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Mangroves of the Tropical Northwestern Atlantic

VU

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Abstract

Mangroves of the Tropical Northwestern Atlantic is a regional ecosystem subgroup (level 4 unit of the IUCN Global Ecosystem Typology). It includes the marine ecoregions of Bahamian, Carolinian, Eastern Caribbean, Floridian, Greater Antilles, Northern Gulf of Mexico, Southern Caribbean, Southern Gulf of Mexico, Southwestern Caribbean, Western Caribbean. The Tropical Northwestern Atlantic mangrove province mapped extent in 2020 was 17,408 km^2 across, representing 11.8% of the global mangrove area. The diverse biota of this province is characterized by seven species of true mangroves, plus many associated taxa. Six species: *Avicennia germinans, Laguncularia racemosa, Rhizophora mangle*, *Rizophora racemosa* and *Acrostichum aureum* are categorized as Least Concern (LC) and *Pelliciera rhizophorae* as Vulnerable (VU) in the IUCN Red List of threatened species.

Within the province, mangroves with lagoon carbonate and open coast carbonate typologies prevail. Despite sediment scarcity in carbonate regions, urban mangroves unexpectedly accumulate sediments and nutrients at faster rates, potentially enhancing resilience to rising sea levels. Threats to mangroves include deforestation due to various human activities, such as land use changes, agriculture, petroleum, tourism, and climate change-induced hurricanes. Anthropogenic impacts vary across countries. Sea level rise poses a multifaceted threat, from inundation and displacement of mangroves to elevated storm surge risks, necessitating comprehensive assessments and effective management for sustainability.

The net area change of the mangrove in the Tropical Northwestern Atlantic has been -5.4% since 1996. If this trend continues an overall change of -13.1% is projected over the next 50 years. Furthermore, under a high sea level rise scenario (IPCC RCP8.5) ≈-75.9% of the Tropical Northwestern Atlantic mangroves would be submerged by 2060 with a relative severity within of ≥50% and <80%,. Moreover, 5.4% of the province's mangrove ecosystem is undergoing degradation, with the potential to increase to 15.8% within a 50-year period, based on a vegetation index decay analysis. Overall, the Tropical Northwestern Atlantic mangrove ecosystem is assessed as **Vulnerable (VU)**.

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Keywords:

Mangroves; Red List of ecosystems; ecosystem collapse; threats.

Ecosystem classification:
MFT1.2 Intertidal forests and shrublands

Assessment's distribution:
Tropical Northwestern Atlantic province

Summary of the assessment:

Criterion	A	B	C	D	E	Overall
Subcriterion 1	**DD**	**LC**	**DD**	**DD**	**NE**	
Subcriterion 2	**LC**	**LC**	**VU**	**LC**	**NE**	**VU**
Subcriterion 3	**DD**	**DD**	**DD**	**DD**	**NE**	

CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: NearThreatened, LC: Least Concern, DD Data Deficient, NE: Not Evaluated

Mangroves of The Tropical Northwestern Atlantic

VU

1. Ecosystem Classification

IUCN Global Ecosystem Typology (version 2.1, Keith *et al.* 2022):

Transitional Marine-Freshwater-Terrestrial realm

MFT1 Brackish tidal biome

MFT1.2 Intertidal forests and shrublands

MFT1.2_4_MP_12a Mangroves of the Tropical Northwestern Atlantic

IUCN Habitats Classification Scheme (version 3.1, IUCN 2012):

1 Forest

1.7 Forest – Subtropical/tropical mangrove vegetation above high tide level

12 Marine Intertidal

12.7 Mangrove Submerged Roots

Mangrove ecosystem within the Ciénaga Grande de Santa Marta, south of Punta Tambor, Colombia (Photo credit: Diana Romero D'Achiardi).

Mangrove ecosystem of Bahía de Taco, Cuba (Photo credit: Hayler María Pérez Trejo).

Mangrove ecosystem of Jaina island in Campeche, Mexico (Photo credit: Augusto Segovia).

2. Ecosystem Description

Spatial distribution

The mangroves of Tropical Northwestern Atlantic (Figure 1) encompass intertidal forests and shrublands of 37 territories and countries across North and Central America. This vast region stretches from the easternmost point in Barbados to the southern region of the Gulf of Urabá in Colombia, including various, Caribbean islands. The mangroves in the territory of Bermuda stand among the northernmost communities globally, situated at approximately 32º20'N latitude (FAO, 2007). This province´s estimated extent of mangroves was 17,057 km^2 in 2020 (Table 1), accounting for approximately 11.8% of the global mangrove area (Bunting *et al*. 2022). The most extensive mangrove cover within the region is in Mexico, accounting for 70% of the relative area of mangroves in the country, followed by Cuba whose total mangrove area represents about 20% of its forest cover (Menéndez, 2013).

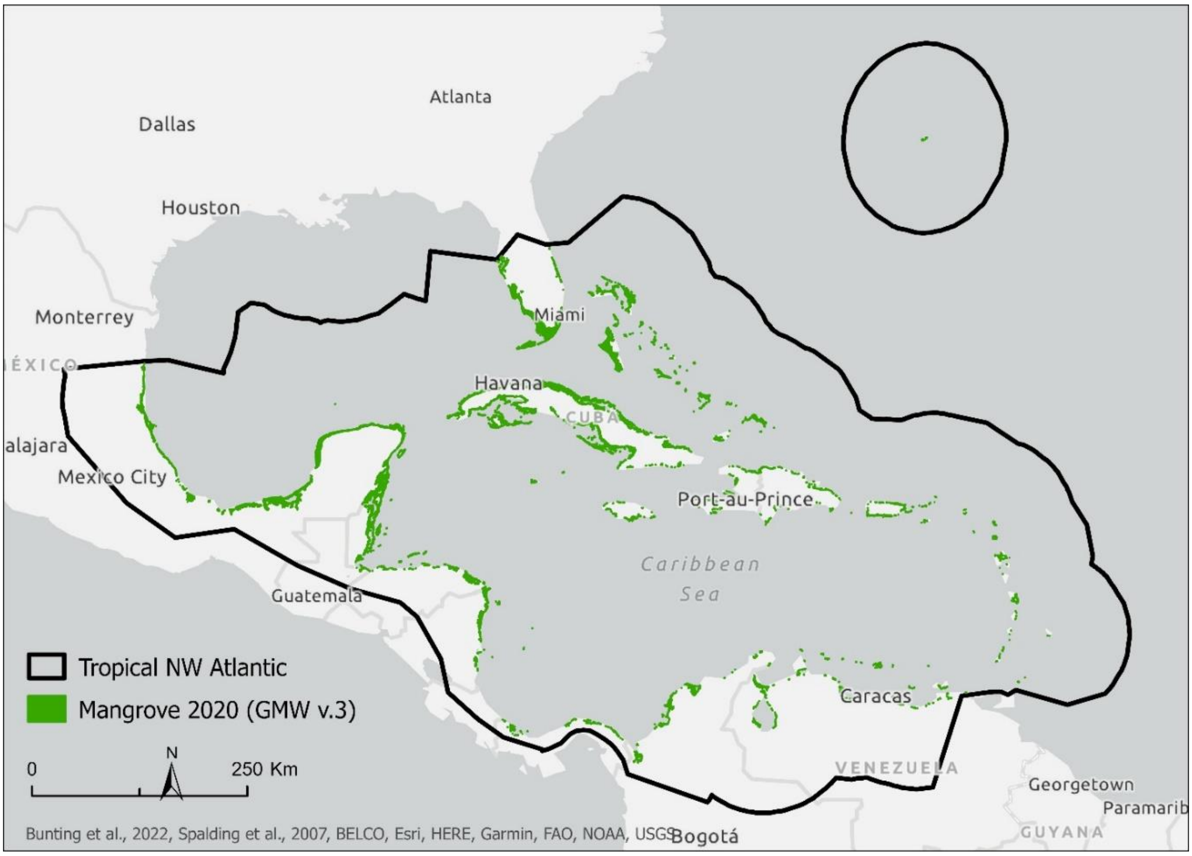


Figure 1. The mangroves of Tropical Northwestern Atlantic.

At least six countries have developed national mangrove distribution maps within the Tropical Northwestern Atlantic province. These countries include Mexico (Velázquez-Salazar *et al.* 2021, Rodríguez-Zúñiga *et al.* 2022), Colombia (INVEMAR 2023), Honduras (ICF-GFA 2022), Panama (SINIA 2021), Costa Rica (CATIE, 2021) and United States of America (Bardou *et al.* 2022). It is essential to acknowledge the discrepancies between the global estimates of mangrove distribution and the locally sourced references. In certain instances, there has been an overestimation within the global mapping, ranging from 3% (Mexico) to 8% (Colombia). In contrast, regions with mangrove distributions of less than 100 km^2 have witnessed underestimations of up to 275%, as evidenced in the case of Panama.

Table 1. Mangrove area in the territories or countries of the Tropical North-western Atlantic Province (Bunting *et al.* 2022)

Territory or country	Area (km^2)	Territory or country	Area (km^2)
Mexico	6605.80	Guatemala	8.59
Cuba	3475.25	Virgin US Islands	2.60
United States	2199.74	Grenada	1.98
The Bahamas	1483.26	Bonaire (Netherlands)	1.89
Colombia	853.20	Saint Lucia	1.65
Belize	519.59	Trinidad and Tobago	1.23
Venezuela	434.86	British Virgin Islands	0.98
Nicaragua	367.28	Curacao (Netherlands)	0.46
Honduras	244.97	Aruba (Netherlands)	0.44
Dominican Republic	189.61	Saint Kitts and Nevis	0.35
Turks and Caicos Islands	150.37	Saint Vincent and the Grenadines	0.33
Haiti	149.26	Costa Rica	0.21
Jamaica	97.51	Bermuda	0.21
Puerto Rico	81.80	Barbados	0.11
Panama	76.95	Sint Marteen (Netherlands)	0.05
Cayman Islands	44.07	Anguilla	0.04
Guadeloupe	34.35	Dominica	0.01
Martinique	19.70	Saint-Martin-Saint-Barthélemy	0.01
Antigua and Barbuda	8.69		

In countries and territories like Dominica, Sint-Marteen, Saint Barthélemy, the coastal area is narrow, measuring less than 1 km, and lacks large bays (Slinger-Friedman 2017). Mangrove forests are restricted to the presence of small shores.

The increasing recognition of the importance of mangroves within the province, in conjunction with the creation of detailed maps, is expected to lead to more accurate assessments of the state of this ecosystem (see Murillo-Sandoval *et al.* 2022), including better maps of degraded extension. As each nation contributes to developing up-to-date mangrove maps, it will improve the capacity to formulate effective strategies for conserving, restoring, and managing mangroves. However, to date, global references, which show regional trends, have served as a valuable initial reference point for these assessments of spatial distribution.

According to Bunting *et al*. 2022, the province has had a net area change of -5.4% since 1996. Data from the Mexican Mangrove Monitoring System (SMMM) indicates that the net area change for the Mexico region was -2.0% since the 1980s. Like many tropical countries, Puerto Rico has lost nearly half of its original mangrove area because of deforestation, conversion to agriculture, and urbanization (Figure 2). However, significant economic development events reversed the mangrove loss pattern in Puerto Rico (Martinuzzi *et al*. 2009). These events ended the agriculture-dominated economy period, leading to land abandonment and re-flooding of coastal valleys. The second event, also observed later in other countries such as Cuba, Panama, Colombia, Costa Rica and Mexico, is the establishment of conservation laws. These legal instruments have significantly reduced deforestation rates that were prevalent until well into the 2000s.

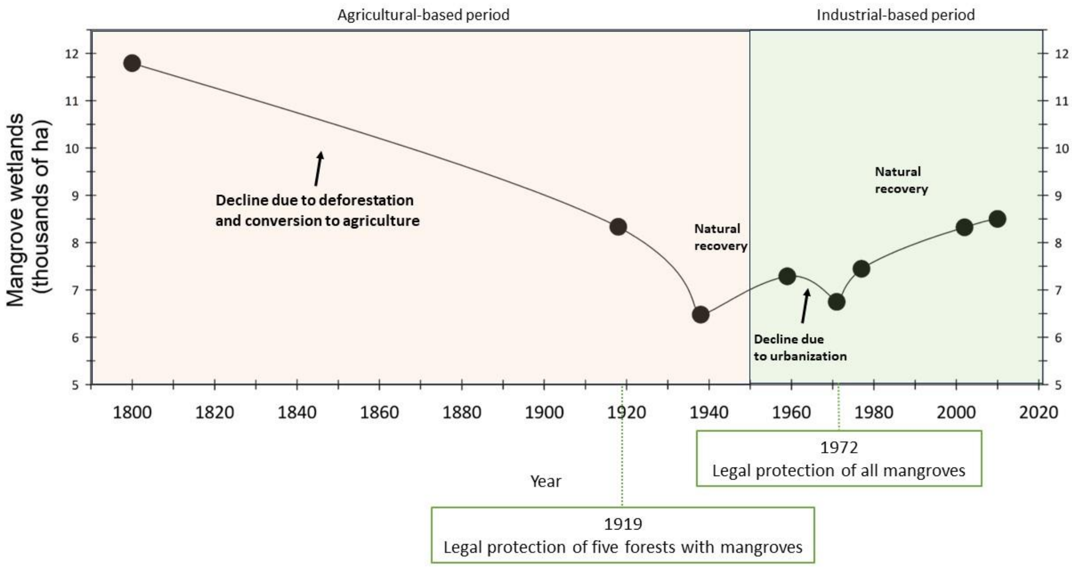


Figure 2. Timeline of mangrove extension area changes in Puerto Rico.

Biotic components of the ecosystem (characteristic native biota)

The mangroves of the Tropical Northwestern Atlantic province are biologically diverse, with seven recorded true mangrove plant species according to IUCN (2022). The species associated with mangrove forests include *Rhizophora mangle* (red mangrove), *Rhizophora racemosa* (red mangrove), *Avicennia germinans* (black mangrove), *Avicennia schaueriana* (white mangrove), *Laguncularia racemosa* (white mangrove), *Pelliciera rhizophorae* (mangle piñuelo), *Acrostichum aureum* (golden leather fern). All of them are in the Least Concern (LC) category, except for *Pelliciera rhizophorae,* which has a Vulnerable (VU) status. In a recent systematic revision of the genus *Pellieciera*, another closely related species was recognized and described as *Pelliciera benthamii*. This species is present on the Atlantic coasts of Honduras, Nicaragua, Panama, and Colombia (Duke 2020, Blanco-Libreros & Ramírez-Ruíz 2021). Additionally, in Panama, *Acrostichum danaeifolium* (giant leather fern) is recorded as a mangrove species in the Atlantic region (ANAM-ARAP, 2013). A species closely associated with the mangrove is *Conocarpus erectus*, which in many legislations of the countries within the province is considered as mangrove and, therefore, they are protected (e.g., In Mexico: NOM-059-SEMARNAT-2010 and NOM-022-SEMARNAT-2003).

There are at least 523 animal species within the taxa Actinopterygii, Anthozoa, Bivalvia, Chondrichthyes, Gastropoda, Holothuroidea, Insecta, Amphibia, Reptilia, Aves, and Mammalia associated with mangrove habitats in the IUCN Red List of Threatened Species (IUCN, 2022) that have natural history collection records, or observations, within the distribution of this province (GBIF, 2021). Of these species, 21 are categorized Vulnerabe (VU), 20 species are Endangered (EN), and 18 are Critically Endangered (CR). Among them, there are three mammals: the Pygmy Three-Toed Sloth (*Bradypus pygmaeus*), the Pygmy Raccoon (*Procyon pygmaeus*) and the Cabrera's Hutia (*Mesocapromys angelcabrerai*)

Osprey (*Pandion hiliaetus*) nesting on red mangrove (*Rhizophora mangle*) near the Sian Ka'an Biosphere Reserve, Quintana Roo, Mexico (Photo credit: José Alberto Alcántara Maya).

