bird blinds/huts, hiking trails, biking trails, and information signs. These are relatively low cost but add a large value to the tourist infrastructure of the island, which locals can enjoy as well. The establishment of protected areas, as put forward in PO 1.3, contributes further to sustainable tourism because protected areas provide added ecotourism opportunities through hiking, birding, and cycling, for example. Thus, contributing to the overall tourism infrastructure of Sint Maarten.

POLICY OBJECTIVE 3

Increased sustainability and resilience of tourism sector.

	Output Indicators	**Effect Indicators**
PO 3.1 Promotion of ecolabel certification programs to increase sector sustainability.		
	3.1.1 By 2023, stimulate and facilitate participation in ecolabel certification programs.	• Number of (additional) establishments that are ecolabel certified. • Increased sustainability of sector operations.
PO 3.2 Creation of information streams to increase awareness of ecotourism opportunities.		
	3.2.1 By 2023, (additional) information streams dedicated to Sint Maarten nature and ecotourism are created. See also PO 4.2.	• Number of new information streams created. • Published Birding and Hiking Guide. • More awareness of nature and sustainable tourism practices and opportunities among visitors. • Increased amount of information available regarding sustainable tourism opportunities.
PO 3.3 Creation of ecotourism amenities to diversify and increase sustainability of tourism sector.		
	3.3.1 By 2025, additional amenities for sustainable ecotourism opportunities have been created.	• Number of amenities created for sustainable ecotourism opportunities (ie. Public restrooms, bird/mangrove walks, bird blinds/huts, hiking trails, biking trails, information signs, etc.)

4.4 Communication, Education and Public Awareness

Proper communication, education and awareness raising of issues related to nature and environment is essential for the sustainability of our natural environment, and thus our economy. Access to education and information of nature and environment allows individuals to explore current issues, engage in problem solving, and take action to improve the natural environment. As a result, individuals develop a deeper understanding of concerns related to nature and environment, become empowered and are bestowed the skills to make informed and responsible decisions and adopt sustainable lifestyles. Therefore, education and awareness raising measures are important tools to increasing the resilience of a country through empowering the citizens.

Public awareness in turn acts as a catalyst to stimulate political awareness. By stimulating education of nature and environment in the school curriculum, improved knowledge and appreciation of environmental issues will be embedded in the next generation of Sint Maarten citizens. This policy objective calls for a nationwide nature and environment education program and the need for a series of nature and environmental awareness campaigns to be hosted by government. Including but not limited to radio PSA's, billboards, press releases and social media posts. The campaign will also include awareness about the actions of government towards fulfilling goals of the Nature and Environment Policy Plans. There is also a need for increased public accessibility of important information related to nature and environment. While most of this information is already publicly available, there is a need to centralize it onto one comprehensive webpage (linked to governments own webpage) to increase accessibility to this information and increase awareness and appreciation for Sint Maarten's natural environment.

POLICY OBJECTIVE 4

Increased communication, education and public awareness of nature.

	Output Indicators	**Effect Indicators**
PO 4.1 Increase awareness on nature issues across government and publicly.		
	4.1.1 By 2025, 40% of the population are aware of the value and vulnerability of nature in Sint Maarten.	• Number of informational/ educational materials produced. • Increased awareness (40% increase) of the value and vulnerability of nature (and environment).
	4.1.2 By 2025, new teaching materials about the nature (and environment) of Sint Maarten are integrated into the school curriculum.	• Amount of educational materials produced. • Proportion of schools using teaching materials.
PO 4.2 Centralized and easy public accessibility of information related to nature, and environment, of Sint Maarten.		
	4.2.1 By 2023, information related to nature (and environment) is centralized and easily accessible on dedicated website.	• Sint Maarten nature webpage published. • Increased public accessibility of information related to nature (and environment). Increased public appreciation for nature (and environment).

4.5 Legislation, Standardization and Enforcement

Nature and fisheries regulations have largely been taken from the former Netherlands Antilles. Much of this legislation is outdated and has several shortcomings and issues especially concerning fishery management (EcoVision, 2017) & (Mac & Field, 2019). Therefore, there is a need to ensure that national nature (and environment) laws are robust, comprehensive, and updated to the current context and cater to sustainable development. Improved enforcement of legislation will also result in citizens and visitors properly adhering to the rules and regulations put into place. Within government, there is a need for improved knowledge of issues and regulations related to nature (and environment). While the issue of general awareness is addressed in sub-chapter 4.4, this Policy Objective will focus primarily on educating the necessary government employees about the regulations related to nature (and environment), especially the inspectors active in the field with the task to ensure citizens abide by regulations.

POLICY OBJECTIVE 5

Legislative improvements to reflect current situation, with effective enforcement.

	Output Indicators	**Effect Indicators**
PO 5.1 Policy and legislation related to nature are robust, comprehensive, and updated to the current context.		
	5.1.1 By 2025, (steps made towards) review and updates made to current national policy and laws related to nature (and environment) as needed.	• Number of shortcomings, obstacles and loopholes, in policy and legislation, identified and addressed.
	5.1.2 By 2025, (steps made towards) creation of additional policy and legislation considering nature values (ex. ban on single-use plastic, TBT, ballast water… etc.).	• Number of additional policies and legislation. • Nature increasingly integrated into policy and legislation. • Improved management of natural resources.
PO 5.2 Improved enforcement of policy and legislation related to nature.		
	5.2.1 By 2023, inspectors educated on nature (and environment), and by 2025, at least one (VROMI) inspector fully trained and dedicated to nature (and environment).	• Number of inspectors educated on nature (and environment). • Increased capacity for inspection of issues related to nature (and environment).
	5.2.2 By 2024, improved enforcement of rules and regulations related to nature and environment.	• Number of infractions against nature (and environment) in which legislation was enforced and fines given. • Increased enforcement of legislation related to nature (and environment).

4.6 Nature Integrated into Development Strategies

This Policy Objective is deeply rooted in the guiding principle: 3.2.1 Integration of Nature and Development. The heart of this Policy Objective is that we cannot choose between our natural resources and economic development, we need them both. Sustainable development rests on the three pillars of environment, economy and society, whereby meeting society's development needs must simultaneously sustain the ability of the natural environment to continue providing the natural resources and ecosystem services upon which the economy and society depend. A method to ensure that nature is integrated into development strategies is to mandate Environmental Impact Assessments (EIAs) for projects and proposals that have been deemed potentially damaging to the natural environment. An EIA identifies the consequences of a spatial development activity by identifying possible negative impacts and suggesting ways to minimize them or compensate for them as well as exploring possibilities for enhancing the environment through the development project.

Nature itself should also be viewed as a development strategy to address certain societal challenges through, for example, the use of nature-based solutions (NBS). NBS are development strategies inspired and supported by nature, designed to address societal challenges, are cost-effective, simultaneously provide environmental, social and economic benefits, and help build resilience[29]. For example, the creation of retention ponds can limit flood risk and damage in flood-prone areas. To ensure that nature is considered at all levels of spatial development planning, nature values should be properly collected in the form of GIS spatial data to inform decision-making, and this information should be made publicly accessible to the extent possible.

[29] The challenges include issues such as climate change, water security, water pollution, food security, human health, and disaster risk management.

POLICY OBJECTIVE 6

Nature integrated into developmental strategies.

	Output Indicators	**Effect Indicators**
PO 6.1 Impacts to nature (and environment) assessed before select developmental projects.		
	6.1.1 By 2025, Environmental Impact Assessments (EIAs) are made mandatory for select development activities.	• EIA's made mandatory for select development activities. • Consideration and conservation of nature values during developmental projects.
PO 6.2 Nature recognized and harnessed as a tool to address certain societal challenges.		
	6.2.1 By 2025, Nature-based solutions (NBS) are used to address appropriate challenges.	• Increasing shift away from using completely grey infrastructure towards harnessing nature as tool to address certain challenges such as flood risk management, erosion, etc.
PO 6.3 Improved awareness of geospatial data of nature values, used to inform development planning and decision-making.		
	6.3.1 By 2024, there is improved collection and public accessibility of geospatial data of natural values for planning and decision-making.	• Geospatial data related to nature (and environment) made public. • Improved consideration of natural values into all levels of decision-making and within all sectors of society.

4.7 Cooperation

Cooperation at all levels is essential to achieving sustainable development. Whether it be locally, regionally or internationally. The often small size of islands usually translates into a lack of capacity and/or funding that can be addressed through cooperation. Issues related to nature and environment are also often not bound by country borders and cooperation is essential to address these issues adequately.

4.7.1 Local

A number of local businesses and organizations work towards the improvement of Sint Maarten's natural environment in some form or another. Creating a government-initiated Green Platform would facilitate open and constructive communication between these entities and government, assist in policy development, expose research needs, and help build awareness and institutional capacity across the board.

4.7.2 One-Island

Due to the small size of St. Martin, a threat to nature (and environment) on one side of the island can directly affect the other side. This holds true especially for invasive species management (in both the marine environment and terrestrial environment) and for any issues related to the marine environment, due to the connectivity of the islands waters. Thus, as two separately governing entities, it is essential to come to a structured cooperative agreement for the sound preservation and management of nature on the island as a whole. Working towards structured cooperation and information sharing on topics of nature (and environment) will facilitate efficient management of the natural environment through sharing capacity and resources.

4.7.3 Regional

Cooperation on a regional level includes working with our neighboring islands in the Caribbean region. This Policy Objective calls for structured bilateral cooperation with neighboring countries on the conservation of shared species populations and special areas to enable improved protection of biodiversity within and across borders. For example, PO 1.4.3 "cooperation towards the management of the Dutch Caribbean EEZ" works towards this goal of regional cooperation within the islands of the Dutch Kingdom to manage our collective marine resources. Similarly, PO 1.4.2 works to establish a jointly managed marine mammal sanctuary in the Dutch Caribbean waters.

