



Preliminary checklist of extant endemic species and subspecies of the windward Dutch Caribbean (St. Martin, St. Eustatius, Saba and the Saba Bank)

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Summary

Endemic species and subspecies (or “taxa” for short) having restricted geographic distributions are an extremely important feature of biodiversity and a key criterion to conservation valuation and nature management goal-setting. Saba, St. Eustatius and St. Martin (the Dutch SSS islands) form part of the Caribbean biodiversity hotspot region but up to now no systematic assessment was available on the occurrence of endemic animals and plants on these islands and in the surrounding marine areas (incl. Saba Bank). We here provide such a preliminary assessment as an aid to conservation and nature management, and to help in prioritizing future research. Our assessment shows that the SSS islands and Saba Bank together possess 223 endemic animals and plants (32 subspecies, 191 species), of which 35 are endemic to the SSS islands or Saba Bank, 15 are endemic to the Northern Lesser Antilles (Virgin Islands southwards up to and including Montserrat, including St Kitts Bank and Anguilla Bank endemics), 110 to the Lesser Antilles (Virgin Islands southwards up to and including Grenada) and 58 to the joint Antilles (Lesser and Greater Antilles). Of the 35 island endemics, 8 are marine, 26 are terrestrial and 1 is from brackish water.

The breakdown of the 223 endemic species and subspecies according to larger taxonomic groupings is as follows: Worms (Polychaeta): 1; Spiders, scorpions and pseudoscorpions (Arachnida): 23; Copepods (Hexanauplia): 2; Beetles (Coleoptera): 33; Flies (Diptera): 4; True bugs (Hemiptera): 3; Sawflies, wasps, bees, and ants (Hymenoptera): 3; Butterflies and moths (Lipidoptera): 12; Dragonflies and damselflies (Odonata): 1; Grasshoppers, locusts and crickets (Orthoptera): 22; Amphipods: 1; Crabs, lobsters and shrimps (Decapoda): 1; Isopoda: 1; Pycnogonida: 1; Bony fish (Actinopterygii): 4; Sharks and rays (Chondrichthyes): 1; Birds: 23; Amphibians: 1; Mammals (bats): 5; Reptiles: 16; Cnidarians: 5; Bivalves: 5; Gastropods: 28; Flatworms (Platyhelminthes) 1; Red Algae: 3; Spermatophyta (Vascular plants): 22.

The breakdown of the 35 taxa that are endemic to the SSS islands or Saba Bank is as follows: Polychaeta: 1; Arachnida: 4; Hexanauplia: 2; Coleoptera: 3; Diptera: 1; Hemiptera: 1; Orthoptera: 10; Bony fish: 2; Reptiles: 3; Bivalves: 1; Gastropods: 3; Red Algae 1; Vascular plants: 3.

The breakdown in numbers of island endemics for the SSS islands and Saba Bank is:

- St. Martin: 12 island endemics (10 animal species and 2 plant species)
- St. Eustatius: 10 island endemics: (8 animals species and 2 plant species)
- Saba: 10 island endemics: (10 animals species, 0 plant species).
- Saba Bank: 3 endemics (3 animal species, 0 plant species)

The number of endemics is probably larger than reported here. Very little marine taxonomic research has been conducted in the SSS islands and many species probably remain to be described. In the past decade many new and potentially endemic species (of algae, fish, corals, sponges, etc.) have been discovered, mainly on the Saba Bank. Furthermore, additional research on specific species groups (e.g. beetles) could result in the discovery of yet more new endemic species.

The IUCN assesses the conservation status of plant and animal species worldwide. Most rare and endangered island endemics are not included in the assessments due to lack of information or perceived priority. Therefore, most IUCN-listed threatened species for the SSS islands are species with much wider distributions. Assessments are only available for 42 of the endemic (sub)species of the SSS islands. The only recent endemic ground-dwelling mammal, the Nevis rice rat, is extinct. The endemic bats and bird subspecies have wider dispersal capabilities and currently carry no IUCN threatened listing, even though several only survive in tiny, scattered and vulnerable populations. Only the following six endemic terrestrial reptiles currently carry a IUCN threatened status:

- *Critically Endangered*: Lesser Antillean Iguana (*Iguana delicatissima*).
- *Endangered*: Anguilla Bank Racer (*Alsophis rijgersmaei*); *Spondylurus powelli*.
- *Vulnerable*: Saba Racer (*Alsophis rufiventris*) and Anguilla Bank Bush Anole (*Anolis pogus*).
- *Near threatened*: St. Christopher Ameiva (*Pholidoscelis erythrocephalus*).

Many of the 223 endemic taxa listed here are restricted to very small populations on one or only a few small islands. This makes them very vulnerable to extinction. Indeed, in the recent past, some species may already have become extinct (e.g. two endemic plants known only from St. Martin). Therefore, assessments of the conservation status of each of the identified endemic taxa are urgently needed for the SSS islands and Saba Bank. In addition, conservation strategies need to be developed to minimize extinction risk for the most endangered endemics.

1 Introduction

1.1 Scope and objective

The Convention on Biological Diversity (CBD) requires member states to identify (and monitor) important components of biodiversity, such as ecosystems or habitats containing high numbers of endemics. Endemic species which have a highly restricted distributional range represent a unique contribution of any particular region to global biodiversity. Endemic species are often abundant on or around islands due to the fact that populations of organisms inhabiting such areas may have been isolated from other populations for longer periods of time, allowing them to develop unique traits. Islands play an important role in generating (as "cradle") but also conserving (as "museum") biodiversity worldwide (Gascuel et al. 2016). As a consequence of a limited distributional range, and the development of "island naiveté", whereby species lose competitive and anti-predator skills (Lomolino et al. 2017), such island endemics are typically extra vulnerable to extinction (e.g. Biber 2002, Kouvari et al. 2018, Leclerc et al. 2018). Consequently, identification of endemic taxa is critical for the formulation of nature conservation and management policy.

So far, identification of species that are endemic to the Caribbean Netherlands is largely restricted to the Leeward Dutch Caribbean (Aruba, Bonaire, Curaçao) for which an inventory of species has been made (Debrot 2006), and to which imported updates have been recently added (Debrot et al. 2018). For the Windward Caribbean islands of the Kingdom, no systematic effort has yet been undertaken to assemble a list of endemic (sub)species. This is dearly needed both to fulfil the requirements of the CBD and as a contribution towards the new 2018 Nature Policy Plan, which is currently being drafted for the Caribbean Netherlands. For this, a complete and up to date list of endemic species is needed for Saba and St. Eustatius, as well as St. Maarten, because of its close biogeographical connection while also being part of the Kingdom of the Netherlands.

The term endemism or "endemic" refers to species possessing a limited geographic range. The term is hence geographically defined. For this assignment we inventory all species that are exclusively known to occur on the islands of Saba, St. Eustatius or St. Martin (so-called "island endemics") or are limited to a small area of the Lesser Caribbean chain of islands around Saba, St. Eustatius or St. Maarten. The assignment is not restricted only to the three mentioned Dutch islands but also includes endemics from nearby or neighbouring islands. This is because in the geological past (e.g. in the Pliocene and Pleistocene) several of these islands were connected to form larger islands as a result of lower sea level. This was for instance the case with St. Eustatius and St. Kitts. This means that species that today are endemic to St. Kitts are likely to have occurred on St. Eustatius in the past, or may even be present on St. Eustatius. As such, these (lost) endemic species should be actively searched for and should also be seriously considered as important candidates for biodiversity restoration. Likewise, species endemic to St. Eustatius and only known so far from this island are likely candidates for having or having had populations on St. Kitts. Identification of endemic species is the starting point after which conservation status of each endemic species can be determined and subsequent conservation/restoration measures can be identified to protect the most critically endangered endemic species.

The objective is to produce an overview of existing, current and potential, terrestrial and marine, endemic species of plants and animals for the windward islands of the Dutch Caribbean (Saba, St. Eustatius, St. Martin, Saba Bank; further referred to as the SSS-islands).

1.2 Endemic taxa in the Caribbean Netherlands

The Caribbean region is considered as a biodiversity hotspot because of the relatively high level of endemism (BEST 2016). At least 7,500 endemic plant species and 880 vertebrates are known for this region that features an exceptional array of ecosystems, from coral reefs, seagrass beds, mangroves to tropical rainforests, dry seasonal forests or cactus scrublands (BEST 2016).

As indicated, endemism is a geographically defined term. It is therefore necessary to be explicit about what geographic scales are being used to denote the level of species sharing. In this report we distinguish the following levels of endemism (Table 3 and Table 4).

- a) **Island level** endemic species: species with a distribution that is restricted to only one of the SSS islands or Saba Bank.
- b) **Bank level** endemic species: species occurring on one or more islands that formed a single island in the prehistoric past with one of the SSS islands.
- c) **Northern lesser Antilles level** endemic species: species found on one or more of the SSS islands that are restrictively shared with the islands from Puerto Rico to and including Montserrat. This includes all inter-lying islands and banks such as St. Croix, the Saba Bank, Anguilla Bank and the St. Kitts Bank islands.
- d) **Lesser Antilles** level endemic species: species found on one or more of the SSS islands that are restrictively shared with the islands of the Lesser Antilles (all islands between Anguilla and including Grenada).
- e) **Antilles level** endemic species: species found on one or more of the SSS islands that are restrictively shared with the islands of up to the Greater Antilles (all islands between and including Cuba. The Bahamas and Turks and Caicos are excluded).
- f) **'Other level'** endemic species: species found at regions larger than the Antilles (Table 3 and Table 4).

Endemic species occurring the SSS islands, but which are occurring beyond the above mentioned levels were not distinguished from other Western Atlantic endemic species, West Indian endemic species or circumtropical species. Hence, on this basis, the widely ranging endangered endemic West Indian manatee, *Trichechus manatus manatus*, was not included in this overview of endemic taxa even though it has been recently documented for St. Martin (Debrot et al. 2006).



Figure 1. A virtually black female Saba Island Green Iguana, *Iguana iguana*, at the foot of Bunker Hill, Saba (photo: A. Debrot).

Measures of endemism at the species or subspecies level are of course minimalistic by nature (Myers et al. 2000) and provide only part of the total biodiversity picture. Therefore, it must be kept in mind that a great deal of the unique biodiversity present in an area is not necessarily expressed at the species or subspecies level, but at the level of the localized population at an island. One example that illustrates this point is the melanistic Green iguana, *Iguana iguana*, living on Saba which is considered

to be a separate lineage within the green iguana (Brueil 2013, Stephen et al. 2013) (Figure 1). It has as yet not been described as an endemic species or subspecies but does represent an endemic genetic lineage which may ultimately be described as a separate species or subspecies.

Many of the taxa (species and subspecies) listed in this report are poorly described (little information is known on their taxonomic status, ecology, etc.) and may require a systematic revision. This could affect their species status. Consequently, the endemic taxa recorded in the preliminary list presented in this report, is only indicative and most certainly incomplete, but should provide a useful starting inventory. As more and more research becomes available, the known distributional ranges for the taxa listed in this report may change. This may affect whether or not they are to be considered “endemic”.

Checklists of endemic taxa are dearly needed for biodiversity conservation purposes, because endemism is a special aspect of biodiversity. It refers to the narrow distributional range of certain species that can be considered “unique” to that area. Endemic species having a restricted regional distribution are an extremely important feature of biodiversity and a key criterion to conservation valuation and nature management goal-setting. Due to a limited distribution range, small total population size, and low genetic diversity, endemic species are extra vulnerable to extinction. The Dutch SSS islands form part of the Caribbean biodiversity hotspot region (Myers et al. 2000), but up to now, no systematic assessment was available on the occurrence of endemic species on these islands and the surrounding marine areas. Scattered information is available, such as the biological inventories of St. Martin, St. Eustatius and Saba (Rojer 1997abc) and inventories by the EU BEST programme (BEST 2016), which suggest that there should be a considerable number of endemic species on or within the territory of these islands.

1.3 Vulnerability of endemic taxa (species and subspecies)

In the BEST programme (BEST 2016), endemic and restricted-area species have been used to help identify Key Biodiversity Areas (KBAs) that are in need of protection. Because endemic species have such a restricted distribution and because they are often ecologically “naive” (Lomolino et al. 2017), they can easily become extinct if they, or their habitat ranges are threatened. Threats include the introduction of new species (rats, cats, goats, raccoons, mongoose, invasive plants), habitat destruction (e.g. coastal development) or consumption (e.g. iguanas) (Rojer 1997abc; BEST 2016). In the West Indies, 80% of extinctions of species have been caused principally by biological invasions (Leclerc et al. 2018) and the West Indies continue to remain a “hotspot” of insular extinction threat (Leclerc et al. 2018). Another threat to the survival of endemic species is climate change and its impacts in the region. At the same time due to the lack of ecological knowledge a lot of threats and impacts on e.g. population size of endemic species are not clear yet.

1.4 Potential endemics and lost endemics

During the last ice age (Last Glacial Maximum, ending ~20,000 y BP) global sea level was approximately 120-135 m lower than today (Clark & Mix 2002). As a result, in the past several of the SSS islands were connected to other islands to form one larger island (Rojer 1997a). In Figure 4 this is illustrated: taking the -100 m isobath as a reference level, we assume that the following island groups formed larger islands:

- Anguilla Bank: St. Martin, Anguilla and St. Barthélemy
- St. Kitts Bank: St. Eustatius, St. Kitts and Nevis

Note that Figure 4 also shows that Saba and Saba Bank are surrounded by deep waters and as a result were also isolated from each other during the last ice age.

Species endemic to islands that were connected to the SSS islands in the past, but not occurring on the SSS islands anymore due to local extirpation, should still be considered as an authentic part of the endemic flora or fauna of the SSS islands.

Likely candidates for authentic endemic species which are possibly no longer present or which have not yet been documented on the SSS islands, are small species in groups such as terrestrial reptiles, non-flying insects and terrestrial molluscs that are characterised by limited dispersal capacities. For species groups that disperse through air or water, such as flying insects, crabs, lobsters, molluscs, birds, bats and fish it is expected that the sea forms no strict barrier for migration..

Endemic species which no longer exist, such as the giant ground sloth *Amblyrhiza inundata*, of St. Martin, Anguilla and St. Barths (McFarlane et al. 2014) and the St. Eustatius rice rat *Pennatomys nivalis*, which formerly was also found on the other islands of the St. Kitts Bank (Brace et al., 2015), have been excluded. While such species are very interesting from the viewpoint of biodiversity evolution, they are no longer of relevance to biodiversity conservation, which is the main underlying reason for this work.

Species can also be lost due to hybridization. The Lesser Antillean iguana, *Iguana delicatissima*, that until recently occurred on St. Maarten, but which has been lost due to hybridization with the introduced invasive green iguana, *Iguana iguana* (Van den Burg et al. 2018). Hence, even though *I. delicatissima* no longer exists on St. Maarten, it still should be considered an authentic endemic species of that island. Such species have been included as endemic species of a particular island or island group.

1.5 Dutch Caribbean Species Register

Many different publications have described the flora and fauna on the Dutch Caribbean islands (Aruba, Bonaire, Curaçao, Saba, Saint Eustatius, Saint Martin) and Saba Bank. They were brought together in 2017 in the online Dutch Caribbean Species Register (DCSR) by Naturalis Biodiversity Center (Figure 2). The register is based on >1000 publications (scientific papers, field guides, reports, etc.) and focuses on both terrestrial and marine species, but not specifically on endemics. Although a lot of information is present in the species register, the list of endemic species was therefore not yet complete at the start of this project (July 2018). For example, in July 2018 only 7 island endemics (species or subspecies exclusively present on Saba, Saint Eustatius, Saint Martin or the Saba Bank) were listed in the DCSR. Furthermore, 50 (sub)species endemic on the level of the Leeward Antilles were listed, as well as 19 (sub)species on the level of the Lesser Antilles, and 1 on the level of the West Indies (Figure 3.4), totalling only 58 endemic species at different geographical levels. This project was done to allow an update of the DCSR.

The register can be found on <https://www.dutchcaribbeanspecies.org/>. To find island endemic species in the Species Register, go to <https://www.dutchcaribbeanspecies.org/>, and click on: Search > Extensive Search > Filter search > Presence and Distribution > Endemic to > [name island]:

- Sint Maarten (referred to as St. Martin throughout this report)
- Sint Eustatius
- Saba
- Saba Bank

Dutch Caribbean Species Register
 Overview of the biodiversity of Aruba, Bonaire, Curaçao, Saba, Sint Eustatius and Sint Maarten

About this project Share your images Search

Filter search Extensive search Photo search Taxonomic tree

Filter by species group...

Search results scientific name

1 - 50 of 8488 species (and lower taxa) [show only species](#)

- Aaplos bergmanni* de Laubenfels, 1950
- Abelmoschus esculentus* (L.) Moench
Okra
- Abelmoschus moschatus* Medik.
- Ablennes hians* (Valenciennes, 1846)
Flat Needlefish
- Abra aequalis* (Say, 1822)

Export (as CSV)

Endemic to
 Aruba
 Bonaire
 Curaçao
 Saba
 Saba Bank
 Sint Eustatius
 Sint Maarten
 St Kitts Bank
 Leeward Antilles
 Anguilla Bank
 Leeward Islands
 Northern Lesser Antilles
 Lesser Antilles
 West Indies
 Greater Antilles
 Antilles

Figure 2. Dutch Caribbean Species Register ([www. https://www.dutchcaribbeanspecies.org/](https://www.dutchcaribbeanspecies.org/)).



Figure 3. General map of the Caribbean Sea, showing the Greater Antilles, the Lesser Antilles, the Windward Islands, the Leeward Islands and the Leeward Antilles (source: Wikimedia, https://upload.wikimedia.org/wikipedia/commons/9/98/Caribbean_general_map.png).

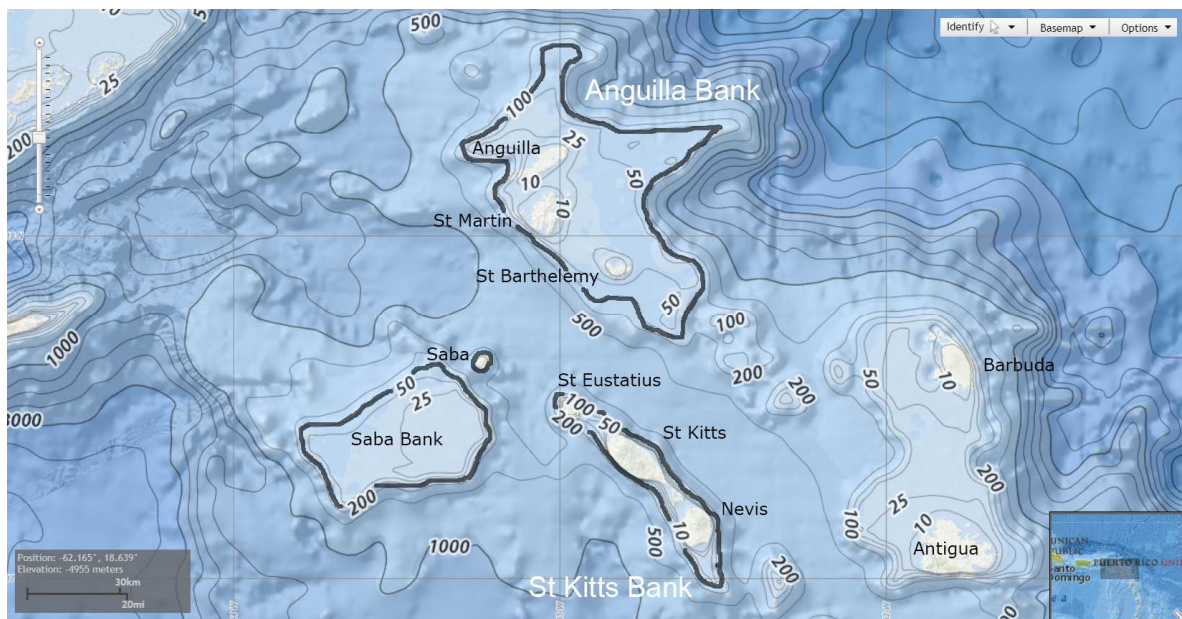


Figure 4. Bathymetry of the SSS islands (St. Martin, St. Eustatius, Saba) and surrounding islands. Black lines: 100 m isobath around the SSS islands and Saba Bank (adapted map from NOAA: <https://maps.ngdc.noaa.gov/viewers/bathymetry/>).