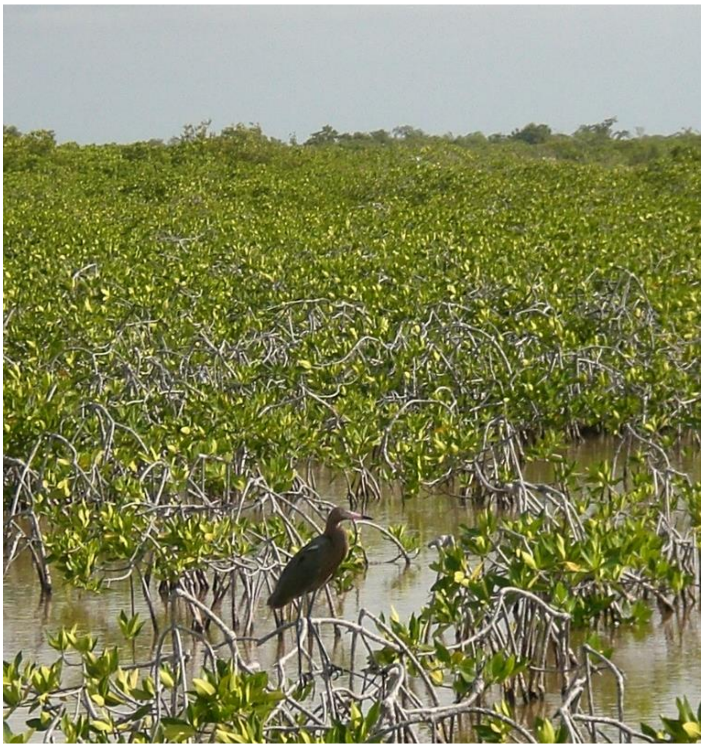
A more extensive database focusing on mangrove-related species for this province in Mexico (Soberón 2022; CONABIO 2023) documented at least 2,972 animal species, 1,761 plant species, and six fungi species included in the IUCN Red List of Threatened Species (IUCN, 2022). Out of the total registered species, 155 are classified as 'Vulnerable (VU),' 135 as 'Endangered (EN),' and 55 as 'Critically Endangered (CR).' Of these, 464 species show some level of endemism, and 570 are protected under Mexican regulations (NOM-059, SEMARNAT, 2010). Some of the endemic species listed in IUCN are the Cozumel Raccoon or Pigmean Racoon (*Procyon pygmaeus*), the Cuitlacoche of Cozumel (*Toxostoma guttatum*), and the tree frog of San Martín (*Ecnomiohyla valancifer*) all of them categorized as 'Critically Endangered (CR)'.

Abiotic Components of the Ecosystem

Mangroves exhibit significant variations based on their geomorphic and sedimentary conditions, the hydrological variability, which can influence fresh-marine water balance, and the dynamics of nutrient inputs, especially nitrogen and phosphorus. These factors determine soil density, affecting several ecosystem services, such as carbon capture and storage, primarily in soils (Rovai *et al*. 2018). Additionally, mangroves serve as a source of sediment supply, playing a crucial role in retaining sediments, which is essential for their establishment and persistence (Cinco-Castro *et al*. 2022).

The global classification of geomorphic and sedimentary settings, established by Worthington *et al*. (2020), categorizes the mangrove systems of the Tropical Northwestern Atlantic province into six main typologies. The most prevalent type is *lagoon carbonate* (41%), followed by *Open coast carbonate* (19%) and four geomorphic types (Lagoon 16%, Delta 12%, Open Coast 7%, and Estuary 5%) with mineral sediments.

In carbonate regions, sediment scarcity is a prevailing characteristic, and the organic substratum commonly originates from autochthonous sources (Cinco-Castro *et al*. 2023). Despite its karst (carbonate) condition and its location in a wide variety of climates, the area presents different hydromorphic typologies, ranging from shrub mangroves of less than 1m to more than 20m, as seen in the geomorphic forms called *petenes* (Helmer *et al*. 2008, Allen *et al*. 2017). In many cases, nutrient deficiency and high interstitial water salinity in the province favour the extensive growth of shrub mangroves.



Shrub mangroves (*Rhizophora mangle*) in a carbonate region of the Tropical North-Western Atlantic, Sian Ka´an, Mexico (photo credit: Ma. Teresa Rodríguez-Zúñiga).

The seasonal effects of tropical cyclones significantly influence the province (Farfan *et al*. 2014; Rivera-Monroy *et al*. 2020; Lagomasino *et al*. 2021). High rainfall reduces salinity stress and increases nutrient loading from adjacent catchments. Concurrently, the effects of waves and tidal flushing, while regulating salinity, carry the risk of destabilizing and eroding mangrove substrates. As outlined by Mckee *et al*. (2011) in their research conducted in Belize, these ecosystems are vulnerable to the effects of climate change and rising sea levels. These factors collectively mediate the local-scale dynamics in ecosystem distributions (Acuña-Piedra and Quesada-Román, 2021). Winds are another factor that affects mangroves during storms, leading to defoliation. While *Rhizophora mangle* cannot recover, species like *Avicennia germinans* and *Laguncularia racemosa* can regrow their foliage, even if the trunk is uprooted.

Key processes and interactions

The effects of human activity can convert mangrove cover to non-mangrove cover dramatically reduce the total area and increase the fragmentation of mangrove forests (Branoff 2017, 2018; Blanco-Libreros and Ramírez-Ruíz 20021). However, other human activities affect mangroves without causing their loss. These insidious activities can affect all aspects of mangrove structure and function, as illustrated in the following diagram (Figure 3). The diagram from Branoff (2019) illustrates mangrove's key processes and interactions including the intervention of human activities. Mangroves, including urban mangroves, should be analysed ecologically, focusing on integrating human and ecological aspects. Effective management is essential to sustain the benefits provided by the mangrove ecosystem (Lugo *et al*. 2014). Because of the complexity of human interventions in mangroves, simple statistical correlations were not as effective in describing the effects as was a holistic interpretation of response along the gradient.

The mangrove structure and functioning diagram uses Odum's energy language (1983). The solid rectangular box delimits the mangrove system from the external environment. Interactions of energy fluxes are represented by the "arrow" symbol, which typically has two interacting fluxes and a third flow, which is the product of the interaction of the two incoming fluxes. Solid lines represent the flux of energy or information. Dotted lines represent the flow of money, which flow in the opposite direction of energy. Circles are the external forces that power the mangrove and tanks represent the storage of matter (water, nutrients, money, pollutants). The "bullet-shaped" symbol denotes the mangrove trees and other photosynthetic components, while non-photosynthetic consumers are indicated by the "hexagon" symbol. Finally, humans connect mangroves to the economic market system and to the policy and regulatory system illustrated by a switch, which can be activated or not by people.

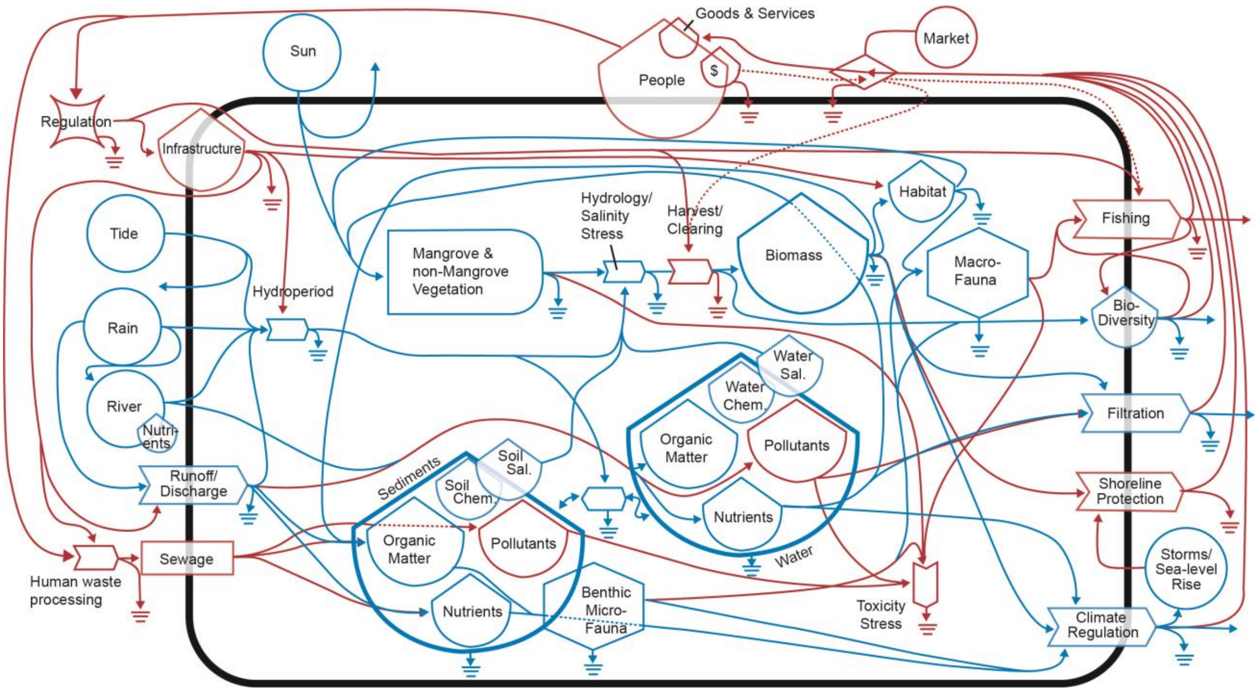


Figure 3. Simplified depiction of the main structural parameters of mangroves (blue color) and the intervention of human activities (red color).

A surprise finding around these processes and interactions is that urban mangroves accumulate sediments, carbon, and nitrogen at faster rates than historical accumulations, resulting in increased carbon and nitrogen storage in soils. This enhanced capacity may enable them to better deal with rising sea levels (Wigand *et al.* 2021). Additionally, as depicted in Figure 3, mangroves are situated at the land-sea interface. Consequently, the impacts of climate change are expected to affect both terrestrial ecosystems, resulting in wetter or drier conditions, modifying their hydrology, and marine ecosystems, increasing wave energy, winds and currents.

These changes can lead to defoliation, falling trees, and compromise their role in mitigating wave erosion) (Ward *et al*. 2017, Sánchez-Núñez *et al*. 2019).

However, the primary outcome of urbanization at a habitat level is a reduction in mangrove patch area and increased fragmentation at the landscape level. Utilizing the Colombian Caribbean as a study system, Blanco-Libreros and Ramírez-Ruíz (2021) found that both variables and other landscape metrics are correlated with the proximity to urban settlements. They hypothesized that a reduction in patch area could lead to increased air temperature and reduced humidity, subsequently affecting seedling recruitment, survival, and growth. Moreover, small patches are more susceptible to edge effects than large patches. Therefore, urbanization and other threats affecting patch areas could result in detrimental species-specific effects on mangrove tree species, which could scale up to affect the entire ecosystem. Finally, such small patches are more prone to invasions of plant and animal species than larger patches.

3. Ecosystem Threats and vulnerabilities

Main threatening process and pathways to degradation

Mangrove deforestation in the Tropical North-Western Atlantic province is attributed to various country-specific factors. However, among the leading causes is the land cover change associated with agricultural expansion, the petroleum industry, tourism infrastructure, coastal urbanization, roads, dams, and local wood extraction (Osland *et al*. 2018; Hubbart *et al*. 2020; Veas-Ayala *et al*. 2023).

The threat to mangroves is not only from changes in land use due to these activities but also from secondary effects caused by human activities. For instance, increased livestock and agricultural activity leads to higher discharges of agrochemicals and pesticides, soil compaction, and interference with sediment flow (Sonderegger & Pfister, 2021). Furthermore, establishing tourist areas in mangrove regions interferes with the hydrological and sedimentary flows of the ecosystem, as wetland areas are filled with construction materials (Brenner *et al*. 2018). The proximity of mangroves to petroleum activities is a threat due to oil spills, documented to cause defoliation, deformation, growth retardation, seedling mortality, and mortality of fauna associated with the ecosystem (Getter *et al*. 1981).

Additionally, one primary natural driver of change to mangroves is the increased frequency and intensity of hurricanes impacting the province. According to Osland *et al*. 2018, climate change is expected to increase the intensity and number of hurricanes in the Gulf of Mexico and Atlantic regions. Tropical storms can affect mangrove forests through direct defoliation and killing of trees, induce erosion, disrupt hydrological connectivity, and cause mass mortality of animal communities within the ecosystems. Despite being subject to the effects of these events, the mangroves in some regions of the province have proven to be resilient when the landscape in which they are located is in good pre-hurricane hydrological conditions (Herrera-Silveira *et al*. 2022)

There are other anthropogenic threats specific to different countries in the region. In Mexico, notable threats in terms of coverage include those related to livestock and agriculture, tourism, and industry. Within a 5km buffer zone around mangrove areas in Mexico, an estimated 617,850 ha of agricultural livestock coverage was recorded in 2005. This area increased by 23,036 ha by 2020 (Velázquez-Salazar *et al*. 2021). Tourism activities covered 8,572 ha in 2005, increasing 50% (circa 4,000 ha) by 2015. Industrial zones, encompassing petroleum activities, represented 10,709 ha in 2005 and 17,168 ha in 2015, indicating a net increase of 6,459 ha in ten years.

According to Menéndez *et al*. (2013), over 30% of Cuban mangroves have been affected by human activity (22 stressful activities) and, to a lesser extent by natural phenomena (2 stressful activities). Common effects include the discharge of industrial residues, river damming, road construction, and mangrove area filling (Hernández-Albernas *et al*. 2022; Mas-Castellanos *et al*. 2020; Faife-Cabrera *et al*. 2021).

Development of tourism infrastructure in the mangrove areas of the Riviera Maya, Mexico (Photo credit: CONABIO-SEMAR/Carlos Troche).

Colombian Caribbean mangroves experienced a decline of approximately 25,000 ha from 1984 to 2020 (Murillo-Sandoval *et al*. 2022). The primary factors contributing to this decline are logging for agricultural and urban expansion, and infrastructure projects that have altered freshwater and tidal connectivity. Small-scale logging is particularly significant in proximity to small villages and in peri-urban areas (Blanco *et al*. 2012; Blanco-Libreros and Estrada-Urrea 2015). The red mangrove (*Rhizophora mangle*) is the focal species in many areas due to its value as poles and as pillings for construction in water-logged areas. A notable case of mangrove die-off occurred in the Ciénaga Grande de Santa Marta between 1956 and 1980 when road construction disrupted the tidal flow. This interruption affected the water exchange between the Magdalena River, flood-prone areas (mangroves and marshes) and the sea. The resulting hydraulic imbalance led to soil salinization exceeding 120ppt, causing the disappearance of over half of the mangrove, along with increased sedimentation and chemical pollution (INVEMAR 2002). Moreover, urbanization poses a significant threat near large cities like Cartagena. At the same time, the recent expansion of tourism in the Morrosquillo Gulf is responsible for converting mangroves into commercial buildings, hotels, and second housing (Blanco-Libreros and Ramírez-Ruíz 2021).

Finally, but not less important, are the threats posed by the potential consequences of rising sea levels encompassing a wide spectrum of efects, ranging from relatively minor and controllable to uncontrollable, as Gaffin (1997) noted. An elevation in relative sea level can trigger diverse biogeophysical effects in coastal regions. These effects include the inundation and displacement of mangroves, shoreline erosion, heightened storm surge, flooding risks, and an elevation in the salinity levels of estuaries and freshwater aquifers, as Nicholls (2002) outlined. According to some authors (Haites *et al*. 2002; Udika 2009; Davis *et al*. 2010), a rise in sea level of each centimetre could result in a horizontal retreat of several meters for Caribbean islands.
There is concern about which sites will be most vulnerable to sea level rise (SLR). Ellison's vulnerability model (Ellison 2014), which considers exposure, sensitivity, and adaptation components, is valuable for identifying differences among sites. Poor practices in anthropogenic activities, which negatively affect sensitivity characteristics such as vegetation structure and conditions, as well as adaptation characteristics like successful restoration projects and effective community participation, will likely have a more significant adverse effect on the vulnerability of mangrove forests in the region due to SLR (Cinco-Castro *et al*. 2020).

Definition of the collapsed state of the ecosystem

Ecosystem collapse is recognized when the tree cover of diagnostic true mangrove species dwindles to zero, indicating complete loss. The mangrove ecosystem exhibits remarkable dynamism, with species distributions adapting to local shifts in sediment distribution, tidal patterns, and variations in local inundation and salinity gradients. Disruptive processes can trigger shifts in this dynamism, potentially leading to ecosystem collapse. Ecosystem collapse may manifest through the following mechanisms: a) restricted recruitment and survival of diagnostic true mangroves due to adverse climatic conditions (e.g., low temperatures); b) alterations in rainfall, river inputs, waves, and tidal currents that destabilize and erode substrates, impeding recruitment and growth; c) shifts in rainfall patterns and tidal flushing altering salinity stress and nutrient loadings, affecting overall survival, among other factors.

In the Tropical Northwestern Atlantic province, there is no explicit evidence of a systemic collapse within the mangrove ecosystem; discernible negative effects are apparent at the subregional level, attributable to variances in predominant economic activities (Velázquez-Salazar *et al.* 2019) and the influence of climate change. Disruptions in sediment and water flow, coupled with factors such as the rise in mean sea level, are among the primary causes of changes and lost of mangrove coverage in the Gulf of Mexico (Torres-Rodríguez *et al*. 2010).

A notable example in this subregion is observed in Campeche, Mexico, specifically in an area known as Punta La Disciplina (figure 4). From 1972 to 2020, according to data from Mexico’s Mangrove Monitoring System, 3,500 hectares of mangroves of the three species along the coastline have been lost (Valderrama-Landeros *et al*. 2019; Velázquez-Salazar *et al*. 2020).