4.7.4 International

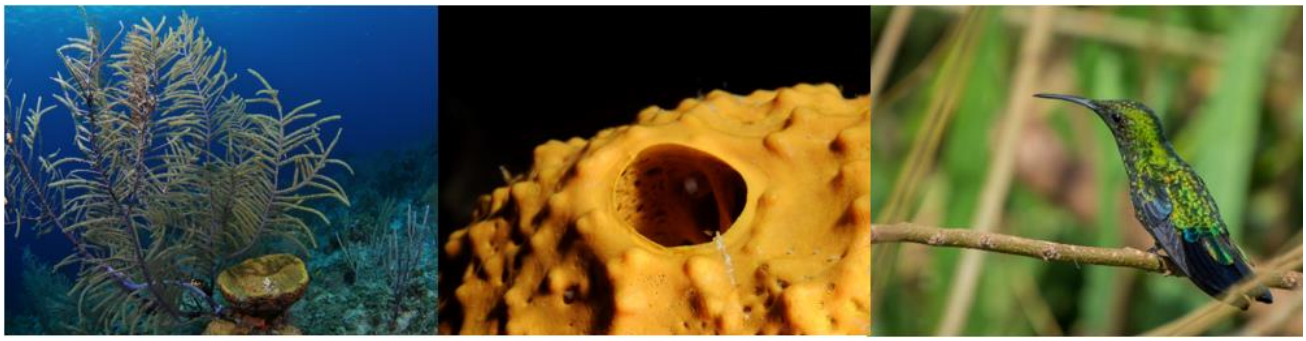
Sint Maarten is signatory to a number of international nature conservation agreements (See **Chapter 6**). Being signatory to these agreements, and attending the associated workshops, meetings and/or conferences, helps to build capacity at the local level and allows the concerns of Sint Maarten to be heard and addressed at an international level. In order to remain signatory to these agreements it is necessary for Sint Maarten to uphold the structured reporting obligations.

POLICY OBJECTIVE 7

Increased local, regional and international cooperation for nature.

	Output Indicators	**Effect Indicators**
PO 7.1 Increased local cooperation for nature.		
	7.1.1 By 2022, a government-initiated Green Platform is created.	• Green Platform Established. • Meetings held at least bi-annually. • Increased cooperation and capacity between organizations involved in nature to support policy creation.
PO 7.2 Increased cooperation with Saint Martin for nature.		
	7.2.1 By 2023, there is an established cooperation structure with Saint Martin for the preservation and management of nature (and environment) on the island as a whole.	• Both sides of the island work together cooperatively for the efficient management of nature (and environment) through the sharing of information, resources and capacity. • Cooperation structure detailed and approved.
PO 7.3 Increased regional cooperation for nature.		
	7.3.1 By 2025, there are structured bilateral cooperation with neighboring countries on conservation of shared species populations and special areas as needed.	• Number of identified areas for improved cooperation. • Number of neighboring countries with which structured bilateral cooperation is established. • Improved protection of biodiversity within and across the borders.
PO 7.4 Increased International cooperation for nature.		
	7.4.1 By 2022, international reporting obligations are continuously met (SPAW, Ramsar, CITES, CBD, CMS, IAC).	• Areas and species protection in line with international agreements. • International obligations met.
	7.4.2 By 2023, there is structured participation in workshops, meetings, and conferences.	• Number of international workshops, meetings, and conferences attended. • Concerns of Sint Maarten communicated in international fora. • Increased capacity gained at local level.

4.8 Financial Instruments



As an autonomous constituent country within the Kingdom of the Netherlands, the task of financing nature is entirely the responsibility of Sint Maarten. Kingdom funds that are now available to islands of the Dutch Caribbean for nature conservation and management are no longer accessible to Sint Maarten. Other limited financing streams that are available support the creation of specific projects and not the financing of structured daily management of the natural environment.

The national importance of Sint Maarten's natural resources towards sustaining citizen quality of life and our tourism-driven economy are not reflected in national budget allocations, as there is currently no budget allocated directly to "nature". National funds directly channeled to nature exist in the form of a Service Agreement with the Nature Foundation St Maarten to function as the countries Management and Scientific Authority. This budget amounts to NAf 204,000 per year and is significantly less that what is nationally allocated on the other island of the Dutch Kingdom and is insufficient to support the foundation in their officially mandated tasks. Further financial support for nature is received from private partners such as the Dutch National Postcode Lottery, the World Wildlife Fund for Nature, The Dutch Caribbean Nature Alliance (DCNA) and Vogelbescherming Nederland. However, this is often on an ad hoc project basis and makes it virtually impossible to draft long-term plans, recruit and retain qualified personnel, and maintain regular day-to-day operations. There is a need to carry out a Financial Assessment of the national needs for the sound management of nature to inform budgetary allocation.

The financing of nature should not be seen as a voluntary measure but rather as one necessary for continuously maintaining a sustainable (tourism-driven) economy, good quality of life and resilience in the face of change. Following the Financial Assessment, national budget allocated to nature should be increased according to the identified needs. Government funding for nature should be further supported by additional funds for nature, for example, through establishing a tourist contribution/tax for the preservation of nature (and environment) and/or through entrance fees to established nature parks[30]. A method of procuring additional funds is the establishment of an ecological compensation framework that sets forth guidelines for the effective compensation of activities detrimental to the natural environment. For example, if a large spatial development activity has been assessed, such as through an EIA, to have unavoidable detrimental impacts to nature but is essential to national well-being, then the necessary

[30] LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, houdende regels over het beheer en de bescherming van flora en fauna alsmede natuurparken, Article 13, sub 1., in which is stated that charges may be imposed by or pursuant to an ordinance establishing a natural park, to which users of a natural park are subject.

compensation for the identified detrimental impacts should be calculated and deposited into a nationally established Green Fund to support the protection and management of nature (and environment). This would also create awareness about the economic importance of nature and the cost associated with its detriment. To support local innovation, interest and participation in nature conservation and management, the possibility of establishing a government-initiated small project financial mechanism to support at least three small projects yearly on selected topics, will be investigated.

POLICY OBJECTIVE 8

Sustainable financing for nature.

	Output Indicators	**Effect Indicators**
PO 8.1 Increased awareness of the financial needs for nature.		
	8.1.1 By 2023, there is a published Financial Assessment(s) of the needs for nature on Sint Maarten.	• Published Assessment(s) on the financial needs for nature on Sint Maarten. • Improved understanding of the financial needs for nature.
PO 8.2 Increased amount of national financing reserved for nature.		
	8.2.1 By 2025, there is increased national budget reserved for nature.	• Amount of national budget allocated to nature. • Increased national financing for nature.
	8.2.2 By 2025, there is a nationally established Green Fund to support the protection and management of nature.	• (Work towards) establishment of separate Green Fund. • Increased financing for nature at a national scale.
	8.2.3 By 2025, there are additional funding streams for nature created to support national funds.	• Number of additional financing streams identified and created. • Increased financing for nature through establishing additional funding streams.
PO 8.3 Increase financing for nature through compensation.		
	8.3.1 By 2025, an ecological compensation framework is created (see also PO 6.1).	• Establishment of a compensation framework. • Increased financing for nature through the compensation of detrimental activities.
PO 8.4 Support local innovation, interest and participation in nature.		
	8.4.1 By 2024, the development of a financial mechanism to support small and innovative nature projects is investigated.	• Work towards investigating the development of a small project financial mechanism. • Increased support for small and innovative nature projects. • Number of small projects financed. • Increased innovation, interest and participation in nature conservation and management at a local level.

4.9 Climate Change

Climate change is a real and measurable phenomenon happening now and will affect SIDS and other vulnerable groups soonest and worst. The prominent environmental changes affecting the Caribbean, and expected to continue, are a rise in sea level, increase in temperatures, stronger hurricanes, longer dry seasons, shorter wet seasons and more torrential rain events. These affects will have far-reaching impacts to society, economy and the natural environment. While the climate has experienced changes in the past, current climate change is occurring at a speed that is unprecedented. In an already degraded natural environment, climate change is an additional stress factor for ecosystems and species.

Habitats, ecosystems and species are affected differently by climate factors so it is expected that climate change will greatly alter the composition of the natural environment, sometimes irreversibly. Temperatures increasing as a result of climate change, will likely be the greatest cause of species extinction globally. Rising temperatures are causing habitat ranges to move poleward and to higher altitudes. Due to the limited size and range of Sint Maarten, this could result in the complete loss of certain habitat types. Species that rely on these habitats will be forced to adapt or become severely threatened or even extinct.

Climate change is impacting the oceans mainly through increasing temperatures and concentrations of carbon dioxide. Changes in the temperature of the ocean can cause large-scale changes in ocean currents and regimes further affecting the climate as well as the composition of marine habitats and species. The ocean acts as carbon sinks by absorbing carbon dioxide from the atmosphere. The increased uptake of carbon dioxide results in ocean acidification. Together, these impacts are resulting in the loss of coral reefs. This is not only a tragedy for the marine species that rely on coral reefs but also for the communities that rely on coral reefs for storm wave protection, fish to eat, and an area for recreation, as well as for economic generating activities such as scuba diving and snorkeling.

Sea level rise as a result of climate change is causing the shorelines to encroach further inland. This poses a major risk to coastal developments and the existence of the sandy beaches which add to Sint Maarten's unique character. Sandy beaches are an essential natural resource for maintaining the tourism-driven economy and are also a habitat for species such as globally endangered sea turtles[31]. By incorporating sea level rise projections into decision-making, where possible, new (and re-)developments can be set back from the coastline to allow for

[31] Sea turtles nest on Sint Maarten's beaches from April to November each year. Sea Turtles are globally endangered and completely protected through Sint Maarten legislation.

the climate change induced migration of the beaches and shorelines further inland. This will ensure that sandy beaches remain a unique natural characteristic for tourism exploitation, developments are protected from the impacts of the ocean and the preservation of habitats for nationally protected and globally important species.

The loss of habitats and species due to climate change would result in a decline of biodiversity that would negatively affect the natural environment and thus also the economic activities upon which this depends. Since there is little that we can do as a small island developing state to limit the impacts of global climate change, there is no choice but to adapt to them. To give nature sufficient time to adapt to the rapidly enhancing impacts of climate change, we must limit the other threats faced by the natural environment (ex. pollution, invasive species, and habitat destruction through development or conversion of land use). The main method to limit these threats and thus help the natural environment adapt is the creation of protected areas, mainly outlined in PO 1.3. Protected areas should be designated such that they are large enough to encompass multiple habitats and adequately allow for their climate-induced migration. Conservation corridors are also necessary to allow for the migration of species between protected areas.

With an eye to adapting to the impacts of climate change, nature should also be harnessed as a powerful tool through ecosystem-based adaptation (EbA). Ecosystem-based adaptation is a nature-based solution (NBS) that involves the conservation, sustainable management and restoration of ecosystems and their services to reduce the vulnerability of human communities to the impacts of climate change specifically. In response to climate change impacts, most countries have focused on “hard” or “grey” infrastructure adaptation options such as embankments for flood control or sea walls for coastal defense. However, these options can be costly to build and maintain, do not take the benefits of ecosystem-based approaches into account and can often make the situation worse. On the other hand, EbA approaches are usually cost-effective with little to no maintenance cost that can help people adapt to the impacts of climate change. EbA methods are often “no-regrets” methods because they do not worsen vulnerabilities to climate change or decrease adaptive capacities, and will always have a positive impact on the livelihoods and ecosystems regardless of how the climate changes.