2 Materials and Methods

2.1 Endemics

2.1.1 Definitions

The following definitions are used in this report:

- **Species:** In this report, 'species' can refer to both the level of species and subspecies, to increase readability of the text. Subspecies are mainly found within butterflies, birds and molluscs (see Results).
- **Island endemics:** Species or subspecies that are only known to occur on one of the SSS islands (Saba, St. Eustatius or St. Martin (including the French part) or Saba Bank).
- **Endemics:** Species or subspecies endemic to larger geographical areas (e.g. Northern Lesser Antilles endemics, Lesser Antilles endemics, etc.) (for geographical names, see 2.1.5).
- **Potential endemics:** Species or subspecies endemic to one or more of the surrounding islands (Anguilla, St. Barthélemy, St. Kitts and Nevis), not known for the SSS islands, that potentially could have counterparts on the SSS islands or Saba Bank.

2.1.2 Identification of endemics

The total number of (sub)species currently registered in the Dutch Caribbean Species Register at the start of the project (July 2018) was 8106 (1931 Saba, 827 Saba Bank, 2592 St. Eustatius and 2274 St. Maarten). A number of species groups were excluded from the assessment (Fungi, Chromista, Foraminifera, Bryophyta and Marchantiophyta) because no specialists were available to consult and/or it was estimated that no information on endemics could be retrieved within the time frame of the project. The reduced list of relevance therefore only contained Plantae and Animalia (plants and animal (sub)species) for the SSS Islands and Saba Bank, totalling 4107 species, with 58 listed endemics (see 1.5).

Next, the list was narrowed down to a list of 1940 (sub)species by excluding the taxa that have a wide distribution (e.g. American continent, West Indies, etc.) based on the existing distribution information in the Dutch Caribbean Species Register. Also species occurring both on the SSS and the ABC islands (for abbreviations: see 2.1.5) were removed from consideration. The remaining species list was divided among a number of taxonomy specialists to identify endemic species, based on existing literature. Available literature includes biological inventories for these islands (Royer 1997abc), miscellaneous recent papers describing new species of insects such as butterflies (Hill, 2010), (sea)spiders and scorpions (Teruel 2008; Teruel & Questel 2011ab), plants (Krings & Axelrod 2013), fish (Williams et al. 2010) and corals (Etnoyer et al. 2010).

The following species groups were reviewed (in alphabetical order):

Table 1. List of species groups and taxonomy specialists that reviewed them.

Kingdom	Phylum	Group	Common name	Specialist	Affiliation	
Animals	Annelida,	Polychaeta	Bristle worms	H. ten Hove	Naturalis Biodiversity Center	
		Arthropoda	Isopoda	Isopods	R. Vonk	Naturalis Biodiversity Center (www.naturalis.nl)
			Araneae	Spiders, scorpions	S. Crews	California Academy of Sciences (www.calacademy.org)
			Decapoda	Crabs, lobsters, shrimp	C. Fransen	Naturalis Biodiversity Center
		Diptera, Apidae, Odonata		Flies, mosquitos, bees, dragonflies, etc.	J. Smit	EIS-Knowledge Center Netherlands, (www.eis-nederland.nl)
	K.-D. B. Dijkstra				Naturalis Biodiversity Center	
		Chordata	Amphibia, Reptilia	Ampbians, reptiles	G. van Buurt	Curacao (gvanbuurt@gmail.com)
			Aves	Birds	P. Kamminga	Naturalis Biodiversity Center
			Chiroptera	Bats	O. Doest	Carmabi, Curaçao, (www.carmabi.org)
		Cnidaria	Corals		B. Hoeksema	Naturalis Biodiversity Center
		Mollusca	Molluscs	Freshwater and terrestrial molluscs	A. Hovestadt	
					Freshwater and terrestrial molluscs	T. Neckheim
				Freshwater and terrestrial molluscs	S. van Leeuwen	Anemoon Foundation (www.anemoon.org)
				Marine molluscs	J. Goud	Naturalis Biodiversity Center
	Porifera			Sponges	N. de Voogd R. van Soest	Naturalis Biodiversity Center
Plants	Rhodophyta	Red algae		W. Prud'homme	Naturalis Biodiversity Center	
	Chlorophyta	plants, green algae		van Reine		

In addition, for some species groups (e.g. Echinodermata, marine Mollusca, Lepidoptera), online databases and literature were consulted to obtain geographical distribution information (www.marinespecies.org; www.observation.org; www.inaturalist.org, Hill 2012) e.g. if no taxonomy specialists were available within the timeframe of the project.

During the literature research, 7 additional endemic species at different endemic levels were found that were not yet registered in the Dutch Caribbean Species Register in July 2018, consisting of 3 insect species: *Lophoscutus geijskesi* (Saba endemic: Kormilev & Van Doesburg 1986); *Alepia apexalba* (Saba endemic: Wagner et al. 2010); *Cyrtoxipha orientalis* (Antilles endemic: Bland & Desutter-Grandcolas 2003), 1 gastropod species: *Lyria sabaensis* (endemic to Saba Bank, Bail 1993) and 3 plant species: *Cinnamomum falcatum* (endemic to Lesser Antilles: Broome 2007); *Epidendrum pallidiflorum* (endemic to Lesser Antilles: Broome et al. 2007); *Coccoloba x boxii* ('x' means nothospecies: 'hybrid which is formed by direct hybridization of two species, not other hybrids'¹; endemic to Northern Lesser Antilles: Broome et al. 2007); The species were added to the species register by Naturalis Biodiversity Center and included in further analyses in this report.

Since we excluded species that were registered for the both ABC and SSS islands and Saba Bank, it is possible that some endemic species were removed wrongly, i.e. those endemic species from the SSS islands that have been introduced to the ABC islands. For some species, this was corrected, e.g. *Agave karatto*, but not all species were checked.

For many species in our list, the geographical distribution was only quickly assessed, due to time restrictions. We expect that a closer study of the species ranges may yield a narrower distribution for several listed species, thus effectively increasing the degree of endemism of many of such species.

¹ <https://en.wiktionary.org/wiki/nothospecies>

2.1.3 Identification of potential endemic species

To identify potential endemic species, we inventoried the species lists of endemics for Anguilla, the French part of St. Martin, St. Barthélemy and St. Kitts & Nevis from the BEST project report (BEST 2016) and other literature and databases found through a brief literature research (Table 2). Only endemics up to the level of the Lesser Antilles, and not present on the SSS islands and Saba Bank are presented. For these species, it was assessed if they could be present on the SSS islands or Saba Bank (potential endemics).

Table 2. Overview of databases and literature with information on endemics for surrounding islands and the French part of St. Maarten (i.e. St. Martin).

Island	Database/literatures
Anguilla	Proctor & Fleming (1999). Report with species lists for British overseas territories BEST (2016). EU project with lists of endemics per island
St. Martin (French part)	INPN: Database 'Inventaire National du Patrimoine Naturelle' (https://inpn.mnhn.fr/accueil/index?lg=en) (use drop down menu to select an island, then select endemic species); BEST (2016)
St. Barthélemy	INPN; BEST (2016)
St. Kitts and Nevis	Horwirth & Lindsay (1999)
Database of Plants of the Eastern Caribbean	Broome et al. (2007): Barbados Herbarium of the University of the West Indies (http://ecflora.cavehill.uwi.edu/advsearch.php ; select 'endemic' and an island name)

2.1.4 New species

A number of recent publications contain information on new species that have not yet been described (i.e. they do not have an official species name yet). Once they have officially been described, it will become clear if they are endemics. New species are therefore listed in a separate paragraph (3.5).

2.1.5 Geographical regions

To refer to the distribution of a species, existing geographical names for different groupings of islands were used (Figure 5) corresponding to the regions used in the Dutch Caribbean Species Register (Table 3) and complemented with some extra regions (Anguilla Bank, St. Kitts Bank, Northern and Southern Lesser Antilles, indicated with '*'). Names of regions and islands were put in a spreadsheet (Table 4) to allow for a quick assignment of species distributions found in the literature to the regions used in this report.

In this report, most endemic species of the SSS islands and Saba Bank were found to be endemic on the level of one of the SSS islands or Saba Bank ('island endemics'), Northern Lesser Antilles, Lesser Antilles and/or Greater Antilles. Species endemic to even larger regions were put in the category 'Other Regions' (e.g. West Indies or Caribbean). Since only few species were endemic to the level of the St Kitts Bank or Anguilla Bank, they were grouped with the Northern Lesser Antilles endemics.

Table 3. Geographical regions to define species distributions (source: the Dutch Caribbean Species Register with some additions from A. Debrot). Definitions in black were used in this report to describe species distributions.*

Geographical area	Includes
SSS islands and surrounding islands	Saba, St. Eustatius and St. Maarten (part of Leeward Islands) and surrounding islands of Anguilla, St. Barthélemy, St. Kitts and Nevis
Saba Bank	A submarine atoll part of Caribbean Netherlands. About one third of the Saba Bank lies within Saba's territorial waters.
SSS islands	Saba, St. Eustatius and St. Maarten (part of Leeward Islands).
ABC islands	Aruba, Bonaire, Curaçao (part of Leeward Antilles).
Caribbean Netherlands	Bonaire, Saba, Sint Eustatius. Also called BES islands. They are special municipalities of The Netherlands.
Dutch Caribbean	Aruba, Bonaire, Curaçao (part of Leeward Antilles) and Saba, Saint Eustatius and Saint Maarten (part of Leeward Islands).
*Anguilla Bank	Anguilla, St. Maarten, St. Barthélemy
*St. Kitts Bank	St. Eustatius, St. Kitts, Nevis
Leeward Antilles	Southwestern island chain of the Lesser Antilles, sometimes also referred to as southern Caribbean Islands: Aruba, Bonaire, Curaçao, and the Venezuelan islands Los Monjes Archipelago, La Tortuga, La Sola, Los Testigos, Los Frailes, Patos, Los Roques Archipelago, La Blanquilla, Los Hermanos, La Orchilla, Las Aves Archipelago, Isla Margarita, Coche, Cubagua.
Windward Islands	Southern island chain of the Lesser Antilles: Dominica, Martinique, Saint Lucia, Saint Vincent and the Grenadines, Grenada
Leeward Islands	Most northern island chain of the Lesser Antilles: Virgin Islands, Anguilla, Sint Maarten (Saint Martin), Saint Barthélemy, Saba, Sint Eustatius, Saint Kitts, Nevis, Barbuda, Antigua, Redonda, Montserrat, Guadeloupe, La Désirade, Îles des Saintes, Marie-Galante.
*Northern Lesser Antilles	All islands from the Virgin Islands southwards up to and including Montserrat
*Southern Lesser Antilles	All islands after Montserrat up to Tobago
*Lesser Antilles	Northern + Southern Lesser Antilles
Lesser Antilles (strict sense, s.s.)	Leeward Islands and Windward Islands only. Axelrod's vademecum of plants on Statia uses this definition, but excludes The Virgin Islands.
Lesser Antilles s.l.	Leeward Islands and Windward Islands (Lesser Antilles in the strict sense), plus Trinidad and Tobago, Leeward Antilles (Lesser Antilles in the broad sense).
Greater Antilles	Grouping of the larger islands in the Caribbean: Cuba, Hispaniola (containing Haiti and the Dominican Republic), Puerto Rico, Jamaica, and the Cayman Islands
Antilles	Greater Antilles and Lesser Antilles (Caribbean in its narrowest definition)
Caribbean	Greater Antilles and Lesser Antilles, sometimes including Lucayan Archipelago.
West Indies	Greater Antilles, Lesser Antilles (in the broad sense), Lucayan Archipelago (Bahamas, Turks and Caicos Islands). In broadest sense sometimes includes coastal areas of Belize, Colombia, Venezuela, and the Guianas.

Table 4. Geographical regions (columns) and islands (rows).

Island	SSS islands	ABC islands	Caribbean Netherlands	Dutch Caribbean	St. Kitts Bank	Anguilla Bank	Leeward Antilles	Windward Islands	Leeward Islands	Northern Lesser Antilles	Southern Lesser Antilles	Lesser Antilles s.s.	Lesser Antilles s.l.	Greater Antilles	Antilles	Caribbean	West Indies
Saba	1	0	1	1	0	0	0	0	1	1	0	1	1	0	1	1	1
Saba Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Eustatius	1	0	1	1	1	0	0	0	1	1	0	1	1	0	1	1	1
St. Martin	1	0	0	1	0	1	0	0	1	1	0	1	1	0	1	1	1
Aruba	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Curaçao	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Bonaire	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Virgin Islands	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	1	1
Anguilla	0	0	0	0	0	1	0	0	1	1	0	1	1	0	1	1	1
Saint Barthélemy (St. Barths)	0	0	0	0	0	1	0	0	1	1	0	1	1	0	1	1	1
Saint Kitts	0	0	0	0	1	0	0	0	1	1	0	1	1	0	1	1	1
Nevis	0	0	0	0	1	0	0	0	1	1	0	1	1	0	1	1	1
Barbuda	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1
Antigua	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1
Redonda	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1
Montserrat	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1
Guadeloupe	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1
La Désirade	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1
Îles des Saintes	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1
Marie-Galante	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1
Dominica	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	1	1
Martinique	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	1	1
Saint Lucia	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	1	1
Saint Vincent and the Grenadines	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	1	1
Grenada	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	1	1
Barbados	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1
Tobago	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1
Trinidad	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
Los Monjes Archipelago	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
La Tortuga	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
La Sola	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Los Frailes	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Patos	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
los Roques Archipelago	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
La Blanquilla	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Los Hermanos	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
La Orchila	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Las Aves Archipelago	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Isla Margarita	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Coche	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Cubaqua	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	1
Cuba	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Hispaniola (Haiti, Dominican Republic)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Jamaica	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Cayman Islands	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Lucayan Archipelago (Bahamas, Turks and Caicos Islands)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

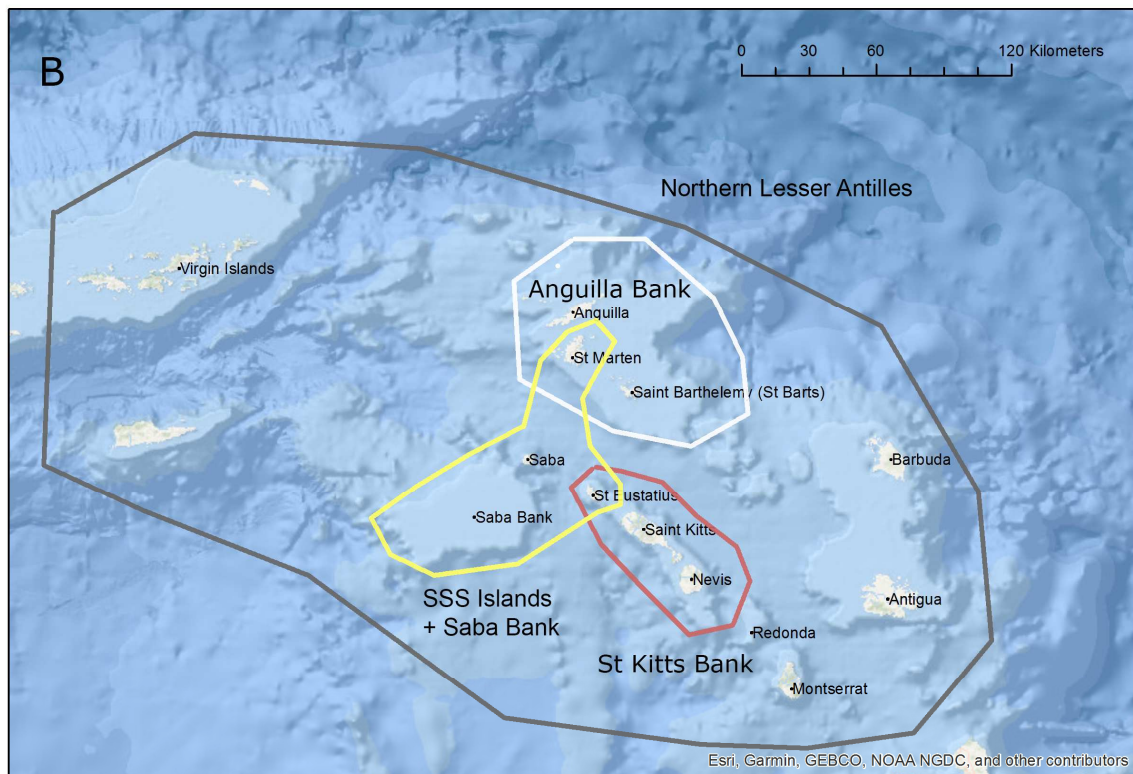
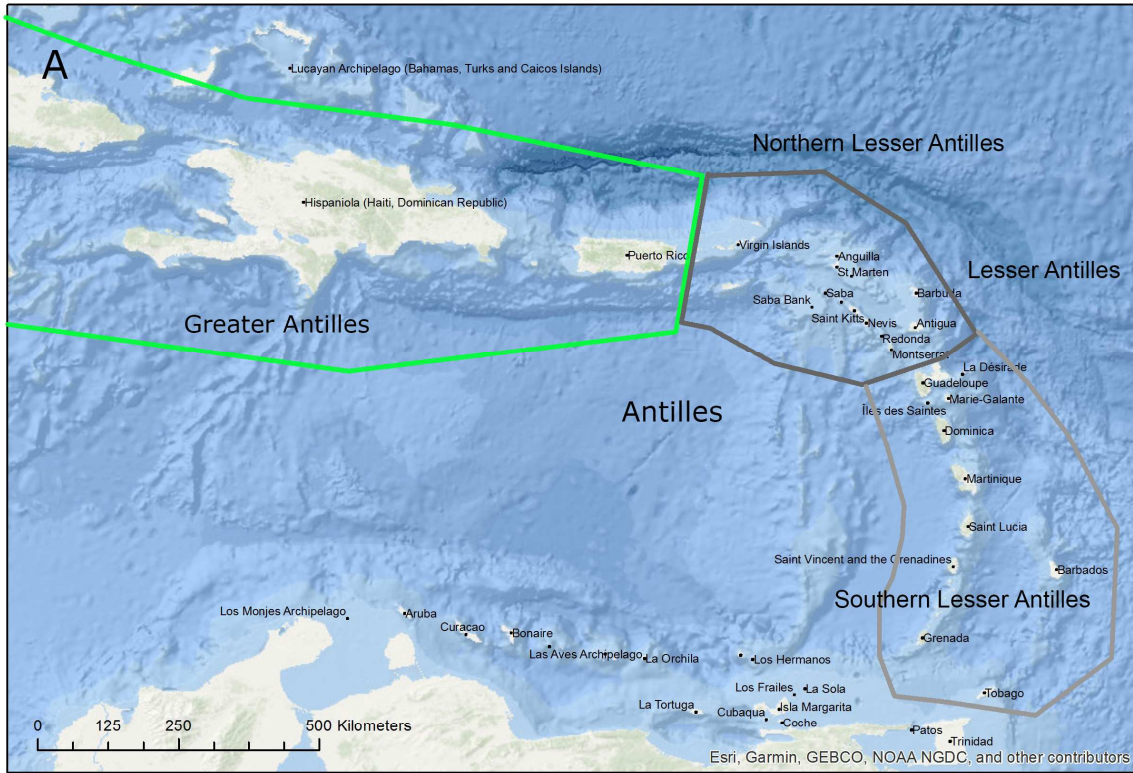


Figure 5. Schematic representation of geographical areas referred to in this report: A) Northern and Southern Lesser Antilles (dark and light grey), together referred to as the Lesser Antilles, and Greater Antilles (green). The Lesser Antilles and Greater Antilles together are referred to as the Antilles. B) Northern Lesser Antilles (grey line), SSS Islands and Saba Bank (yellow), St. Kitts Bank (red) and Anguilla Bank (white).

2.1.6 Additional sources of information

Databases and checklists additional to the Species Register that were used to check for endemics:

- Plants of the Eastern Caribbean (select 'endemic' and an island name)
<http://ecflora.cavehill.uwi.edu/advsearch.php>
- Living National Treasures:
 - <http://Intreasures.com/saba.html> (Saba)
 - <http://Intreasures.com/se.html> (St. Eustatius)

2.2 Conservation Status

The IUCN Red List conservation status was extracted from the IUCN database and follows the IUCN criteria (IUCN, 2012) (Table 5). For the Chondrichthyes (sharks, rays) a regional IUCN assessment has been made (Kyne et al. 2012), while for the other species only world-wide assessments are available (<http://www.iucnredlist.org/>). The IUCN conservation status for species occurring in the Dutch Caribbean have been published in <http://www.dcnanature.org/wp-content/uploads/2013/01/3-Red-List.pdf>. Note that not all species have been assessed by IUCN, and that only endemic species have been assessed in this report.