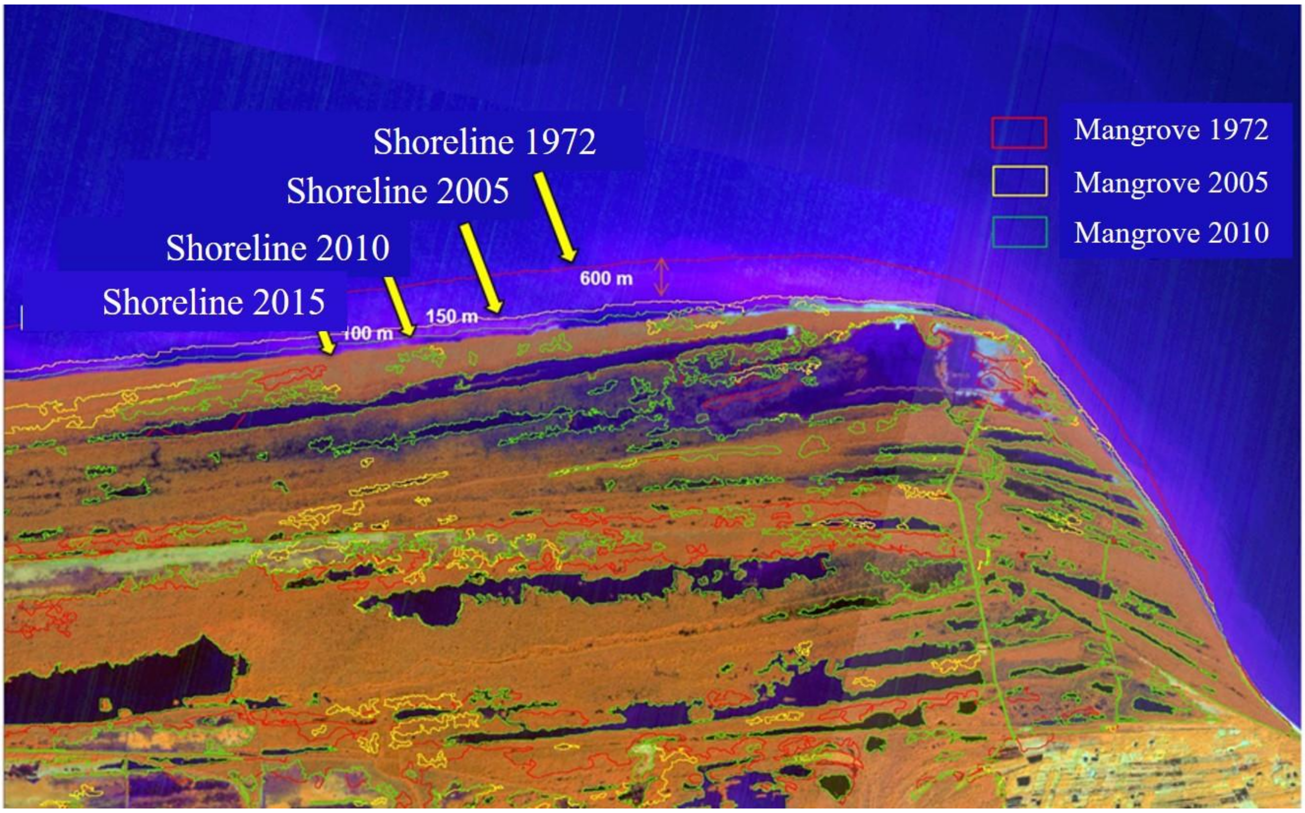


Figure 4. Mangrove loss due to coastline retreat in Punta La Disciplina, Campeche, Mexico. Spot-5 imagery (© CNES 2015, produced by SIAP under license from "SPOT IMAGINE." RGB 432).

Infrastructure development may cause massive tree death. In the northwest limit of the province, constructing three embankments for high-voltage transmission lines obstructed water flow, causing mangrove cover degradation and loss; ongoing restoration involves channel connection to the lagoon and land elevation (López Portillo *et al*. 2022; Figure 5).

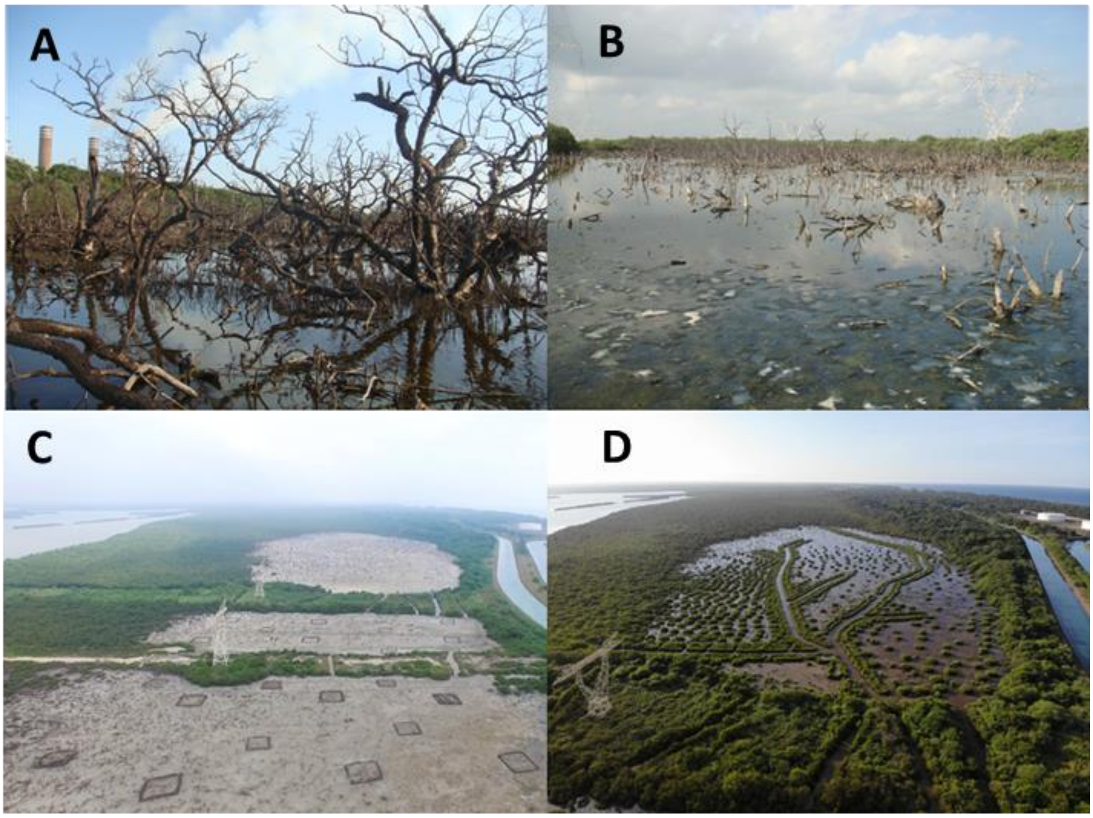


Figure 5. A and B tree cover loss caused by the construction of water flow by embankments in Tampamachoco, Veracruz, Mexico; C and D, aerial view of the mangrove coverage lost (2015), and gained (2023) during on going restoration process (Photo credits: A-B Jorge López-Portillo; C, Aníbal Ramírez; D, Doriel Tepach).

The following example of mangrove loss is recorded in Cuyamel, Honduras (Figure 6) and is attributed to two natural events: rising sea level and an earthquake. Together, these events altered critical processes and functions within their ecosystem, leading to the loss of natural mangrove covers.

Figure 6. Mangrove cover loss and substrate erosion due to rising sea level and earthquake in the Cuyamel community, Honduras, near the Guatemala border (Photo credit: Lenin Corrales).

In the southern Caribbean region of the Yucatán Peninsula, land-use change driven by high tourist demand is the most common process, particularly in Quintana Roo, Mexico. The development of the city of Cancun as a tourism hub has triggered the demand for land and the construction of tourist infrastructure, often directly in mangrove areas (Velázquez-Salazar *et al*. 2019). A notable case of neagative effects in the region is El Playón, near Tulum. The primary factor contributing to degradation was the obstruction of surface and subsurface water flow, from constructing the site's access road (Herrera-Silveira *et al*. 2015). According to CONABIO (Arriaga *et al*. 2000), this area is designated as a Terrestrial Priority Region (RTP-147), Marine (RMP-65), and Hydrological (RHP108). The road construction in this region altered and disturbed over 450 hectares of mangroves due to alterations in hydrodynamic flows and sedimentation (Figure 6).

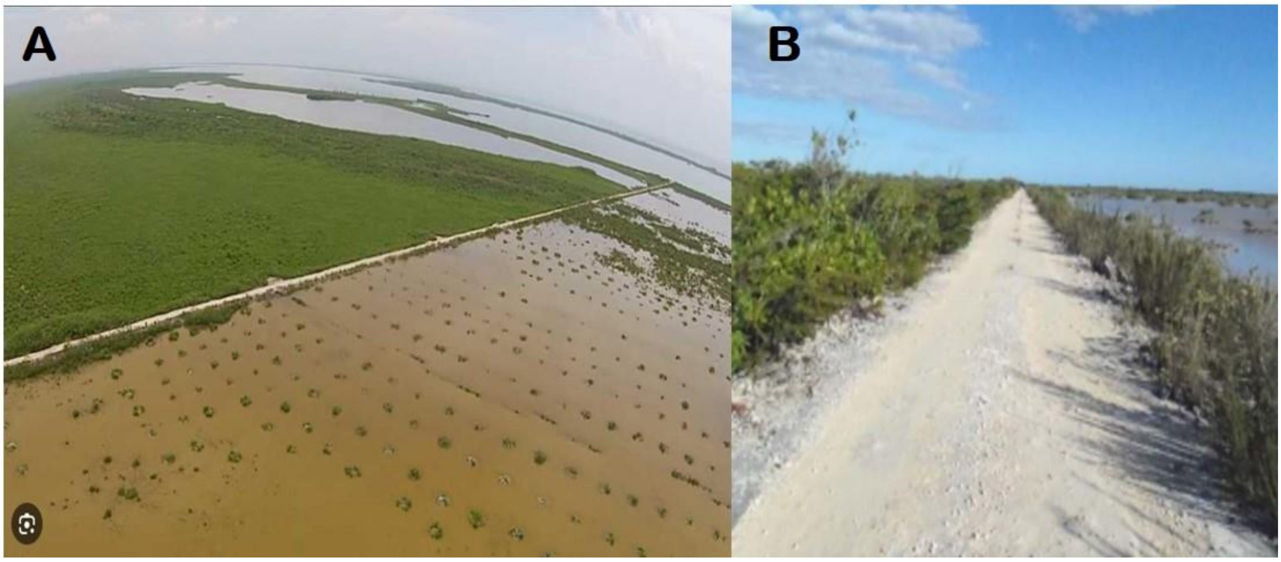


Figure 6. APanoramic view (A) of the effects caused by the road construction (B). The restoration efforts are visible (green points). (Photo credits: A, OIN, 2015; B, Jorge Herrera-Silveira).

Threat Classification

IUCN Threat Classification (version 3.3, IUCN 2022) relevant to mangroves of the Tropical Northwestern Atlantic province:

1. Residential & commercial development

- 1.1 Housing & urban areas
- 1.2 Commercial & industrial areas
- 1.3 Tourism & recreation areas

2. Agriculture & aquaculture

- 2.1 Annual & perennial non-timber crops
  - 2.1.1 Shifting agriculture
  - 2.1.2 Small-holder farming
  - 2.1.3 Agro-industry farming
- 2.3 Livestock farming & ranching
  - 2.3.3 Agro-industry grazing, ranching or farming
- 2.4 Marine & freshwater aquaculture
  - 2.4.2 Industrial aquaculture

3. Energy production & mining

- 3.1 Oil & gas drilling
- 3.2 Mining & quarrying

4. Transportation & service corridors

- 4.1 Roads & railroads
- 4.2 Utility & service lines
- 4.3 Shipping lanes

5. Biological resource use

- 5.1 Hunting & collecting terrestrial animals
  - 5.1.1 Intentional use (species being assessed is the target)
  - 5.1.2 Unintentional effects (species being assessed is not the target)
- 5.3 Logging & wood harvesting
  - 5.3.1 Intentional use: subsistence/small scale (species being assessed is the target [harvest]
- 5.4 Fishing & harvesting aquatic resources
  - 5.4.1 Intentional use: subsistence/small scale (species being assessed is the target)[harvest]

6. Human intrusions & disturbance

- 6.1 Recreational activities
- 6.3 Work & other activities

7. Natural system modifications

- 7.2 Dams & water management/use
  - 7.2.1 Abstraction of surface water (domestic use)
  - 7.2.2 Abstraction of surface water (commercial use)
  - 7.2.3 Abstraction of surface water (agricultural use)
  - 7.2.5 Abstraction of ground water (domestic use)
  - 7.2.6 Abstraction of ground water (commercial use)
  - 7.2.7 Abstraction of ground water (agricultural use)
  - 7.2.8 Abstraction of ground water (unknown use)
  - 7.2.9 Small dams
  - 7.2.10 Large dams
- 7.3 Other ecosystem modifications

8. Invasive & other problematic species, genes & diseases

- 8.1 Invasive non-native/alien species/diseases
  - 8.1.2 Named species

9. Pollution

- 9.1 Domestic & urban wastewater
  - 9.1.1 Sewage
  - 9.1.2 Run-off
  - 9.1.3 Type Unknown/Unrecorded
- 9.2 Industrial & military effluents
  - 9.2.1 Oil spills
- 9.3 Agricultural & forestry effluents
  - 9.3.1 Nutrient loads
  - 9.3.2 Soil erosion, sedimentation
  - 9.3.3 Herbicides & pesticides
- 9.4 Garbage & solid waste

10. Geological events

- 10.2 Earthquakes/tsunamis

11. Climate change & severe weather

- 11.1 Habitat shifting & alteration
- 11.2 Droughts
- 11.3 Temperature extremes
- 11.4 Storms & flooding
- 11.5 Other impacts (Sea-level rise)

4. Ecosystem Assessment

Criterion A: Reduction in Geographic Distribution

Subcriterion A1 measures the trend in ecosystem extent during the last 50-year time window. Unfortunately, there is currently no common regional dataset, or national data for all the countries that provide information for the entire target area in 1970. Therefore, the Tropical Northwestern Atlantic mangrove ecosystem is classified as Data Deficient (DD) for this subcriterion.

Subcriterion A2 measures the change in ecosystem extent in any 50-year period, including from the present to the future: To estimate the Tropical Northwestern Atlantic mangrove area from 1996 to 2020, we used the most recent version of the Global Mangrove Watch (GMW v3.0) spatial dataset. The mangrove area in the province (and the corresponding countries) was corrected for omission and commission errors, utilizing the equations in Bunting *et al.* (2022). Historical estimates of the mangrove ecosystem area are accessible for specific countries (see Appendix 3) within this province. Despite a 3 to 8% deviation from the data provided by the Global Mangrove Watch (GMW) data, it is crucial to emphasize that the GMW dataset is the only available source for the entire study area.

The Tropical Northwestern Atlantic province mangroves show a net area change of -5.7% (1996-2020) (Bunting *et al.*, 2022). This value reflects the offset between areas gained (+ 0.1%/year) and lost (- 0.3%/year). The most significant decrease in mangrove area in this time series occurred between 1996 and 2007. Applying a linear regression to the area estimations between 1996 and 2020, we obtained a rate of change of -0.2%/year (figure 8). Assuming this trend continues in the future, it is predicted that the extent of mangroves in the Tropical Northwestern Atlantic province will change by -12.4% from 1996 to 2046; by -17.9% from 1996 to 2070, but by -13.1% from 2020 to 2070. Given that these predicted changes in mangrove extent are below the 30% risk threshold, the Tropical Northwestern Atlantic mangrove ecosystem is assessed as **Least Concern (LC)** under subcriterion A2.

Subcriterion A3 measures changes in mangrove area since 1750. Unfortunately, there is no reliable data on the mangrove extent for the entire province during this period. Therefore, the Tropical Northwestern Atlantic mangrove ecosystem is classified as **Data Deficient (DD)** for this subcriterion.

Overall, the ecosystem is assessed as **Least Concern (LC)** under criterion A.