Examples of EbA solutions to climate change include coastal habitat restoration in ecosystems such as coral reefs, mangrove forests, and marshes to protect communities and infrastructure from storm surges and sustainable hillside vegetation management interventions to stabilize slopes, prevent landslides, and regulate water flow to prevent flash flooding.

POLICY OBJECTIVE 9

Climate Change integrated into national planning and nature harnessed for adaptation.

	Output Indicators	**Effect Indicators**
PO 9.1 Ongoing and enhanced climate data collection to support the understanding of localized climate impacts.		
	9.1.1 By 2025, there will be (work towards) the regular collection of data for several climate indicators at several locations around the island.	• (Work towards) increased and ongoing monitoring of multiple climate indicators. • Monitoring of climate indicators at multiple locations around the island. • Increased understanding of localized climate change impacts
PO 9.2 Current and future impacts of climate change understood and incorporated into planning and decision-making.		
	9.2.1 By 2021, a report is published on the impacts of Climate Change for Sint Maarten. Leading towards a National Climate Change Strategy.	• Published Climate Change Impact Report. • (Steps taken towards) a National Climate Change Strategy. • Increasing public understanding of and appreciation for the impacts of climate change and future projections.
PO 9.3 Nature harnessed as a tool to adapt to impacts of climate change.		
	9.3.1 By 2024, there will be a published Ecosystem-based Adaptation (EbA) Plan created for Sint Maarten.	• Published Ecosystem-based Adaptation (EbA) Plan. • Nature utilized as a tool to combat and adapt to the impacts of climate change. • Greater focus on the restoration of vulnerable ecosystems as a method of adaptation to climate change. • Enhanced support for Policy Objective 6.2.

5. Implementation Framework

5.1 Legal Framework

The topics of sustainability and the protection of the natural environment are gaining momentum within the government of Sint Maarten. With the negative impacts of rapid development and considering the devastation caused by hurricane Irma in 2017, the need for sustainable long-term solutions is more apparent than ever before. The means to protect nature on Sint Maarten are provided for in international treaties that Sint Maarten (within the constitutional context of the Kingdom of the Netherlands) is party to, the Constitution of Sint Maarten, other national legislation, regulations, governing programs and policies. This chapter will go into the existing governing framework for nature protection, provide an overview of the main stakeholders concerned with the implementation, discuss budget and the schedule of activities as well as monitoring and evaluation.

5.1.1 Existing International Governing Framework

International Obligations

The main treaties and conventions that Sint Maarten is party to related to nature are:

- the Convention on Biological Diversity (CBD),
    - Strategic Plan for Biodiversity 2011 – 2020 and the Aichi Biodiversity Targets.
- the Ramsar Convention (on wetlands of international importance),
- the SPAW protocol (concerning Specially Protected Areas and Wildlife),
- the Bonn Convention (Conservation of Migratory Species or CMS),
- the Inter-American Sea Turtles Convention (IAC),
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and
- the Sustainable Development Goals (SDGs).

See **Appendix 4** for a list and description of these international treaties and conventions that Sint Maarten is party to related to nature. The most immediately relevant to this policy plan are the Convention on Biological Diversity (CBD), the SPAW Protocol and that Ramsar Convention. The main goals of the CBD are the conservation of biodiversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources. These goals have been elaborated and formalized in the convention's *Strategic Plan for Biodiversity 2011-2020*, created in 2010, which includes the internationally agreed upon Aichi Biodiversity Targets. This strategic plan will be followed up by the Post-2020 Biodiversity Framework which will contain biodiversity goals up to 2050. The SPAW Protocol is a technical agreement within the Cartagena Convention, a convention concerned with the protection and development of the marine environment in the Wider Caribbean Region (WCR). The Cartagena Convention is supported by three technical agreements or Protocols on Oil Spills, Specially Protected Areas and Wildlife (SPAW) and Land Based Sources of Marine Pollution (LBS). The SPAW Protocol utilizes an ecosystem approach to conservation and acts as a vehicle to assist with regional implementation of the broader and more demanding global Convention on Biological Diversity (CBD). The Ramsar Convention on Wetlands of International

Importance is an international treaty that aims to halt the worldwide loss of wetlands and to conserve those that remain by providing a framework for the conservation and wise use of wetlands and their resources.

Sint Maarten is also signatory to the Sustainable Development Goals (SDGs) which are a collection of 17 interlinked goals, designed to be a "blueprint to achieve a better and more sustainable future for all, which are intended to be achieved by 2030. This “2030 Agenda” of the SDGs includes several goals which relate to nature (and environment), most notably SDG 6 Water and Sanitation, SDG 7 Affordable and Clean Energy, SDG 12 Responsible Consumption and Production (Circular Economy), SDG 13 Climate Action, SDG 14 Life Below Water, and SDG 15 Life on Land.

5.1.3 Existing National Governing Framework

Constitution

The legal means for protection of nature and environment at a national level are defined in the Constitution of Sint Maarten:

“PREAMBLE
We the people of Sint Maarten:
RESOLVED to provide for the continuing preservation of nature and the environment.

- *Article 21, paragraph 3: The government shall create conditions for social and cultural development and leisure activities and for the preservation of cultural heritage.*
- *Article 22: It shall be the government’s constant concern to keep the country habitable and to protect and improve the environment and of the living environment and welfare of animals*.”

National Legislation

The current principle legal basis for nature protection and management for Sint Maarten is put forward in the National Ordinance Foundations for the Management and Protection of Nature (*Landsverordening grondslagen natuurbeheer en -bescherming*) and the National Decree on Management and Protection of Nature (*Landsbesluit natuurbeheer en -bescherming*). It is the intention to merge all legislation related to Public Housing, Spatial Planning, Environment and Infrastructure into one inclusive National Ordinance VROMI *(Landsverordening VROMI)*. There is an opportunity now to examine current legislation and provide needed updates to the merged National Ordinance VROMI. See **Appendix 5** for a full list of Sint Maarten’s legislation with implications for nature and environment.

Policies

Currently there are two relevant national policies that aid in the protection of nature: The Hillside Policy (1997) and the Sint Maarten Beach Policy (1995). The main objective of the Hillside Policy is to conserve and protect the green hillsides and, if needed, restore their value for the benefit of the environment, the tourist industry and quality of life on Sint Maarten. By regulating development in the hillsides and by setting building guidelines, the Government wishes to limit erosion and uncontrolled rain and waste water runoff which affects the whole

island's environment from the hilltops to the coral reefs, from infrastructure to livelihoods. Through the Beach Policy, the government aims to protect the recreational values of the beaches (and coastline), and as possible, the nature values. The objectives of this policy are to ensure that the beaches are openly accessible for the general public, that there is no construction works or activities that occupy the space on the beach in a way that it restricts normal use of the beach for others, and that beaches will be protected against pollution, disturbance, destruction, erosion and natural hazards. These two policies will be covered in legislation when incorporated into specific zoning plans for the country.

Permits, guidelines and rules

Permits that are relevant to nature policy include mooring permits, research and collection permits, diver operator permits, fishing permits, building and land clearance (civil works) permits (Article 28a, LANDSVERORDENING ruimtelijke ontwikkelingsplanning, AB 2015, no. 9), hindrance permits, and wastewater permits. Other permits exist in relation to the environmental and waste management policy plans.

Government can consult Nature Foundation St Maarten in the permitting process as a statutory advisory body. Nature Foundation St Maarten has established a number of guidelines to protect nature in the marine environment. These include the use of moorings in the marine park, diving guidelines, boating guidelines and guidelines on the use of beaches. Another statutory Advisory body to the government is SLAC (Simpson Bay Lagoon Authority Corporation N.V.), the authority for Simpson Bay and the Simpson Bay Lagoon.

5.2 Stakeholders

5.2.1 The Government of Sint Maarten

The Ministry of Public Housing, Spatial Planning, Environment and Infrastructure (VROMI) is responsible within the government of Sint Maarten for the care for the environment and nature in the broadest sense. However, all Ministries within the government of Sint Maarten play a role in the protection of the countries natural resources to a varying degree.

Ministry of VROMI

The stated objectives of the Ministry of VROMI aim to support a sustainable economy and good quality of life for the citizens of Sint Maarten. The activities of VROMI related to nature and environment are focused on the management of natural resources and environmental functioning. More specifically:

- Creating and updating policy and legislation related to nature and environment.
- The preservation and, where possible, the enhancement of natural resources.
- Incorporating natural and environmental values into spatial planning.
- Advising on the impacts of spatial development activities to nature and environment.
- Advising on actions to minimize and/or compensate for the negative impacts of development activities to nature and environment.

Ministry of TEATT

The Ministry of TEATT is responsible within the Government of Sint Maarten for all affairs concerning Tourism, Economic Affairs, Transport (Marine and Aviation), and Telecommunication. They are a stakeholder to this policy mainly due to their responsibility for policy, laws and regulations with reference to economy and transport (especially maritime affairs, fisheries and agriculture), which has an impact and relation to nature and environment. They are also essential to this policy due to their role for tourism and thus the support and promotion of sustainable tourism practices.

Ministry of VSA

The Ministry of VSA is responsible within the Government of Sint Maarten for all affairs concerning Public Health, Social Development and Labor. They are a stakeholder to this policy mainly due to their responsibility for policy, laws and regulations with reference to environmental health and hygiene.

Ministry of MECYS

The Ministry of MECYS is responsible within the Government of Sint Maarten for all affairs concerning Education, Culture, Youth and Sports. They are a stakeholder to this policy due to their responsibility for policy, laws and regulations with reference to education.

Ministry of Justice

The Ministry of Justice plays an integral role in the upholding of justice on Sint Maarten by creating the conditions necessary for maintaining security, order and peace and ensuring the rights within the community of St. Maarten. They are a stakeholder to this policy due to their responsibility for policing and enforcement.

Ministry of Finance

The Ministry of Finance is integral to Governments financial management. They are a stakeholder to this policy due to their key role in allocating national funds.

Ministry of General Affairs

The Ministry of General Affairs is responsible for coordinating, advising on and supporting the process towards the general government policy. They are a stakeholder to this policy due to their key role in allocating national funds the preparation, publication and management of the laws and regulations of the land, as well as the signing of international treaty's and conventions and management of grants.