Table 5. IUCN conservation status descriptions (IUCN, 2012).

IUCN Status	Conservation Status	Description
Extinct	Extinct (EX)	No known individuals remaining
	Extinct in the wild (EW)	Known only to survive in captivity, or as a naturalized population outside its historic range
Threatened	Critically Endangered (CR)	A species is Critically Endangered when it is considered to be facing an extremely high risk of extinction in the wild
	Endangered (EN)	A species is Endangered when it is therefore considered to be facing a very high risk of extinction in the wild
	Vulnerable (V)	A species is Vulnerable when it is considered to be facing a high risk of extinction in the wild.
Lower Risk	Near Threatened (NT)	Likely to become threatened in the near future
	Least Concern (LC)	Lowest risk. Does not qualify for a more at-risk category. Widespread and abundant taxa are included in this category.
Not fully assessed	Data Deficient (DD)	Not enough data to make an assessment of its risk of extinction
	Not Evaluated (NE)	Has not yet been evaluated against the criteria

3 Results

3.1 Total number of endemic taxa for the SSS islands and the Saba Bank

In Annexes 1 and 2, an overview is given of the total number of species, and the number of endemic species per species group for the SSS islands and Saba Bank, with the level of endemism. In total, 4114 animal and plant (sub)species are registered for the SSS islands and Saba Bank (registered (sub)species per July 2018, plus additional (sub)species found in this report). After analyses of the (sub)species groups by specialists and through literature research, and by excluding the 2060 taxa that also occur at the ABC islands, and by including the 7 endemics found in various reports and lists during this research (see paragraph 2.1.2), a total number of 222 (sub)species (197 animal and 25 plant species) were found to be endemic (5%) with 35 (0.8%) (sub)species being endemic to only one of the SSS islands or Saba Bank (island endemics).

3.2 Species and subspecies

In Table 6 the number of species and subspecies are shown. In total, the 222 endemic taxa (all geographical levels) consist of 32 subspecies and 190 species. Most endemic subspecies are found within birds (Aves: 16), butterflies and moths (Lepidoptera: 6), gastropods (5) and bats (3). Also 1 beetle (Coleoptera) and 1 taxon belonging to the Orthoptera are endemic subspecies. At the level of the SSS islands and Saba Bank, no subspecies are found, only species.

Table 6. Numbers of endemic species and subspecies per taxonomic level.

Taxa	All endemic levels			SSS islands and Saba Bank
	Subspecies	Species	Grand Total	Species
Animalia	32	165	198	31
Annelida		1	1	1
Polychaeta		1	1	1
Phyllodocida		1	1	1
Arthropoda	8	100	108	21
Arachnida		23	23	4
Hexanauplia		2	2	2
Insecta	8	70	78	15
Coleoptera	1	32	33	3
Diptera		4	4	1
Hemiptera		3	3	1
Hymenoptera		3	3	-
Lepidoptera	6	6	12	-
Odonata		1	1	-
Orthoptera	1	21	22	10
Malacostraca		4	4	-
Pycnogonida		1	1	-
Chordata	19	31	50	5
Actinopterygii		4	4	2
Amphibia		1	1	-
Aves	16	7	23	-
Chondrichthyes		1	1	-
Mammalia (bats)	3	2	5	-
Reptilia		16	16	3
Cnidaria		5	5	-
Anthozoa		4	4	-
Hydrozoa		1	1	-
Mollusca	5	28	33	4
Bivalvia		5	5	1
Gastropoda	5	23	28	3
Platyhelminthes		1	1	-
Plantae		25	25	4
Rhodophyta		3	3	1
Tracheophyta		22	22	3
Grand Total	32	190	223	35

3.3 Marine versus terrestrial endemic taxa

Of the total number of 4114 registered animal and plant species (see Table 7), 1858 species are strictly related to marine habitats (sum of 'marine' animals and plant species, 1623+262), 1978 to terrestrial habitats, 43 to freshwater habitats and 3 to brackish habitats, with 207 species using multiple habitats (see combinations of habitats in Table 7).

Of the 223 endemic species (all geographical levels), 32 are strictly related to marine habitats, 162 to terrestrial, 1 to freshwater and none to brackish habitats, with 5 species using two or three habitats (Table 7). Of the 25 endemic plant species, 3 are marine (red algae) and 22 terrestrial (vascular plants). Note that a number of groups that probably also contains endemics, including e.g. brown algae (Chromista) were not analysed in this report.

Within the 35 island endemics of the SSS islands and Saba Bank, 26 are related to terrestrial habitats and 8 to marine habitats (Table 7).

The percentage of strictly marine endemics compared to the total number of marine species ($32/1858=2\%$) is comparable to the percentage of freshwater endemics ($1/43=2\%$), but lower than the percentage of terrestrial endemics ($162/1978=8\%$).

Table 7. Endemic taxa per habitat.

Habitat	Total N species	N endemic taxa (all levels)	N island endemics (SSS islands or Saba Bank)
Animalia	2661	198	31
Brackish water	1	-	-
Brackish water, Marine	2	1	1
Freshwater	41	1	-
Freshwater, Brackish water	13	-	-
Freshwater, Brackish water, Marine	10	-	-
Freshwater Brackish water	1	-	-
Marine	1623	31	7
Terrestrial	797	161	23
Terrestrial, Brackish water, Marine	6	-	-
Terrestrial, Freshwater	66	3	-
Terrestrial, Freshwater, Brackish water	20	1	-
Terrestrial, Freshwater, Brackish water, Marine	16	-	-
Terrestrial, Freshwater, Marine	32	-	-
Terrestrial, Marine	32	-	-
Terrestrial Freshwater Marine	1	-	-
Plantae	1453	25	4
Brackish water, Marine	2	-	-
Freshwater	2	-	-
Marine	262	1	1
Terrestrial	1181	1	3
Terrestrial, Brackish water, Marine	1	-	-
Terrestrial, Freshwater	2	-	-
Terrestrial, Freshwater, Brackish water	1	-	-
Terrestrial, Marine	2	-	-
Grand Total	4114	223	35

3.4 Endemics of the SSS islands and Saba Bank

The total list of endemics can be found in Annex 2. Here we only show the island endemics per island and for the Saba Bank. The number of island endemics are:

- St. Martin: 12 island endemics (10 animal species and 2 plant species) (Table 8)
- St. Eustatius: 10 island endemics: (8 animals species and 2 plant species) (Table 9).
- Saba: 10 island endemics: (10 animals species, 0 plant species) (Table 10).
- Saba Bank: 3 endemics (3 animal species, 0 plant species) (Table 11)

Table 8. Island endemics registered for St. Martin (taxa endemic on larger scales such as Lesser Antilles are not included).

St. Martin	Common name	Total
Animalia		10
Arthropoda		
Arachnida		
1. <i>Amblyolpium martinensis</i> Van den Tooren, 2002	-	
Hexanauplia		
2. <i>Acanthomolgus seticornis</i> Stock, 1975	-	
3. <i>Leptocaris glaber</i> Fiers, 1986	-	
Insecta		
4. <i>Phoebolampta caeruleotergum</i> Heads, 2008	Leaf Mimic Katydid	
5. <i>Phyllophaga stehlei</i> Chalumeau, 1985	-	
6. <i>Solenoptera chalumeaui</i> Villiers, 1979	Michelle's Metallic Longhorn	
Chordata		
Actinopterygii		
7. <i>Melanorhinus boekei</i>	St. Maarten Pejerry	
Reptilia		
8. <i>Spondylurus martinae</i> Hedges & Conn, 2012	Slipperyback	
9. <i>Thecadactylus oskrobapreinorum</i> Köhler & Vesely, 2011	St. Maarten Thick-tailed Gecko	
Mollusca		
Gastropoda		
10. <i>Conasprella berschaueri</i> (Petuch & Myers, 2014)	-	
Plantae		2
Tracheophyta		
Spermatopsida		
11. <i>Calyptanthes boldingii</i> Urb.	-	
12. <i>Galactia nummularia</i> Urb.	-	
Grand Total		12

Table 9. Island endemics registered for St. Eustatius (taxa endemic on larger scales such as Lesser Antilles are not included).

St. Eustatius	Common name	total
Animalia		8
Annelida		
Polychaeta		
1. <i>Namanereis sublittoralis</i> Glasby, 1999	-	
Arthropoda		
Arachnida		
2. <i>Pachyolpium confusum</i> Van den Tooren, 2002	-	
Insecta		
3. <i>Lactista eustatia</i> Bland, 2002	-	
4. <i>Laurepa maculata</i> (Desutter-Grandcolas & Bland, 2003)	-	
5. <i>Orocharis angustus</i> Desutter-Grandcolas, 2003	-	
6. <i>Orocharis minutus</i> Desutter-Grandcolas, 2003	-	
7. <i>Cyrtoxipha orientalis</i> (Bland & Desutter-Grandcolas, 2003)	-	
Mollusca		
Gastropoda		
8. <i>Glyphyalus quillensis</i> de Winter, van Leeuwen & Hovestadt, 2016	-	
Plantae		2
Rhodophyta		
Florideophyceae		
9. <i>Stichothamnion antillarum</i> Vroman	-	
Tracheophyta		
Spermatopsida		
10. <i>Gonolobus aloiensis</i> Krings & F.S.Axelrod	A climbing milkweed species	
Grand Total		10

Table 10. Island endemics registered for Saba (taxa endemic on larger scales such as Lesser Antilles are not included).

SABA	Common name	Total
Animalia		10
Arthropoda		
Arachnida		
1. <i>Corticochernes saba</i> Van den Tooren, 2008	-	
2. <i>Stenoonops saba</i> Platnich & Dupérré, 2010	-	
Insecta		
3. <i>Alepia apexalba</i> Wagner, Richardson & Richardson, 2010	-	
4. <i>Antillicharis naskreckii</i> Otte & Perez-Gelabert, 2009	-	
5. <i>Antillicharis sabaensis</i> Otte & Perez-Gelabert, 2009	-	
6. <i>Chrysobothris saba</i> Maier & Ivie, 2013	-	
7. <i>Laurellia saba</i> Otte & Perez-Gelabert, 2009	-	
8. <i>Laurepa saba</i> Otte & Perez-Gelabert, 2009	-	
9. <i>Lophoscutus geijskesi</i> Kormilev & Van Doesburg, 1986	-	
Chordata		
Reptilia		
10. <i>Anolis sabanus</i> Garman, 1887	Saban anole	
Grand Total		10

Table 11. Island endemics registered for Saba Bank (taxa endemic on larger scales such as Lesser Antilles are not included).

Saba Bank	Common name	Total
Animalia		3
Chordata		
Actinopterygii		
1. <i>Starksia williamsi</i> Baldwin & Castillo, 2011	William's blenny	
Mollusca		
Bivalvia		
2. <i>Cardiomya saba</i> Knudsen, 1982	-	
Gastropoda		
3. <i>Lyria sabaensis</i> Bail, 1993	-	
Grand Total		3

3.5 New species for the SSS islands and Saba Bank

In recent years, a number of new species have been found on the SSS islands and Saba Bank. These species could potentially be endemic, since they have not been registered or described anywhere else before. In this paragraph we list new species that have no official scientific names yet, and that are therefore not yet registered in the Dutch Caribbean Species Register.

3.5.1 Fish

Williams et al. (2010), who conducted fish survey on Saba Bank, found at least 6 new species which had not yet been described (Figure 6, Figure 7). We have not checked whether they are described now. Williams et al. (2010) report 270 different fish species and estimate that a total of 320-411 species should be present on the basis of species-area curves. The species register currently contains 290 fish species for Saba Bank.



Figure 6. A new undescribed cardinalfish of Saba Bank, *Apogon cf quadrisquamatus* (photo: JT Williams, Williams et al., 2010).



Figure 7. A new undescribed tube blenny of Saba Bank, *Emblemariopsis cf signifer* (photo: JT Williams, Williams et al., 2010).

3.5.2 Corals

Two likely undescribed species of octocorals (genera *Pterogorgia* (Figure 8) and *Lytreaia*) were found by Etnoyer et al. (2010) during a rapid assessment of octocoral diversity and habitat on Saba Bank.



Figure 8. A new undescribed gorgonian soft coral (photo: J. Sanchez, Universidad de los Andes, Colombia).

3.5.3 Sponges

On the Saba Bank, one or two new sponge species were discovered during the Saba Bank Expedition 2015 (Figure 9). These species remain to be reported and described (Wilting et al. in prep).



Figure 9. Coral and sponge research during the Saba Bank expedition 2015

3.6 Endemic species on neighbouring islands



After checking lists of endemics for neighbouring islands (Anguilla, Anguilla Bank, St. Barthélemy, St. Kitts, Nevis, St. Kitts Bank and the Lesser Antilles), 47 endemic species were identified that are not present on the SSS islands and Saba Bank (Table 12). In the French database for St. Martin, no additional species were found compared to the species present in the Species Register. The endemics of the neighbouring islands include a number of Arachnida (spiders and scorpions), beetles, a cockroach, ground lizards and blind snakes, ferns, an orchid and some other vascular plants. The flora in St. Kitts and Nevis has been well studied (Horwirth & Lindsay 1999), hence the relatively large number of endemic species from St. Kitts and Nevis. Species per taxonomic group are listed in Table 13.

For each species more information was retrieved, to assess whether it would be a potential endemic (Table 13). We assess that reptile species are relatively well known and that few species are present, hence that no more new endemic reptile species should be expected. Also the endemic plant species from neighbouring islands concern species that grow sufficiently large to have been noticed by researchers in the past. For beetles, a very diverse group, more species are expected to be present (Peck, 2011). For spiders and scorpion species, a number of species was found on St. Barthélemy of which no or only very few related species are known to the Lesser Antilles. This suggests that the group is not yet well studied and that more species and perhaps endemics may be present.

Table 12. Numbers of endemic species for the neighbouring islands of Anguilla, Anguilla Bank, St. Barthélemy, St. Martin and St. Kitts and Nevis. Totals and subtotals are shown per species group. Endemic species that are listed in the Dutch Caribbean Species Register are not included.

Taxonomic level	Anguilla	Anguilla Bank	St. Barthélemy	St. Kitts	Nevis	St. Kitts Bank	Lesser Antilles	TOTAL
Animals	2	-	8	-	-	-	2	12
Arthropoda	-	-	7	-	-	-	-	7
Whip spiders (Arthropoda, Arachnida, Amblypygi)	-	-	1	-	-	-	-	1
Scorpions (Arthropoda, Arachnida, Scorpiones)	-	-	1	-	-	-	-	1
Camel spiders (Arthropoda, Arachnida, Solifugae)	-	-	1	-	-	-	-	1
Cockroaches (Arthropoda, Hexapoda, Blattodea)	-	-	1	-	-	-	-	1
Beetles (Arthropoda, Hexapoda, Coleoptera)	-	-	3	-	-	-	-	3
Chordata	2	-	1	-	-	-	2	5
Ground lizards (Reptilia)	2	-	-	-	-	-	-	2
Snakes (Reptilia)	-	-	1	-	-	-	2	3
Plants	2	-	-	1	1	-	31	35
Ferns	-	-	-	1	1	-	3	5
Orchids	-	-	-	-	-	-	2	2
Other vascular plants	2	-	-	-	-	-	26	28
Grand Total	4	-	8	1	1	-	33	47

Table 13. Endemic species for Anguilla, Anguilla Bank, St. Barthélemy, St. Martin and St. Kitts and Nevis that are not mentioned in the Dutch Caribbean Species Register, and an assessment if they could be potential endemic to the SSS islands and Saba Bank.

	Endemics per geographical area	Source	Potential endemic for SSS islands?
Endemic to Anguilla			
Reptiles and amphibians	<i>Ameiva corvina</i> (a black ground lizard): endemic to Sombbrero;	Procter & Fleming (1999)	A 15 cm size lizard. We assess that no similar species on the SSS islands are present, given their size and the small number of species present on the islands.
	<i>Ameiva corax</i> (a black ground lizard): endemic to Little Scrub Island	Procter & Fleming (1999)	A small lizard. We assess that no similar species on the SSS islands are present (see above).
Plants	<i>Rondeletia anguillensis</i> (Rubiaceae)	Procter & Fleming (1999)	Is endemic to Anguilla and not to other islands (Bárrios & Samuel, 2015).
	<i>Evolvulus arbuscula</i> Poir.	Broome et al. (2007)	On the SSS island, 6 species of <i>Evolvulus</i> are known. Hence, we suppose that any extra species would have been noticed already.
Endemic to St. Barthélemy			
		INPN database (https://inpn.mnhn.fr/collTerr/ou treMer/977/BLM/tab/stats); BEST 2016	
Arthropods - arachnides	<i>Ammotrechella beatriceae</i> Teruel & Questel, 2011		<i>Ammotrechella beatriceae</i> was only recently described as a new species (2011) (Figure 10). The authors (Teruel & Questrel, 2011a) state that the order of Solifugae is very poorly studied in the Lesser Antilles. Therefore possible endemics are expected on the other islands of the Anguilla Bank (St. Martin and Anguilla).
	<i>Oiclus questeli</i> Teruel, 2008		
	<i>Charinus bruneti</i> Teruel & Questel, 2011		
			<i>Charinus bruneti</i> (Figure 11) is part of a well-diversified and widespread family of spiders (Charinidae) in the Greater Antilles. In the Lesser Antilles, its occurrence has been documented only a few times (Teruel & Questel, 2011). Therefore, it is expected that possible endemics may be present on the SSS islands as well.
		INPN database (https://inpn.mnhn.fr/collTerr/ou treMer/977/BLM/tab/stats); BEST 2016	
Arthropods - insects	<i>Cratomorphus dorsalis</i> (Gyllenhal, 1817)		<i>Cratomorphus dorsalis</i> and <i>Anthonomus aestuans</i> are beetle species, described as a single island endemic (Peck, 2011). We expect there to be more beetle species present (see above).
	<i>Anthonomus aestuans</i> (Fabricius, 1792)		
	<i>Hemiblabera tristis</i> Bonfils, 1969		
	<i>Lachnopus memnonius</i> (Gyllenhal, 1834)		
			<i>Hemiblabera tristis</i> is a cockroach species, described in 1969. No further information as found on how well studied this group is.
			<i>Lachnopus memnonius</i> is a beetle described as a single island endemic (Peck, 2011, 2016). On St. Eustatius, a family member is present (<i>L. villosipes</i>). Peck (2011) states however that 'for the Northern Leeward islands, it is evident that the beetle diversity is markedly understudied, and that the actual number of species is many times higher than now

			known'. We therefore expect there to be more endemics present on the SSS islands.
Reptiles	<i>Antillotyphlops annae</i> (<i>Typhlops de St. Barths</i>) (Breuil, 1999) Typhlops de Saint-Barthélemy	INPN database (https://inpn.mnhn.fr/collTerr/ou treMer/977/BLM/tab/stats); BEST 2016	See above, no new endemic reptile species are expected to be found.
Endemic to St. Kitts			
Plants	<i>Asplenium malcolm-smithii</i> (believed to be a hybrid endemic to St. Kitts)	Horwirth & Lindsay (1999)	7 <i>Asplenium</i> species are present on the SSS Islands. Based on that number, it is expected that they have been well studied. No other endemic species are expected.
Endemic to Nevis			
Plants	<i>Thelypteris muscicola</i>	Horwirth & Lindsay (1999)	12 family members (Thelypteridaceae) are present on the SSS Islands. Based on that number, it is expected that they have been well studied. No other endemic species are expected.
Endemic to Lesser Antilles (and present on Nevis and/or St. Kitts and/or St. Barthelomy)			
Reptiles	<i>Typhlops monastus</i> (a blind snake)	Horwirth & Lindsay (1999)	See above, no new endemic reptile species are expected to be found.
	<i>Typhlops monastus geotomus</i> (subspecies of the blind snake)	Horwirth & Lindsay (1999)	See above, no new endemic reptile species are expected to be found.
Plants (ferns)	<i>Hymenophyllum hirtellum</i> var. <i>gratum</i>	Horwirth & Lindsay (1999)	Remains to be checked
	<i>Thelypteris antillana</i>	Horwirth & Lindsay (1999)	See <i>T. muscicola</i>
	<i>Thelypteris clypeolutata</i>	Horwirth & Lindsay (1999)	See <i>T. muscicola</i>
Plants (orchids)	<i>Stelis scabrida</i> (orchid species)	Horwirth & Lindsay (1999)	Given that orchid species are likely to attract attention of plant specialist, we estimate that this species is not present on the SSS islands.
	<i>Ponthieva petiolata</i> Lindl.	Broome et al. (2007)	See <i>S. scabrida</i>
Plants (other vascular plants)	<i>Asplundia insignis</i>	Broome et al. (2007)	Flowering plant, quite large. Probably therefore not overlooked.
	<i>Charianthus umbrosa</i>	Horwirth & Lindsay (1999)	No information was found for this species
	<i>Chromolaena integrifolia</i>	Broome et al. (2007)	Blue flowering plant. Probably therefore not overlooked.
	<i>Chromolaena trigonocarpa</i>	Broome et al. (2007)	White flowering plant. Probably therefore not overlooked.
	<i>Chrysobalanus cuspidatus</i>	Broome et al. (2007)	Tree/bush like. Probably not overlooked because of its size.
	<i>Connarus grandifolius</i>	Broome et al. (2007)	Vine. No other information available.
	<i>Crantzia cristata</i>	Broome et al. (2007)	Conspicuous coloured flowers. Probably not overlooked.
	<i>Cybianthus parasiticus</i>	Horwirth & Lindsay (1999)	Small plant, probably not easily overlooked. (http://ecflora.cavehill.uwi.edu/plantdetails.php?pid=1500&sn=Cybianthus+parasiticus&cn=&gh=shrub)
	<i>Euphorbia albissii</i>	Broome et al. (2007)	Remains to be checked.
	<i>Guzmania dussii</i>	Broome et al. (2007)	Remains to be checked.
	<i>Illex macfadyenii ovata</i>	Broome et al. (2007)	Remains to be checked
	<i>Lobelia circiifolia</i>	Horwirth & Lindsay (1999)	A species of flowering plant. Probably therefore not overlooked.
	<i>Lobelia stricta</i>	Broome et al. (2007)	See <i>L. circiifolia</i>
	<i>Malpighia martinicensis</i>	Broome et al. (2007)	Shrub/tree like. Pink/white flowers. Probably not overlooked because of its size and colours.