Rate of change: -0.2 % / Year **R^2=0.8**

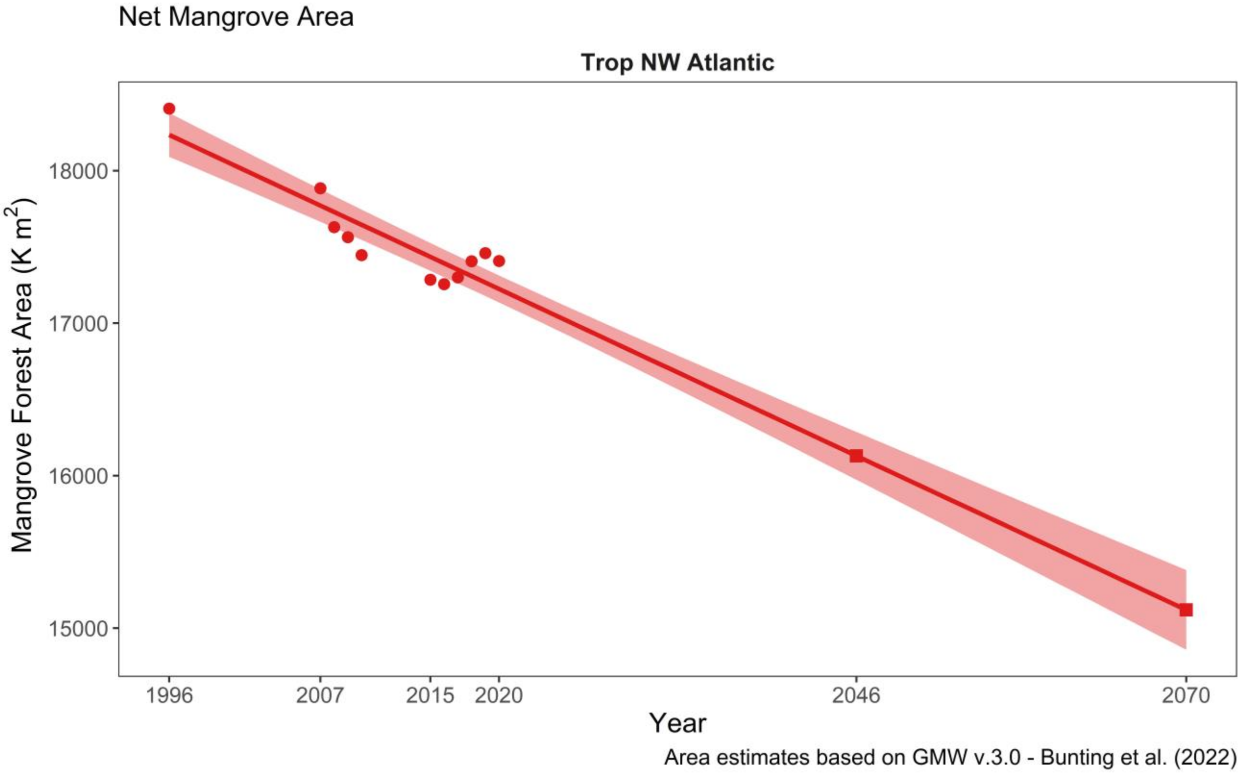


Figure 8. Projected extent of the Tropical Northwestern Atlantic mangrove ecosystem to 2070. Circles represent the province mangrove area between 1996 and 2020 based on the GMW v3.0 dataset and equations in Bunting *et al*. (2022). The solid line and shaded area are the linear regression and 95% confidence intervals. Squares show the Tropical Northwestern Atlantic province predicted mangrove area for 2046 and 2070. It is important to note that an exponential model (proportional rate of decline) did not give a better fit to the data (R^2 = 0.8).

Criterion B: Restricted Geographic Distribution

Criterion B measures the risk of ecosystem collapse associated with restricted geographical distribution, based on standard metrics (Extent of Occurrence EOO, Area of Occupancy AOO, and Threat-defined locations). These parameters were calculated based on the 2020 Tropical Northwestern Atlantic province mangrove extent (GMW v.3).

Province	Extent of Occurrence EOO (Km^2)	Area of Occupancy (AOO)	Criterion B
The Tropical Northwestern Atlantic	5,682,300.0	2,936	**LC**

For 2020, AOO and EOO were measured as 2936 grid cells 10 x 10 km and 5682300.0 km^2, respectively (figure 3). Excluding from the AOO those grid cells that contain patches of mangrove forest that account for less than 1% of the grid cell area (< 1 km^2), the AOO is measured as 1800, 10 x 10 km grid cells (Figure 9, red grids).

Considering the very high number of threat-defined locations, there is no evidence of plausible catastrophic threats leading to the potential disappearance of mangroves across their extent. As a result, the Tropical Northwestern Atlantic mangrove ecosystem is assessed as **Least Concern (LC)** under criterion B.

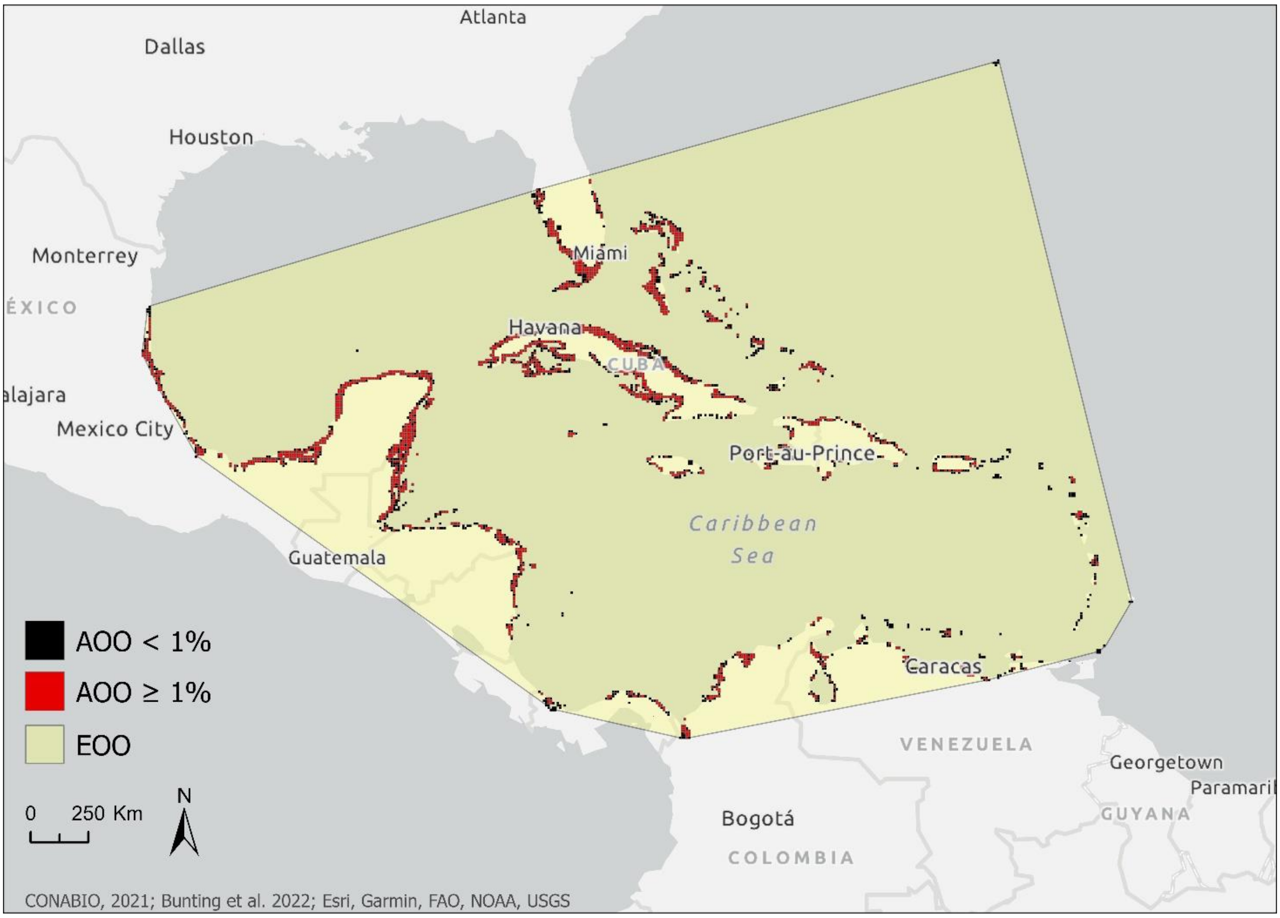


Figure 9. The Tropical Northwestern Atlantic Mangrove Extent of Occurrence (EOO) and Area of Occupancy (AOO) in 2020. Estimates based on the 2020 GMW v3.0 spatial layer (Bunting *et al.*, 2022). The red 10 x 10 km grids (n=1800.) are more than 1% covered by the ecosystem and the black grids <1% (n= 1136).

Criterion C: Environmental Degradation

Criterion C measures the environmental degradation of abiotic variables necessary to support the ecosystem.

Subcriterion C1 measures environmental degradation over the past 50 years: There are no reliable data to evaluate this subcriterion for the entire province, and therefore, the Tropical Northwestern Atlantic mangrove ecosystem is classified as **Data Deficient (DD)** for subcriterion C1.

Subcriterion C2 measures environmental degradation in the future or over any 50-year period, including from the present. In this context, the impact of future sea level rise (SLR) on mangrove ecosystems was assessed by adopting the methodology presented by Schuerch *et al.* (2018). The published model was designed to calculate both absolute and relative change in the extent of wetland ecosystems under various regional SLR scenarios (i.e., medium: RCP 4.5 and high: RCP 8.5), considering sediment accretion. Therefore, the Schuerch *et al*. (2018) model was applied to the Tropical Northwestern Atlantic mangrove ecosystem boundary, using the spatial extent in 2010 (Giri *et al*. 2018) and *assuming mangrove landward migration was not possible.*

According to the results, under an extreme sea-level rise scenario of a 1.1-meter rise by 2100, the projected submerged area is ~ -75.9% by 2060, above 50% but below the 80% risk threshold. Therefore, considering that no mangrove recruitment can occur in a submerged system (100% relative severity), but that -75.9% of the ecosystem extent will be affected by SLR, the Tropical Northwestern Atlantic mangrove ecosystem should be assessed as Endangered (EN) for subcriterion C2.

However, recent studies suggest that the mangrove ecosystems in this province are demonstrating resilient responses to the challenges posed by increasing sea levels. Do to rising sea levels, estuarine waters are partially replacing some areas of mangroves, while these ecosystems are expanding their geographic distribution into urban and undeveloped uplands (Yu *et al*. 2019), indicating that landward migration of mangroves occur. In temperate and tropical coastal wetlands, mangrove forests encroach into salt marshes, marking significant ecological shifts with implications for both ecosystems and society (Bardou *et al*. 2023). Mckee *et al*. (2007) indicate that mangroves in the Caribbean region have adapted to rising sea levels by accumulating refractory roots beneath the surface. Additionally, sediment accumulation rates (SAR), measured in regions such as the Gulf of Mexico (Laguna de Términos, Mexico), have shown a twofold increase over the past decade, suggesting a remarkable capacity for mangroves to adapt to changing conditions (Jupin *et al*. 2023). However, it is also acknowledged that this adaptative capacity of mangroves depends on sensitivity factors determined by structural and functional characteristics, which are related to geomorphological configuration and local hydrological dynamics (Table 2).

Table 2. Sensitive factors of mangrove forest related to sediment accumulation rates for Tropical Northwestern Atlantic Province (Adapted from Cinco-Castro *et al.* 2022, 2023)

Coastal environmental settings	Dominant hydromorphic mangrove forest type	Structural complexity	Mean water source	Sediment input	Sediment Accumulation Rate
Delta river	Riverine and/or Fringe	High	River and/or Tides	High	Medium
Wave dominated	Fringe and/or Shrub	High	Tides and/or River	High	Medium
Lagoon	Fringe and/or Basin	Medium/Low	Tides and/or River	Medium	High
Estuary	Fringe and/or Basin	Medium/Low	River and/or Tides	Medium	High
Carbonate setting	Shrub and/or Hammock	Medium/Low	Underground aquifer	Low	Low or Medium

Consequently, the persistence of mangrove areas (Sánchez-García *et al*. 2023) with SAR exceeding the average sea-level rise, coupled with the gains of mangroves from marshes and uplands, could offset the loss of mangroves to estuarine water. This dynamic can potentially result in a net expansion of mangroves in certain regions under sea-level-rise scenarios (e.g., Colombia, see Appendix 4).

All of these factors, coupled with uncertainties in sea level rise estimates (Bindoff *et al.* 2007) and the distribution and extent of dominant hydromorphic mangrove forest types and coastal environmental settings (≈60% carbonate, ≈40% mineral sediments) in the province, underscore the need to acknowledge that under sea-level scenarios, mangrove landward migration and persistence are viable. Therefore, it is considered that the relative severity of environment degradation is lower than previously assessed (100% relative severity) and falls within the range of ≥50% and <80%, leading to the final assessment of the Tropical Northwestern Atlantic mangrove ecosystem as **Vulnerable** (**VU**) under subcriterion C2.

The assessment of the subcriterion C2 highlights the need to conduct more customized assessments, considering not only sea level projections (exposure factor) but also other structural and functional characteristics of the forest (Sensitivity factors) and even factors related to the adaptative capacity.

Subcriterion C3 measures change in abiotic variables since 1750. There is no reliable historical data on environmental degradation covering the entire province. Therefore, the Tropical Northwestern Atlantic province is classified as Data Deficient (DD) for this subcriterion.

Overall, the ecosystem is assessed as **Vulnerable (VU)** under criterion C.

Criterion D: Disruption of biotic processes or interactions

The global mangrove degradation map (Worthington and Spalding 2018) was used to assess the level of biotic degradation in the Tropical Northwestern Atlantic province. This map is based on degradation metrics calculated from vegetation indices (NDVI, EVI, SAVI, NDMI) using Landsat time series (≈2000 and 2017). These indices represent vegetation greenness and moisture conditions.

Mangrove degradation was calculated at a pixel scale (30m resolution) on areas intersecting with the 2017 mangrove extent map (GMW v2). Mangrove pixels were classified as degraded if two conditions were met: 1) at least 10 out of 12 degradation indices showed a decrease of more than 40% compared to the previous period, and 2) all twelve indices did not recover to within 20% of their pre-2000 value (detailed methods and data are available at: maps.oceanwealth.org/mangrove-restoration/). The decay in vegetation indices has been used to identify mangrove degradation and abrupt changes, including mangrove die-back events, clear-cutting, fire damage, and logging, as well as to track mangrove regeneration (Lovelock *et al.* 2017; Santana *et al.* 2018; Murray *et al.* 2020; Aljahdali *et al.* 2021; Lee *et al.* 2021). However, it is crucial to consider that changes observed in the vegetation indices can also be influenced by data artifacts (Akbar *et al.* 2020). Therefore, a relative severity level of more than 50%, but less than 80% was assumed.

The analysis shows that over 17 years (~2000 to 2017), 4.1% of the Tropical Northwestern Atlantic mangrove area is classified as degraded, resulting in an average annual degradation rate of 0.24%. Assuming this trend remains constant, +12.1% of the Tropical Northwestern Atlantic mangrove area will be classified as degraded over a 50-year period. Since less than 30% of the ecosystem will meet the category thresholds for criterion D, the Tropical Northwestern Atlantic mangrove province is assessed as **Least Concern** (**LC)** under subcriterion D2b.

No data were found to assess the disruption of biotic processes and degradation over the past 50 years (subcriterion D1) or since 1750 (subcriterion D3). Thus, both subcriterion are classified as **Data Deficient (DD).**

Overall, the Tropical Northwestern Atlantic ecosystem remains **Least Concern (LC)** under criterion D.

Criterion E: Quantitative Risk

No model was used to assess the risk of ecosystem collapse to this ecosystem quantitatively; hence, criterion E was **Not Evaluated (NE)**.

Summary of the Assessment

CRITERION			
A. Reduction in Geographic Distribution	**A1** Past 50 years	**A2** Future or any 50y period	**A3** Historical (1750)
	DD	**LC**	**DD**
B. Restricted Geo. Distribution	**B1** Extent of Occurrence	**B2** Area of Occupancy	**B3** #Threat-defined Locations < 5?
	LC	**LC**	**DD**
C. Environmental Degradation	**C1** Past 50 years (1970)	**C2** Future or any 50y period	**C3** Historical (1750)
	DD	**VU**	**DD**
D. Disruption of biotic processes	**D1** Past 50 years (1970)	**D2** Future or Any 50y period	**D3** Historical (1750)
	DD	**LC**	**DD**
E. Quantitative Risk analysis	**NE**		
OVERALL RISK CATEGORY	**VU**		

DD = Data Deficient; LC = Least Concern; NE = Not Evaluated; VU = Vulnerable.

Overall, the status of the Tropical Northwestern Atlantic mangrove ecosystem is assessed as **Vulnerable (VU).**

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6. Appendices

1. List of Key Mangrove Species

List of plant species considered true mangroves according to Red List of Threatened Species (RLTS) spatial data (IUCN, 2022). We included species whose range maps intersected with the boundary of the marine provinces/ecoregions described in the distribution section.