5.2.2 Non-Governmental Organizations (NGOs)

NGOs can play a crucial role in facilitating the protection of nature and environment by conducting research to fill current gaps in knowledge, assist in the development of policy, application for funding (often not available to governments), building awareness and institutional capacity, and facilitating independent dialogue with community to help people live more sustainable lifestyles. On Sint Maarten there are a number of NGOs concerned with the management of nature and environment.

Nature Foundation St Maarten

Established in January 1997 as a government initiative, Nature Foundation St Maarten works to promote conservation of the islands natural environment. The Foundation assists the government in all issues related to the management of the environment and its preservation through a Service Agreement with the Minister of VROMI. The Nature Foundation St Maarten is also the government appointed Management and Scientific Authority, meaning that they are responsible for:

- National activities related to the CITES convention,
- Advising the Minister (of VROMI) on the identification of species and all other matters relating to nature management and nature conservation that are submitted to them for advice.

Environmental Protection in the Caribbean (EPIC)

Since 2000, Environmental Protection in the Caribbean (EPIC) has been working to further the scientific understanding of the issues faced by the Caribbean ecosystem, educate the public about conservation, and promote public involvement in ecological restoration and protection. EPIC currently receives a majority of its funding from individual donors. Their focus on Sint Maarten is primarily on outreach, bird research, wetland conservation, promoting ecotourism and managing and promoting ecolabels.

Pride Foundation

St. Maarten PRIDE Foundation is an environmental group dedicated to the protection, conservation and proper management of Sint Maarten's Heritage.

Sea Shepherd SXM

Established in 2019, Sea Shepherd SXM is a local branch of Sea Shepherd Global that operates across both French Saint Martin and Dutch Sint Maarten. Their mission is to protect and restore the environment, wildlife, all plants and animals, as well as fight against pollution and specifically single-use plastic on the island as a whole.

5.2.3 Other Stakeholders

Simpson Bay Lagoon Authority (SLAC)

Through a management agreement with the government established in 2003, SLAC is responsible for managing the Simpson Bay Lagoon (Sint Maarten side) which includes the responsibility to enhance and improve the environment of Simpson Bay and the Lagoon.

Be the Change Foundation (BTC)

Be The Change Foundation, registered in May 2012, is a charity fundraising group that assists Sint Maarten non-profit organizations with raising funding needed for a particular cause while also promoting the mission and objectives of that NGO to encourage volunteerism.

Sint Maarten Archaeological Center (SIMARC)

SIMARC is a Youth, Heritage, and Science after-school program for young adults. In 2011, SIMARC became the official depository for archaeological collections of Sint Maarten. SIMARC is a potential stakeholder to this policy due to their actions documenting and exploring natural and cultural heritage sites on the island.

French Side Organizations

There are a number of organizations on the French side that could be essential to informing the implementable actions of this Nature Policy Plan 2021 - 2025. This mainly includes the Réserve Naturelle, Collectivité de Saint-Martin, the DEAL, and Les Fruits de Mer.

5.3 Budget and Schedule of Activities

According to The Nature Ordinance, the Minister (of VROMI) will report annually on the state of affairs regarding the implementation of the Nature Plan (before 1 June) and the Nature Policy Plan (before 1 September) to Parliament. A final review of the Nature Plan will take place after five years. The policy department of the Ministry of VROMI is in principle responsible for these reviews.

With due observance of the obligations arising from international treaties, this document puts forward the national Nature Policy Plan that serves as a general framework for nature policy for the coming five years, contains at least the nature and landscape priorities and objectives to be addressed, the nature protection values to be taken into account and a list of current national parks, both terrestrial and marine. The forthcoming Nature Plan to be published in complement to this document will outline the tangible action points to be realized during the planning period in order to achieve the Policy Objectives, and overall Vision, of this NPP-25.

A detailed budget with an exact listing of activities over a five-year period is difficult to predict and calculate with accuracy. Therefore, where possible, the upcoming Nature Plan will endeavor to provide a realistic budget and schedule of activities to achieve the goals of this NPP-25 using estimates based on experience and from the implementation of current and previous policy plans from the region. The yearly review of the state of affairs of the Nature Plan will assess the effectiveness of the budget and schedule of activities towards achieving the objectives of the NPP-25 and whether an update should be presented based on new experiences and changes in capacity to most effectively achieve the objectives of this NPP-25. Such an update should be reflected in the yearly reviews.

5.4 Monitoring and Evaluation

In order to measure the progress achieved by scheduled activities towards meeting the individual Policy Objectives, output and effect indicators are necessary. It is not always possible to formulate precise effect indicators where effects are often qualitative changes and not easily measureable quantitative changes. Another difficulty of defining effect indicators is often the lack of exact data about the existing, or baseline, situation. Therefore, to the extent possible, this NPP-25 has already endeavored to put forward effect indicators. However, this document does not discuss the specific activities but rather presents the policy framework within which activities will be further detailed in the Nature Plan, which will put forward the effect indicators outlined in this NPP-25 and additional effect indicators as needed.

In the yearly review, the effect indicators will be used to measure the progress of the Nature Plan and Nature Policy Plan towards achieving the Policy Objectives. Similarly, during this review process, effect indicators can be added or changed to better reflect the current state of affairs. Effect indicators to specifically measure the use by and benefits of nature to tourism and the public so that the argument of their integral contribution to economy and well-being will be included in the Nature Plan to support and demonstrate this with tangible data.

6. Concluding Remarks

It can be said that on Sint Maarten we have taken nature for granted for the sake of economic growth. Without planned intervention, the Dutch Side of the island may become a regional example of how unsustainable development destroys nature leaving small islands urbanized, degraded, polluted and unattractive to critical tourism dollars.

This Nature Policy Plan Sint Maarten 2021 – 2025 provides a framework for decision-makers to strategically manage and develop nature on Sint Maarten for the coming five years. It provides contextual information on the current state of affairs regarding nature of Sint Maarten, providing a point of reference for decision-makers, policy workers and a range of stakeholders in the public and private sector. The monitoring and evaluation of the progress of these indicators is essential to evaluate policy effectiveness and provide feedback for future policy creation.

While this document has been prepared within the government by the policy department of VROMI, the implementation of the various Policy Objectives involves various other Ministries as well as numerous actors in the various economic sectors, associated NGO's and the citizens of Sint Maarten. Proper support, coordination and cooperation between the different stakeholders, as well as support from the citizens of Sint Maarten, will ensure the success of this Nature Policy Plan Sint Maarten 2021 – 2025. It is only through this cooperation that we can achieve the vision of:

A future where the value of the nation's natural resources and characteristics are fully appreciated and sustainably managed, especially in terms of their contribution to economic well-being, strengthening resilience to (natural) disasters and supporting human well-being.

It is important to realize that while the actions outlined in this policy may seem like standalone objectives, they often work in synchronicity, complement one another and have cross-cutting benefits. For example, protection of natural areas works towards safeguarding species biodiversity while also absorbing the impacts of increased climate variability, overall increasing the resilience of the country. This Nature Policy Plan Sint Maarten 2021 – 2025 recognizes this and puts forth objectives to protect the terrestrial, marine and intertidal natural environment while also mitigating and preventing threats, strengthening resilience and adaptive capacity, supporting the implementation of legislation and policy, and working towards achieving a balance between nature conservation, social well-being and economic growth. Overall creating a resilient and adaptive Sint Maarten.

References

Bervoets, T. 2010. Working Paper on the Economic Valuation of Country Sint Maarten's Coral Reef Resources. Nature Foundation Sint Maarten.

Bos, O.G., P.A.J. Bakker, R.J.H.G Henkens, J. de Freitas, & A.O. Debrot. 2018. Preliminary checklist of extant endemic species of St. Martin, St. Eustatius, Saba and Saba Bank. Wageningen, Wageningen Marine Research (University & Research centre), Wageningen Marine Research report C067/18.

Brown, A.C. & N. Collier. 2006. New bird records from Anguilla and St. Martin. Caribbean Journal of Ornithology.

Department of Statistics Sint Maarten (STAT). 2017. Statistical Yearbook 2017. Sint Maarten.

DCNA. 2013. DCNA Management Success Report Jan – Dec 2012 – Dutch Caribbean Islands.

Debrot, A.O., G. van Buurt & M.J.A Vermeij. 2011. Preliminary overview of exotic and invasive marine species in the Dutch Caribbean. IMARES Report C188/11, Wageningen.

Debrot, A.O., M. de Graaf, R. Henkens, H.W.G. Meesters & D.M.E. Slijkerman. 2011. A status report of nature policy development and implementation in the Dutch Caribbean over the last 10 years and recommendations towards the Nature Policy Plan 2012 – 2017. IMARES Report number C065/11, Wageningen.

Duijndam, S. 2019. Managing Coastal Lagoon Ecosystems in the Caribbean – An Economic appraisal of nature-based versus man-made solutions for enhancing ecosystem service provisioning in the Simpson Bay Lagoon, Saint Martin. IVM Institute for Environmental Studies, Vrije Universiteit Amsterdam.

EcoVision/AID Environment. 1996a. Ponds of Sint Maarten.

EcoVision/AID Environment. 1996b. The Marine Environment of St Maarten.

EcoVision/AID Environment. 1996c. Zoning plans for the Hillside-area Sint Maarten.

EcoVision. 2017. Evaluation of Fisheries Legislation Caribbean Netherlands. Bonaire, Sint Eustatius, and Saba. Project Information Sheet. Commissioned by the Dutch Ministry of Economic Affair (MinEZ).

Fielding, R. 2017. Saint Martin/Sint Maarten and Saint Barthélemy. In C. Allen (ed). Landscapes and Landforms of the Lesser Antilles. World Geomorphological Landscapes vol. 12. New York: Springer.

MinEZ (Dutch Ministry of Economic Affairs). 2013. Nature Policy Plan for The Caribbean Netherlands 2013 – 2017. The Hague, the Netherlands.

Ministries of Agriculture, Nature and Food Quality, Infrastructure and Water Management and Interior and Kingdom relations of The Netherlands. 2020. Plan Land and Water: Nature and Environment Plan Caribbean Netherlands 2020-2030.

Myers, N.,R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca & J. Kent. 2000. Biodiversity hotspots for conservation priorities. Nature. Vol 403, 853 – 858.

Rojer, A.C. 1997. Biological inventory of Sint Maarten. KNAP-project 96-10. CARMABI Report 1997.