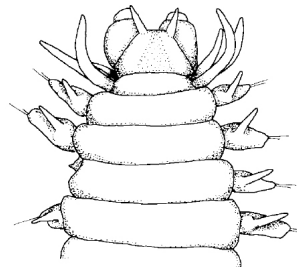
<i>Miconia globuliflora</i> <i>var. dominicae</i>	Broome et al. (2007)	No information available.
<i>Ocotea alpina</i>	Broome et al. (2007)	Tree or tree-like. Probably not overlooked because of its size.
<i>Peperomia dussii</i>	Horwirth & Lindsay (1999)	21 other species within the Piperaceae family are present on the SSS islands, hence we estimate that the flora is well studied and that this species is not present.
<i>Peperomia trifolia</i>	Horwirth & Lindsay (1999)	See <i>Peperomia dussii</i>
<i>Piper dussii</i>	Broome et al. (2007)	5 other Piper species are present in the species register. Therefore it is expected that another one would not have been overlooked.
<i>Pitcairnia bifrons</i>	Broome et al. (2007)	Large plant with red flowers. Would probably not have been overlooked. However, no other <i>Pitcairnia</i> species are registered.
<i>Rubus ferrugineus</i>	Broome et al. (2007)	Rose family, probably with berries. No other information was found.
<i>Sapium glandulosum</i> (L.) <i>Morong</i> (syn. <i>Sapium caribaeum</i>)	Horwirth & Lindsay (1999)	A large tree, max 30 m in height. A tree this size is probably not overlooked by botanists. We estimate that this species is not present on the SSS islands (http://biogeodb.stri.si.edu/biodiversity/bci/species/24327)
<i>Schefflera attenuata</i>	Horwirth & Lindsay (1999)	A tropical plant, probably not easily overlooked. Hence, we expect no new endemic species (http://ecflora.cavehill.uwi.edu/plantdetails.php?pid=189&sn=Schefflera+attenuata&cn=aralie+montagne%2C+fidjier%2C+mapou+blanc%2C+trompette+a+canon%2C+trompette+blanc%2C+White+elder&gh=tree+or+tree-like).
<i>Sloanea dentata</i>	Horwirth & Lindsay (1999) (syn. <i>S. massoni</i>)	A large tree, see above. (http://ecflora.cavehill.uwi.edu/plantdetails.php?pid=835&sn=Sloanea+dentata&cn=&gh=)
<i>Styrax glaber</i>	Horwirth & Lindsay (1999)	Small plant, probably not easily overlooked (http://ecflora.cavehill.uwi.edu/plantdetails.php?pid=2276&sn=Styrax+glaber&cn=bois+dore%2C+bois+madame%2C+crump+wood%2C+cypre-orange%2C+Laurier-caraibe%2C+laurier-orange%2C+oranger+des+bois&gh=tree+or+tree-like)
<i>Ternstroemia elliptica</i>	Horwirth & Lindsay (1999)	A small tree (max 3 m), probably also not easily overlooked. (http://www.tropical.theferns.info/viewtropical.php?id=Ternstroemia+elliptica)

3.7 Endemic taxa (species and subspecies) per species group

The most important species groups are discussed in alphabetic order of the taxonomic groups.

3.7.1 Worms (Annelids-polychaetes)

35 species of annelids (of which 26 polychaete species) are registered in the Dutch Caribbean Species Register for the SSS islands and Saba Bank. Potentially, one species of polychaetes could be an endemic species, since this taxon has only been described for St. Eustatius and Jamaica (*Namanereis sublittoralis* Glasby, 1999) (Figure 12), but it was never investigated any further. Reanalysis of the specimen should take place to ensure that this is a genuine endemic or a misidentification (e.g. the distance between St. Eustatius and Jamaica is rather large). For now, we have listed this species as endemic however.



0.2mm

Figure 12. Head part of *Namanereis sublittoralis* (source: Glasby, 1999).

3.7.2 Arthropods (Arthropoda)

Spiders and scorpions (Arachnida)

127 species of spiders and scorpions are registered for the SSS islands (see list in Annex 1), of which 4 are endemic to the SSS islands, including 1 spider *Stenoconops saba* on Saba, and 3 species of pseudoscorpions, one on each island (St. Martin: *Amblyolpium martinensis*, Saba: *Corticochernes sabae*; St. Eustatius *Pachyolpium confusum*). Pseudoscorpions are very small (max a few mm) members of the arachnids with flat pear shaped bodies. No clear illustrations of these species could be found. Key references for this group include the Van den Tooren (2008), BEST (2016) and the World Spider Catalog (2018).

Copepods (Hexanauplia)

Of the 13 species of Hexanauplia, 2 are endemic to St. Martin. One is the 0.5 mm harpacticoid copepod *Leptocaris faber* (Figure 13). It was discovered in 1978 during the West Indian Expeditions of the University of Amsterdam (Fiers, 1986). The other one is *Acanthomolgus seticornis*.

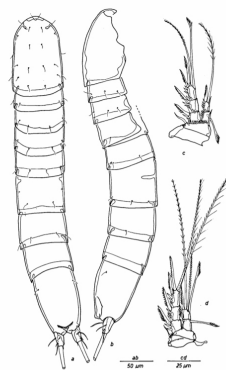


Figure 13. Endemic to St. Martin: the copepod *Leptocaris faber* (0.5 mm) (Fiers, 1986).

Beetles (Insecta - Coleoptera) and true bugs (Insecta – Hemiptera)

Beetles are one of the most diverse species groups on Earth. In the Lesser Antilles, 2612 recognized species are present (Peck 2016). In the species register, 122 species are present on the SSS islands, with 33 endemic species in total: For St. Martin, 2 island endemics are registered (*Phyllophaga stehlei*; *Solenoptera chalumeaui*) and for Saba 1 island endemic, the jewel beetle *Chrysobothris saba* (Figure 14). The remaining 30 species are endemic on the level of the Lesser Antilles. Peck (2011) states that 'for the Northern Leeward islands, it is evident that the beetle diversity is markedly understudied, and that the actual number of species is many times higher than now known'. In Peck (2016) estimates are given for potential number of beetles species present on the SSS islands: these are 442 for Saba, 518 for St. Eustatius and 784 for St. Martin. We therefore expect there to be more endemics present on the SSS islands.



Figure 14. The jewel beetle *Chrysobothris saba*, endemic to Saba, and first described in 2013 by Maier & Ivie (photo: Maier & Ivie, 2013).

One species of true bugs (Hemiptera) is unique to Saba: *Lophoscutus geijskesi* (Kormilev & Van Doesburg 1986, via <http://Intreasures.com/saba.html>) (Figure 15), 2 others are unique to the Lesser Antilles.

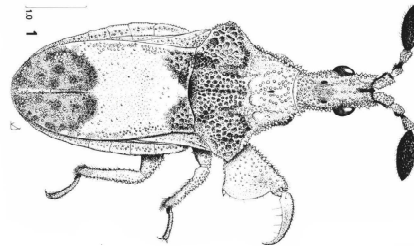


Figure 15. An ambush bug *Lophoscutus geijskesi*, endemic to Saba, (photo: Kormilev & Van Doesburg, 1986).

Literature used to check the species register for endemics includes Yokoyama (2013) and Peck (2016).

Flies (Insecta - Diptera)

Of the 25 species of flies on the SSS islands, 1 is probably unique to Saba: a moth fly (*Alepia apexalba*), associated to tank bromeliads (Wagner et al., 2010, via <http://Intreasures.com/saba.html>). Three species are endemic to the Lesser Antilles and 2 also to the Greater Antilles: the mosquito *Aedes busckii*, and 2 hoverflies *Allograpta limbata* (Figure 16) and *Ocyptamus cylindricus*.



Figure 16. Hoverfly *Allograpta limbata*, endemic to the Lesser and Greater Antilles (photo: Karl Questel, source <http://biodiversiteantilles.blogspot.com/2018/02/allograpta-limbata.html>).

Butterflies and moths (Insecta-Lepidoptera): no island endemics were found, and 6 endemics are present on a larger level. Literature used to check the species register for endemics includes Hill (2012), Yokoyama (2013) and www.butterfliesofamerica.com.

Grasshoppers, locusts and crickets (Insecta - Orthoptera)

In total, 32 species of Orthoptera occur on the SSS islands, with a high total number of 22 endemics: 10 islands endemics, 1 endemic on the level of the Northern Lesser Antilles and 9 on the level of the Lesser Antilles (see Annex 1). Both St. Eustatius (5 island endemics) and Saba (4 island endemics) have high numbers of island endemics compared to St. Martin (1 species). An example is the Saba endemic cricket *Antillicharis sabaensis*, first described only a decade ago in 2009. Illustrations could not be found. Literature used to check the species register for endemics includes Otto (2009) and Bland & Desutter-Grandcolas (2003).

Crabs, lobsters, shrimps (Decapoda)

Of the 227 species of crabs, lobsters and shrimps on the SSS islands, 1 is registered as endemic to the Lesser Antilles: *Thersandrus compressus*, a small crab species (Figure 17).

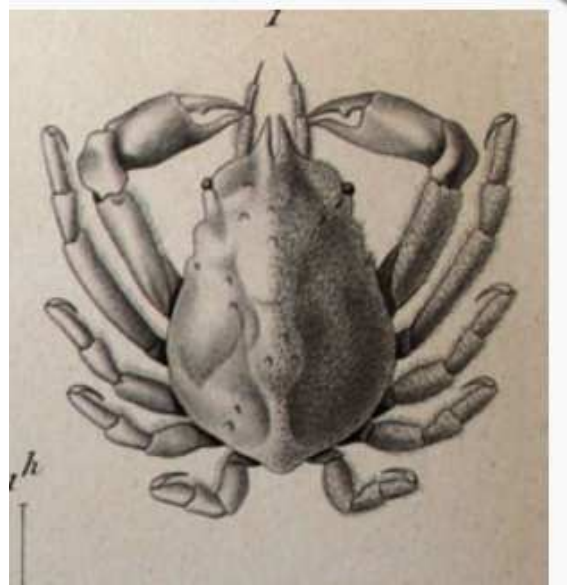


Figure 17. Endemic to the Lesser Antilles: a small crab *Thersandrus compressus* (source: crustiesoverseas.free.fr, photo: Poupin, image by Desbonne & Schramm, 1867).

3.7.3 Bony fish (Chordata - Actinopterygii)

In total 420 species of bony fish are registered on the SSS islands and Saba Bank, of which 3 endemics to the region: 1 is endemic to Saba Bank: William's blenny (*Starksia williamsi*) (Figure 18), 1 to Oyster Pond, St. Martin (St. Maarten pejerry *Melanorhinus boekei*), and 2 species to the Lesser Antilles. FishBase was used to check the species register for endemics (Froese & Pauly 2018).



Figure 18. Endemic to Saba Bank: William's blenny, female (*Starksia williamsi*) (photo: Jeffrey Williams, FishBase).

3.7.4 Birds (Chordata - Aves)

In total 232 species of birds are registered for the SSS islands and Saba Bank (Annex 1) of which 23 endemics. No island endemics are present, 2 subspecies of Passerines (Passeriformes) are endemic to the Northern Lesser Antilles (*Cinclocerthia ruficauda pavid*a, Brown Trembler (Figure 19); *Loxigilla noctis coryi*, Lesser Antillean Bullfinch) and 21 to the Lesser Antilles (see Annex 1). For St. Kitts, a few now-extirpated bird species are described in Horwirth & Lindsay (1999), including the St. Kitts Bullfinch and an owl species. Literature used in this report to check for endemic species in the species register includes Del Hoyo & Collar (2014, 2016).



Figure 19. Preserved specimen of *Cinclocerthia ruficauda pavid*a (Naturalis Biodiversity Center).

3.7.5 Amphibians (Chordata - Amphibia)

In total 4 species of amphibians are present on the SSS islands, 1 of them endemic to the Lesser Antilles, but introduced to the SSS islands (van Buurt et al 2012).

The lesser Antillean whistling frog *Eleutherodactylus johnstonei* (Figure 20) is originally endemic to the Lesser Antilles, but has been introduced to a much wider area in the Caribbean (<http://www.iucnredlist.org/details/56684/0>). A key reference used to check the species register for endemics is Powell et al (2015).



3.7.6 Sharks, rays (Chordata - Chondrichthyes)

In total 24 species of sharks and rays are present around the SSS islands and Saba Bank of which 1 is endemic to the Lesser and Greater Antilles, the Antilles catshark (*Galeus antillensis* Springer, 1979), a deep water (293-296 m) species of max 46 cm length (Heupel, 2009) (Figure 21). FishBase was used to check the species register for endemics (Froese & Pauly 2018).



Figure 21. Antilles catshark *Galeus antillensis* (drawing: FAO).

3.7.7 Mammals (Chordata - Mammalia)

In total 30 species of mammals are present on and around the SSS islands and Saba Bank among which 11 species of bats (Chiroptera), the only group of terrestrial mammals that have not been introduced to the islands. All other terrestrial species such as goats, rats, mongoose have been introduced by man. Furthermore, this group consists of widespread marine mammals. Of the bat species, 5 are endemic to the Lesser Antilles (see Annexes 1 and 2).

3.7.8 Reptiles (Chordata - Reptilia)

In total 37 species of reptile species are present on the SSS islands and Saba Bank, according to the Dutch Caribbean Species Register (Annex 1): 30 snake and lizard species (Squamata) and 7 species of turtles. Endemics are listed in Annex 1. The three island endemics are the Saban anole (*Anolis sabanus*) at Saba (Figure 22), *Spondylurus martinae* (St. Martin) and *Thecadactylus oskrobapreinorum* (St. Martin). Furthermore, there is 1 endemic reptile species on the level of the Anguilla Bank, the endangered Anguilla Bank racer (*Alsophis rijgersmaei*), 1 on the level of the St Kitts bank (*Anolis schwartzi*), a snake species that is probably extirpated on the island of St. Martin but is present at Anguilla and St. Barths (source: Dutch Caribbean Species Register). In addition, there are 12 endemic reptile species for the Lesser Antilles, such as the endangered Lesser Antillean Iguana (*Iguana delicatissima* Laurenti, 1768) (Figure 23).

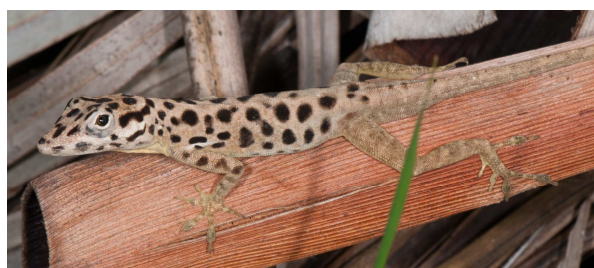


Figure 22. Island endemic to Saba: the Saban anole (*Anolis sabanus*) (Photo: Mark Yokoyama via Dutch Caribbean Species Register).

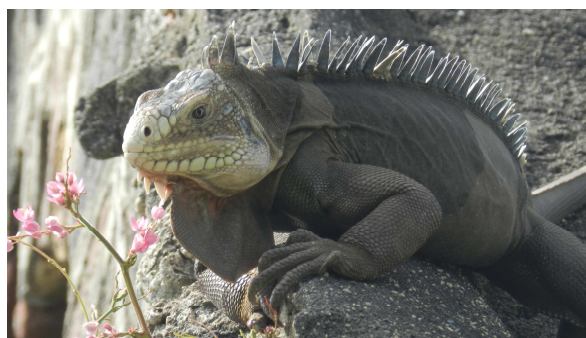


Figure 23. Endemic to the Lesser Antilles: the Lesser Antillean Iguana (*Iguana delicatissima*) (photo: Frank van Spelde, via www.dutchcaribbeanspecies.org).

Finally, as described in the Introduction, a melanistic form of *I. iguana* is present on

Saba which is considered to be a separate lineage within the green iguana (Brueil 2013, Stephen et al. 2013). Since it has not yet been described as a separate species or subspecies, it is not considered any further in this report.

Literature used to check the species register for endemics included Powell et al (2015).

3.7.9 Anemones, hydrozoans, corals and jellyfish (Cnidaria)

In total, 159 species of Cnidarians are registered for the SSS islands and Saba Bank, of which only 1 species is endemic to the Lesser Antilles (*Antillogorgia hummelincki*, syn. *Pseudopterogorgia hummelincki*, a soft coral species) (no illustration found) and 4 species to the Greater Antilles (see Annex 1) (1 soft coral *Antillogorgia albatrossae*, 2 species of zoanthids *Bergia puertoricense* and *Hydrozoanthus tunicans* (Zoantharia) (Figure 24) and a hydrozoan (*Heterocoryne caribbensis*).



Figure 24. *Hydrozoanthus tunicans* (photo: Anne Prozet, source : <http://doris.ffessm.fr/Especes/Zoanthaires-des-Hydraires3>).

3.7.10 Bivalves, snails, squid, chitons and tusk shells (Mollusca)

In total, 135 species of bivalves, 507 snails (Gastropoda), 5 squid and octopus species (Cephalopoda), 15 chitons (Polyplacophora) and 5 species of tusk shells (Scaphopoda) are registered for SSS islands and Saba Bank. 33 species of bivalves (5) and gastropods (28) are endemic. There are 3 island endemic gastropod species: *Glyphyalus quillensis* (St. Eustatius, Figure 25), *Lyria sabaensis* (Saba; Bail, 1993 ; source:

<http://Intreasures.com/saba.html>) and *Conasprella berschaueri* (St. Martin).

An example of an endemic bivalve on the level of the Lesser Antilles is *Parvilucina latens* a new species that was found around Guadeloupe (Figure 26). Literature used by the species specialists includes Yokoyama (2013), BEST (2016), Neckheim & Hovestadt (2016) an WoRMS Editorial Board (2018).

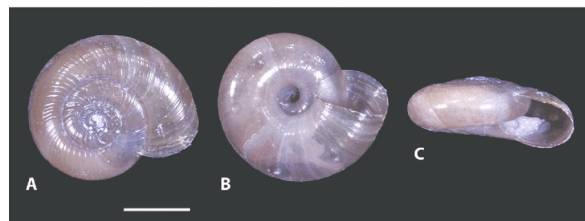


Figure 25. Endemic gastropod to St. Eustatius: *Glyphyalus quillensis* (photo: Van Leeuwen et al., 2016).