Class	Order	Family	Scientific name	RLTS category
POLYPODIOPSIDA	POLYPODIALES	PTERIDACEAE	*Acrostichum aureum*	LC
MAGNOLIOPSIDA	LAMIALES	ACANTHACEAE	*Avicennia germinans*	LC
MAGNOLIOPSIDA	LAMIALES	ACANTHACEAE	*Avicennia schaueriana*	LC
MAGNOLIOPSIDA	MYRTALES	COMBRETACEAE	*Laguncularia racemosa*	LC
MAGNOLIOPSIDA	ERICALES	TETRAMERISTACEAE	*Pelliciera rhizophorae*	VU
MAGNOLIOPSIDA	MALPIGHIALES	RHIZOPHORACEAE	*Rhizophora mangle*	LC
MAGNOLIOPSIDA	MALPIGHIALES	RHIZOPHORACEAE	*Rhizophora racemosa*	LC

2. List of Associated Species

List of taxa associated with mangrove habitats in the Red List of Threatened Species (RLTS) database (IUCN, 2022). We included only species with entries for Habitat 1.7: "Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level" or Habitat 12.7 for "Marine Intertidal - Mangrove Submerged Roots," and with suitability recorded as "Suitable", with "Major Importance" recorded as "Yes", and any value of seasonality except "Passage". We further filtered species with spatial point records in the GBIF (some species are excluded due to mismatch in taxonomic names, or lack of georeferenced records). The common names are those shown in the RLTS, except those in brackets from other sources.

Class	Order	Family	Scientific name	RLTS category	Common name
POLYPODIOPSIDA	POLYPODIALES	PTERIDACEAE	*Acrostichum danaeifolium**	LC	Giant Leather Fern
MAGNOLIOPSIDA	MYRTALES	COMBRETACEAE	*Conocarpus erectus**	LC	Buttonwood
Magnoliopsida	Rosales	Moraceae	*Ficus dendrocida*	LC	NA
Magnoliopsida	Magnoliales	Annonaceae	*Annona glabra*	LC	NA
Magnoliopsida	Fabales	Fabaceae	*Clathrotropis macrocarpa*	LC	NA
Magnoliopsida	Fabales	Fabaceae	*Prioria copaifera*	VU	NA
Magnoliopsida	Lamiales	Lamiaceae	Aegiphila elata	LC	NA
Magnoliopsida	Lamiales	Lamiaceae	Aegiphila monstrosa	LC	NA
Actinopterygii	Atheriniformes	Atherinidae	Alepidomus evermanni	LC	Cuban Glassfish
Magnoliopsida	Magnoliales	Annonaceae	Annona glabra	LC	Monkey Apple
Actinopterygii	Atheriniformes	Atherinopsidae	Atherinella chagresi	LC	Chagres Silverside
Magnoliopsida	Malpighiales	Salicaceae	Banara wilsonii	EX	NA
Actinopterygii	Gobiiformes	Gobiidae	Bathygobius curacao	LC	Notchtongue Goby
Actinopterygii	Perciformes	Carangidae	Caranx hippos	LC	Crevalle Jack
Magnoliopsida	Rosales	Moraceae	Castilla elastica	LC	Rubber Tree
Actinopterygii	Perciformes	Centropomidae	Centropomus mexicanus	LC	Largescale Fat Snook
Insecta	Odonata	Aeshnidae	Coryphaeschna viriditas	LC	Mangrove Darner
Magnoliopsida	Fabales	Fabaceae	Cynometra hemitomophylla	LC	Guapinolillo
Actinopterygii	Cyprinodontiformes	Cyprinodontidae	Cyprinodon artifrons	LC	Yucatan Pupfish
Actinopterygii	Cyprinodontiformes	Cyprinodontidae	Cyprinodon dearborni	LC	Willemstad Pupfish
Actinopterygii	Gobiiformes	Eleotridae	Dormitator maculatus	LC	Fat Sleeper
Insecta	Odonata	Libellulidae	Erythrodiplax berenice	LC	Seaside Dragonlet

Class	Order	Family	Scientific name	RLTS category	Common name
Magnoliopsida	Boraginales	Heliotropiaceae	Euploca procumbens	LC	Four-spike heliotrope
Actinopterygii	Cyprinodontiformes	Cyprinodontidae	Floridichthys polyommus	LC	Ocellated Killifish
Actinopterygii	Cyprinodontiformes	Fundulidae	Fundulus grandissimus	VU	Giant Killifish
Actinopterygii	Cyprinodontiformes	Fundulidae	Fundulus similis	LC	Longnose Killifish
Actinopterygii	Cyprinodontiformes	Poeciliidae	Gambusia manni	LC	Bahama Gambusia
Actinopterygii	Cyprinodontiformes	Poeciliidae	Gambusia nicaraguensis	LC	Nicaraguan Mosquitofish
Actinopterygii	Cyprinodontiformes	Poeciliidae	Gambusia xanthosoma	EN	Cayman Gambusia
Magnoliopsida	Malpighiales	Violaceae	Gloeospermum boreale	LC	NA
Actinopterygii	Gobiiformes	Eleotridae	Gobiomorus dormitor	LC	Bigmouth Sleeper
Magnoliopsida	Magnoliales	Annonaceae	Guatteria zamorae	DD	NA
Actinopterygii	Gobiiformes	Eleotridae	Guavina guavina	LC	Guavina
Actinopterygii	Gobiiformes	Eleotridae	Hemieleotris latifasciata	LC	Guabinita
Magnoliopsida	Malvales	Malvaceae	Hibiscus tiliaceus	LC	Coast Cottonwood
Actinopterygii	Beloniformes	Hemiramphidae	Hyporhamphus roberti	LC	Central American Halfbeak
Magnoliopsida	Fabales	Fabaceae	Inga belizensis	LC	NA
Magnoliopsida	Fabales	Fabaceae	Inga davidsei	VU	NA
Magnoliopsida	Fabales	Fabaceae	Inga heterophylla	LC	Pacae
Magnoliopsida	Fabales	Fabaceae	Inga ruiziana	LC	Cikile
Actinopterygii	Cyprinodontiformes	Poeciliidae	Limia caymanensis	NT	Grand Cayman Limia
Actinopterygii	Cyprinodontiformes	Poeciliidae	Limia vittata	LC	Cuban Limia
Magnoliopsida	Fabales	Fabaceae	Lonchocarpus cruentus	LC	Marinero
Actinopterygii	Perciformes	Cichlidae	Mayaheros urophthalmus	LC	Mayan Cichlid
Magnoliopsida	Celastrales	Celastraceae	Maytenus phyllanthoides	LC	Sweet Mangrove
Actinopterygii	Atheriniformes	Atherinopsidae	Menidia colei	VU	Golden Silverside
Magnoliopsida	Fabales	Fabaceae	Mimosa bahamensis	LC	NA
Magnoliopsida	Fabales	Fabaceae	Mimosa platycarpa	LC	CarbÃ³n
Magnoliopsida	Fabales	Fabaceae	Muellera frutescens	LC	Madre cacao macho
Magnoliopsida	Malpighiales	Ochnaceae	Ouratea insulae	VU	NA
Magnoliopsida	Malvales	Malvaceae	Pavonia bahamensis	NT	NA
Actinopterygii	Cyprinodontiformes	Poeciliidae	Poecilia vandepolli	LC	Vandepoll's Molly
Magnoliopsida	Fabales	Fabaceae	Pterocarpus officinalis	NT	Bloodwood
Magnoliopsida	Brassicales	Capparaceae	Quadrella lindeniana	LC	Negrita
Magnoliopsida	Gentianales	Rubiaceae	Randia laetevirens	LC	Crucero blanco
Magnoliopsida	Gentianales	Rubiaceae	Randia obcordata	LC	Tacuche
Actinopterygii	Gobiiformes	Gobiidae	Sicydium gymnogaster	LC	Smoothbelly Goby
Magnoliopsida	Ericales	Sapotaceae	Sideroxylon americanum	LC	NA
Actinopterygii	Beloniformes	Belonidae	Strongylura marina	LC	Atlantic Needlefish
Actinopterygii	Beloniformes	Belonidae	Strongylura timucu	LC	Timucu
Magnoliopsida	Malpighiales	Clusiaceae	Symphonia globulifera	LC	Boarwood
Magnoliopsida	Myrtales	Combretaceae	Terminalia molinetii	LC	NA
Magnoliopsida	Malvales	Malvaceae	Thespesia populnea	LC	Portia Tree
Actinopterygii	Perciformes	Cichlidae	Thorichthys helleri	DD	Yellow Cichlid
Magnoliopsida	Malpighiales	Clusiaceae	Tovomita turbinata	DD	NA
Magnoliopsida	Boraginales	Cordiaceae	Varronia integrifolia	DD	NA
Aves	Accipitriformes	Accipitridae	Accipiter gundlachi	EN	Gundlach's Hawk
Actinopterygii	Pleuronectiformes	Achiridae	Achirus mazatlanus	LC	Mazatlan Sole
Polypodiopsida	Polypodiales	Pteridaceae	Acrostichum aureum	LC	Golden Leather Fern
Polypodiopsida	Polypodiales	Pteridaceae	Acrostichum danaeifolium	LC	NA

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Passeriformes	Icteridae	Agelaius assimilis	LC	Red-shouldered Blackbird
Aves	Passeriformes	Icteridae	Agelaius xanthomus	EN	Yellow-shouldered Blackbird
Actinopterygii	Anguilliformes	Ophichthidae	Ahlia egmontis	LC	Key Worm Eel
Actinopterygii	Albuliformes	Albulidae	Albula vulpes	NT	Bonefish
Mammalia	Primates	Atelidae	Alouatta palliata	VU	Mantled Howler Monkey
Mammalia	Primates	Atelidae	Alouatta pigra	EN	YucatÃ¡n Black Howler Monkey
Reptilia	Squamata	Dipsadidae	Alsophis antillensis	CR	NA
Reptilia	Squamata	Dipsadidae	Alsophis sibonius	LC	Antilles Racer
Aves	Caprimulgiformes	Trochilidae	Amazilia coeruleogularis	LC	Sapphire-throated Hummingbird
Aves	Caprimulgiformes	Trochilidae	Amazilia edward	LC	Snowy-bellied Hummingbird
Aves	Caprimulgiformes	Trochilidae	Amazilia fimbriata	LC	Glittering-throated Emerald
Aves	Caprimulgiformes	Trochilidae	Amazilia lilliae	EN	Sapphire-bellied Hummingbird
Aves	Caprimulgiformes	Trochilidae	Amazilia tobaci	LC	Copper-rumped Hummingbird
Aves	Caprimulgiformes	Trochilidae	Amazilia tzacatl	LC	Rufous-tailed Hummingbird
Aves	Psittaciformes	Psittacidae	Amazona albifrons	LC	White-fronted Amazon
Aves	Psittaciformes	Psittacidae	Amazona amazonica	LC	Orange-winged Amazon
Aves	Psittaciformes	Psittacidae	Amazona auropalliata	CR	Yellow-naped Amazon
Aves	Psittaciformes	Psittacidae	Amazona collaria	VU	Yellow-billed Amazon
Aves	Psittaciformes	Psittacidae	Amazona leucocephala	NT	Cuban Amazon
Aves	Psittaciformes	Psittacidae	Amazona oratrix	EN	Yellow-headed Amazon
Aves	Psittaciformes	Psittacidae	Amazona vittata	CR	Puerto Rican Amazon
Reptilia	Squamata	Typhlopidae	Amerotyphlops brongersmianus	LC	Brongersma's Worm Snake
Actinopterygii	Clupeiformes	Engraulidae	Anchoa trinitatis	DD	Trinidad Anchovy
Actinopterygii	Perciformes	Haemulidae	Anisotremus surinamensis	DD	Black Margate
Reptilia	Squamata	Dactyloidae	Anolis allogus	LC	Bueycito Anole
Reptilia	Squamata	Dactyloidae	Anolis baleatus	LC	Dominican Giant Anole
Reptilia	Squamata	Dactyloidae	Anolis conspersus	LC	Grand Cayman Blue-fanned Anole
Reptilia	Squamata	Dactyloidae	Anolis cristatellus	LC	Puerto Rico Crested Anole
Reptilia	Squamata	Dactyloidae	Anolis cybotes	LC	Hispaniolan Stout Anole
Reptilia	Squamata	Dactyloidae	Anolis equestris	LC	Knight Anole
Reptilia	Squamata	Dactyloidae	Anolis ferreus	LC	Marie-Galante Anole
Reptilia	Squamata	Dactyloidae	Anolis garmani	LC	Jamaican Giant Anole
Reptilia	Squamata	Dactyloidae	Anolis grahami	LC	Graham's Anole
Reptilia	Squamata	Dactyloidae	Anolis kahouannensis	NT	Kahouanne Anole
Reptilia	Squamata	Dactyloidae	Anolis lineatopus	LC	Stripefoot Anole
Reptilia	Squamata	Dactyloidae	Anolis luteogularis	LC	Western Giant Anole
Reptilia	Squamata	Dactyloidae	Anolis maculiventris	LC	Blotchbelly Anole
Reptilia	Squamata	Dactyloidae	Anolis marmoratus	LC	Guadeloupe Anole
Reptilia	Squamata	Dactyloidae	Anolis opalinus	LC	Bluefields Anole
Reptilia	Squamata	Dactyloidae	Anolis porcatus	LC	Cuban Green Anole
Reptilia	Squamata	Dactyloidae	Anolis quadriocellifer	LC	Peninsula Anole
Reptilia	Squamata	Dactyloidae	Anolis semilineatus	LC	Half-lined Hispaniolan Grass Anole

Class	Order	Family	Scientific name	RLTS category	Common name
Reptilia	Squamata	Dactyloidae	Anolis smaragdinus	LC	Bahamian Green Anole
Reptilia	Squamata	Dactyloidae	Anolis stratulus	LC	Spotted Anole
Reptilia	Squamata	Dactyloidae	Anolis utilensis	CR	Mangrove Anole
Reptilia	Squamata	Dactyloidae	Anolis valencienni	LC	Jamaican Twig Anole
Aves	Caprimulgiformes	Trochilidae	Anthracothorax mango	LC	Jamaican Mango
Aves	Caprimulgiformes	Trochilidae	Anthracothorax prevostii	LC	Green-breasted Mango
Reptilia	Squamata	Typhlopidae	Antillotyphlops naugus	VU	Erica's Worm Snake
Mammalia	Primates	Aotidae	Aotus zonalis	NT	Panamanian Night Monkey
Aves	Passeriformes	Corvidae	Aphelocoma californica	LC	Western Scrub-jay
Actinopterygii	Perciformes	Apogonidae	Apogon binotatus	LC	Barred Cardinalfish
Actinopterygii	Perciformes	Apogonidae	Apogon planifrons	LC	Pale Cardinalfish
Aves	Psittaciformes	Psittacidae	Ara macao	LC	Scarlet Macaw
Aves	Gruiformes	Rallidae	Aramides axillaris	LC	Rufous-necked Wood-rail
Aves	Gruiformes	Rallidae	Aramides cajaneus	LC	Grey-cowled Wood-rail
Aves	Gruiformes	Aramidae	Aramus guarauna	LC	Limpkin
Actinopterygii	Perciformes	Sparidae	Archosargus rhomboidalis	LC	Sea Bream
Aves	Pelecaniformes	Ardeidae	Ardea herodias	LC	Great Blue Heron
Aves	Pelecaniformes	Ardeidae	Ardea occidentalis	EN	Great White Heron
Actinopterygii	Perciformes	Apogonidae	Astrapogon puncticulatus	LC	Blackfin Cardinalfish
Actinopterygii	Perciformes	Apogonidae	Astrapogon stellatus	DD	Conchfish
Actinopterygii	Atheriniformes	Atherinopsidae	Atherinella brasiliensis	LC	Robust Silverside
Actinopterygii	Atheriniformes	Atherinopsidae	Atherinella milleri	LC	Miller's Silverside
Reptilia	Squamata	Dipsadidae	Atractus macondo	DD	NA
Aves	Passeriformes	Tyrannidae	Attila cinnamomeus	LC	Cinnamon Attila
Magnoliopsida	Lamiales	Acanthaceae	Avicennia germinans	LC	Black Mangrove
Magnoliopsida	Lamiales	Acanthaceae	Avicennia schaueriana	LC	Mangle Blanco
Actinopterygii	Siluriformes	Ariidae	Bagre marinus	LC	Gafftopsail Sea Catfish
Actinopterygii	Siluriformes	Ariidae	Bagre pinnimaculatus	LC	Long-barbeled Sea Catfish
Reptilia	Squamata	Corytophanidae	Basiliscus vittatus	LC	Brown Basilisk
Actinopterygii	Gobiiformes	Gobiidae	Bathygobius lacertus	LC	Checkerboard Frillfin Goby
Actinopterygii	Gobiiformes	Gobiidae	Bathygobius mystacium	LC	Island Frillfin
Actinopterygii	Gobiiformes	Gobiidae	Bathygobius soporator	LC	Frillfin Goby
Actinopterygii	Batrachoidiformes	Batrachoididae	Batrachoides manglae	LC	Cotuero Toadfish
Actinopterygii	Batrachoidiformes	Batrachoididae	Batrachoides pacifici	LC	Pacific toadfish
Reptilia	Squamata	Boidae	Boa constrictor	LC	Red-tailed Boa
Reptilia	Squamata	Boidae	Boa imperator	LC	Central American Boa
Actinopterygii	Pleuronectiformes	Bothidae	Bothus lunatus	LC	Plate Fish
Mammalia	Pilosa	Bradypodidae	Bradypus pygmaeus	CR	Pygmy Three-toed Sloth
Mammalia	Pilosa	Bradypodidae	Bradypus variegatus	LC	Brown-throated Sloth
Aves	Strigiformes	Strigidae	Bubo virginianus	LC	Great Horned Owl
Aves	Accipitriformes	Accipitridae	Busarellus nigricollis	LC	Black-collared Hawk
Aves	Accipitriformes	Accipitridae	Buteo brachyurus	LC	Short-tailed Hawk
Aves	Accipitriformes	Accipitridae	Buteogallus aequinoctialis	NT	Rufous Crab-hawk
Aves	Accipitriformes	Accipitridae	Buteogallus anthracinus	LC	Common Black Hawk
Aves	Accipitriformes	Accipitridae	Buteogallus gundlachii	NT	Cuban Black Hawk