Sanders, M.E., R.J.H.G. Henkens & D.M.E. Slijkerman. 2019. Convention on Biological Diversity; Sixth National Report of the Kingdom of the Netherlands. Wageningen, the Statutory Research Tasks Unit for Nature & the Environment (WOT Natuur &Milieu). Wot-technical report 156.

Simpson, M.C., D. Scott, M. Harrison, N. Silver, E. O'Keeffe, R. Sim, S. Harrison, M. Taylor, G. Lizcano, M. Rutty, H. Stager, J. Oldham, M. Wilson, M. New, J. Clarke, O.J. Day, N. Fields, J. Georges, R. Waithe, & P. McSharry. 2010. Quantification and magnitude of losses and damages resulting from the impacts of climate change: modelling the transformational impacts and costs of sea level rise in the Caribbean (summary document). United Nations Development Program (UNDP), Barbados.

Stoffers, A.L. 1966, 1973, 1979, 1980, 1982, 1984. Spermatophyta (Dicotyledoneae). Flora of the Netherlands.

Van der Burg, W.J., J. de Freitas, A.O. Debrot & L.A.P. Lotz. 2012. Naturalised and invasive alien plant species in the Caribbean Netherlands: status, distribution, threats, priorities and recommendations. Report Plant Research International 437 & IMARES Report C185/11, Wageningen.

Van Buurt, G., & A.O. Debrot. 2011. Introduced agricultural pests, plants and animals diseases and vectors in the Dutch Caribbean, with an "Alert species" list. IMARES Report number C193/11, Wageningen.

Van Buurt, G., & A.O. Debrot. 2012. Exotic and invasive terrestrial and freshwater animal species in the Dutch Caribbean. IMARES Report number C0001/12, Wageningen.

VROMI. 1999. Ontwikkelingsplan Fort Amsterdam.

Mac & Field. 2019. Roadmap Towards Effective Fisheries Management on The Caribbean Netherlands. In assignment of WWF-NL.

Appendix 1: List of Sint Maarten Protected Species

List of Sint Maarten species protected through international conventions and protocols ratified through national legislation. National legislation protects native species listed in Annex I to the Bonn Convention (CMS), Annex I and II of the SPAW Protocol, Annex I to the CITES Convention and Annexes I and II of the Sea Turtle Convention (IAC). Included in the list are identified endemic species, as well as species known to have already become locally extinct. The IUCN Red List status of each species is also included where relevant and available (NE= not evaluated, DD= data deficient, LC= least concern, NT= near threatened, VU= vulnerable, EN= endangered, CR= critically endangered, EW= extinct in the wild, and EX= extinct). The species that are protected through National Legislation will be denoted with a "**".

Scientific Name	Common Name	IUCN Red List	SPAW Annex	CMS Annex	CITES Annex	End-emic	Ext-inct
PLANTS							
Ernodea littoralis	Cough Bush, Beach Creeper	LC	3				
Galactia nummelaria	-	-				✓	(?)
Calyptranthes boldinghii	Lid Flower	-				✓	(?)
Myrciaria floribunda	Guavaberry	LC					
Delonix regia	Flamboyant	LC					
Guaiacum officinale	Lignum Vitae	EN	3		2		
Guaiacum sanctum	Hollywood Lignum Vitae	NT	3		2		
Swietenia mahagoni	West Indian Mahogany	NT			2		
Zanthoxylum flavum	West Indian Satinwood	VU					
Maclura pomifera	Orange-Yellow Sage	LC					
Bromeliad sp.	Bromeliad	-					
Ruppia maritima	Widgeongrass	LC	3				
Mangroves							
Rhizophora mangle	Red Mangrove	LC	3				
Avicennia germinans	Black Mangrove	LC	3				
Laguncularia racemose	White Mangrove	LC	3				
Conocarpus erectus	Buttonwood	LC	3				
Seagrasses							
Halodule wrightii	Shoalgrass	LC	3				
Halophila baillonii	Clover Grass	VU	3				
Halophila decipiens	Tape Grass	LC	3				
Halophila engelmannii	Engelmann's Grass	NT	3				
Syringodium filiforme	Eel Grass, Manatee Grass	LC	3				
Thalassia testudinum	Turtle Grass	LC	3				
Cacti							
All Cactaceae	All Cacti	-			2		
Hylocereus lemairei	Night-blooming Cactus	-			2		
Hylocereus trigonus	Strawberry Prickle	-			2		
Melocactus intortus	Turk's Head Cactus	LC	3		2		
Opuntia boldinghii	-	LC			2		

Opuntia caribaea	-	LC			2		
Opuntia cochenillifera	Cochineal Cactus	DD			2		
Opuntia dillenii	Sour Prickle	LC			2		
Opuntia elatior	Broad Prickly Pear	LC			2		
Opuntia ficus-indica	Indian Fig	DD			2		
Opuntia rubescens	Sour Prickle	LC			2		
Opuntia stricta	Erect Prickly Pear	LC			2		
Opuntia triacantha	Spanish Lady	NT			2		
Rhipsalis baccifera	Mistletoe Cactus	LC			2		
Subpilocereus repandus	Candelabra Cactus	-			2		
Orchids							
All Orchidaceae	All Orchids	-			2		
Brassavola cucullata	Orchid	-			2		
Encyclia fragrans	Orchid	-			2		
Epidendrum ciliare	Orchid	LC			2		
Epidendrum kraenzlinii	Orchid	-			2		
Epidendrum secundum	Orchid	-			2		
Oncidium leiboldii	Orchid	-			2		
Polystachia concreta	Orchid	-			2		
Spiranthes elata	Orchid	-			2		
INSECTS							
***** Zophobas batavarum***	Beetles	-	2				
Phyllophaga stehlei	-	-				✓	
Solenoptera chalumeaui	Michelle's Metallic Longhorn	-				✓	
Danaus plexippus	Monarch Butterfly	-		2			
Phoebolampta caeruleotergum	Leaf Mimic Katydid	-				✓	
***** Amblyolpium martinensis***	-	-	2			✓	
AMPHIBIANS							
***** Eleutherodactylus johnstonei***	Johnstone's Robber Frog	LC	2				
***** Eleutherodactylus martinicensis***	Martinique Robber Frog	NT	2				
REPTILES							
Snake							
Alsophis rijersmai	Leeward Islands Racer	EN					✓
Iguana							
Iguana iguana	Green Iguana	LC	3		2		
Iguana delicatissima	Lesser Antillean Iguana	CR	3		2		✓
Lizard							
Ameiva plei	Anguilla Bank Ground Lizard	LC					
Anolis gingivinus	Anguilla Bank Tree Lizard	-					

Anolis wattsi pogus	Anguilla Bank Bush Anole	VU				✓	
Sphaerodactylus macrolepis parvus	Little Dwarf Gecko	LC					
Sphaerodactylus sputator	Island Dwarf Gecko	LC					
Spondylurus martinae	Slipperyback	CR				✓	
Thecadactylus oskrobapreinorum	Turnip-tailed Gecko	DD				✓	
Sea Turtles							
***** Caretta caretta***	Loggerhead Turtle	VU	2	2	1		
***** Chelonia mydas***	Green Turtle	EN	2	2	1		
***** Dermochelys coriacea***	Leatherback Turtle	VU	2	2	1		
***** Eretmochelys imbricata***	Hawksbill Turtle	CR	2	2	1		
BIRDS							
Migrant, visitor, non-breeding							
Buteo jamaicensis	Red-tailed Hawk	LC			2		
Pandion haliaetus	Osprey	LC		2	2		
Thalasseus maximus	Royal Tern	LC					
Sterna sandvicensis	Sandwich Tern/Cayenne	LC					
Resident and breeding							
Columba leucocephala	White-rowned Pigeon	NT	3				
Elaenia martinica	Caribbean Elaenia	LC					
Eulampis holosericeus	Green-throated Carib	LC			2		
Eulampis jugularis	Purple-throated Carib	LC			2		
***** Falco peregrinus***	Peregrine Falcon	LC	2	2	1		
Falco sparverius	American Kestrel	LC		2	2		
Fulica caribaea	Caribbean Coot	NT					
Larus atricilla	Laughing Gull	LC					
Loxigilla noctis	Lesser Antillean Bullfinch	LC					
Margarops fuscatus bonairensis	Pearly-eyed Thrasher	LC					
Orthorhyncus cristatus	Antillean Crested Hummingbird	LC			2		
***** Pelecanus occidentalis***	Brown Pelican	LC	2				
***** Puffinus lherminieri***	Audubon's Shearwater	LC	2				
***** Sterna antillarum antillarum***	Least Tern	LC	2				
***** Sterna dougallii dougallii***	Roseate Tern	LC	2	2			
MAMMALS							
Bats							
***** Tadarida brasiliensis***	Mexican Free-tailed Bat	LC	2	1			
***** Brachyphylla cavernarum***	Antillean Fruit-eating Bat	LC	2				
Cetaceans (Dolphins)							

** ***All Cetacea***	All Cetaceans	-	2		2		
** ***Delphinus capensis***	Long Beaked Common Dolphin	DD	2		2		
** ***Grampus griseus***	Risso's Dolphin	LC	2		2		
** ***Lagenodelphis hosei***	Fraser's Dolphin	LC	2		2		
** ***Stenella attenuata***	Pantropical Spotted Dolphin	LC	2		2		
** ***Stenella clymene***	Clymene Dolphin	LC	2		2		
** ***Stenella coeruleoalba***	Striped Dolphin	LC	2		2		
** ***Stenella frontalis***	Atlantic Spotted Dolphin	LC	2		2		
** ***Stenella longirostris***	Spinner Dolphin	LC	2		2		
** ***Steno bredanensis***	Rough Toothed Dolphin	LC	2		2		
** ***Tursiops truncatus***	Bottlenose Dolphin	LC	2	1	2		
Cetaceans (Whales)							
** ***Balaenoptera acutorostrata***	Minke Whale	LC	2		1		
** ***Balaenoptera borealis***	Coalfish Whale	EN	2	1	1		
** ***Balaenoptera edeni***	Bryde's Whale	LC	2	2	1		
** ***Balaenoptera musculus***	Blue Whale	EN	2	1	1		
** ***Balaenoptera physalis***	Fin Whale	VU	2	1	1		
** ***Eubalaena glacialis***	North Atlantic Right Whale	EN	2		1		
** ***Feresa attenuata***	Pygmy Killer Whale	LC	2		2		
** ***Globicephala macrorhynchus***	Shortfin Pilot Whale	LC	2		2		
** ***Kogia breviceps***	Pygmy Sperm Whale	LC	2		2		
** ***Kogia simus***	Dwarf Sperm Whale	LC	2		2		
** ***Megaptera novaeangliae***	Humpback Whale	LC	2	1	1		
** ***Mesoplodon densirostris***	Blainville's Beaked Whale	DD	2		2		
** ***Mesoplodon europaeus***	Gervais's Beaked Whale	DD	2		2		
** ***Orcinus orca***	Orca, Killer Whale	DD	2		2		
** ***Peponocephala electra***	Melon-headed Whale	LC	2		2		
** ***Physeter macrocephalus***	Sperm Whale	VU	2	1	1		
** ***Pseudorca crassidens***	False Killer Whale	NT	2		2		
** ***Ziphius cavirostris***	Cuvier's Whale	LC	2		2		
FISH							
Reef Associated Fish							
Balistes vetula	Queen Triggerfish	NT					
Dermatolepis inermis	Marble Grouper	DD					
Epinephelus itajara	Goliath Grouper	VU					