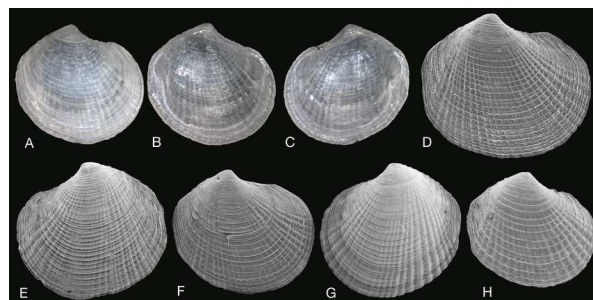


Figure 26. Newly discovered endemic bivalve to the Lesser Antilles: *Parvilucina latens* (Taylor & Glover, 2016).

3.7.11 Flatworms (Platyhelminthes)

Of the 5 registered species of flatworms, 1 endemic species is known for the Lesser Antilles: *Alloioplana wyona* (Du Bois-Reymond Marcus & Marcus, 1968) (Figure 27). Literature used by the species specialists includes WoRMS Editorial Board (2018).

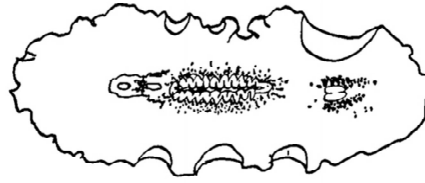


Figure 27. Flatworm endemic to the Lesser Antilles: *Alloioplana wyona* (source: Du Bois-Reymond Marcus & Marcus, 1968).

3.7.12 Sponges (Porifera)

No sponge species were found to be restricted in known distribution to the islands or Saba Bank nor to a narrow region around this island group.

3.7.13 Wheel animals (Rotifera)

Within the 20 species of wheel animals, no endemic species are yet recognized.

3.7.14 Red algae, green algae and vascular plants (Plantae)

Of the 1453 plants species registered for the SSS islands and Saba Bank, 4 species are endemic to the SSS islands, 4 to the Northern Lesser Antilles, 14 to the Lesser Antilles and 4 tot the Antilles (Annexes 1,2). The 4 island endemics include 1 red alga *Stichothamnion antillarum* for St. Eustatius (Figure 28), 1 terrestrial vascular plants on St. Eustatius: a species of climbing milkweed *Gonolobus aloiensis* (Figure 29). On St. Martin (Dutch+French part), 2 island endemics are known, but both of which are thought to be extinct at St. Martin (the vine *Galactia nummularia*, and another flowing plant *Calypthranthes boldinghii*). Future, more exhaustive research could demonstrate whether this is the case or not. Previous research has taken place with a limited effort (e.g. a limited number of sites). New research has shown that Statia Morning Glory *Ipomoea sphenophylla* (Figure 30) that was first thought to be an island endemic for St. Eustatius, is also present on Anguilla (hence classified in this report as endemic on the level of the Northern Lesser Antilles) (Axelrod, 2017).



Figure 28. *Stichothamnion antillarum*, part of a young sterile plant (from: Vroman, 1967).

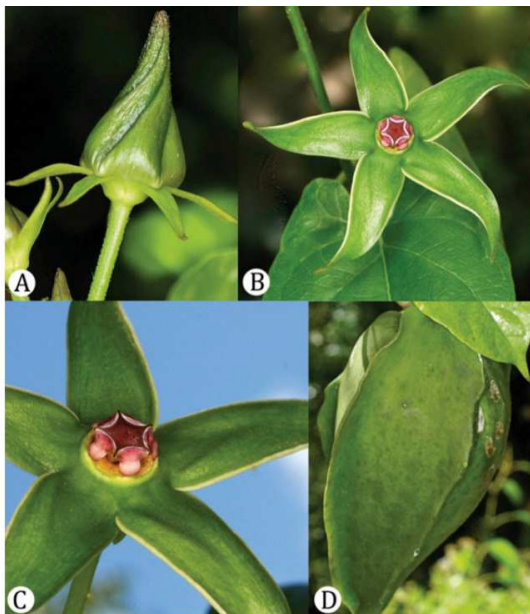


Figure 29. Endemic to St. Eustatius: a climbing milkweed *Gonolobus aloiensis* (source: Krings & Axelrod, 2013).



Figure 30. First thought to be endemic to St. Eustatius: Statia Morning Glory *Ipomoea sphenophylla*, now also known from Anguilla (Axelrod, 2017). (source: <https://www.hortusleiden.nl/de-hortus/collectie/bedreigde-plantensoorten/statia-morning-glory>).

3.8 IUCN Conservation status

The list of endemic taxa for the SSS islands and Saba Bank contains 222 (sub)species. Most of these (sub)species are not being monitored by IUCN or other parties, which explains that the IUCN conservation status could only be assessed for 42 of them at species level (none at subspecies level) and all belonging to the phylum Chordata. For 16 taxa at subspecies level the assessment at the species level as shown in Annex 3 is therefore probably not accurate. Only 6 of the assessed species have a threatened or near threatened status according to IUCN (for full list see Annex 3):

- **Critically Endangered:** Lesser Antillean Iguana (*Iguana delicatissima*). Within the SSS-islands this iguana species is only present at St. Eustatius, while it's extinct on St. Martin. Its IUCN conservation status has recently (March 2018) been 'upgraded' to Critically Endangered due to increasing occurrence and rate of hybridization and island extirpations.
- **Endangered:** Anguilla Bank Racer (*Alsophis rijgersmaei*) and Anguilla Bank Skink (*Spondylurus powelli*). Within the SSS-islands the snake species Anguilla Bank Racer was only present on St. Martin, where it is extinct now. It is listed as Endangered on the basis that this species currently only survives on five other islands, from which only one (St. Barths) is considered to have a viable population. Within the SSS-islands the Anguilla Bank Skink (*Spondylurus powelli*) was presumably once present at St. Martin, though extensive searches in suitable rock walls on this island have never recorded it. The species is listed as Endangered on the basis that it has a restricted extent of occurrence (only four islands on the Anguilla Bank) and that it's population is assumed to decline (Hedges et al., 2017).
- **Vulnerable:** Saba Racer (*Alsophis rufiventris*) and Anguilla Bank Bush Anole (*Anolis pogus*). Within the SSS-islands the Saba Racer (also known as Red-bellied Racer) still exists at Saba and St. Eustatius. It is extinct at St. Maarten. This snake species is listed as Vulnerable on the basis of a plausible future threat mainly from mongoose introduction, which has led to its extinction on other islands. The Anguilla Bank Bush Anole (*Anolis pogus*) is only present at St. Martin. No information is available regarding current threats to this lizard species. In the past, they have occurred on Barthélémy and Anguilla.
- **Near threatened:** St. Christopher Ameiva (*Pholidoscelis erythrocephalus*). Within the SSS-islands this lizard only exists at St. Eustatius. It is listed as Near Threatened on the basis that the species is restricted to the three islands of the St. Kitts Bank. On St. Kitts and Nevis, it is threatened by mongoose.

It is important to realize that the degree of endangerment of the 223 endemic species and subspecies listed here for the windward Dutch SSS islands is grossly under-represented by the IUCN listings. Many species only survive in small, fragmented populations on few islands and may even already gone extinct.

4 Conclusions and recommendations

This report provides a preliminary checklist of extant endemic animal and plant taxa (species and subspecies) of the SSS islands and Saba Bank. The list is not complete yet, because a number of species groups were left out and not all available information could be thoroughly checked. In addition, an unknown number of endemic species remain to be identified or described. Apart from that, the checklist shows that the SSS islands and Saba Bank are important in terms of biodiversity, because at least 35 island endemic species are present. Island endemics are defined in the report as species that are unique to one (but not more) of the SSS islands or to the Saba Bank and that are thus not found anywhere else in the world. Furthermore, the SSS islands and Saba Bank are part of the range of 188 other Caribbean endemics that also have an otherwise very limited distribution. Species that are limited to a single island or to small unviable populations on a small cluster of islands are extremely vulnerable to being erased from the globe by unfortuitous events like hurricanes or volcanism or by superior competition or predation by invasive species.

As indicated in the introduction, the West Indies are a hotspot of endemism but also a hotspot in terms of extinction threat to this unique biodiversity (Leclerc et al 2018). In addition, local endemics have been typically under-assessed by the IUCN (Leclerc et al. 2018) with as a consequence that few of these most vulnerable species are recognized as being endangered. Hence most conservation effort is actually dedicated to more-widely ranging and less-endemic species. Therefore, research is urgently needed to assess the status of these endemic taxa on the different islands on which they are found.

4.1 Number of endemics

In this study 198 endemic animal and 25 plant species were identified, out of the 4114 animal and plant species registered in the Dutch Caribbean Species Register for the SSS islands and Saba Bank. Of the 223 endemics, 35 are considered island endemics (restricted to only one of the SSS islands or Saba Bank) and 188 species are endemic to a larger region. It is expected that these numbers are an underestimation, since several species groups, including Funghi (e.g. mushrooms) and Chromista (e.g. brown algae) were not studied. In this study, the percentage of marine endemics (2%) is much lower than of terrestrial endemics (8%). This can be expected on the scale of this study, since the islands are relatively isolated from each other, while the marine environment around the islands is all connected.

Another reason why the numbers of endemics are underestimated is that new species have been found, which may represent (island) endemics. For the fish fauna of Saba Bank, the species accumulation curve of Williams et al. (2010) suggests that another 50-140 species could be present in addition to the 270 species found by those authors. We expect that in addition to the 6 unidentified species of Williams et al. (2010), many more undescribed species are present that also could be endemic. For sponges, diversity was studied during the Saba Bank Expedition 2015 (see Bos et al., 2016), yielding at least one or two undescribed sponge species (Wilting et al. in prep.), within only a few days of diving. More undescribed species are undoubtedly present. Littler et al. (2010) show that Saba Bank is the most diverse area for algae in the Caribbean. They identified 12 undescribed (and possibly endemic) algal species (brown algae, belonging to the kingdom of Chromista, not studied in this study) out of nearly 100 identified species. Based on an estimated 150-200 species likely present (using species area curves), it is therefore almost certain that more species will eventually be described.

For the terrestrial species, we expect that well-visible or easily sampled species such as lizards, snakes, birds, amphibians, and plant species have been well researched and will yield fewer new endemic taxa. For the smaller and less mobile species, such as certain groups of insects, spiders and small snails, we expect that more species could be present than currently registered, since they could

have easily been overlooked. For example, more endemic beetles may be present, since for the Northern Leeward islands, it is evident that the beetle diversity is markedly understudied, and that the actual number of species is many times higher than now known' (Peck 2011, 2016). Wagner et al. (2010) mention in their description of a new species of moth flies associated with bromeliads (plants) that few entomologists have visited Saba. Also Bland & Desutter (2003) studying crickets note that compared to St. Eustatius, Saba is far less accessible making it very likely that additional Orthoptera species are present in Saba's dense forests. For spiders, a group which may also be understudied in the SSS islands, in recent years new species were found for the neighbouring island of St. Barthélemy (Table 12). This suggests that additional study may yield more endemic species for the SSS islands.

4.2 Potential endemics

For the neighbouring islands, 48 species were found that are absent on the SSS islands and Saba Bank (Table 12). Of these plants, reptiles, beetles, spiders and scorpions, potential endemics are more likely to be found within the groups of beetles, spiders and scorpions species than within reptiles or plants. In this analysis we did not fully assess the number of potential endemics present on the neighbouring islands.

4.3 IUCN Conservation status

The IUCN provides the most comprehensive list of endangered species worldwide. The conservation status has only been assessed for a very limited number of (widely occurring) species, but not for most endemics. A generally recognised shortcoming of the IUCN Red List is that small, local endemics are strongly under assessed (Leclerc et al. 2018). Many endemics are ecological specialists, and are confined to specific habitats. The conservation status of habitats of Saba and St. Eustatius (which are generally much better-off than those of overpopulated St. Martin) are all assessed as unfavourable, some of which unfavourable-bad (Debrot et al. 2018), it is expected that many more species are threatened than one could conclude from the IUCN Red List. The conservation status for most endemic species occurring on St. Martin is probably worse, due to the devastating impact of hurricane Irma at the end of 2017 (DCNA Nature 2017), resulting in more fragmented habitats and due to much larger numbers of extremely predatory invasive species such as the mongoose, *Herpestes auro-punctatus*, vervet monkey, *Clorocebus pygerythrus*, and raccoon, *Procyon lotor* (van Buurt et al. 2012). Joint regional conservation strategies should be devised to spread extinction risk by enhancing or restoring a number of viable populations for each species. One approach used more and more often is that of reintroduction of species to enhance establishment of multiple viable populations in an effort to "spread" extinction risk. Translocation to establish populations at alternative locations is being used successfully in the Caribbean for endemic lizards (Fitzgerald et al. 2015) and birds (McClure et al. 2017), while the IUCN (2013) has even developed guidelines for reintroductions and translocations for conservation purposes.

4.4 Research priorities and recommendations

There is an urgent need for research towards:

- Assessments of the conservation status of the endemic taxa (species and subspecies) on the one or few islands they occur (or once occurred) on.
- Development of a conservation strategy to minimize extinction risk of the endemic species. Strategies to consider could include exchange between islands and populations to bolster genetic viability, and the establishment of satellite populations on neighbouring islands, reintroductions or *ex situ* captive breeding populations (Legouez et al. 2009, Debrot and

Boman 2013, Debrot et al. 2013, Grant and Hudson 2015) in order to reduce risk of extinction due to local catastrophic events.

To get a better understanding of the biodiversity of the SSS islands and Saba Bank, it is clear that:

- Specialised biological surveys should be carried out for species groups less studied or for which more endemics are likely to be present. Recent expeditions to the SSS-islands and the Saba Bank have revealed taxa that are new to the region and probably also new to science, with potential endemics among them. Marine and terrestrial expeditions by Naturalis Biodiversity Center in 2015 resulted for instance in at least 80 new species for St. Eustatius, with some possibly even new to science (NatureToday 2015; Hoeksema 2015). Also the NICO-expedition in 2018, among others to the Saba Bank, resulted in the discovery of new taxa for the area (<https://nico-expeditie.nl/blogs/nederlandse-diepzee-fauna-haaien-en-reuze-pissebedden-op-de-saba-bank>). The results were not yet available for this report.

To improve the list of endemics or find new endemics we suggest to:

- Include the currently lacking species groups in a next version of the list.
- Check the literature for new species descriptions, linked to recent reports on undescribed species.
- Study the geographical range of each species in this list in more detail to come up with more precise specifications of the endemic ranges.
- Consult experts in the region by sending material or exchange descriptions of species with those experts.
- Look for opportunities to join regional genetic analysis of species. This allows for obtaining results relatively easily, but requires a good overview of ongoing research by different institutions.
- Get insight in possible number of new species by looking at predictions of species numbers based on species accumulation curves.

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6 Quality Assurance

Wageningen Marine Research utilises an ISO 9001:2008 certified quality management system (certificate number: 187378-2015-AQ-NLD-RvA). This certificate is valid until 15 December 2018. The organisation has been certified since 27 February 2001. The certification was issued by DNV Certification B.V.

If the quality cannot be guaranteed, appropriate measures are taken.

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Justification

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Approved: dr. M. van der Geest
researcher

Signature:



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Approved: J. Asjes
Manager integration

Annex 1: Numbers of endemics of SSS islands and Saba Bank

Table 14. Total number of animal and plant species for St. Martin, St. Eustatius, Saba and Saba Bank together ('SSS or Saba Bank') and separate, as well as the number of endemics per endemic level with subtotals.

Species group	N (sub)species total	N endemics total	SSS or Sababank	St. Martin	St. Eustatius	Saba	Saba Bank	N. Lesser Antilles	Lesser Antilles	Antilles	Larger Region
Animalia	2661	198	31	10	8	10	3	11	100	54	3
Annelida	35	1	1	-	1	-	-	-	-	-	-
Hirudinea	1	-	-	-	-	-	-	-	-	-	-
Rhynchobdellida	1	-	-	-	-	-	-	-	-	-	-
Oligochaeta	8	-	-	-	-	-	-	-	-	-	-
Haplotaxida	3	-	-	-	-	-	-	-	-	-	-
Opisthophora	2	-	-	-	-	-	-	-	-	-	-
Tubificida	3	-	-	-	-	-	-	-	-	-	-
Polychaeta	26	1	1	-	1	-	-	-	-	-	-
Amphinomida	1	-	-	-	-	-	-	-	-	-	-
Eunicida	1	-	-	-	-	-	-	-	-	-	-
Phyllodocida	8	1	1	-	1	-	-	-	-	-	-
Sabellida	14	-	-	-	-	-	-	-	-	-	-
Scolecida	1	-	-	-	-	-	-	-	-	-	-
Terebellida	1	-	-	-	-	-	-	-	-	-	-
Arthropoda	874	108	21	6	6	9	-	6	41	38	3
Arachnida	127	23	4	1	1	2	-	2	5	12	-
Amblypygi	1	1	-	-	-	-	-	-	-	1	-
Araneae	83	17	1	-	-	1	-	2	3	11	-
Ixodida	5	-	-	-	-	-	-	-	-	-	-
Pseudoscorpiones	5	3	3	1	1	1	-	-	-	-	-
Sarcoptiformes	30	-	-	-	-	-	-	-	-	-	-
Scorpiones	3	2	-	-	-	-	-	-	2	-	-
Branchiopoda	1	-	-	-	-	-	-	-	-	-	-
Anostraca	1	-	-	-	-	-	-	-	-	-	-
Chilopoda	2	-	-	-	-	-	-	-	-	-	-
Scolopendromorpha	2	-	-	-	-	-	-	-	-	-	-
Diplopoda	13	-	-	-	-	-	-	-	-	-	-
Polydesmida	6	-	-	-	-	-	-	-	-	-	-
Polyxenida	2	-	-	-	-	-	-	-	-	-	-
Polyzoniida	1	-	-	-	-	-	-	-	-	-	-
Spirobolida	4	-	-	-	-	-	-	-	-	-	-
Hexanauplia	13	2	2	2	-	-	-	-	-	-	-
Harpacticoida	1	1	1	1	-	-	-	-	-	-	-
Lepadiformes	1	-	-	-	-	-	-	-	-	-	-
Poecilostomatoida	5	1	1	1	-	-	-	-	-	-	-
Sessilia	5	-	-	-	-	-	-	-	-	-	-
Siphonostomatoida	1	-	-	-	-	-	-	-	-	-	-
Insecta	467	78	15	3	5	7	-	4	31	26	3
Blattodea	5	-	-	-	-	-	-	-	-	-	-
Coleoptera	122	33	3	2	-	1	-	-	16	14	-
Dermaptera	4	-	-	-	-	-	-	-	-	-	-
Diptera	25	4	1	-	-	1	-	-	1	2	-
Hemiptera	64	3	1	-	-	1	-	-	1	-	1
Hymenoptera	74	3	-	-	-	-	-	1	-	1	1
Lepidoptera	129	12	-	-	-	-	-	2	7	4	-
Neuroptera	3	-	-	-	-	-	-	-	-	-	-
Odonata	8	1	-	-	-	-	-	-	1	-	-
Orthoptera	32	22	10	1	5	4	-	1	5	5	1
Zygentoma	1	-	-	-	-	-	-	-	-	-	-
Malacostraca	242	4	-	-	-	-	-	-	4	-	-
Amphipoda	2	1	-	-	-	-	-	-	1	-	-
Decapoda	227	1	-	-	-	-	-	-	1	-	-
Isopoda	7	2	-	-	-	-	-	-	2	-	-
Mysida	4	-	-	-	-	-	-	-	-	-	-
Stomatopoda	2	-	-	-	-	-	-	-	-	-	-
Ostracoda	3	-	-	-	-	-	-	-	-	-	-
Podocopida	3	-	-	-	-	-	-	-	-	-	-
Pycnogonida	6	1	-	-	-	-	-	-	1	-	-
Pantopoda	6	1	-	-	-	-	-	-	1	-	-
Brachiopoda	8	-	-	-	-	-	-	-	-	-	-
Rhynchonellata	8	-	-	-	-	-	-	-	-	-	-
Rhynchonellida	1	-	-	-	-	-	-	-	-	-	-
Terebratulida	6	-	-	-	-	-	-	-	-	-	-
Thecideida	1	-	-	-	-	-	-	-	-	-	-
Chordata	769	50	5	3	-	1	1	4	31	9	-
Actinopterygii	420	4	2	1	-	-	1	-	1	1	-