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Accipitriformes	Accipitridae	Buteogallus meridionalis	LC	Savanna Hawk
Aves	Accipitriformes	Accipitridae	Buteogallus urubitinga	LC	Great Black Hawk
Aves	Pelecaniformes	Ardeidae	Butorides striata	LC	Green-backed Heron
Reptilia	Crocodylia	Alligatoridae	Caiman crocodilus	LC	Spectacled Caiman
Aves	Anseriformes	Anatidae	Cairina moschata	LC	Muscovy Duck
Aves	Piciformes	Picidae	Campephilus guatemalensis	LC	Pale-billed Woodpecker
Aves	Caprimulgiformes	Trochilidae	Campylopterus cuvierii	LC	Scaly-breasted Sabrewing
Aves	Passeriformes	Troglodytidae	Campylorhynchus capistratus	LC	Rufous-backed Wren
Aves	Passeriformes	Troglodytidae	Campylorhynchus humilis	LC	Sclater's Wren
Aves	Passeriformes	Troglodytidae	Campylorhynchus nuchalis	LC	Stripe-backed Wren
Aves	Passeriformes	Troglodytidae	Campylorhynchus rufinucha	LC	Rufous-naped Wren
Actinopterygii	Tetraodontiformes	Tetraodontidae	Canthigaster rostrata	LC	Caribbean Sharpnose-puffer
Aves	Passeriformes	Troglodytidae	Cantorchilus leucotis	LC	Buff-breasted Wren
Mammalia	Rodentia	Capromyidae	Capromys pilorides	LC	Desmarest's Hutia
Aves	Passeriformes	Tyrannidae	Capsiempis flaveola	LC	Yellow Tyrannulet
Actinopterygii	Perciformes	Carangidae	Caranx bartholomaei	LC	Yellow Jack
Aves	Passeriformes	Parulidae	Cardellina pusilla	LC	Wilson's Warbler
Aves	Passeriformes	Cotingidae	Carpodectes hopkei	LC	Black-tipped Cotinga
Aves	Cathartiformes	Cathartidae	Cathartes burrovianus	LC	Lesser Yellow-headed Vulture
Actinopterygii	Siluriformes	Ariidae	Cathorops belizensis	DD	Belize Sea Catfish
Aves	Piciformes	Picidae	Celeus castaneus	LC	Chestnut-colored Woodpecker
Aves	Piciformes	Picidae	Celeus flavus	LC	Cream-colored Woodpecker
Actinopterygii	Perciformes	Centropomidae	Centropomus nigrescens	LC	Black Robalo
Gastropoda	Sorbeoconcha	Potamididae	Cerithidea pliculosa	LC	Horn Shell
Aves	Passeriformes	Furnariidae	Certhiaxis cinnamomeus	LC	Yellow-chinned Spinetail
Actinopterygii	Perciformes	Ephippidae	Chaetodipterus faber	LC	Atlantic Spadefish
Aves	Caprimulgiformes	Apodidae	Chaetura pelagica	VU	Chimney Swift
Actinopterygii	Perciformes	Blenniidae	Chasmodes saburrae	LC	Florida Blenny
Reptilia	Squamata	Boidae	Chilabothrus granti	EN	Virgin Islands Boa
Reptilia	Squamata	Boidae	Chilabothrus strigilatus	LC	Bahamian Boa
Reptilia	Squamata	Colubridae	Chironius carinatus	LC	Sipo
Reptilia	Squamata	Colubridae	Chironius flavopictus	DD	NA
Aves	Passeriformes	Pipridae	Chiroxiphia linearis	LC	Long-tailed Manakin
Aves	Coraciiformes	Alcedinidae	Chloroceryle aenea	LC	American Pygmy-kingfisher
Aves	Coraciiformes	Alcedinidae	Chloroceryle amazona	LC	Amazon Kingfisher
Aves	Coraciiformes	Alcedinidae	Chloroceryle americana	LC	Green Kingfisher
Aves	Coraciiformes	Alcedinidae	Chloroceryle inda	LC	Green-and-rufous Kingfisher
Actinopterygii	Perciformes	Carangidae	Chloroscombrus chrysurus	LC	Atlantic Bumper
Aves	Caprimulgiformes	Trochilidae	Chlorostilbon maugaeus	LC	Puerto Rican Emerald
Aves	Strigiformes	Strigidae	Ciccaba nigrolineata	LC	Black-and-white Owl
Actinopterygii	Pleuronectiformes	Paralichthyidae	Citharichthys arenaceus	LC	Sand Whiff
Actinopterygii	Pleuronectiformes	Paralichthyidae	Citharichthys spilopterus	LC	Bay Whiff
Reptilia	Squamata	Teiidae	Cnemidophorus rostralis	NT	NA
Aves	Cuculiformes	Cuculidae	Coccycua minuta	LC	Little Cuckoo

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Cuculiformes	Cuculidae	Coccyzus melacoryphus	LC	Dark-billed Cuckoo
Aves	Cuculiformes	Cuculidae	Coccyzus minor	LC	Mangrove Cuckoo
Aves	Pelecaniformes	Ardeidae	Cochlearius cochlearius	LC	Boat-billed Heron
Aves	Passeriformes	Thraupidae	Coereba flaveola	LC	Bananaquit
Aves	Piciformes	Picidae	Colaptes auratus	LC	Yellow-shafted Flicker
Aves	Piciformes	Picidae	Colaptes cafer	LC	Red-shafted Flicker
Aves	Piciformes	Picidae	Colaptes punctigula	LC	Spot-breasted Woodpecker
Aves	Piciformes	Picidae	Colaptes rubiginosus	LC	Golden-olive Woodpecker
Actinopterygii	Tetraodontiformes	Tetraodontidae	Colomesus psittacus	LC	Banded Puffer
Aves	Passeriformes	Thraupidae	Conirostrum bicolor	NT	Bicolored Conebill
Magnoliopsida	Myrtales	Combretaceae	Conocarpus erectus	LC	Silver-leaved Buttonwood
Aves	Passeriformes	Tyrannidae	Contopus bogotensis	LC	Northern Tropical Pewee
Aves	Passeriformes	Tyrannidae	Contopus caribaeus	LC	Cuban Pewee
Aves	Passeriformes	Tyrannidae	Contopus latirostris	LC	Lesser Antillean Pewee
Gastropoda	Neogastropoda	Conidae	Conus paschalli	LC	NA
Reptilia	Squamata	Boidae	Corallus grenadensis	LC	Grenada Tree Boa
Reptilia	Squamata	Boidae	Corallus ruschenbergerii	LC	Ruschenberger's Tree Boa
Bivalvia	Ostreida	Ostreidae	Crassostrea tulipa	LC	NA
Reptilia	Crocodylia	Crocodylidae	Crocodylus acutus	VU	American Crocodile
Aves	Cuculiformes	Cuculidae	Crotophaga ani	LC	Smooth-billed Ani
Aves	Cuculiformes	Cuculidae	Crotophaga major	LC	Greater Ani
Actinopterygii	Gobiiformes	Gobiidae	Ctenogobius smaragdus	LC	Emerald Goby
Actinopterygii	Gobiiformes	Gobiidae	Ctenogobius stigmaturus	LC	Spottail Goby
Reptilia	Squamata	Iguanidae	Ctenosaura acanthura	LC	Veracruz Spiny-tailed Iguana
Reptilia	Squamata	Iguanidae	Ctenosaura bakeri	CR	Utila Spiny-tailed Iguana
Reptilia	Squamata	Iguanidae	Ctenosaura oedirhina	EN	RoatÃ¡n Spiny-tailed Iguana
Reptilia	Squamata	Dipsadidae	Cubophis caymanus	LC	NA
Reptilia	Squamata	Dipsadidae	Cubophis ruttyi	LC	Little Cayman Racer
Reptilia	Squamata	Dipsadidae	Cubophis vudii	LC	Bahamian Racer
Aves	Passeriformes	Corvidae	Cyanocorax violaceus	LC	Violaceous Jay
Aves	Passeriformes	Vireonidae	Cyclarhis gujanensis	LC	Rufous-browed Peppershrike
Mammalia	Pilosa	Cyclopedidae	Cyclopes didactylus	LC	Silky Anteater
Reptilia	Squamata	Iguanidae	Cyclura carinata	EN	Turks and Caicos Rock Iguana
Reptilia	Squamata	Iguanidae	Cyclura pinguis	CR	Anegada Rock Iguana
Actinopterygii	Perciformes	Sciaenidae	Cynoscion acoupa	VU	Acoupa Weakfish
Actinopterygii	Perciformes	Dactyloscopidae	Dactyloscopus amnis	LC	Riverine Stargazer
Actinopterygii	Perciformes	Dactyloscopidae	Dactyloscopus zelotes	DD	Imitator Sand-stargazer
Aves	Falconiformes	Falconidae	Daptrius ater	LC	Black Caracara
Aves	Passeriformes	Furnariidae	Dendrocincla anabatina	LC	Tawny-winged Woodcreeper
Aves	Passeriformes	Furnariidae	Dendrocolaptes certhia	LC	Amazonian Barred Woodcreeper
Aves	Passeriformes	Furnariidae	Dendrocolaptes sanctithomae	LC	Western Barred Woodcreeper
Aves	Anseriformes	Anatidae	Dendrocygna arborea	NT	West Indian Whistling-duck
Aves	Passeriformes	Furnariidae	Dendroplex picus	LC	Straight-billed Woodcreeper
Actinopterygii	Perciformes	Gerreidae	Diapterus auratus	LC	Irish Mojarra

Class	Order	Family	Scientific name	RLTS category	Common name
Mammalia	Didelphimorphia	Didelphidae	Didelphis marsupialis	LC	Common Opossum
Mammalia	Didelphimorphia	Didelphidae	Didelphis virginiana	LC	Virginia Opossum
Mammalia	Rodentia	Echimyidae	Diplomys labilis	LC	Rufous Tree Rat
Aves	Caprimulgiformes	Trochilidae	Doricha eliza	NT	Mexican Sheartail
Reptilia	Squamata	Colubridae	Drymarchon melanurus	LC	Western Indigo Snake
Aves	Piciformes	Picidae	Dryobates scalaris	LC	Ladder-backed Woodpecker
Insecta	Coleoptera	Curculionidae	Dryotribus mimeticus	LC	NA
Aves	Pelecaniformes	Ardeidae	Egretta caerulea	LC	Little Blue Heron
Aves	Pelecaniformes	Ardeidae	Egretta rufescens	NT	Reddish Egret
Aves	Pelecaniformes	Ardeidae	Egretta tricolor	LC	Tricolored Heron
Aves	Passeriformes	Tyrannidae	Elaenia martinica	LC	Caribbean Elaenia
Aves	Accipitriformes	Accipitridae	Elanoides forficatus	LC	Swallow-tailed Kite
Actinopterygii	Gobiiformes	Eleotridae	Eleotris picta	LC	Spotted Sleeper
Amphibia	Anura	Eleutherodactylidae	Eleutherodactylus caribe	CR	Haitian Marshfrog
Amphibia	Anura	Eleutherodactylidae	Eleutherodactylus flavescens	NT	Yellow Split-toed Frog
Actinopterygii	Elopiformes	Elopidae	Elops saurus	LC	Northern Ladyfish
Actinopterygii	Elopiformes	Elopidae	Elops smithi	DD	Southern Ladyfish
Actinopterygii	Perciformes	Epinephelidae	Epinephelus itajara	VU	Atlantic Goliath Grouper
Magnoliopsida	Caryophyllales	Cactaceae	Epiphyllum phyllanthus	LC	Climbing Cactus
Mammalia	Chiroptera	Vespertilionidae	Eptesicus guadeloupensis	EN	Guadeloupe Big Brown Bat
Reptilia	Testudines	Cheloniidae	Eretmochelys imbricata	CR	Hawksbill Turtle
Actinopterygii	Gobiiformes	Eleotridae	Erotelis smaragdus	LC	Emerald Sleeper
Reptilia	Squamata	Dipsadidae	Erythrolamprus cobella	LC	Mangrove Snak
Actinopterygii	Perciformes	Gerreidae	Eucinostomus harengulus	LC	Tidewater Mojarra
Actinopterygii	Perciformes	Gerreidae	Eucinostomus havana	LC	Bigeye Mojarra
Aves	Pelecaniformes	Threskiornithidae	Eudocimus albus	LC	White Ibis
Aves	Pelecaniformes	Threskiornithidae	Eudocimus ruber	LC	Scarlet Ibis
Actinopterygii	Perciformes	Gerreidae	Eugerres awlae	LC	Maracaibo Mojarra
Actinopterygii	Perciformes	Gerreidae	Eugerres brasilianus	LC	Brazilian Mojarra
Actinopterygii	Perciformes	Gerreidae	Eugerres plumieri	LC	Striped Mojarra
Aves	Passeriformes	Fringillidae	Euphonia chlorotica	LC	Purple-throated Euphonia
Actinopterygii	Gobiiformes	Gobiidae	Evorthodus minutus	LC	Small Goby
Anthozoa	Scleractinia	Faviidae	Favia fragum	LC	Golfball Coral
Aves	Passeriformes	Thamnophilidae	Formicivora grisea	LC	Southern White-fringed Antwren
Aves	Passeriformes	Thamnophilidae	Formicivora intermedia	LC	Northern White-fringed Antwren
Aves	Psittaciformes	Psittacidae	Forpus passerinus	LC	Green-rumped Parrotlet
Aves	Suliformes	Fregatidae	Fregata magnificens	LC	Magnificent Frigatebird
Actinopterygii	Cyprinodontiformes	Fundulidae	Fundulus xenica	LC	Diamond Killifish
Aves	Piciformes	Galbulidae	Galbula galbula	LC	Green-tailed Jacamar
Aves	Galliformes	Phasianidae	Gallus gallus	LC	Red Junglefowl
Actinopterygii	Cyprinodontiformes	Poeciliidae	Gambusia rhizophorae	LC	Mangrove Gambusia
Aves	Passeriformes	Parulidae	Geothlypis trichas	LC	Common Yellowthroat
Aves	Accipitriformes	Accipitridae	Geranospiza caerulescens	LC	Crane Hawk
Actinopterygii	Perciformes	Gerreidae	Gerres cinereus	LC	Yellow Fin Mojarra
Actinopterygii	Gobiiformes	Eleotridae	Gobiomorus maculatus	LC	Pacific Sleeper
Actinopterygii	Gobiiformes	Gobiidae	Gobionellus microdon	LC	Estuary Goby