Epinephelus striatus	Nassau Grouper	CR	3				
Equetus punctatus	Spotted Drum	LC					
Hippocampus erectus	Lined Seahorse	VU			2		
Hippocampus reidi	Slender Seahorse	NT			2		
Hypoplectrus providencianus	Masked Hamlet	LC					
Lachnolaimus maximus	Hogfish	VU					
Lutjanus cyanopterus	Cubera Snapper	VU					
Lutjanus analis	Mutton Snapper	NT					
Megalops atlanticus	Tarpon	VU					
Mycteroperca interstitialis	Yellowmouth Grouper	VU					
Scarus guacamaia	Rainbow Parrotfish	NT					
Demersal Fish							
Hyporthodus flavolimbatus	Yellowedge Grouper	VU					
Hyporthodus nigritus	Warsaw Grouper	NT					
Hyporthodus niveatus	Snowy Grouper	VU					
Anguilla rostrata	American Eel	EN					
Pelagic – Neritic Fish							
Melanorhinus boekei	St. Maarten Pejerry	-				✓	
Pelagic – Oceanic Fish							
Kajikia albida	White Marlin, Marlin	VU					
Makaira nigricans	Blue Marlin	VU					
Thunnus obesus	Bigeye Tuna	VU					
Thunnus thynnus	Atlantic Bluefin Tuna	EN					
Sharks and Rays							
Aetobatus narinari	Spotted Eagle Ray	NT					
Alopias superciliosus	Bigeye Thresher Shark	VU		2	2		
***** Carcharhinus longimanus***	Oceanic Whitetip Shark	CR	3	1	2		
Carcharhinus falciformis	Silky Shark	VU	3	2	2		
Carcharhinus melanopterus	Blacktip Reef Shark	NT					
Carcharhinus obscurus	Dusky Shark	EN		2			
Carcharhinus perezi	Caribbean Reef Shark	NT					
Carcharhinus plumbeus	Sandbar Shark	VU					
Carcharhinus signatus	Night Shark	VU					
Carcharias taurus	Sand Tiger, Grey Nurse Shark	VU					
***** Carcharodon carcharias***	Great White Shark	VU		1, 2	2		
Centrophorus granulosus	Gulper Shark	DD					
***** Cetorhinus maximus***	Basking Shark	EN		1, 2	2		
Dipturus laevis	Barndoor Skate	EN					

Galeocerdo cuvier	Tiger Shark	NT					
Glaucostegus thouin	Clubnose Guitarfish	CR			2		
Gymnura altavela	Butterfly Ray	VU					
Isurus paucus	Longfin Mako	EN		2	2		
Leucoraja ocellata	Winter Skate	EN					
***** Manta alfredi***	Reef Manta Ray	VU	3	1, 2	2		
***** Manta birostris***	Manta Ray	VU	3	1, 2	2		
Odontaspis ferox	Smalltooth Sand Tiger Shark	VU					
***** Pristis pectinata***	Wide Sawfish/ Smalltooth Sawfish	CR	2	1, 2	1		
***** Rhincodon typus***	Whale Shark	EN	3	1	2		
Sphyrna lewini	Scalloped Hammerhead Shark	CR	3	2	2		
Sphyrna mokarran	Great Hammerhead Shark	CR	3	2	2		
Sphyrna zygaena	Smooth Hammerhead Shark	VU	3	2	2		
GASTROPOD							
Lobatus gigas	Queen Conch	-	3		2		
Conasprella berschaueri	(sea snail)	-				✓	
CRUSTACEAN							
Panulirus argus	Caribbean Spiny Lobster	DD	3				
Acanthomolgus seticornis	(small crustaceans)	-				✓	
Leptocaris glaber	(small crustaceans)	-				✓	
CORAL							
All spp. (order Antipatharia)	Black Corals		3		2		
All spp. (order Alcyonacea)	Gorgonians		3				
All spp. (order Milleporina, family Stylasteridae	Hydrocorals		3				
Stony Corals							
***** All spp.*** (order Scleractinia)	Stony Corals		2		2		
***** Acropora cervicornis***	Staghorn Coral	CR	2		2		
***** Acropora palmata***	Elkhorn Coral	CR	2		2		
Agaricia lamarcki	Leaf Coral	DD	3		2		
Dendrogyra cylindrus	Pillar Coral	VU	3		2		
Dichocoenia stokesii	Elliptical Star Coral	VU	3		2		
***** Montastraea annularis (s.l.)***	Mountainous Star Coral	EN	2		2		
***** Montastraea faveolata***	Boulder Star Coral	EN	2		2		

Montastraea franksi	Bumpy Star Coral	VU	3		2		
Mycetophyllia ferox	Rough Cactus Coral	VU	3		2		
Fire Corals							
All spp. (order Milleporina, family Milleporidae)	Fire Corals		3		2		
Millepora striata	Bladed Box Fire Coral	EN	3		2		

Appendix 2: List of Invasive Species Recorded on Sint Maarten

List of species identified as invasive on Sint Maarten; based on (Debrot et al., 2011), (van der Burg et al., 2012), (van Buurt and Debrot, 2012), and (van Buurt and Debrot, 2011).

Scientific Name	Common Name	Details
PLANTS		
Grass		
Bothriochloa pertuse	Donna grass, hurricane grass	Invasive, potentially spreading on a massive scale, Origin: Asia
Dactyloctenium aegyptium	Egyptian crowfoot grass	Established, reproducing, Origin: Africa
Echinochloa colona	Jungle rice	Established, reproducing, Origin: Asia
Eleusine indica	Goosegrass	Invasive, potentially spreading on a massive scale
Eragrostis ciliaris	Gophertail grass	Invasive, potentially spreading on a massive scale
Megathyrsus maximus	Guinea grass	Naturalized, spreading, Origin: Africa
Melinis repens	Natal grass	Established, reproducing, Origin: Africa
Pennisetum purpurem	Napier grass, elephants grass	Naturalized, spreading, Origin: Africa
Urochloa mutica	Para grass	Naturalized, spreading, Origin: Africa
Seagrasses		
Halophila stipulacea	Halophila seagrass	Exotic, Origin: Red Sea, Possibly Introduced through ballast water
Succulent		
Agave sisalana	Sisal	Naturalized, spreading, Origin: Mexico
Euphorbia tithymaloides	Redbird flower	Established, reproducing, Origin: Americas
Kalanchoe pinnata	Life plant	Established, reproducing, Origin: Madagascar
Sansevieria spp.	Snake plant	Invasive, potentially spreading on a massive scale, Origin: Africa/Southern Asia
Vine		
Antigonon leptopus	Bellisima, coralita	Naturalized, spreading, Origin: Mexico
Caesalpina bonduc	Grey Nicker, nickerberry	Invasive, potentially spreading on a massive scale
Clitoria ternatea	Butterfly pea, Bluebell vine	Naturalized, spreading, Origin: Asia
Cryptostegia grandiflora	Rubber vine	Exotic, not reproducing, Origin: Madagascar
Jasminum fluminense	Jasmine	Established, reproducing, Origin: Africa
Herb		
Arivela viscosa	Wild massamby, kaya-kaya	Established, reproducing, Origin: Asia
Asystasia gangetica	Chinese violet	Established, reproducing
Catharanthus roseus	Madalena, periwinkle	Naturalized, spreading, Origin: Madagascar
Chenopodium murale	Nettle	Naturalized, spreading, Origin: Europe/Asia/Africa
Cleome gynandra	Yerba di kaya, massamby, shona cabbage	Naturalized, spreading, Origin: Africa
Parthenium hysterophorus	Santa Maria	Established, reproducing, Origin: American tropics

Shrub		
Calotropis procera	Katuna di sedam, sodom	Naturalized, spreading, Origin: Afrcia/Asia
Gossypium spp.	Cotton	Naturalized, spreading, Old and New World
Indigofera tinctoria	Indido	Naturalized, spreading
Lawsonia inermis	Henna	Naturalized, spreading, Origin: Africa, Asia and Northern Australia
Tecoma stans	Yellow Bell	Naturalized, spreading, Origin: Americas
Rincus communis	Castor	Established, reproducing, Origin: Mediterranean Basin, Eastern Africa and India
Senna italica	Italian Sena	Naturalized, spreading, Origin: Africa
Tree		
Azadirachta indica	Neem	Invasive, potentially spreading on a massive scale: Origin: Indias
Delonix regia	Flamboyant	Naturalized, spreading: Origin: Madagascar
Leucaena leucocephala	Tan tan, false tamarind	Invasive, potentially spreading on a massive scale, Origin: Mexico and Northern Central America
Mangifera indica	Mango	Invasive, potentially spreading on a massive scale, Origin: Indias
Moringa oleifera	Moringa	Established, reproducing, Origin: Asia
Psidium guayava	Guava	Naturalized, spreading, Origin: Caribbean, Central America and South America
Ziziphus mauritiana	Chinese date	Naturalized, spreading, origin: Asia
EARTH WORMS		
Eudrilus eugeniae		Origin: West Africa, Introduced through the transport of agricultural goods
Pontoscolex corethrurus		Origin: South America, Introduced through the transport of agricultural goods
MOLLUSCA		
Bulimulus guadalupensis	West-Indian Bulimulis	Current invasive species, Origin: Saba, Introduced as pet
Achatina fulica	Giant East African land snail	High Impact, Origin: East Africa
Zachrysia provisoria	Cuban garden snail	High Impact
MILLIPEDES		
Leptogoniulus sorornus	-	-
Oxidus gracilis	Greenhouse millipede	Origin: Asia
Trigoniulus corallinus	Rusty millipede	Origin: Burma/Thailand
INSECTS		
Apis mellifera	Honey bee	Eradicated*, Origin: Old World, Introduced through agriculture
Ants		
Solenopsis geminata	Tropical fire ant	High Impact, Origin: Tropical South America/West Indies
Paratrechina longicornis	Longhorn crazy ant	Origin: India
Monomorium floricola	Flower ant	High Impact, Origin: Tropical asia