Albuliformes	1	-	-	-	-	-	-	-	-	-	-	-
Anguilliformes	27	-	-	-	-	-	-	-	-	-	-	-
Atheriniformes	3	1	1	1	-	-	-	-	-	-	-	-
Aulopiformes	10	-	-	-	-	-	-	-	-	-	-	-
Beloniformes	7	-	-	-	-	-	-	-	-	-	-	-
Beryciformes	9	-	-	-	-	-	-	-	-	-	-	-
Clupeiformes	7	-	-	-	-	-	-	-	-	-	-	-
Cyprinodontiformes	3	-	-	-	-	-	-	-	-	-	-	-
Elopiformes	1	-	-	-	-	-	-	-	-	-	-	-
Gadiformes	8	-	-	-	-	-	-	-	-	-	-	-
Gobiesociformes	2	-	-	-	-	-	-	-	-	-	-	-
Lophiiformes	9	-	-	-	-	-	-	-	-	-	-	-
Notacanthiformes	1	-	-	-	-	-	-	-	-	-	-	-
Ophidiiformes	9	-	-	-	-	-	-	-	-	-	-	-
Osmeriformes	1	-	-	-	-	-	-	-	-	-	-	-
Perciformes	260	3	1	-	-	-	1	-	1	1	-	-
Pleuronectiformes	10	-	-	-	-	-	-	-	-	-	-	-
Polymixiiformes	1	-	-	-	-	-	-	-	-	-	-	-
Scorpaeniformes	14	-	-	-	-	-	-	-	-	-	-	-
Syngnathiformes	9	-	-	-	-	-	-	-	-	-	-	-
Tetraodontiformes	26	-	-	-	-	-	-	-	-	-	-	-
Zeiformes	2	-	-	-	-	-	-	-	-	-	-	-
Amphibia	4	1	-	-	-	-	-	-	1	-	-	-
Anura	4	1	-	-	-	-	-	-	1	-	-	-
Ascidiacea	20	-	-	-	-	-	-	-	-	-	-	-
Aplousobranchia	10	-	-	-	-	-	-	-	-	-	-	-
Phlebobranchia	4	-	-	-	-	-	-	-	-	-	-	-
Stolidobranchia	6	-	-	-	-	-	-	-	-	-	-	-
Aves	232	23	-	-	-	-	-	2	15	6	-	-
Accipitriformes	4	-	-	-	-	-	-	-	-	-	-	-
Anseriformes	18	-	-	-	-	-	-	-	-	-	-	-
Apodiformes	6	4	-	-	-	-	-	-	2	2	-	-
Caprimulgiformes	2	-	-	-	-	-	-	-	-	-	-	-
Charadriiformes	60	-	-	-	-	-	-	-	-	-	-	-
Columbiformes	13	3	-	-	-	-	-	-	2	1	-	-
Coraciiformes	1	-	-	-	-	-	-	-	-	-	-	-
Cuculiformes	3	-	-	-	-	-	-	-	-	-	-	-
Falconiformes	5	1	-	-	-	-	-	-	-	1	-	-
Galliformes	2	-	-	-	-	-	-	-	-	-	-	-
Gruiformes	7	-	-	-	-	-	-	-	-	-	-	-
Passeriformes	70	14	-	-	-	-	-	2	11	1	-	-
Pelecaniformes	21	-	-	-	-	-	-	-	-	-	-	-
Phaethontiformes	4	-	-	-	-	-	-	-	-	-	-	-
Phoenicopteriformes	1	-	-	-	-	-	-	-	-	-	-	-
Piciformes	1	-	-	-	-	-	-	-	-	-	-	-
Podicipediformes	3	1	-	-	-	-	-	-	-	1	-	-
Procellariiformes	3	-	-	-	-	-	-	-	-	-	-	-
Psittaciformes	2	-	-	-	-	-	-	-	-	-	-	-
Suliformes	6	-	-	-	-	-	-	-	-	-	-	-
Chondrichthyes	24	1	-	-	-	-	-	-	-	1	-	-
Carcharhiniformes	10	1	-	-	-	-	-	-	-	1	-	-
Hexanchiformes (Frill and Cow Sharks)	1	-	-	-	-	-	-	-	-	-	-	-
Myliobatiformes	3	-	-	-	-	-	-	-	-	-	-	-
Orectolobiformes	2	-	-	-	-	-	-	-	-	-	-	-
Rajiformes	1	-	-	-	-	-	-	-	-	-	-	-
Squaliformes	6	-	-	-	-	-	-	-	-	-	-	-
Torpediniformes	1	-	-	-	-	-	-	-	-	-	-	-
Holocephali	2	-	-	-	-	-	-	-	-	-	-	-
Chimaeriformes	2	-	-	-	-	-	-	-	-	-	-	-
Mammalia	30	5	-	-	-	-	-	-	4	1	-	-
Artiodactyla	4	-	-	-	-	-	-	-	-	-	-	-
Carnivoria	4	-	-	-	-	-	-	-	-	-	-	-
Cetartiodactyla	6	-	-	-	-	-	-	-	-	-	-	-
Chiroptera	11	5	-	-	-	-	-	-	4	1	-	-
Perissodactyla	1	-	-	-	-	-	-	-	-	-	-	-
Primates	1	-	-	-	-	-	-	-	-	-	-	-
Rodentia	3	-	-	-	-	-	-	-	-	-	-	-
Reptilia	36	16	3	2	-	1	-	3	10	-	-	-
Squamata	31	16	3	2	-	1	-	3	10	-	-	-
Testudines Linnaeus, 1758	7	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	159	5	-	-	-	-	-	-	1	4	-	-
Anthozoa	134	4	-	-	-	-	-	-	1	3	-	-
Actiniaria	8	-	-	-	-	-	-	-	-	-	-	-
Alyconacea	48	2	-	-	-	-	-	-	1	1	-	-
Corallimorpharia	5	-	-	-	-	-	-	-	-	-	-	-
Pennatulacea	1	-	-	-	-	-	-	-	-	-	-	-
Scleractinia	59	-	-	-	-	-	-	-	-	-	-	-
Zoantharia	13	2	-	-	-	-	-	-	-	2	-	-
Hydrozoa	23	1	-	-	-	-	-	-	-	1	-	-
Anthoathecata	9	1	-	-	-	-	-	-	-	1	-	-
Leptothecata	14	-	-	-	-	-	-	-	-	-	-	-
Scyphozoa	2	-	-	-	-	-	-	-	-	-	-	-
Rhizostomeae	2	-	-	-	-	-	-	-	-	-	-	-

Echinodermata	17	-	-	-	-	-	-	-	-	-	-	-
Asteroidea	2	-	-	-	-	-	-	-	-	-	-	-
Valvatida	2	-	-	-	-	-	-	-	-	-	-	-
Echinoidea	5	-	-	-	-	-	-	-	-	-	-	-
Camarodonta	1	-	-	-	-	-	-	-	-	-	-	-
Cidaroida	1	-	-	-	-	-	-	-	-	-	-	-
Spatangoida	3	-	-	-	-	-	-	-	-	-	-	-
Ophiuroidea	10	-	-	-	-	-	-	-	-	-	-	-
Ophiurida	10	-	-	-	-	-	-	-	-	-	-	-
Mollusca	667	33	4	1	1	- 2	-	26	3	-	-	-
Bivalvia	135	5	1	-	-	- 1	-	3	1	-	-	-
Anomalodesmata	14	2	1	-	-	- 1	-	1	-	-	-	-
Arcida	15	-	-	-	-	-	-	-	-	-	-	-
Cardiida	29	-	-	-	-	-	-	-	-	-	-	-
Carditida	1	-	-	-	-	-	-	-	-	-	-	-
Imparidentia [unassigned]	10	-	-	-	-	-	-	-	-	-	-	-
Limida	5	-	-	-	-	-	-	-	-	-	-	-
Lucinida	12	2	-	-	-	-	-	1	1	-	-	-
Mytilida	4	-	-	-	-	-	-	-	-	-	-	-
Nuculida	1	-	-	-	-	-	-	-	-	-	-	-
Ostreida	12	-	-	-	-	-	-	-	-	-	-	-
Pectinida	19	-	-	-	-	-	-	-	-	-	-	-
Venerida	13	1	-	-	-	-	-	1	-	-	-	-
Cephalopoda	5	-	-	-	-	-	-	-	-	-	-	-
Myopsida	1	-	-	-	-	-	-	-	-	-	-	-
Octopoda	3	-	-	-	-	-	-	-	-	-	-	-
Spirulida	1	-	-	-	-	-	-	-	-	-	-	-
Gastropoda	507	28	3	1	1	- 1	-	23	2	-	-	-
[unassigned] Caenogastropoda	40	-	-	-	-	-	-	-	-	-	-	-
[unassigned] Heterobranchia	13	-	-	-	-	-	-	-	-	-	-	-
Anaspidea	5	-	-	-	-	-	-	-	-	-	-	-
Architaenioglossa	1	-	-	-	-	-	-	-	-	-	-	-
Cephalaspidea	17	-	-	-	-	-	-	-	-	-	-	-
Cycloneritimorpha	10	3	-	-	-	-	-	3	-	-	-	-
Eupulmonata	7	-	-	-	-	-	-	-	-	-	-	-
Hygrophila	7	-	-	-	-	-	-	-	-	-	-	-
Littorinimorpha	116	4	-	-	-	-	-	4	-	-	-	-
NA	60	-	-	-	-	-	-	-	-	-	-	-
Neogastropoda	144	7	2	1	-	- 1	-	5	-	-	-	-
Nudibranchia	20	-	-	-	-	-	-	-	-	-	-	-
Runcinacea	1	-	-	-	-	-	-	-	-	-	-	-
Sacoglossa	5	-	-	-	-	-	-	-	-	-	-	-
Stylommatophora	57	14	1	-	1	-	-	11	2	-	-	-
Systellomatophora	1	-	-	-	-	-	-	-	-	-	-	-
Thecosomata	3	-	-	-	-	-	-	-	-	-	-	-
Polyplacophora	15	-	-	-	-	-	-	-	-	-	-	-
Chitonida	15	-	-	-	-	-	-	-	-	-	-	-
Scaphopoda	5	-	-	-	-	-	-	-	-	-	-	-
Dentaliida	4	-	-	-	-	-	-	-	-	-	-	-
Gadilida	1	-	-	-	-	-	-	-	-	-	-	-
Platyhelminthes	5	1	-	-	-	-	-	1	-	-	-	-
Rhabditophora	5	1	-	-	-	-	-	1	-	-	-	-
Polycladida	3	1	-	-	-	-	-	1	-	-	-	-
Tricladida	2	-	-	-	-	-	-	-	-	-	-	-
Porifera	107	-	-	-	-	-	-	-	-	-	-	-
Calcarea	2	-	-	-	-	-	-	-	-	-	-	-
Clathrinida	2	-	-	-	-	-	-	-	-	-	-	-
Demospongiae	102	-	-	-	-	-	-	-	-	-	-	-
Agelasida	10	-	-	-	-	-	-	-	-	-	-	-
Axinellida	8	-	-	-	-	-	-	-	-	-	-	-
Biemnida	1	-	-	-	-	-	-	-	-	-	-	-
Bubarida	1	-	-	-	-	-	-	-	-	-	-	-
Chondrillida	1	-	-	-	-	-	-	-	-	-	-	-
Clionaida	7	-	-	-	-	-	-	-	-	-	-	-
Dendroceratida	1	-	-	-	-	-	-	-	-	-	-	-
Dictyoceratida	11	-	-	-	-	-	-	-	-	-	-	-
Haplosclerida	22	-	-	-	-	-	-	-	-	-	-	-
Poecilosclerida	13	-	-	-	-	-	-	-	-	-	-	-
Scopalinida	2	-	-	-	-	-	-	-	-	-	-	-
Suberitida	5	-	-	-	-	-	-	-	-	-	-	-
Tethyida	2	-	-	-	-	-	-	-	-	-	-	-
Tetractinellida	8	-	-	-	-	-	-	-	-	-	-	-
Verongiida	10	-	-	-	-	-	-	-	-	-	-	-
Homoscleromorpha	3	-	-	-	-	-	-	-	-	-	-	-
Homosclerophorida	3	-	-	-	-	-	-	-	-	-	-	-
Rotifera	20	-	-	-	-	-	-	-	-	-	-	-
Eurotatoria	20	-	-	-	-	-	-	-	-	-	-	-
Ploima	20	-	-	-	-	-	-	-	-	-	-	-
Plantae	1453	25	4	2	2	-	-	4	11	4	3	-
Anthocerotophyta	4	-	-	-	-	-	-	-	-	-	-	-
Anthocerotopsida	4	-	-	-	-	-	-	-	-	-	-	-
Anthocerotales	3	-	-	-	-	-	-	-	-	-	-	-
Dendrocerotales	1	-	-	-	-	-	-	-	-	-	-	-

Chlorophyta	102	-	-	-	-	-	-	-	-	-	-	-
Ulvophyceae	102	-	-	-	-	-	-	-	-	-	-	-
Bryopsidales	50	-	-	-	-	-	-	-	-	-	-	-
Cladophorales	31	-	-	-	-	-	-	-	-	-	-	-
Dasycladales	10	-	-	-	-	-	-	-	-	-	-	-
Ulvales	10	-	-	-	-	-	-	-	-	-	-	-
Ulvophyceae incerta sedis	1	-	-	-	-	-	-	-	-	-	-	-
Rhodophyta	158	3	1	-	1	-	-	-	-	-	-	2
Florideophyceae	157	3	1	-	1	-	-	-	-	-	-	2
Acrochaetiales	1	-	-	-	-	-	-	-	-	-	-	-
Bonnemaisoniales	1	-	-	-	-	-	-	-	-	-	-	-
Ceramiales	80	1	1	-	1	-	-	-	-	-	-	-
Colaenematales	1	-	-	-	-	-	-	-	-	-	-	-
Corallinales	16	-	-	-	-	-	-	-	-	-	-	-
Gelidiales	4	-	-	-	-	-	-	-	-	-	-	-
Gigartinales	14	1	-	-	-	-	-	-	-	-	-	1
Gracilariales	8	-	-	-	-	-	-	-	-	-	-	-
Halymeniales	4	-	-	-	-	-	-	-	-	-	-	-
Nemaliales	14	-	-	-	-	-	-	-	-	-	-	-
Peyssonneliales	3	1	-	-	-	-	-	-	-	-	-	1
Rhodymeniales	11	-	-	-	-	-	-	-	-	-	-	-
Stylonematophyceae	1	-	-	-	-	-	-	-	-	-	-	-
Stylonematales	1	-	-	-	-	-	-	-	-	-	-	-
Tracheophyta	1189	22	3	2	1	-	-	4	11	4	1	
Cycadopsida	2	-	-	-	-	-	-	-	-	-	-	-
Cycadales	2	-	-	-	-	-	-	-	-	-	-	-
Lycopodiopsida	6	-	-	-	-	-	-	-	-	-	-	-
Lycopodiales	3	-	-	-	-	-	-	-	-	-	-	-
Selaginellales	3	-	-	-	-	-	-	-	-	-	-	-
Magnoliopsida	1	-	-	-	-	-	-	-	-	-	-	-
Dipsacales	1	-	-	-	-	-	-	-	-	-	-	-
Pinopsida	1	-	-	-	-	-	-	-	-	-	-	-
Pinales	1	-	-	-	-	-	-	-	-	-	-	-
Polypodiopsida	95	1	-	-	-	-	-	-	1	-	-	-
Cyatheales	5	-	-	-	-	-	-	-	-	-	-	-
Gleicheniales	1	-	-	-	-	-	-	-	-	-	-	-
Hymenophyllales	11	-	-	-	-	-	-	-	-	-	-	-
Polypodiales	78	1	-	-	-	-	-	-	1	-	-	-
Psilotopsida	2	-	-	-	-	-	-	-	-	-	-	-
Ophioglossales	1	-	-	-	-	-	-	-	-	-	-	-
Psilotales	1	-	-	-	-	-	-	-	-	-	-	-
Spermatopsida	1082	21	3	2	1	-	-	4	10	4	1	
Alismatales	19	-	-	-	-	-	-	-	-	-	-	-
Apiales	3	-	-	-	-	-	-	-	-	-	-	-
Aquifoliales	1	-	-	-	-	-	-	-	-	-	-	-
Arecales	7	-	-	-	-	-	-	-	-	-	-	-
Asparagales	77	4	-	-	-	-	-	1	2	1	-	-
Asterales	62	1	-	-	-	-	-	1	-	-	-	-
Boraginales	19	1	-	-	-	-	-	-	1	-	-	-
Brassicales	21	-	-	-	-	-	-	-	-	-	-	-
Canellales	1	-	-	-	-	-	-	-	-	-	-	-
Caryophyllales	89	2	-	-	-	-	-	1	-	1	-	-
Celastrales	5	-	-	-	-	-	-	-	-	-	-	-
Commelinales	8	-	-	-	-	-	-	-	-	-	-	-
Cucurbitales	8	1	-	-	-	-	-	-	1	-	-	-
Dioscoreales	3	-	-	-	-	-	-	-	-	-	-	-
Ericales	15	-	-	-	-	-	-	-	-	-	-	-
Fabales	85	2	1	1	-	-	-	-	1	-	-	-
Fagales	1	-	-	-	-	-	-	-	-	-	-	-
Gentianales	64	3	-	-	-	-	-	1	-	1	1	
Lamiales	69	1	-	-	-	-	-	-	1	-	-	-
Laurales	9	1	-	-	-	-	-	-	1	-	-	-
Liliales	2	-	-	-	-	-	-	-	-	-	-	-
Magnoliales	4	-	-	-	-	-	-	-	-	-	-	-
Malpighiales	97	1	-	-	-	-	-	-	1	-	-	-
Malvales	59	-	-	-	-	-	-	-	-	-	-	-
Myrtales	40	2	1	1	-	-	-	-	1	-	-	-
Nymphaeales	1	-	-	-	-	-	-	-	-	-	-	-
Oxalidales	5	-	-	-	-	-	-	-	-	-	-	-
Picramniales	1	-	-	-	-	-	-	-	-	-	-	-
Piperales	25	-	-	-	-	-	-	-	-	-	-	-
Poales	141	-	-	-	-	-	-	-	-	-	-	-
Ranunculales	3	-	-	-	-	-	-	-	-	-	-	-
Rosales	30	1	-	-	-	-	-	-	-	1	-	-
Santalales	3	-	-	-	-	-	-	-	-	-	-	-
Sapindales	29	-	-	-	-	-	-	-	-	-	-	-
Saxifragales	4	-	-	-	-	-	-	-	-	-	-	-
Solanales	53	1	1	-	1	-	-	-	1	-	-	-
Vitales	3	-	-	-	-	-	-	-	-	-	-	-
Zingiberales	11	-	-	-	-	-	-	-	-	-	-	-
Zygophyllales	5	-	-	-	-	-	-	-	-	-	-	-
Grand Total	4114	223	35	12	10	10	3	15	111	58	6	

Annex 2: Endemic species list of SSS islands and Saba Bank

Table 15. Endemic animal and plant species for St. Martin, St. Eustatius, Saba and Saba Bank together ('SSS or Saba Bank') and separate, as well as the number of endemics per larger geographical area, with (sub)totals (in grey).