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Anguilliformes	Muraenidae	Gymnothorax funebris	LC	Green Moray
Actinopterygii	Perciformes	Haemulidae	Haemulon aurolineatum	LC	Tomtate
Actinopterygii	Perciformes	Haemulidae	Haemulon bonariense	LC	Black Grunt
Actinopterygii	Perciformes	Haemulidae	Haemulon carbonarium	LC	Caesar Grunt
Actinopterygii	Perciformes	Haemulidae	Haemulon chrysargyreum	LC	Smallmouth Grunt
Actinopterygii	Perciformes	Haemulidae	Haemulon parra	LC	Sailor's Choice
Actinopterygii	Perciformes	Haemulidae	Haemulon plumierii	LC	White Grunt
Actinopterygii	Perciformes	Haemulidae	Haemulon sciurus	LC	Bluestriped Grunt
Aves	Accipitriformes	Accipitridae	Haliaeetus leucocephalus	LC	Bald Eagle
Actinopterygii	Perciformes	Labridae	Halichoeres socialis	EN	Social Wrasse
Liliopsida	Alismatales	Cymodoceaceae	Halodule wrightii	LC	Species code: Hw
Actinopterygii	Clupeiformes	Clupeidae	Harengula clupeola	LC	False Herring
Actinopterygii	Clupeiformes	Clupeidae	Harengula humeralis	LC	Redear Herring
Aves	Passeriformes	Parulidae	Helmitheros vermivorum	LC	Worm-eating Warbler
Actinopterygii	Cyprinodontiformes	Poeciliidae	Heterophallus echeagarayi	DD	Maya Gambusia
Actinopterygii	Syngnathiformes	Syngnathidae	Hippocampus erectus	VU	Lined Seahorse
Actinopterygii	Syngnathiformes	Syngnathidae	Hippocampus reidi	NT	Long-snout Seahorse
Holothuroidea	Aspidochirotida	Holothuriidae	Holothuria floridana	LC	NA
Holothuroidea	Aspidochirotida	Holothuriidae	Holothuria impatiens	DD	Bottleneck Sea Cucumber
Holothuroidea	Aspidochirotida	Holothuriidae	Holothuria mexicana	LC	Donkey Dung
Holothuroidea	Aspidochirotida	Holothuriidae	Holothuria surinamensis	LC	NA
Aves	Piciformes	Picidae	Hylatomus lineatus	LC	Lineated Woodpecker
Magnoliopsida	Caryophyllales	Cactaceae	Hylocereus monacanthus	LC	Nightblooming Cereus
Aves	Passeriformes	Vireonidae	Hylophilus flavipes	LC	Scrub Greenlet
Aves	Passeriformes	Vireonidae	Hylophilus insularis	LC	Tobago Greenlet
Aves	Passeriformes	Vireonidae	Hylophilus viridiflavus	LC	Yellow-green Greenlet
Actinopterygii	Perciformes	Serranidae	Hypoplectrus maya	EN	Maya Hamlet
Actinopterygii	Perciformes	Serranidae	Hypoplectrus unicolor	LC	Butter Hamlet
Actinopterygii	Beloniformes	Hemiramphidae	Hyporhamphus gilli	LC	Choelo halfbeak
Aves	Passeriformes	Icteridae	Icterus bonana	VU	Martinique Oriole
Aves	Passeriformes	Icteridae	Icterus laudabilis	EN	St Lucia Oriole
Aves	Passeriformes	Icteridae	Icterus leucopteryx	LC	Jamaican Oriole
Aves	Passeriformes	Icteridae	Icterus mesomelas	LC	Yellow-tailed Oriole
Aves	Passeriformes	Icteridae	Icterus nigrogularis	LC	Yellow Oriole
Aves	Accipitriformes	Accipitridae	Ictinia plumbea	LC	Plumbeous Kite
Reptilia	Squamata	Iguanidae	Iguana delicatissima	CR	Lesser Antillean Iguana
Reptilia	Squamata	Iguanidae	Iguana iguana	LC	Common Green Iguana
Aves	Passeriformes	Tyrannidae	Inezia caudata	LC	Pale-tipped Tyrannulet
Aves	Passeriformes	Tyrannidae	Inezia tenuirostris	LC	Slender-billed Tyrannulet
Actinopterygii	Perciformes	Sciaenidae	Isopisthus parvipinnis	LC	Bigtooth Corvina
Aves	Pelecaniformes	Ardeidae	Ixobrychus exilis	LC	Least Bittern
Actinopterygii	Clupeiformes	Clupeidae	Jenkinsia lamprotaenia	LC	Dwarf Round Herring
Actinopterygii	Cyprinodontiformes	Rivulidae	Kryptolebias marmoratus	LC	Mangrove Rivulus
Actinopterygii	Perciformes	Labrisomidae	Labrisomus nuchipinnis	LC	Hairy Blenny
Actinopterygii	Tetraodontiformes	Tetraodontidae	Lagocephalus laevigatus	LC	Smooth Puffer
Actinopterygii	Perciformes	Sparidae	Lagodon rhomboides	LC	Pinfish

Class	Order	Family	Scientific name	RLTS category	Common name
Magnoliopsida	Myrtales	Combretaceae	Laguncularia racemosa	LC	White Mangrove
Reptilia	Squamata	Tropiduridae	Leiocephalus barahonensis	LC	Orange-bellied Curlytail
Reptilia	Squamata	Tropiduridae	Leiocephalus carinatus	LC	Northern Curly-tailed Lizard
Reptilia	Squamata	Tropiduridae	Leiocephalus lunatus	LC	Santo Domingo Curlytail Lizard
Reptilia	Squamata	Tropiduridae	Leiocephalus macropus	LC	Monte Verde Curlytail Lizard
Mammalia	Carnivora	Felidae	Leopardus pardalis	LC	Ocelot
Aves	Passeriformes	Furnariidae	Lepidocolaptes souleyetii	LC	Streak-headed Woodcreeper
Amphibia	Anura	Leptodactylidae	Leptodactylus melanonotus	LC	Sabinal Frog
Reptilia	Squamata	Dipsadidae	Leptodeira maculata	LC	Southwestern Cat-eyed Snake
Reptilia	Squamata	Colubridae	Leptophis diplotropis	LC	Pacific Coast Parrot Snake
Aves	Caprimulgiformes	Trochilidae	Leucippus fallax	LC	Buffy Hummingbird
Aves	Accipitriformes	Accipitridae	Leucopternis melanops	LC	Black-faced Hawk
Actinopterygii	Clupeiformes	Clupeidae	Lile piquitinga	LC	Atlantic Piquitinga
Actinopterygii	Cyprinodontiformes	Poeciliidae	Limia rivasi	CR	Rivas's Limia
Amphibia	Anura	Ranidae	Lithobates berlandieri	LC	Rio Grande Leopard Frog
Amphibia	Anura	Ranidae	Lithobates grylio	LC	Pig Frog
Gastropoda	Littorinimorpha	Littorinidae	Littoraria angulifera	LC	Mangrove Periwinkle
Actinopterygii	Gobiiformes	Gobiidae	Lophogobius cyprinoides	LC	Crested Goby
Aves	Passeriformes	Thraupidae	Loxigilla barbadensis	LC	Barbados Bullfinch
Aves	Passeriformes	Thraupidae	Loxigilla noctis	LC	Lesser Antillean Bullfinch
Reptilia	Squamata	Loxocemidae	Loxocemus bicolor	LC	NA
Actinopterygii	Perciformes	Blenniidae	Lupinoblennius vinctus	NT	Mangrove Blenny
Actinopterygii	Perciformes	Lutjanidae	Lutjanus cyanopterus	VU	Cubera Snapper
Actinopterygii	Perciformes	Lutjanidae	Lutjanus griseus	LC	Grey Snapper
Reptilia	Squamata	Scincidae	Mabuya cochonae	CR	Cochons Skink
Reptilia	Squamata	Scincidae	Mabuya desiradae	CR	DÃ©sirade Skink
Reptilia	Testudines	Emydidae	Malaclemys terrapin	VU	Diamondback Terrapin
Actinopterygii	Perciformes	Labrisomidae	Malacoctenus gilli	LC	Dusky Blenny
Actinopterygii	Perciformes	Labrisomidae	Malacoctenus macropus	LC	Rosy Blenny
Aves	Passeriformes	Mimidae	Margarops fuscatus	LC	Pearly-eyed Thrasher
Mammalia	Cetartiodactyla	Cervidae	Mazama pandora	VU	Yucatan Brown Brocket
Aves	Coraciiformes	Alcedinidae	Megaceryle alcyon	LC	Belted Kingfisher
Aves	Coraciiformes	Alcedinidae	Megaceryle torquata	LC	Ringed Kingfisher
Aves	Strigiformes	Strigidae	Megascops cooperi	LC	Pacific Screech-owl
Gastropoda	Ellobiida	Ellobiidae	Melampus coffeus	LC	Coffee Melampus
Aves	Piciformes	Picidae	Melanerpes herminieri	LC	Guadeloupe Woodpecker
Aves	Piciformes	Picidae	Melanerpes portoricensis	LC	Puerto Rican Woodpecker
Aves	Piciformes	Picidae	Melanerpes radiolatus	LC	Jamaican Woodpecker
Aves	Piciformes	Picidae	Melanerpes rubricapillus	LC	Red-crowned Woodpecker
Aves	Piciformes	Picidae	Melanerpes striatus	LC	Hispaniolan Woodpecker
Aves	Piciformes	Picidae	Melanerpes superciliaris	LC	West Indian Woodpecker
Mammalia	Rodentia	Capromyidae	Mesocapromys angelcabrerai	CR	Cabrera's Hutia
Mammalia	Rodentia	Capromyidae	Mesocapromys auritus	EN	Large-eared Hutia

Class	Order	Family	Scientific name	RLTS category	Common name
Mammalia	Didelphimorphia	Didelphidae	Metachirus nudicaudatus	LC	Brown Four-eyed Opossum
Aves	Falconiformes	Falconidae	Micrastur semitorquatus	LC	Collared Forest-falcon
Actinopterygii	Gobiiformes	Gobiidae	Microgobius miraflorensis	LC	Miraflores goby
Actinopterygii	Mugiliformes	Mugilidae	Mugil incilis	LC	Parassi Mullet
Actinopterygii	Perciformes	Mullidae	Mulloidichthys martinicus	LC	Yellow Goatfish
Aves	Ciconiiformes	Ciconiidae	Mycteria americana	LC	Wood Stork
Actinopterygii	Perciformes	Epinephelidae	Mycteroperca acutirostris	LC	Comb Grouper
Actinopterygii	Perciformes	Epinephelidae	Mycteroperca bonaci	NT	Black Grouper
Actinopterygii	Perciformes	Epinephelidae	Mycteroperca interstitialis	VU	Yellowmouth Grouper
Actinopterygii	Perciformes	Epinephelidae	Mycteroperca phenax	DD	Scamp
Aves	Passeriformes	Tyrannidae	Myiarchus antillarum	LC	Puerto Rican Flycatcher
Aves	Passeriformes	Tyrannidae	Myiarchus barbirostris	LC	Sad Flycatcher
Aves	Passeriformes	Tyrannidae	Myiarchus panamensis	LC	Panama Flycatcher
Aves	Passeriformes	Tyrannidae	Myiarchus sagrae	LC	La Sagra's Flycatcher
Aves	Passeriformes	Tyrannidae	Myiarchus stolidus	LC	Stolid Flycatcher
Aves	Passeriformes	Tyrannidae	Myiarchus swainsoni	LC	Swainson's Flycatcher
Aves	Passeriformes	Tyrannidae	Myiarchus tyrannulus	LC	Brown-crested Flycatcher
Aves	Passeriformes	Tyrannidae	Myiodynastes maculatus	LC	Northern Streaked Flycatcher
Aves	Passeriformes	Tyrannidae	Myiodynastes solitarius	LC	Southern Streaked Flycatcher
Liliopsida	Asparagales	Orchidaceae	Myrmecophila thomsoniana	EN	Banana Orchid
Aves	Passeriformes	Thamnophilidae	Myrmotherula surinamensis	VU	Guianan Streaked Antwren
Actinopterygii	Anguilliformes	Ophichthidae	Myrophis plumbeus	LC	Leaden Worm Eel
Chondrichthyes	Carcharhiniformes	Carcharhinidae	Negaprion brevirostris	VU	Lemon Shark
Aves	Piciformes	Picidae	Nesoctites micromegas	LC	Antillean Piculet
Mammalia	Chiroptera	Noctilionidae	Noctilio leporinus	LC	Greater Bulldog Bat
Aves	Anseriformes	Anatidae	Nomonyx dominicus	LC	Masked Duck
Aves	Piciformes	Bucconidae	Notharchus hyperrhynchus	LC	White-necked Puffbird
Aves	Piciformes	Bucconidae	Notharchus subtectus	LC	Lesser Pied Puffbird
Aves	Piciformes	Bucconidae	Notharchus tectus	LC	Greater Pied Puffbird
Aves	Charadriiformes	Scolopacidae	Numenius phaeopus	LC	Whimbrel
Aves	Pelecaniformes	Ardeidae	Nyctanassa violacea	LC	Yellow-crowned Night-heron
Aves	Caprimulgiformes	Nyctibiidae	Nyctibius griseus	LC	Common Potoo
Aves	Pelecaniformes	Ardeidae	Nycticorax nycticorax	LC	Black-crowned Night-heron
Aves	Caprimulgiformes	Caprimulgidae	Nyctidromus albicollis	LC	Pauraque
Anthozoa	Scleractinia	Oculinidae	Oculina diffusa	LC	Diffuse Ivory Bush Coral
Mammalia	Cetartiodactyla	Cervidae	Odocoileus virginianus	LC	White-tailed Deer
Amphibia	Caudata	Plethodontidae	Oedipina maritima	CR	Maritime Worm Salamander
Actinopterygii	Ophidiiformes	Bythitidae	Ogilbia jeffwilliamsi	LC	Ghost Brotula
Aves	Passeriformes	Tityridae	Onychorhynchus coronatus	LC	Amazonian Royal Flycatcher
Actinopterygii	Perciformes	Sciaenidae	Ophioscion gomezi	LC	NA
Actinopterygii	Batrachoidiformes	Batrachoididae	Opsanus phobetron	LC	Scarecrow Toadfish
Aves	Galliformes	Cracidae	Ortalis garrula	LC	Chestnut-winged Chachalaca
Aves	Galliformes	Cracidae	Ortalis poliocephala	LC	West Mexican Chachalaca

Class	Order	Family	Scientific name	RLTS category	Common name
Mammalia	Rodentia	Cricetidae	Oryzomys gorgasi	EN	NA
Amphibia	Anura	Hylidae	Osteopilus septentrionalis	LC	Cuban Treefrog
Actinopterygii	Cyprinodontiformes	Anablepidae	Oxyzygonectes dovii	LC	White-eye
Aves	Passeriformes	Tityridae	Pachyramphus cinnamomeus	LC	Cinnamon Becard
Aves	Passeriformes	Tityridae	Pachyramphus polychopterus	LC	White-winged Becard
Aves	Passeriformes	Tityridae	Pachyramphus rufus	LC	Cinereous Becard
Aves	Accipitriformes	Pandionidae	Pandion haliaetus	LC	Osprey
Mammalia	Carnivora	Felidae	Panthera onca	NT	Jaguar
Actinopterygii	Perciformes	Blenniidae	Parablennius marmoreus	LC	Seaweed Blenny
Aves	Passeriformes	Parulidae	Parkesia noveboracensis	LC	Northern Waterthrush
Aves	Passeriformes	Thraupidae	Paroaria nigrogenis	LC	Masked Cardinal
Aves	Columbiformes	Columbidae	Patagioenas cayennensis	LC	Pale-vented Pigeon
Aves	Columbiformes	Columbidae	Patagioenas corensis	LC	Bare-eyed Pigeon
Aves	Columbiformes	Columbidae	Patagioenas inornata	NT	Plain Pigeon
Aves	Columbiformes	Columbidae	Patagioenas leucocephala	NT	White-crowned Pigeon
Mammalia	Cetartiodactyla	Tayassuidae	Pecari tajacu	LC	Collared Peccary
Magnoliopsida	Ericales	Tetrameristaceae	Pelliciera rhizophorae	VU	Manglar PiÃ±uelo
Aves	Passeriformes	Phaenicophilidae	Phaenicophilus palmarum	LC	Black-crowned Palm-tanager
Aves	Passeriformes	Phaenicophilidae	Phaenicophilus poliocephalus	NT	Grey-crowned Palm-tanager
Aves	Passeriformes	Tyrannidae	Phaeomyias murina	LC	Mouse-colored Tyrannulet
Actinopterygii	Perciformes	Apogonidae	Phaeoptyx conklini	LC	Freckled Cardinalfish
Actinopterygii	Perciformes	Apogonidae	Phaeoptyx xenus	LC	Sponge Cardinalfish
Aves	Caprimulgiformes	Trochilidae	Phaethornis longuemareus	LC	Little Hermit
Aves	Passeriformes	Tyrannidae	Philohydor lictor	LC	Lesser Kiskadee
Reptilia	Squamata	Teiidae	Pholidoscelis auberi	LC	Cuban Ameiva
Reptilia	Squamata	Teiidae	Pholidoscelis fuscatus	LC	Dominican Ameiva
Reptilia	Squamata	Teiidae	Pholidoscelis plei	LC	Anguilla Bank Ameiva
Reptilia	Squamata	Teiidae	Pholidoscelis taeniurus	LC	Hispaniolan Blue-tailed Ameiva
Reptilia	Squamata	Phyllodactylidae	Phyllodactylus ventralis	LC	Margarita Leaf-toed Gecko
Aves	Cuculiformes	Cuculidae	Piaya cayana	LC	Common Squirrel-cuckoo
Aves	Cuculiformes	Cuculidae	Piaya mexicana	LC	Mexican Squirrel-cuckoo
Aves	Piciformes	Picidae	Picumnus cinnamomeus	LC	Chestnut Piculet
Aves	Piciformes	Picidae	Picumnus exilis	LC	Golden-spangled Piculet
Aves	Piciformes	Picidae	Picumnus spilogaster	VU	White-bellied Piculet
Aves	Passeriformes	Pipridae	Pipra aureola	LC	Crimson-hooded Manakin
Aves	Passeriformes	Tyrannidae	Pitangus sulphuratus	LC	Great Kiskadee
Actinopterygii	Cyprinodontiformes	Poeciliidae	Poecilia orri	LC	Mangrove Molly
Actinopterygii	Cyprinodontiformes	Poeciliidae	Poeciliopsis fasciata	LC	San Jeronimo Livebearer
Actinopterygii	Cyprinodontiformes	Poeciliidae	Poeciliopsis turrubarensis	LC	Barred Livebearer
Aves	Passeriformes	Polioptilidae	Polioptila caerulea	LC	Blue-grey Gnatcatcher
Aves	Passeriformes	Polioptilidae	Polioptila plumbea	LC	Tropical Gnatcatcher
Actinopterygii	Perciformes	Polynemidae	Polydactylus oligodon	LC	Littlescale Threadfin
Actinopterygii	Perciformes	Polynemidae	Polydactylus virginicus	LC	Sevenfingered Threadfin