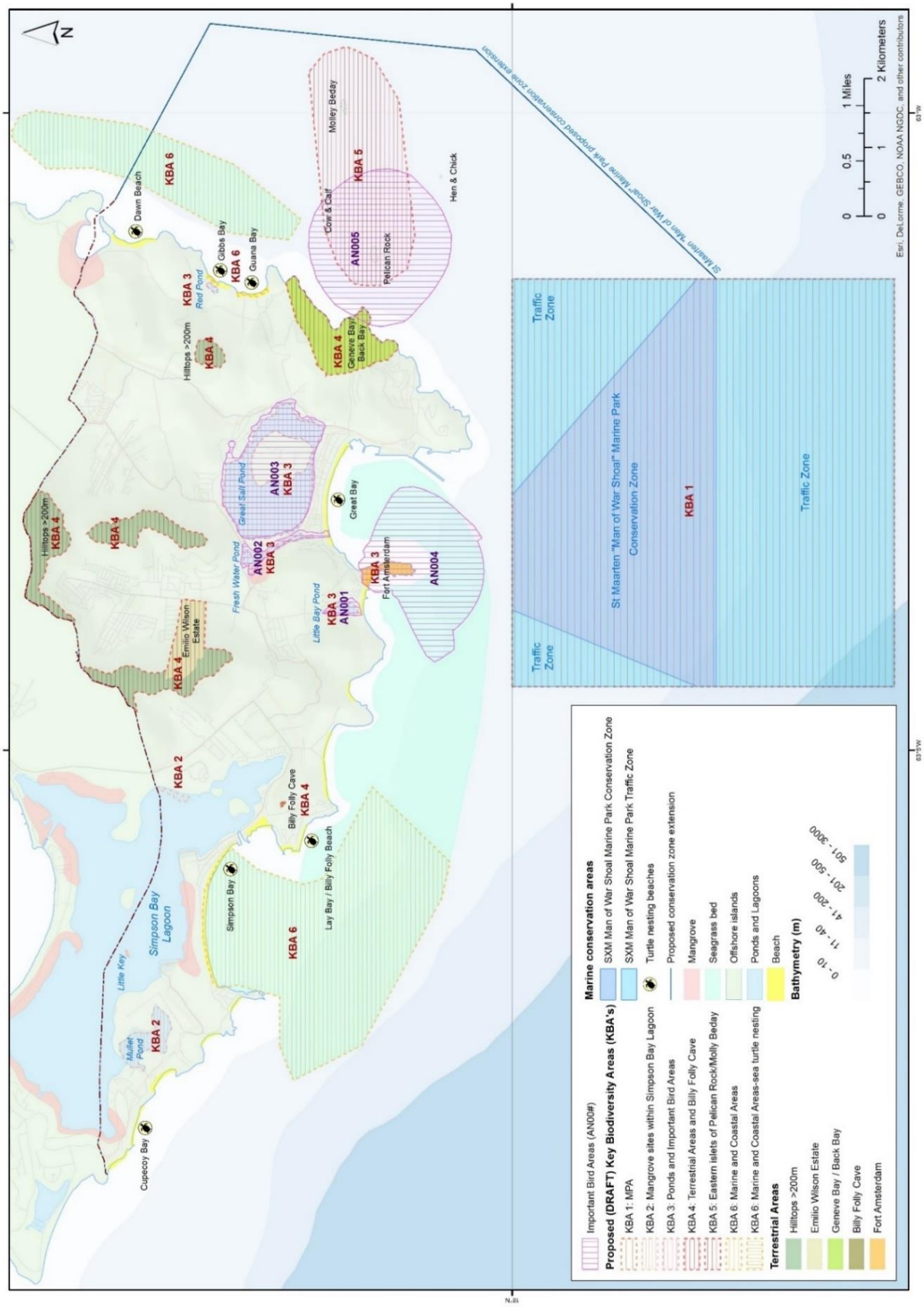
Tapinoma melanocephalum	Ghost ant	High Impact, Origin: Old World/Tropics
Monomorium destructor	Destroyer ant	High Impact, Origin: Old World
Cockroaches		
Blatella germanica	German cockroach	-
Periplaneta americana	Palmetto bug	-
AMPHIBIANS		
Eleutherodactylus johnstonei	Johnstone's frog	Origin: Leeward islands, Introduced through ornamental plants
Eleutherodactylus martinicensis	Martinique robber frog	Origin: Leeward islands, Introduced through ornamental plants
Osteopilus septentrionalis	Cuban tree frog	Low impact, Origin: Cuba, Introduced through ornamental plants
REPTILES		
Snake		
Pantherophis guttata	Corn snake	High impact, introduced as pet
Iguana		
Iguana iguana	Green Iguana	High impact, Origin: South America
Lizard		
Anolis cristellatus	Puerto Rican crested anole	Origin: Puerto Rico, Introduced through ornamental plants
Anolis sagrei	Cuban brown anole	Origin: Cuba, Introduced through ornamental plants
Gymnopthalmus underwoodi	Underwood's spectacled tegu	Origin: South America
Gecko		
Hemidactylus mabouia	Cosmopolitan house Gecko	Origin: Africa
Turtle		
Trachemys scripta	Common slider	Origin: North America, introduced through exotic pet trade
BIRDS		
Bubulcus ibis	Cattle egret	Potential invasive species, Origin: Eurasia/Africa, introduced through natural dispersal
Gallus gallus	Chicken	High impact, Origin: Eurasia, introduced through agriculture
Passer domesticus	House sparrow	High impact, Origin: Eurasia/Africa, introduced as pet
Quiscalus lugubris	Caribbean grackle	Potential invasive species, Origin: Americas, introduced as pet
Streptopelia decaocto	Eurasian dove	Potential invasive species, Origin: Old world, introduced as pet
Cairina moschata	Muscovy duck	Origin: Americas, introduced as pet
MAMMALS		
Rodents		

Mus musculus	Mouse	High impact, Origin: Old world, introduced through transport of goods
Rattus rattus	Black rat	High impact, Origin: Old world, introduced through transport of goods
Household Pets		
Cannis familiaris	Dog	Medium impact, Origin: Old world, introduced as pet
Felix domesticus	Cat	High impact, Origin: Old world, introduced as pet
Livestock		
Capra hirus	Goat	High impact, Origin: Old world, introduced through agriculture
Other mammals		
Chlorocebus pygerythrus	Vervet monkey	High impact, Origin: Africa, Introduced as pet
Herpestes auropunctatus	Mongoose	High impact, Origin: Africa, introduced through agriculture
Procyon lotor	Racoon	High impact, Origin: North America, introduced through agriculture
FISH		
Oreochromis mossambica	Tilapia	Introduced, Origin: Africa, Introduced through aquaculture
Poecilia reticulata	Guppy	Introduced, Origin: S. America, Introduced as aquarium pet
Pterois miles, P. volitans	Lionfish	Exotic, Origin: Pacific, Introduced through aquarium trade
Poecilia vandepolli	Machuri	Origin: ABC islands, Introduced through aquarium trade
MARINE PATHOGENS		
	Black band disease	Exotic, terrestrial origin, Introduced through sewage runoff
	Diadema disease	Exotic, Origin: possibly Pacific, Possibly introduced through the Panama Canal
Aspergillus syndowii	Seafan disease	Exotic, terrestrial origin, Introduced through terrestrial runoff
	Sea turtle fibropapilloma	Cyrptogenic: a disease of obscure or uncertain origin
	White pox Acropora disease	Exotic, terrestrial origin, Introduced through sewage runoff
	Stony Coral Tissue Loss Disease	
DIDEMNID COLONIAL ASCIDIANS		
Tridedemnum solidum	Overgrowing mat tunicate	-
ANIMAL DISEASES VECTORS PARASITES		
Aedes aegyptii	Yellow fever mosquito	High Impact,

Myrmecophilus americanus	Ant cricket	Low Impact, Origin: India
PLANT DISEASES VECTORS PARASITES		
Cylas formicarius	Sweet potato weevil	-
MLO'S (Mycoplasma Like Organisms)		
	Lethal yellowing of palms (LY disease)	-

Appendix 3: Areas of Conservation Importance

Map of the areas of recognized conservation importance for Sint Maarten; identified Key Biodiversity Areas (KBAs), Important Bird Areas (IBAs), turtle nesting sites and proposed marine park expansion.



Appendix 4: International Treaties and Conventions

Convention on Biological Diversity (CBD)

This Convention works toward the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Through this Convention, governments commit to developing national biodiversity strategies and action plans, and to integrate these into broader national plans for environment and development. Further commitments to this Convention include establishing protected areas and promoting environmentally sound development near them, rehabilitating and restoring degraded ecosystems and species, educating people and raising awareness and preventing the introduction of, management, and eradication of harmful alien species.

The main goals of the CBD are the conservation of biodiversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources. These goals have been elaborated and formalized in the convention's *Strategic Plan for Biodiversity 2011-2020*, created in 2010, which includes the internationally agreed upon Aichi Biodiversity Targets. This strategic plan will be followed up by the Post-2020 Biodiversity Framework which will contain goals up to 2050.

Convention on Wetlands of International Importance (RAMSAR)

The Ramsar Convention aims to halt the worldwide loss of wetlands (including mangroves and coral reefs) and to conserve, through wise use and management, those that remain. This Convention encourages Parties to nominate sites that are important for conserving biological diversity or that contain representative, rare or unique wetlands. The officially designated sites are added to the Convention's List of Wetlands of International Importance and become known as Ramsar sites. When a country designates a Ramsar site, they are agreeing to establish and oversee a management framework aimed at conserving the wetland and ensuring its wise use.

Cartagena Convention

The Cartagena Convention (the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region) is a regional legal agreement for the protection of the Caribbean Sea that covers several aspects of marine pollution for which the Contracting Parties must adopt specific measures. This Convention is supported by three Protocols to support its aims. Specifically, Protocols on Oil Spills, Specially Protected Areas and Wildlife (SPAW) and Land Based Sources of Marine Pollution (LBS). This Convention and its related Protocols provide a commitment by Parties to protect, and manage their common coastal and marine resources individually, jointly, and in a sustainable manner.