Row Labels	N endemics total	N End. SSS or SabaBank	N End. St. Martin	N End. St. Eustatius	N End. Saba	N End. SabaBank	N End. Northern Lesser Antilles	N End. Lesser Antilles	N End. Antilles	N End. OtherRegion
Animalia	198	31	10	8	10	3	11	100	54	3
Annelida	1	1	-	1	-	-	-	-	-	-
Polychaeta	1	1	-	1	-	-	-	-	-	-
Phyllodocida	1	1	-	1	-	-	-	-	-	-
Namanereis sublittoralis Glasby, 1999	1	1	-	1	-	-	-	-	-	-
Arthropoda	108	21	6	6	9	-	6	41	38	3
Arachnida	23	4	1	1	2	-	2	5	12	-
Amblypygi	1	-	-	-	-	-	-	-	1	-
Phrynus goesii Thorell, 1889	1	-	-	-	-	-	-	-	1	-
Araneae	17	1	-	-	1	-	2	3	11	-
Anasaitis banksi (Roewer, 1951)	1	-	-	-	-	-	-	-	1	-
Beata octopunctata (Peckham & Peckham, 1894)	1	-	-	-	-	-	-	1	-	-
Camillina nevis Platnick & Shadab, 1982	1	-	-	-	-	-	-	-	1	-
Chrysometa eugeni Levi, 1986	1	-	-	-	-	-	-	1	-	-
Cyrtognatha simoni (Bryant, 1940)	1	-	-	-	-	-	-	-	1	-
Hahnia naguaboi (Lehtinen, 1967)	1	-	-	-	-	-	-	-	1	-
Hentzia whitcombi Richmana, 1989	1	-	-	-	-	-	-	-	1	-
Heteroonops saba Platnick & Dupérré, 2009	1	-	-	-	-	-	1	-	-	-
Loxosceles caribbaea Gertsch, 1958	1	-	-	-	-	-	-	-	1	-
Lyssomanes portoricensis Petrunkevitch, 1930	1	-	-	-	-	-	-	-	1	-
Modisimus montanus Petrunkevitch, 1929	1	-	-	-	-	-	-	-	1	-
Neostasina bicolor (Banks, 1914)	1	-	-	-	-	-	-	-	1	-
Scaphioides nitens (Bryant, 1942)	1	-	-	-	-	-	-	1	-	-
Scytodes dissimulans Petrunkevitch, 1929	1	-	-	-	-	-	-	-	1	-
Selenops souliga Crews, 2011	1	-	-	-	-	-	1	-	-	-
Stenoonops saba Platnick & Dupérré, 2010	1	1	-	-	1	-	-	-	-	-
Theridion ricense Levi, 1959	1	-	-	-	-	-	-	-	1	-
Pseudoscorpiones	3	3	1	1	1	-	-	-	-	-
Amblyolpium martinensis Van den Tooren, 2002	1	1	1	-	-	-	-	-	-	-
Corticochernes sabae Van den Tooren, 2008	1	1	-	-	1	-	-	-	-	-
Pachyolpium confusum Van den Tooren, 2002	1	1	-	1	-	-	-	-	-	-
Scorpiones	2	-	-	-	-	-	-	2	-	-
Centruroides barbudensis (Pocock, 1898)	1	-	-	-	-	-	-	1	-	-
Oiclus purvesii (Becker, 1880)	1	-	-	-	-	-	-	1	-	-
Hexanauplia	2	2	2	-	-	-	-	-	-	-
Harpacticoida	1	1	1	-	-	-	-	-	-	-
Leptocaris glaber Fiers, 1986	1	1	1	-	-	-	-	-	-	-
Poecilostomatoida	1	1	1	-	-	-	-	-	-	-
Acanthomolgus seticornis Stock, 1975	1	1	1	-	-	-	-	-	-	-
Insecta	78	15	3	5	7	-	4	31	26	3
Coleoptera	33	3	2	-	1	-	-	16	14	-
Amniscus praemorsus (Fabricius, 1793)	1	-	-	-	-	-	-	1	-	-
Blapstinus opacus Mulsant & Rey, 1859	1	-	-	-	-	-	-	1	-	-
Caribbomerus attenuatus (Chevrolat, 1862)	1	-	-	-	-	-	-	1	-	-
Chelonarium pilosellum Chevrolat, 1880	1	-	-	-	-	-	-	1	-	-
Chrysobothris sabae Maier & Ivie, 2013	1	1	-	-	1	-	-	-	-	-
Conoderus bifoveatus Palisot de Beauvois, 1805	1	-	-	-	-	-	-	-	1	-
Conoderus castaneus (Fabricius, 1792)	1	-	-	-	-	-	-	-	1	-
Conotelus conicus (Fabricius, 1801)	1	-	-	-	-	-	-	-	1	-
Diastolinus perforatus (Schönherr, 1806)	1	-	-	-	-	-	-	1	-	-
Drepanidius ignotus Fleutiaux & Sallé, 1889	1	-	-	-	-	-	-	1	-	-
Eburia decemmaculata (Fabricius, 1775)	1	-	-	-	-	-	-	1	-	-
Ecyrus hirtipes Gahan, 1895	1	-	-	-	-	-	-	-	1	-
Elaphidion glabratum (Fabricius, 1792)	1	-	-	-	-	-	-	-	1	-
Esthesopus poedicus Candèze, 1860	1	-	-	-	-	-	-	-	1	-
Euconnus guadeloupensis Franz, 1980	1	-	-	-	-	-	-	1	-	-
Holopsis pellucidus (Matthews, 1899)	1	-	-	-	-	-	-	1	-	-
Hovorodon maxillosum (Drury, 1773)	1	-	-	-	-	-	-	-	1	-
Lacon subcostatus (Candèze, 1857)	1	-	-	-	-	-	-	-	1	-
Lagocheirus araneiformis subsp. guadeloupensis Dillon, 1957	1	-	-	-	-	-	-	-	1	-
Lithargyrus guadeloupensis (Villiers, 1980)	1	-	-	-	-	-	-	1	-	-

Nemocephalus monilis (Fabricius, 1787)	1	-	-	-	-	-	-	1	-
Neoclytus araneiformis (Olivier, 1795)	1	-	-	-	-	-	-	1	-
Phyllophaga sanbarthensis Chalumeau & Gruner, 1976	1	-	-	-	-	-	-	1	-
Phyllophaga stehlei Chalumeau, 1985	1	1	1	-	-	-	-	-	-
Psyllobora lineola Fabricius, 1792	1	-	-	-	-	-	-	1	-
Selenophorus parumpunctatus Dejean, 1829	1	-	-	-	-	-	-	1	-
Solenoptera chalumeaui Villiers, 1979	1	1	1	-	-	-	-	-	-
Stethorus caribus Gordon & Chapin, 1983	1	-	-	-	-	-	-	1	-
Styloleptus inermis (Fabricius, 1801)	1	-	-	-	-	-	-	1	-
Styloleptus posticalis (Gahan, 1895)	1	-	-	-	-	-	-	1	-
Trientoma guadeloupensis Fleutiaux & Sallé, 1889	1	-	-	-	-	-	-	1	-
Urgleptes cobbeni Gilmour, 1963	1	-	-	-	-	-	-	1	-
Zeadalopus antiguensis Peck & Cook, 2014	1	-	-	-	-	-	-	1	-
Diptera	4	1	-	-	1	-	-	1	2
Aedes busckii (Coquillett, 1906)	1	-	-	-	-	-	-	1	-
Alepia apexalba Wagner, Richardson & Richardson, 2010	1	1	-	-	1	-	-	-	-
Allograpta limbata (Fabricius, 1805)	1	-	-	-	-	-	-	1	-
Ocyptamus cylindricus (Fabricius, 1781)	1	-	-	-	-	-	-	1	-
Hemiptera	3	1	-	-	1	-	-	1	1
Chariesterus gracilicornis Stål, 1870	1	-	-	-	-	-	-	-	1
Dysdercus andreae (Linnaeus, 1758)	1	-	-	-	-	-	-	1	-
Lophoscutus geijskesi Kormilev & van Doesburg, 1986	1	1	-	-	1	-	-	-	-
Hymenoptera	3	-	-	-	-	-	1	-	1
Anthophora eustatiensis Brooks, 1999	1	-	-	-	-	-	1	-	-
Centris smithii Cresson, 1879	1	-	-	-	-	-	-	1	-
Xylocopa mordax Smith, 1874	1	-	-	-	-	-	-	-	1
Lepidoptera	12	-	-	-	-	-	2	7	4
Anaea troglodyta subsp. minor Hall, 1936	1	-	-	-	-	-	1	-	-
Choranthus vitellius (Fabricius, 1793)	1	-	-	-	-	-	1	-	1
Dryas iulia subsp. warneri (Hall, 1936)	1	-	-	-	-	-	-	1	-
Electrostrymon angerona (Godman & Salvin, 1896)	1	-	-	-	-	-	-	1	-
Glutophrissa drusilla subsp. comstocki (Dillon, 1947)	1	-	-	-	-	-	-	1	-
Glutophrissa punctifera (d'Almeida, 1939)	1	-	-	-	-	-	-	-	1
Leptotes cassius subsp. catilina (Fabricius, 1793)	1	-	-	-	-	-	-	-	1
Phyprosopus tristriga Möschler, 1890	1	-	-	-	-	-	-	-	1
Polygonus savigny subsp. punctus Bell & Comstock, 1948	1	-	-	-	-	-	-	1	-
Pyrisitia leuce subsp. antillarum (Hall, 1936)	1	-	-	-	-	-	-	1	-
Urbanus obscurus (Hewitson, 1867)	1	-	-	-	-	-	-	1	-
Wallengrenia ophites (Mabille, 1878)	1	-	-	-	-	-	-	1	-
Odonata	1	-	-	-	-	-	-	1	-
Orthemis macrostigma (Rambur, 1842)	1	-	-	-	-	-	-	1	-
Orthoptera	22	10	1	5	4	-	1	5	5
Amphiacusta sanctaerucis Desutter-Grandcolas, 1997	1	-	-	-	-	-	-	1	-
Antillicharis fulvescens (Saussure, 1878)	1	-	-	-	-	-	-	1	-
Antillicharis naskreckii Otte & Perez-Gelabert, 2009	1	1	-	-	1	-	-	-	-
Antillicharis sabaensis Otte & Perez-Gelabert, 2009	1	1	-	-	1	-	-	-	-
Caribacusta saba (Desutter-Grandcolas, 1997)	1	-	-	-	-	-	1	-	-
Carylla proalbifrons (Desutter-Grandcolas, 2003)	1	-	-	-	-	-	-	-	1
Cycloptilum eustatiensis Bland & Desutter-Grandcolas, 2003	1	-	-	-	-	-	-	1	-
Cyrtoxipha gundlachi (Bland & Desutter-Grandcolas, 2003)	1	-	-	-	-	-	-	-	1
Cyrtoxipha orientalis (Bland & Desutter-Grandcolas, 2003)	1	1	-	1	-	-	-	-	-
Lactista eustatia Bland, 2002	1	1	-	1	-	-	-	-	-
Laurellia saba Otte & Perez-Gelabert, 2009	1	1	-	-	1	-	-	-	-
Laurepa maculata (Desutter-Grandcolas & Bland, 2003)	1	1	-	1	-	-	-	-	-
Laurepa saba Otte & Perez-Gelabert, 2009	1	1	-	-	1	-	-	-	-
Microcentrum decoratum Walker, 1869	1	-	-	-	-	-	-	-	1
Microcentrum incarnatum (Brunner von Wattenwyl, 1878)	1	-	-	-	-	-	-	-	1
Nesonotus tricornis (Thunberg, 1815)	1	-	-	-	-	-	-	1	-
Oecanthus allardi Walker & Gurney, 1960	1	-	-	-	-	-	-	-	1
Orocharis angustus Desutter-Grandcolas, 2003	1	1	-	1	-	-	-	-	-
Orocharis minutus Desutter-Grandcolas, 2003	1	1	-	1	-	-	-	-	-
Phoebolampta caeruleotergum Heads, 2008	1	1	1	-	-	-	-	-	-
Schistocerca nitens subsp. caribbeana Dirsh, 1974	1	-	-	-	-	-	-	1	-
Sphingonotus haitensis (Saussure, 1861)	1	-	-	-	-	-	-	-	1
Malacostraca	4	-	-	-	-	-	-	4	-
Amphipoda	1	-	-	-	-	-	-	1	-
Metaniphargus palpator Stock, 1977	1	-	-	-	-	-	-	1	-
Decapoda	1	-	-	-	-	-	-	1	-
Thersandrus compressus (Desbonne in Desbonne & Schramm, 1867)	1	-	-	-	-	-	-	1	-
Isopoda	2	-	-	-	-	-	-	2	-
Gnathia marleyi Farquharson, Smit & Sikkel, 2012	1	-	-	-	-	-	-	1	-
Microcharon quilli Vonk & Lau, 2016	1	-	-	-	-	-	-	1	-
Pycnogonida	1	-	-	-	-	-	-	1	-
Pantopoda	1	-	-	-	-	-	-	1	-
Tanystylum geminum Stock, 1954	1	-	-	-	-	-	-	1	-
Chordata	50	5	3	-	1	1	4	31	9
Actinopterygii	4	2	1	-	-	1	-	1	1

Atheriniformes	1	1	1	-	-	-	-	-	-
Melanorhinus boekei Metzelaar, 1919	1	1	1	-	-	-	-	-	-
Perciformes	3	1	-	-	-	1	-	1	-
Psilotris boehlkei Greenfield, 1993	1	-	-	-	-	-	1	-	-
Starksia melasma Williams & Mounts, 2003	1	-	-	-	-	-	-	1	-
Starksia williamsi Baldwin & Castillo, 2011	1	1	-	-	-	1	-	-	-
Amphibia	1	-	-	-	-	-	1	-	-
Anura	1	-	-	-	-	-	1	-	-
Eleutherodactylus johnstonei Barbour, 1914	1	-	-	-	-	-	1	-	-
Aves	23	-	-	-	-	2	15	6	-
Apodiformes	4	-	-	-	-	-	2	2	-
Eulampis holosericeus (Linnaeus, 1758)	1	-	-	-	-	-	1	-	-
Eulampis jugularis (Linnaeus, 1766)	1	-	-	-	-	-	1	-	-
Orthorhynchus cristatus (Linnaeus, 1758)	1	-	-	-	-	-	-	1	-
Orthorhynchus cristatus subsp. exilis (Gmelin, 1788)	1	-	-	-	-	-	-	1	-
Columbiformes	3	-	-	-	-	-	2	1	-
Columbina passerina subsp. nigrirostris (Danforth, 1935)	1	-	-	-	-	-	1	-	-
Columbina passerina subsp. trochila (Bonaparte, 1855)	1	-	-	-	-	-	1	-	-
Geotrygon mystacea (Temminck, 1811)	1	-	-	-	-	-	-	1	-
Falconiformes	1	-	-	-	-	-	-	1	-
Falco sparverius subsp. caribaeorum Gmelin, 1788	1	-	-	-	-	-	-	1	-
Passeriformes	14	-	-	-	-	2	11	1	-
Allenia fusca (Müller, 1776)	1	-	-	-	-	-	1	-	-
Cinclocerthia ruficauda (Gould, 1836)	1	-	-	-	-	-	1	-	-
Cinclocerthia ruficauda subsp. pavida Ridgway, 1904	1	-	-	-	-	1	-	-	-
Coereba flaveola subsp. bartholemica (Sparrman, 1788)	1	-	-	-	-	-	1	-	-
Elaenia martinica subsp. martinica (Linnaeus, 1766)	1	-	-	-	-	-	1	-	-
Euphonia musica subsp. flavifrons (Sparrman, 1789)	1	-	-	-	-	-	1	-	-
Loxigilla noctis (Linnaeus, 1766)	1	-	-	-	-	-	1	-	-
Loxigilla noctis subsp. coryi (Ridgway, 1898)	1	-	-	-	-	1	-	-	-
Loxigilla noctis subsp. ridgwayi (Cory, 1892)	1	-	-	-	-	-	1	-	-
Margarops fuscatus subsp. densirostris (Vieillot, 1818)	1	-	-	-	-	-	1	-	-
1879 Quiscalus lugubris subsp. guadeloupensis Lawrence,	1	-	-	-	-	-	1	-	-
1869 Setophaga petechia subsp. bartholemica (Sundevall,	1	-	-	-	-	-	-	1	-
Tyrannus dominicensis subsp. vorax Vieillot, 1819	1	-	-	-	-	-	1	-	-
Vireo altiloquus subsp. barbadensis (Ridgway, 1874)	1	-	-	-	-	-	1	-	-
Podicipediformes	1	-	-	-	-	-	-	1	-
Podilymbus podiceps subsp. antillarum Bangs, 1913	1	-	-	-	-	-	-	1	-
Chondrichthyes	1	-	-	-	-	-	-	1	-
Carcharhiniformes	1	-	-	-	-	-	-	1	-
Galeus antillensis Springer, 1979	1	-	-	-	-	-	-	1	-
Mammalia	5	-	-	-	-	-	4	1	-
Chiroptera	5	-	-	-	-	-	4	1	-
Ardops nicholli subsp. montseratensis (Thomas, 1894)	1	-	-	-	-	-	1	-	-
Brachyphylla cavernarum Gray, 1834	1	-	-	-	-	-	-	1	-
Monophyllus plethodon subsp. luciae Miller, 1902	1	-	-	-	-	-	1	-	-
Monophyllus plethodon subsp. plethodon Miller, 1900	1	-	-	-	-	-	1	-	-
Natalus stramineus Gray, 1838	1	-	-	-	-	-	1	-	-
Reptilia	16	3	2	-	1	-	3	10	-
Squamata	16	3	2	-	1	-	3	10	-
Alsophis rijgersmaei Cope, 1869	1	-	-	-	-	-	1	-	-
Alsophis rufiventris Duméril, Bibron & Duméril, 1854	1	-	-	-	-	-	1	-	-
Anolis bimaculatus (Sparrman, 1784)	1	-	-	-	-	-	1	-	-
Anolis gingivinus Cope, 1864	1	-	-	-	-	-	1	-	-
Anolis pogus Lazell, 1972	1	-	-	-	-	-	1	-	-
Anolis schwartzi (Lazell, 1972)	1	-	-	-	-	1	-	-	-
Anolis sabanus Garman, 1887	1	1	-	-	1	-	-	-	-
Iguana delicatissima Laurenti, 1768	1	-	-	-	-	-	1	-	-
Pholidoscelis erythrocephalus (Shaw, 1802)	1	-	-	-	-	-	1	-	-
Pholidoscelis plei Duméril & Bibron, 1839	1	-	-	-	-	-	1	-	-
Sphaerodactylus parvus King, 1962	1	-	-	-	-	-	1	-	-
Sphaerodactylus sabanus Cochran, 1938	1	-	-	-	-	1	-	-	-
Sphaerodactylus sputator (Sparrman, 1784)	1	-	-	-	-	-	1	-	-
Spondylurus martiniae Hedges & Conn, 2012	1	1	1	-	-	-	-	-	-
Spondylurus powelli Hedges & Conn, 2012	1	-	-	-	-	-	1	-	-
Thecadactylus oskrobapreinorum Köhler & Vesely, 2011	1	1	1	-	-	-	-	-	-
Cnidaria	5	-	-	-	-	-	1	4	-
Anthozoa	4	-	-	-	-	-	1	3	-
Alyconacea	2	-	-	-	-	-	1	1	-
Antillogorgia albatrossae (Bayer, 1961)	1	-	-	-	-	-	-	1	-
Antillogorgia hummelincki (Bayer, 1961)	1	-	-	-	-	-	1	-	-
Zoantharia	2	-	-	-	-	-	-	2	-
Bergia puertoricense (West, 1979)	1	-	-	-	-	-	-	1	-
Hydrozoanthus tunicans (Duerden, 1900)	1	-	-	-	-	-	-	1	-
Hydrozoa	1	-	-	-	-	-	-	1	-
Anthoathecata	1	-	-	-	-	-	-	1	-
Heterocoryne caribbensis Wedler & Larson, 1986	1	-	-	-	-	-	-	1	-
Mollusca	33	4	1	1	-	2	-	26	3
Bivalvia	5	1	-	-	-	1	-	3	1
Anomalodesmata	2	1	-	-	-	1	-	1	-
Cardiomya saba Knudsen, 1982	1	1	-	-	-	1	-	-	-