Class	Order	Family	Scientific name	RLTS category	Common name
Anthozoa	Scleractinia	Poritidae	Porites porites	LC	Finger Coral
Chondrichthyes	Rhinopristiformes	Pristidae	Pristis pectinata	CR	Smalltooth Sawfish
Chondrichthyes	Rhinopristiformes	Pristidae	Pristis pristis	CR	Largetooth Sawfish
Mammalia	Carnivora	Procyonidae	Procyon cancrivorus	LC	Crab-eating Raccoon
Mammalia	Carnivora	Procyonidae	Procyon lotor	LC	Northern Raccoon
Mammalia	Carnivora	Procyonidae	Procyon pygmaeus	CR	Pygmy Raccoon
Aves	Passeriformes	Hirundinidae	Progne chalybea	LC	Grey-breasted Martin
Aves	Passeriformes	Hirundinidae	Progne cryptoleuca	LC	Cuban Martin
Actinopterygii	Perciformes	Chaenopsidae	Protemblemaria punctata	LC	Warthead Blenny
Aves	Passeriformes	Parulidae	Protonotaria citrea	LC	Prothonotary Warbler
Actinopterygii	Syngnathiformes	Syngnathidae	Pseudophallus mindii	DD	Freshwater Pipefish
Aves	Psittaciformes	Psittacidae	Psittacara leucophthalmus	LC	White-eyed Parakeet
Actinopterygii	Clupeiformes	Engraulidae	Pterengraulis atherinoides	LC	Wingfin Anchovy
Aves	Passeriformes	Thraupidae	Pyrrhulagra portoricensis	LC	Puerto Rican Bullfinch
Aves	Passeriformes	Icteridae	Quiscalus lugubris	LC	Carib Grackle
Aves	Passeriformes	Icteridae	Quiscalus mexicanus	LC	Great-tailed Grackle
Aves	Passeriformes	Icteridae	Quiscalus niger	LC	Greater Antillean Grackle
Aves	Gruiformes	Rallidae	Rallus crepitans	LC	Clapper Rail
Aves	Gruiformes	Rallidae	Rallus longirostris	LC	Mangrove Rail
Aves	Gruiformes	Rallidae	Rallus obsoletus	NT	Ridgway's Rail
Aves	Gruiformes	Rallidae	Rallus wetmorei	EN	Plain-flanked Rail
Aves	Piciformes	Ramphastidae	Ramphastos sulfuratus	NT	Keel-billed Toucan
Aves	Piciformes	Ramphastidae	Ramphastos tucanus	LC	Red-billed Toucan
Magnoliopsida	Caryophyllales	Cactaceae	Rhipsalis baccifera	LC	Mistletoe Cactus
Magnoliopsida	Malpighiales	Rhizophoraceae	Rhizophora mangle	LC	Red Mangrove
Magnoliopsida	Malpighiales	Rhizophoraceae	Rhizophora racemosa	LC	NA
Aves	Passeriformes	Thamnophilidae	Sakesphorus canadensis	LC	Black-crested Antshrike
Aves	Passeriformes	Thamnophilidae	Sakesphorus pulchellus	LC	Streak-fronted Antshrike
Mammalia	Primates	Cebidae	Sapajus apella	LC	Black-capped Capuchin
Actinopterygii	Perciformes	Labridae	Scarus coeruleus	LC	Blue Parrotfish
Actinopterygii	Perciformes	Labridae	Scarus guacamaia	NT	Rainbow Parrotfish
Actinopterygii	Siluriformes	Ariidae	Sciades herzbergii	LC	Pemecou Sea Catfish
Actinopterygii	Perciformes	Sciaenidae	Sciaenops ocellatus	LC	Red Drum
Mammalia	Rodentia	Sciuridae	Sciurus niger	LC	Delmarva Fox Squirrel
Aves	Passeriformes	Thamnophilidae	Sclateria naevia	LC	Silvered Antbird
Aves	Passeriformes	Parulidae	Setophaga discolor	LC	Prairie Warbler
Aves	Passeriformes	Parulidae	Setophaga dominica	LC	Yellow-throated Warbler
Aves	Passeriformes	Parulidae	Setophaga ruticilla	LC	American Redstart
Aves	Passeriformes	Furnariidae	Sittasomus griseicapillus	LC	Eastern Olivaceous Woodcreeper
Aves	Passeriformes	Furnariidae	Sittasomus griseus	LC	Western Olivaceous Woodcreeper
Reptilia	Squamata	Sphaerodactylidae	Sphaerodactylus difficilis	LC	Hispaniolan Eyespot Sphaero
Reptilia	Squamata	Sphaerodactylidae	Sphaerodactylus elegans	LC	Ashy Gecko
Reptilia	Squamata	Sphaerodactylidae	Sphaerodactylus macrolepis	LC	Big-scaled Least Gecko
Reptilia	Squamata	Sphaerodactylidae	Sphaerodactylus molei	LC	Tobago Least Gecko

Class	Order	Family	Scientific name	RLTS category	Common name
Reptilia	Squamata	Sphaerodactylidae	Sphaerodactylus oliveri	EN	Juventud Least Gecko
Reptilia	Squamata	Sphaerodactylidae	Sphaerodactylus phyzacinus	EN	NA
Actinopterygii	Tetraodontiformes	Tetraodontidae	Sphoeroides nephelus	LC	Southern Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	Sphoeroides testudineus	LC	Checkered Puffer
Reptilia	Squamata	Colubridae	Spilotes pullatus	LC	Chicken Snake
Actinopterygii	Perciformes	Pomacentridae	Stegastes leucostictus	LC	Beaugregory
Actinopterygii	Perciformes	Pomacentridae	Stegastes otophorus	DD	Freshwater Gregory
Aves	Passeriformes	Hirundinidae	Stelgidopteryx ridgwayi	LC	Yucatan Rough-winged Swallow
Aves	Passeriformes	Hirundinidae	Stelgidopteryx serripennis	LC	Northern Rough-winged Swallow
Actinopterygii	Beloniformes	Belonidae	Strongylura notata	LC	Redfin Needlefish
Chondrichthyes	Myliobatiformes	Potamotrygonidae	Styracura schmardae	EN	Atlantic Chupare
Aves	Passeriformes	Tyrannidae	Sublegatus arenarum	LC	Northern Scrub-flycatcher
Mammalia	Lagomorpha	Leporidae	Sylvilagus floridanus	LC	Eastern Cottontail
Mammalia	Lagomorpha	Leporidae	Sylvilagus palustris	LC	Marsh Rabbit
Aves	Passeriformes	Furnariidae	Synallaxis candei	LC	White-whiskered Spinetail
Aves	Passeriformes	Hirundinidae	Tachycineta albilinea	LC	Mangrove Swallow
Aves	Passeriformes	Hirundinidae	Tachycineta albiventer	LC	White-winged Swallow
Aves	Passeriformes	Tyrannidae	Taeniotriccus andrei	LC	Black-chested Tyrant
Mammalia	Pilosa	Myrmecophagidae	Tamandua mexicana	LC	Northern Tamandua
Mammalia	Pilosa	Myrmecophagidae	Tamandua tetradactyla	LC	Southern Tamandua
Reptilia	Squamata	Colubridae	Tantilla calamarina	LC	Pacific Coast Centipede Snake
Mammalia	Cetartiodactyla	Tayassuidae	Tayassu pecari	VU	White-lipped Peccary
Aves	Trogoniformes	Trogonidae	Temnotrogon roseigaster	LC	Hispaniolan Trogon
Aves	Passeriformes	Troglodytidae	Thryophilus pleurostictus	LC	Banded Wren
Aves	Pelecaniformes	Ardeidae	Tigrisoma lineatum	LC	Rufescent Tiger-heron
Aves	Passeriformes	Tyrannidae	Todirostrum maculatum	LC	Spotted Tody-flycatcher
Aves	Coraciiformes	Todidae	Todus subulatus	LC	Broad-billed Tody
Aves	Coraciiformes	Todidae	Todus todus	LC	Jamaican Tody
Aves	Passeriformes	Tyrannidae	Tolmomyias flaviventris	LC	Ochre-lored Flatbill
Aves	Passeriformes	Passerellidae	Torreornis inexpectata	NT	Zapata Sparrow
Reptilia	Squamata	Dipsadidae	Tretanorhinus mocquardi	DD	Mocquard's Swamp Snake
Reptilia	Squamata	Dipsadidae	Tretanorhinus nigroluteus	LC	Orangebelly Swamp Snake
Mammalia	Sirenia	Trichechidae	Trichechus manatus	VU	American Manatee
Actinopterygii	Pleuronectiformes	Achiridae	Trinectes fonsecensis	LC	Spottedfin Sole
Actinopterygii	Pleuronectiformes	Achiridae	Trinectes inscriptus	LC	Scrawled Sole
Aves	Trogoniformes	Trogonidae	Trogon citreolus	LC	Citreoline Trogon
Aves	Trogoniformes	Trogonidae	Trogon massena	LC	Slaty-tailed Trogon
Aves	Trogoniformes	Trogonidae	Trogon melanocephalus	LC	Black-headed Trogon
Aves	Trogoniformes	Trogonidae	Trogon melanurus	LC	Black-tailed Trogon
Aves	Trogoniformes	Trogonidae	Trogon viridis	LC	Green-backed Trogon
Aves	Passeriformes	Turdidae	Turdus fumigatus	LC	Cocoa Thrush
Aves	Passeriformes	Tyrannidae	Tyrannus caudifasciatus	LC	Loggerhead Kingbird
Aves	Passeriformes	Tyrannidae	Tyrannus dominicensis	LC	Grey Kingbird
Aves	Passeriformes	Tyrannidae	Tyrannus melancholicus	LC	Tropical Kingbird
Aves	Passeriformes	Tyrannidae	Tyrannus savana	LC	Fork-tailed Flycatcher

Class	Order	Family	Scientific name	RLTS category	Common name
Magnoliopsida	Boraginales	Cordiaceae	Varronia brittonii	LC	NA
Aves	Piciformes	Picidae	Veniliornis passerinus	LC	Little Woodpecker
Aves	Passeriformes	Vireonidae	Vireo altiloquus	LC	Black-whiskered Vireo
Aves	Passeriformes	Vireonidae	Vireo caribaeus	VU	San Andres Vireo
Aves	Passeriformes	Vireonidae	Vireo crassirostris	LC	Thick-billed Vireo
Aves	Passeriformes	Vireonidae	Vireo flavoviridis	LC	Yellow-green Vireo
Aves	Passeriformes	Vireonidae	Vireo latimeri	LC	Puerto Rican Vireo
Aves	Passeriformes	Vireonidae	Vireo magister	LC	Yucatan Vireo
Aves	Passeriformes	Vireonidae	Vireo pallens	LC	Mangrove Vireo
Gastropoda	Cycloneritida	Neritidae	Vitta virginea	LC	Virgin Nerite
Aves	Piciformes	Picidae	Xiphidiopicus percussus	LC	Cuban Green Woodpecker
Aves	Passeriformes	Furnariidae	Xiphorhynchus flavigaster	LC	Ivory-billed Woodcreeper
Aves	Passeriformes	Furnariidae	Xiphorhynchus guttatus	LC	Buff-throated Woodcreeper
Aves	Passeriformes	Furnariidae	Xiphorhynchus lachrymosus	LC	Black-striped Woodcreeper
Aves	Passeriformes	Furnariidae	Xiphorhynchus susurrans	LC	Cocoa Woodcreeper
Aves	Pelecaniformes	Ardeidae	Zebrilus undulatus	LC	Zigzag Heron
Aves	Columbiformes	Columbidae	Zenaida asiatica	LC	White-winged Dove
Aves	Columbiformes	Columbidae	Zenaida auriculata	LC	Eared Dove
Aves	Columbiformes	Columbidae	Zenaida aurita	LC	Zenaida Dove

* Species considered as mangroves in the province

3. National Estimates for subcriterion A1

To estimate the extent of the Tropical Northwestern Atlantic mangrove ecosystem in 1970, we gathered reliable information on the mangrove area for each country within the province around this period (Table b). We then estimated the mangrove area in 1970 for each country, assuming a linear relationship between mangrove extent and time. Finally, we summed up the country estimates to determine the total mangrove area in the Tropical Northwestern Atlantic province (Table a). We assumed that the percentage of mangrove extent by country within the province remained constant over time, as the percentages did not change between 1996 and 2020 (GMW v3.0 dataset). However, using mangrove area estimates from different sources can lead to uncertainty (Friess and Webb 2014), and there were no regional statistics or global studies available for this time period. Thus, the estimates for 1970 should be considered only indicative.

Table a. Estimated mangrove area by country in 1970 and 2020. The 2020* mangrove area estimates are based on the Global Mangrove Watch Version 3 (GMW v3.0) dataset. The references used to calculate mangrove area for each country in 1970** are listed below in Table b.

Year	Country total 2020	Within province 2020	Country total 1970	Within province 1970
Mexico[1]	9,050.86	6,334.35	NA	NA
Colombia[2]	2,754	754	NA	NA
Panama[3]	1,744	290.08	NA	NA
Honduras[3]	628	54.77	NA	NA
Costa Rica[3]	418	0.8	NA	NA
Total for the Tropical Northwestern Atlantic	**NA**	**NA**	**NA**	**NA**

NA: Not available

[1] Mangrove national distribution of Mexico (CONABIO 2021)
[2] The area reported for Colombia for 2020 was obtained from the latest edition of the national mangrove map, published on March 22, 2023, by the Institute of Marine and Coastal Research (INVEMAR). It also provides more detailed

information for the insular Caribbean, specifically in the archipelago of San Andrés, Providencia, and Santa Catalina (INVEMAR, 2023).

[3] Data for 2020: UNESDOC Digital library and national cartographic data. https://unesdoc.unesco.org/

Table b. List of selected studies considered to have reliable information on mangrove areas for the period around 1970 in Tropical Northwestern Atlantic province country**.**

Country	Year	Mangrove Area (Ha)	Reference
For all countries.			FAO (2003). Status and trends in mangrove area extent worldwide. By Wilkie, M.L. and Fortuna, S. Forest Resources Assessment Working Paper No. 63. Forest Resources Division.

It is important to mention that this cartographic information for the different countries of the province is subject to different methodologies, limits, and inputs. For that reason, they are not directly operable in this assessment.

4. National estimates for subcriterion C2

The risk maps related to sea-level rise on the coast of Colombia correspond to the projection scenarios with the most forcing in the CMIP 5. These scenarios project sea-level rise levels of 18 cm by 2040, 29 cm by 2070, and 40 cm by 2100. National estimates, made in 2017 by INVEMAR and IDEAM, indicate mangrove areas exposed to sea-level rise scenarios in square kilometers for the study province during the years 2040, 2070, and 2100 (INVEMAR, IDEAM, 2017). These calculations were performed using the Lambert Azimuthal projection.

Table 4a. National assessment of mangrove ecosystem exposure to sea-level rise in the Tropical northwestern Atlantic province, Colombia.

Country	Scenario 2040	Scenario 2070	Scenario 2100	Reference
Colombia	618.6	633.5	645.7	INVEMAR, IDEAM. (2017). Elaboración del análisis de vulnerabilidad marino costero e insular ante el cambio climático para el país. Informe Técnico Final (ITF)- 001. 256 p.