Oil Spills

The objectives of the Oil Spill Protocol are to strengthen national and regional preparedness and response capacity and to facilitate co-operation and mutual assistance in cases of emergency to prevent and control major oil spill incidents.

Specially Protected Areas and Wildlife Protocol (SPAW)

The objective of the SPAW Protocol is to protect rare and fragile ecosystems and habitats, thereby protecting the endangered and threatened species residing there. Under this Protocol, each Party

must take all appropriate measures to regulate or prohibit intentional or accidental introduction of non-indigenous or genetically altered species to the wild and to develop technical and other guidelines for the planning and environmental impact assessments of important development projects. The SPAW Protocol acts as a vehicle to assist with regional implementation of the broader and more demanding global Convention on Biological Diversity (CBD) and the SPAW Sub-Programme supports countries in meeting objectives of global conventions and initiatives such as the CBD, the Ramsar, CMS, and CITES Conventions, as well as the International Coral Reef Initiative (ICRI).

Contracting parties are expected to adopt measures to ensure the protection and recovery of endangered and threatened species of flora and fauna listed in Appendices I, II and III of the Protocol. In regards to Appendix III species, this mainly concerns the adoption and implementation, in co-operation with other Parties, of management plans for these species. On Sint Maarten, native species listed in Appendix I and II to this Convention are fully protected through national legislation. Through this legislation it is possible to further enforce national protection for native species of Appendix III through the establishment of a national decree containing general measures.

Land Based Sources of Marine Pollution (LBS)

The objective of this Protocol is for countries to adopt specific measures to prevent pollution of the sea from land-based sources and activities. Including those to prevent, reduce and control pollution from ships, caused by dumping, from seabed activities, from land-based sources and activities and airborne pollution. The Protocol includes regional effluent limitations for domestic wastewater (sewage) and requires the development of plans to address agricultural non-point sources of pollution.

The Convention on the Conservation of Migratory Species (CMS)

This Convention, also known as the CMS or Bonn Convention, aims to conserve terrestrial, marine and avian migratory species throughout their range. Appendix I of this Convention lists the migratory species that are threatened with extinction. Species that need or would significantly benefit from international co-operation are listed in Appendix II. Parties to this Convention Parties strive towards strictly protecting these animals, conserving or restoring their habitat, alleviating obstacles to their migration and controlling other factors that might endanger them. Parties to the Convention are encouraged to collaborate for thorough action and to establish global or regional Agreements. On Sint Maarten, native species listed in Appendix I to this convention are protected through national legislation.

Inter-American Sea Turtle Convention (IAC)

The IAC is the only international Convention created exclusively for the purpose of protection, conservation and recovery of sea turtle populations and of the habitats on which they depend. In conjunction with the CITES convention, the IAC prohibits the intentional capture, retention or killing of, and domestic trade in sea turtles, their eggs, parts or products. On Sint Maarten, native species listed in Appendix I and II to this Convention are protected through national legislation.

Convention on International Trade of Endangered Species (CITES)

The CITES Convention aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival by subjecting trade in specimens of selected species to certain controls through a licensing system, enforced by local authorities in both importing and exporting member states. The Convention provides three Appendices that lists species according to the degree of protection they require.

On Sint Maarten, native species listed in Appendix I to this convention are protected through national legislation.

Appendix I of the CITES Convention lists species that are the most endangered and threatened with extinction. CITES prohibits international trade in these species, except when the purpose of the import is not commercial, for instance for scientific research. Under these exceptional circumstances, trade may take place provided it is authorized by both an import permit and an export permit (or re-export certificate). Appendix II lists species that may become threatened with extinction unless trade is closely controlled. International trade in specimens of Appendix II species may be authorized by the granting of an export permit or re-export certificate. In this case, permits or certificates should only be granted if certain conditions are met and especially if the relevant authorities are satisfied that export will not be detrimental to the survival of the species in the wild. Lastly, Appendix III provides a list of species that have been included at the request of a Party to the Convention that is already regulating trade in this species and requires the cooperation of other countries to prevent unsustainable or illegal exploitation.

Appendix 5: National Legislation with Implications to Nature and Environment

1. GENERAL

- Staatsregeling van Sint Maarten, AB 2015, no. 9
- Landsverordening overgangsbepalingen van wetgeving en bestuur, AB 2012, no. 23
- Landsverordening inrichting en organisatie landsoverheid, AB 2014, no. 29
- Besluit van de regering van Sint Maarten houdende regels omtrent het ministerie van VROMI Organisatiebesluit Volkshuisvesting, Ruimtelijke Ordening, Milieu en Infrastructuur, AB 2017, no. 1
- Landsverordening bekendmaking en inwerkingtreding, AB 2013, no. 15
- LANDSVERORDENING regelende de heffing en invordering van leges ten bate van Sint Maarten, AB, 2016, 14
- Comptabiliteitslandsverordening, AB 2010, GT no. 23
- Algemene Politiekeur, AB 2015, no. 9

2. BUILDING AND PUBLIC HOUSING

- LANDSVERORDENING, houdende voorschriften betreffende het bouwen en de volkshuisvesting, AB 2015, no. 9
- LANDSBESLUIT ter uitvoering van artikel 19 van de Bouw- en woningverordening, AB 2013, GT no. 146
- LANDSBESLUIT ter uitvoering van artikel 43 van de Bouw- en woningverordening, AB 2013, GT no. 401

3. SPATIAL PLANNING

- LANDSVERORDENING ruimtelijke ontwikkelingsplanning, AB 2015, no. 9
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, tot aanwijzing van de leden van de commissie van deskundigen ter uitvoering van artikel 5, zesde lid, van de Landsverordening ruimtelijke ontwikkelingsplanning, AB 2015, no.1
- LANDSVERORDENING, houdende voorschriften betreffende de grondslagen van de ruimtelijke ontwikkelingsplanning, AB 2013, GT no. 403.

4. NUISANCE OR HINDRANCE

- LANDSVERORDENING houdende maatregelen ten aanzien van het oprichten van inrichtingen die hinder, schade of gevaar kunnen veroorzaken, AB 2015, no. 9
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, ter uitvoering van artikel 1, tweede lid, van de Hinderverordening, AB 2013, GT no. 140.

5. NATURE (FLORA AND FAUNA)

- LANDSVERORDENING houdende regels inzake het beheer van de natuur en de bescherming van de daarin voorkomende dier- en plantsoorten, AB 2015, no. 9;
- MINISTERIËLE REGELING ter uitvoering van artikel 7B, derde lid, van de Landsverordening grondslagen natuurbeheer en –bescherming, AB 2013, GT no. 782;

- MINISTERIËLE REGELING ter uitvoering van artikel 5, vijfde lid, van de Landsverordening grondslagen natuurbeheer en –bescherming, AB 2013, GT no. 315
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, houdende regels over het beheer en de bescherming van flora en fauna alsmede natuurparken, AB 2013, GT no. 143
- MINISTERIAL ADMINISTRTIVE DECISION granting the Authority to Manage Marine and Terrestrial Ecosystems of the Territory of Sint Maarten. August 6th, 2014 1362/2014

6. MARINE NATURE MANAGEMENT

- LANDSVERORDENING houdende regels inzake het beheer van de maritieme gebieden in Sint Maarten, AB 2015, no. 9
- LANDSVERORDENING houdende regels in verband met de visserij in de territoriale zee en de visserijzone van Sint Maarten, AB 2015, no.9
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, ter uitvoering van de artikelen 3 en 12 van de Visserijlandsverordening, AB 2013, no. 405
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, ter uitvoering van de artikelen 12, 13a, tweede lid, en 13c, eerste, tweede en derde lid, van de Visserijlandsverordening, AB 2014, no. 15
- LANDSVERORDENING houdende voorzieningen tot regeling van de kreeftenvangst in de wateren rondom Sint Maarten en tot regeling van de kreeftenhandel in het genoemde land, AB 2015, no. 9
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, tot vaststelling van het model ter uitvoering van artikel 4 van de Kreeftenverordening, AB 2013, GT no. 91
- LANDSVERORDENING vaststellende de regelen, volgens welke een vergunning voor de oprichting van een industrie voor de verwerking van producten van de haaienvangst kan worden verleend, AB 2015, no. 9
- Beschikking van de Minister van Toerisme, Economische Zaken, Verkeer, en Telecommunicatie, van 4 oktober 2011

7. MARINE PARK

- Ministerial Decree (Minister TEATT) December 30th 2010 – designation of Man of War Shoal Marine Park.
- Ministerial Appointment (Minister TEATT) August 15th 2011 – bestuurscontract mbt Minister en Nature Foundation.

8. WASTE(-WATER)

- LANDSVERORDENING houdende regelen inzake het inzamelen en zich ontdoen van huisvuil, grof vuil, vloeibaar vuil, bedrijfsvuil, autowrakken en andere categorieën van vuil, AB 2015, no. 9
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, ter uitvoering van artikel 17 van de Afvalverordening, AB 2013, GT no. 137
- LANDSVERORDENING, ter bescherming van het milieu en de belasting daarvan door afvalwater te beperken en zoveel mogelijk te voorkomen en daartoe regels te stellen met betrekking tot het afvalwater, AB, 2016, 14

9. ELECTRICITY

- LANDSVERORDENING, houdende regels omtrent de verlening van een concessie voor de opwekking en levering van elektriciteit, AB 2015, GT no. 9

10. DOMAIN LANDS

- LANDSVERORDENING regelende de onteigening ten algemenen nutte, AB 2014, no. 6

11. CREMATION

- LANDSVERORDENING houdende regels met betrekking tot het verbranden van lijken, AB 2015, no. 9
- LANDSBESLUIT, HOUDENDE ALGEMENE MAATREGELEN, ter uitvoering van de artikelen 2, derde lid, 5, derde lid, 6, eerste lid, 7, eerste lid, 8, 9 en 25 van de Crematielandsverordening, AB 2013, GT no. 138

12. MONUMENTS

- LANDSVERORDENING houdende nieuwe regels met betrekking tot de grondslagen voor het behoud van monumenten, AB 2015, no. 09
- LANDSBESLUIT criteria aanwijzing te beschermen monumenten, AB 2013, GT no. 46

13. OTHER

- LANDSVERORDENING houdende maatregelen tot opruiming van schepen en wrakken in zee en op het zeestrand, AB 2015, no. 9

14. POLICY

- Beach Policy
- Hillside Policy
- National Energy Policy