Cetomya umbonata (Knudsen, 1982)	1	-	-	-	-	-	-	1	-	-
Lucinida	2	-	-	-	-	-	-	1	1	-
Parvilucina latens Taylor & Glover, 2016	1	-	-	-	-	-	-	1	-	-
Pleurolocina hendersoni Britton, 1972	1	-	-	-	-	-	-	-	1	-
Venerida	1	-	-	-	-	-	-	1	-	-
Transennella gerrardi Abbott, 1958	1	-	-	-	-	-	-	1	-	-
Gastropoda	28	3	1	1	-	1	-	23	2	-
Cycloneritimorpha	3	-	-	-	-	-	-	3	-	-
Lucidella plicatula (Pfeiffer, 1849)	1	-	-	-	-	-	-	1	-	-
Lucidella plicatula subsp. christofori (Pilsbry, 1897)	1	-	-	-	-	-	-	1	-	-
Lucidella plicatula subsp. plicatula (Pfeiffer, 1849)	1	-	-	-	-	-	-	1	-	-
Littorinimorpha	4	-	-	-	-	-	-	4	-	-
Caecum donmoorei Mitchell-Tapping, 1979	1	-	-	-	-	-	-	1	-	-
Chondropoma ignea Reeve, 1863	1	-	-	-	-	-	-	1	-	-
Diplopoma crenulatum (Férussac, 1821)	1	-	-	-	-	-	-	1	-	-
Simulamereina didyma (Watson, 1886)	1	-	-	-	-	-	-	1	-	-
Neogastropoda	7	2	1	-	-	1	-	5	-	-
Aesopus gracilis Faber, 2004	1	-	-	-	-	-	-	1	-	-
Buchema bellula (Smith, 1882)	1	-	-	-	-	-	-	1	-	-
Canalispira hoffi (Moolenbeek & Faber, 1991)	1	-	-	-	-	-	-	1	-	-
Conasprella berschaueri (Petuch & Myers, 2014)	1	1	1	-	-	-	-	-	-	-
Crassispira affinis (Reeve, 1846)	1	-	-	-	-	-	-	1	-	-
Lyria sabaensis Bail, 1993	1	1	-	-	-	1	-	-	-	-
Vasum globulus (Lamarck, 1816)	1	-	-	-	-	-	-	1	-	-
Stylommatophora	14	1	-	1	-	-	-	11	2	-
Amphibulima patula (Bruguière, 1792)	1	-	-	-	-	-	-	1	-	-
Brachypodella antiperversa (Férussac, 1832)	1	-	-	-	-	-	-	1	-	-
Bulimulus diaphanus (Pfeiffer, 1855)	1	-	-	-	-	-	-	1	-	-
Bulimulus diaphanus subsp. diaphanus (Pfeiffer, 1855)	1	-	-	-	-	-	-	1	-	-
Bulimulus diaphanus subsp. fraterculus (Potiez & Michaud, 1835)	1	-	-	-	-	-	-	1	-	-
Bulimulus lehmanni (Pfeiffer, 1865)	1	-	-	-	-	-	-	1	-	-
Bulimulus limnoides (Férussac, 1832)	1	-	-	-	-	-	-	1	-	-
Glyphyalus quillensis de Winter, van Leeuwen & Hovestadt, 2016	1	1	-	1	-	-	-	-	-	-
Hyalosagda subaquila (Shuttleworth, 1854)	1	-	-	-	-	-	-	-	1	-
Obeliscus swiftianus (Pfeiffer, 1852)	1	-	-	-	-	-	-	-	1	-
Opeas octogyrum subsp. plicatellum (Guppy, 1868)	1	-	-	-	-	-	-	1	-	-
Pellicula depressa (Rang, 1835)	1	-	-	-	-	-	-	1	-	-
Pleurodonte guadeloupensis (Pilsbry, 1889)	1	-	-	-	-	-	-	1	-	-
Pleurodonte lychnuchus (Müller, 1774)	1	-	-	-	-	-	-	1	-	-
Platyhelminthes	1	-	-	-	-	-	-	1	-	-
Rhabditophora	1	-	-	-	-	-	-	1	-	-
Polycladida	1	-	-	-	-	-	-	1	-	-
Alloioplana wyona (Marcus & Marcus, 1968)	1	-	-	-	-	-	-	1	-	-
Plantae	25	4	2	2	-	-	4	11	4	3
Rhodophyta	3	1	-	1	-	-	-	-	-	2
Florideophyceae	3	1	-	1	-	-	-	-	-	2
Ceramiales	1	1	-	1	-	-	-	-	-	-
Stichothamnion antillarum Vroman	1	1	-	1	-	-	-	-	-	-
Gigartinales	1	-	-	-	-	-	-	-	-	1
Flahaultia tegetiformans W.R.Taylor	1	-	-	-	-	-	-	-	-	1
Peyssonneliales	1	-	-	-	-	-	-	-	-	1
Peyssonnelia flavescens D.L.Ballant. & H.Ruiz	1	-	-	-	-	-	-	-	-	1
Tracheophyta	22	3	2	1	-	-	4	11	4	1
Polypodiopsida	1	-	-	-	-	-	-	1	-	-
Polypodiales	1	-	-	-	-	-	-	1	-	-
Ctenitis meridionalis (Poir.) Ching	1	-	-	-	-	-	-	1	-	-
Spermatopsida	21	3	2	1	-	-	4	10	4	1
Asparagales	4	-	-	-	-	-	1	2	1	-
Epidendrum difforme Jacq.	1	-	-	-	-	-	-	1	-	-
Epidendrum pallidiflorum Hook.	1	-	-	-	-	-	-	1	-	-
Psychilis correllii Saulea	1	-	-	-	-	-	1	-	-	-
Tolumnia urophylla (Lodd. ex Lindl.) Braem	1	-	-	-	-	-	-	-	1	-
Asterales	1	-	-	-	-	-	1	-	-	-
Chromolaena macrantha (Sw.) R.M.King & H.Rob.	1	-	-	-	-	-	1	-	-	-
Boraginales	1	-	-	-	-	-	-	1	-	-
Cordia nesophila I.M.Johnst.	1	-	-	-	-	-	-	1	-	-
Caryophyllales	2	-	-	-	-	-	1	-	1	-
Alternanthera crucis (Moq.) Bold.	1	-	-	-	-	-	-	-	1	-
Coccoloba boxii Sandwith	1	-	-	-	-	-	1	-	-	-
Cucurbitales	1	-	-	-	-	-	-	1	-	-
Begonia retusa O.E.Schulz	1	-	-	-	-	-	-	1	-	-
Fabales	2	1	1	-	-	-	-	1	-	-
Galactia longiflora Arn.	1	-	-	-	-	-	-	1	-	-
Galactia nummularia Urb.	1	1	1	-	-	-	-	-	-	-
Gentianales	3	-	-	-	-	-	1	-	1	1
Gonolobus aloiensis Krings & F.S.Axelrod	1	-	-	1	-	-	-	-	-	-
Mitracarpus polycladus Urb.	1	-	-	-	-	-	-	-	1	-
Spermacoce bahamensis (Britton) Howard	1	-	-	-	-	-	-	-	-	1
Lamiales	1	-	-	-	-	-	-	1	-	-
Justicia eustachiana Jacq.	1	-	-	-	-	-	-	1	-	-
Laurales	1	-	-	-	-	-	-	1	-	-

Cinnamomum falcatum (Mez) R. Howard	1	-	-	-	-	-	-	1	-	-
Malpighiales	1	-	-	-	-	-	-	1	-	-
Clusia major L.	1	-	-	-	-	-	-	1	-	-
Myrtales	2	1	1	-	-	-	-	1	-	-
Calyptranthes boldinghii Urb.	1	1	1	-	-	-	-	-	-	-
Tetrazygia discolor (L.) DC.	1	-	-	-	-	-	-	1	-	-
Rosales	1	-	-	-	-	-	-	-	1	-
Prunus pleuradenia Griseb.	1	-	-	-	-	-	-	-	1	-
Solanales	1	1	-	-	-	-	-	1	-	-
Ipomoea sphenophylla Urb.	1	1	-	-	-	-	-	1	-	-
Grand Total	223	35	12	10	10	3	15	111	58	6

Annex 3: Conservation status of species of the SSS islands and Saba Bank

Table 16. IUCN Conservation status of endemic animal and plant species for St. Martin, St. Eustatius, Saba and Saba Bank together ('SSS or Saba Bank').

Taxa	Common name	IUCN status	Date assessed	version	Justification
Animalia					
Chordata					
Actinopterygii					
Perciformes					
Psilotris boehlkei Greenfield, 1993	Yellowspot Goby	LC	2008-06-30	3.1	Listed as Least Concern in view of its abundance within its restricted distribution, its presumed large population, and because its habitat is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Starksia melasma Williams & Mounts, 2003	Black Spot Blenny	LC	18-102007	3.1	This species is known from Desecheo Island (Puerto Rico, USA) and Buck Island Reef National Monument (St. Croix, US Virgin Islands) (Williams and Mount 2003). It has no major threats. It is listed as Least Concern.
Starksia williamsi Baldwin & Castillo, 2011	NA	LC	2015-08-07	3.1	This reef species is widely distributed with no known major threats. Therefore, it is listed as Least Concern.
Aves					
Apodiformes					
Eulampis holosericeus (Linnaeus, 1758)	Green-throated Carib	LC	2016-10-01	3.1	Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Eulampis jugularis (Linnaeus, 1766)	Purple-throated Carib	LC	2016-10-01	3.1	Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Orthorhyncus cristatus (Linnaeus, 1758)	Antillean Crested Hummingbird	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Orthorhyncus cristatus subsp. exilis (Gmelin, 1788)	Antillean Crested Hummingbird	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ²

					combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Columbiformes					
Columbina passerina subsp. nigrirostris (Danforth, 1935)	Common Ground Dove	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Columbina passerina subsp. trochila (Bonaparte, 1855)	Common Ground Dove	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Geotrygon mystacea (Temminck, 1811)	Bridled Quail-Dove	LC	2016-10-01	3.1	Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Despite the fact that the population trend appears to be decreasing, the decline is not believed to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Falconiformes					
Falco sparverius subsp. caribaeorum Gmelin, 1788	American Kestrel	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Passeriformes					
Allenia fusca (Müller, 1776)	Scaly-breasted Thrasher	LC	2016-10-01	3.1	Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach

					the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
<i>Cincoertheria ruficauda</i> (Gould, 1836)	Brown Trembler	LC	2016-10-01	3.1	Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
<i>Cincoertheria ruficauda</i> subsp. <i>pavida</i> Ridgway, 1904	Brown Trembler	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
<i>Coereba flaveola</i> subsp. <i>bartholemica</i> (Sparman, 1788)	Bananaquit	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
<i>Elaenia martinica</i> subsp. <i>martinica</i> (Linnaeus, 1766)	Caribbean Elaenia	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) Although this species may have a restricted range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size may be moderately small to large, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
<i>Euphonia musica</i> subsp. <i>flavifrons</i> (Sparman, 1789)	Lesser Antillean Euphonia	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has a very large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
<i>Loxigilla noctis</i> (Linnaeus, 1766)	Lesser Antillean Bullfinch	LC	2016-10-01	3.1	Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (extent of occurrence <20,000

					km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Loxigilla noctis subsp. coryi (Ridgway, 1898)	Lesser Antillean Bullfinch	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (extent of occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Loxigilla noctis subsp. ridgwayi (Cory, 1892)	Lesser Antillean Bullfinch	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) Although this species may have a small range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (extent of occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Margarops fuscatus subsp. densirostris (Vieillot, 1818)	Pearly-eyed Thrasher	LC	2016-10-01	3.1	Although this species may have a restricted range, it is not believed to approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Quiscalus lugubris subsp. guadeloupensis Lawrence, 1879	Carib Grackle	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has a very large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Setophaga petechia subsp. bartholemica (Sundevall, 1869)	Mangrove Warbler	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure).

					For these reasons the species is evaluated as Least Concern.
Tyrannus dominicensis subsp. vorax Vieillot, 1819	Grey Kingbird	LC	2016-10-01	3.1	This species has a very large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Vireo altiloquus subsp. barbadensis (Ridgway, 1874)	Barbados Black-whiskered Vireo	LC	2016-10-01	3.1	(Subspecies level has not been assessed!) This species has a very large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend is not known, but the population is not believed to be decreasing sufficiently rapidly to approach the thresholds under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Podicipediformes					
Podilymbus podiceps subsp. antillarum Bangs, 1913	Pied-billed Grebe	LC	2016-10-01	3.1	This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be stable, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.
Chondrichthyes					
Carcharhiniformes					
Galeus antillensis Springer, 1979	Antilles Catshark	DD	2004-06-16	3.1	The Antilles Catshark (<i>Galeus antillensis</i>) is a member of the western Atlantic <i>Galeus arae</i> species complex. Information for this species is currently limited but it appears to have a relatively restricted distribution in the western central Atlantic (Florida Straits, Hispaniola, Puerto Rico and the Lesser Antilles). Its distribution may not be completely documented due in part to confusion with its congeners. This species is found in depths of 293–695 m and reaches a maximum size of ~46 cm total length, but virtually nothing is known of its biology. Very little information is available on fisheries that may take this species as bycatch and no catch data are available. At present there is not enough information on catches, biology, or population to assess the species beyond Data Deficient. The limited distribution of this species may make it vulnerable to depletion and therefore any catches require monitoring.
Mammalia					
Chiroptera					
Ardops nicholli subsp. montserratensis (Thomas, 1894)	Antillean Tree Bat	LC	2008-06-30	3.1	(Subspecies level has not been assessed!) Listed as Least Concern in view of its abundance within its restricted distribution, its presumed large population, and because its habitat is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Brachyphylla cavernarum Gray, 1834	Antillean Fruit-eating Bat	LC	2008-06-30	3.1	Listed as Least Concern in view of its abundance within its restricted distribution, its presumed large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because its habitat is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Monophyllus plethodon subsp. luciae Miller, 1902	Insular Single-leaf Bat	LC	2008-06-30	3.1	(Subspecies level has not been assessed!) Listed as Least Concern because its presumed large population, and because its habitat is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Monophyllus plethodon subsp. plethodon Miller, 1900	Insular Single-leaf Bat	LC	2008-06-30	3.1	(Subspecies level has not been assessed!) Listed as Least Concern because its presumed large population, and because its habitat is unlikely to be declining fast enough to qualify for listing in a more threatened category.

Natalus stramineus Gray, 1838	Greater Funnel-eared Bat	LC	2016-07-09	3.1	Listed as Least Concern in view of its abundance within its restricted distribution, its presumed large population, and because its habitat is unlikely to be declining fast enough to qualify for listing in a more threatened category.
Reptilia					
Squamata					
Alsophis rijgersmaei Cope, 1869	Anguilla Bank Racer	EN	2015-07-20	3.1	Listed as Endangered on the basis that this species has an extent of occurrence little over 1,000 km ² and is known to survive on only five islands, each of which is considered a single location based on widespread threats from development, including the likely eradication of the population from Scrub Island following planned development. The population on St. Barths is however presently viable and probably subject to at most localized threats, and while threats to Anguilla are severe it is not yet clear how severe declines have been.
Alsophis rufiventris Duméril, Bibron & Duméril, 1854	Saba Racer	VU	2015-07-21	3.1	Listed as Vulnerable on the basis of a plausible future threat mainly from mongoose introduction, which has led to this species being lost from the majority of its historical range and would rapidly drive this species (known from subpopulations on two small islands with a combined area, and so a maximum area of occupancy, of 34 km ²), a risk that is increasing due to increasing traffic between these islands and larger nearby islands on which this invasive predator is established. There is a lesser potential threat from increases in cat populations as the human population expands, and feral cats are now established on one of the two islands, however at present the snake remains abundant with an apparently stable population.
Anolis bimaculatus (Sparrman, 1784)	Green Tree Lizard	LC	2009-06-30	3.1	<i>Anolis bimaculatus</i> is listed as Least Concern. Although this species has a restricted range, it is not currently impacted by any major threat processes, has been noted as abundant, and is unlikely to be undergoing population declines. However, as this species has a restricted range, monitoring is recommended to ensure that population numbers do not decline in the future.
Anolis pogus Lazell, 1972	Anguilla Bank Bush Anole	VU	2009-06-30	3.1	This species has been assessed as Vulnerable as it is restricted to one small island. Although no information is available regarding current threats to this species, it is obvious from its past extinctions from other islands that they do exist. Therefore more research and monitoring should be conducted to ensure that this species does not decline, triggering assignment to a higher threat category.
Iguana delicatissima Laurenti, 1768	Lesser Antillean Iguana	CR	2018-03-03	3.1	Based on historic range data and an estimated index of abundance, the total population has experienced declines of $\geq 75\%$. Although extirpation from some islands occurred in the early to mid-20th century, the remaining population has continued to decline within the last three generations (33–42 years). In recent years, on-going decline and extirpation of the Lesser Antillean Iguana has been primarily caused by inter- and intra-island dispersal of the invasive alien Common Green Iguana and subsequent hybridization. Common Green Iguanas are much more vigorous reproductively compared to native Lesser Antillean Iguanas, and hybridization and displacement is rapid post-introduction. Since the last assessment (2010), Common Green Iguanas have been observed among three additional pure populations (St. Eustatius, La Désirade, Ramiers), including the site of a recent native iguana reintroduction detailed in the previous regional action plan. These dispersals have not been mitigated and there is no likelihood of containing these threats without more proactive management. The current AOO of the species is estimated at less than 1,000 km ² , the existing subpopulations are fragmented among isolated locations, and the large majority of the current range exists on one island (Dominica). Population numbers for all islands is not available for multiple past generations, however their former area of occupancy can be estimated from published observations and an estimate of abundance based on habitat availability and quality. To project future population reductions, an annual rate of decline in AOO was calculated from the islands invaded by Common Green Iguana, from the known date of invasion to the present, and the remaining area occupied by pure subpopulations. Rates were applied to similarly-sized islands and assuming the worst-case scenario of invasion of remaining pure populations within the next few years. It is strongly felt the risk of invasion and extirpation of the remaining pure populations is imminent in the wake of increased post-hurricane shipping among islands in both species' range, and the lack of biosecurity to mitigate this threat. The recent increase in illegal poaching is also a significant threat to the species' persistence. Under these projection parameters, within one generation, five of the remaining pure populations plus four of the currently invaded/hybridized locations will be extirpated. Only 13% of the species' current AOO is predicted to remain three generations from now. This is a genuine change from the most recent assessment due to increasing occurrence and rate of hybridization and island extirpations.
Pholidoscelis erythrocephalus (Shaw, 1802)	St. Christopher Ameiva	NT	2015-07-23	3.1	Listed as Near Threatened on the basis that this species is restricted to St. Christopher Bank, on three islands each of which is considered a single location based on an ongoing or potential threat from invasive mammals.

					Remnant subpopulations on St. Kitts and Nevis may qualify as severely fragmented, although their long-term survival suggests that these subpopulations are viable. It is however not clear whether the species is subject to ongoing declines in any area where it survives, and while there is a potential risk from mongoose should the species arrive on Sint Eustatius the lizard's long persistence on the larger islands, where mongoose have been present for more than a century, suggests that it is unlikely to be driven to extinction.
Pholidoscelis plei Duméril & Bibron, 1839	Anguilla Bank Ameiva	LC	2015-07-23	3.1	Listed as Least Concern in spite of its somewhat restricted distribution, constrained further on Sint Martin/Saint Martin by the action of invasive species, on the basis that this species is somewhat widespread on several islands where mongoose are not established and it is not subject to major threats. Although populations are thought to be depressed in the presence of invasive mammals, particularly rats, the species' long co-existence with this species throughout its range suggests that it is not at any particular risk of extinction.
Sphaerodactylus sabanus Cochran, 1938	Saba Dwarf Gecko	LC	2015-07-23	3.1	Listed as Least Concern on the basis that this species is cosmopolitan and often abundant on Sint Eustatius and in areas of Saba with at least some leaf litter, and while threats are poorly-known it is not thought to be subject to major threats at present. Little is known of the species' status on the larger islands St. Kitts and Nevis, however the fact of its survival on these highly degraded islands suggests that the species is highly resilient in the face of human impacts and pressures from invasive species.
Sphaerodactylus sputator (Sparrman, 1784)	Least Island Gecko	LC	2015-07-23	3.1	Listed as Least Concern as this species is rather widespread on two island banks in the Lesser Antilles, it is adaptable and sometimes common, and there are not thought to be any major threats. There are early indications that the species may be in decline on Anguilla, and monitoring here is recommended to clarify whether declines are occurring and to identify the causes if so, but there appears to be no evidence of more widespread declines.
Spondylurus powelli Hedges & Conn, 2012	NA	EN	2015-07-24	3.1	Provisionally listed as Endangered on the basis that this species has a restricted extent of occurrence, it is known from only four islands each treated here as a separate location (and hypothesized that it once occurred on a fifth), its extent of occurrence is 855 km ² , and there are anecdotal reports of declines on Anguilla, the largest island within its range. The threats to this species, which is confined to islands from which mongoose are absent, are however, poorly-understood, it is not known to be subject to any threats on Tentemerre or St. Barths and research is needed to confirm whether a genuine decline is underway on Anguilla to confirm that this listing is justified.
Grand Total					42

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