



Convention on
Biological Diversity



Aichi Biodiversity Target 11 Country Dossier: ANTIGUA AND BARBUDA

With generous support from:



DEUTSCHE ZUSAMMENARBEIT

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



UK Government



WCMC



Global Partnership on
AICHI TARGET 11



TABLE OF CONTENTS

GLOSSARY	3
EXECUTIVE SUMMARY	5
<i>Aichi Biodiversity Target 11 Elements: Current status and opportunities for action</i>	5
INTRODUCTION	8
SECTION I: CURRENT STATUS	10
<i>COVERAGE - TERRESTRIAL & MARINE</i>	11
<i>ECOLOGICAL REPRESENTATIVENESS – TERRESTRIAL & MARINE</i>	15
<i>AREAS IMPORTANT FOR BIODIVERSITY</i>	19
<i>AREAS IMPORTANT FOR ECOSYSTEM SERVICES</i>	22
<i>CONNECTIVITY & INTEGRATION</i>	23
<i>GOVERNANCE DIVERSITY</i>	24
<i>PROTECTED AREA MANAGEMENT EFFECTIVENESS</i>	26
SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS	28
<i>PRIORITY ACTIONS FROM 2015-2016 REGIONAL WORKSHOPS</i>	28
<i>NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)</i>	29
<i>APPROVED GEF-5 & GEF-6 PROTECTED AREA PROJECTS</i>	30
<i>UN OCEAN CONFERENCE VOLUNTARY COMMITMENTS</i>	30
<i>OTHER ACTIONS/COMMITMENTS</i>	31
<i>UPDATED PROGRESS ON ACTIONS AND COMMITMENTS</i>	33
ANNEX I	37
<i>FULL LIST OF TERRESTRIAL ECOREGIONS</i>	37
REFERENCES	38



GLOSSARY

AZEs	Alliance for Zero Extinction sites
CEPF	Critical Ecosystem Partnership Fund
EBSA	Ecologically or Biologically Significant Marine Area
EEZ	Exclusive Economic Zone
GCF	Green Climate Fund
GD-PAME	Global Database on Protected Area Management Effectiveness
GEF	Global Environment Facility
IBA	Important Bird and Biodiversity Area
ICCAs	Indigenous and Community Conserved Area Area (may also be referred to as territories and areas conserved by Indigenous peoples and local communities or “territories of life”)
IPLC	Indigenous Peoples and Local Communities
KBA	Key Biodiversity Area
MEOW	Marine Ecosystems of the World
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan
OECD	Other Effective Area-Based Conservation Measures
PA	Protected Area
PAME	Protected Area Management Effectiveness
PPA	Privately Protected Area
PPOW	Pelagic Provinces of the World
ProtConn	Protected Connected land indicator
SOC	Soil Organic Carbon
TEOW	Terrestrial Ecosystems of the World
WDPA	World Database on Protected Areas
WD-OECD	World Database on Other Effective Area-Based Conservation Measures

4 | Aichi Biodiversity Target 11 Country Dossier: ANTIGUA & BARBUDA

Disclaimer

The designations employed and the presentation of material in this dossier do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Convention on Biological Diversity (SCBD) or United Nations Development Programme (UNDP) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The information contained in this publication do not necessarily represent those of the SCBD or UNDP.

This country dossier is compiled by the UNDP and SCBD from publicly available information. It is prepared, within the overall work of the Global Partnership on Aichi Biodiversity Target 11, for the purpose of attracting the attention of the Party concerned and other national stakeholders to facilitate the verification, correcting, and updating of country data. The statistics might differ from those reported officially by the country due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Furthermore, the suggestions from the UNDP and SCBD are based on analyses of global datasets, which may not necessarily be representative of national policy or criteria used at the national level. The analyses are also subject to the limits inherent in global indicators (precision, reliability, underlying assumptions, etc.). Therefore, they provide useful information but cannot replace analyses at a national level nor constitute a future benchmark for national policy or decision-making.

The preparation of this dossier was generously supported by: the Government of the Federal Republic of Germany, *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*; the European Commission; the Government of the United Kingdom of Great Britain and Northern Ireland; and the Government of Japan (Japan Biodiversity Fund). The dossier does not necessarily reflect their views.

This publication may be reproduced for educational or non-commercial purposes without special permission from the copyright holders, provided acknowledgement of the source is made. The SCBD and UNDP would appreciate receiving a copy of any publications that use this document as a source.



EXECUTIVE SUMMARY

This document provides information on the coverage of protected areas (PAs) and other effective area-based conservation measures (OECMs), as currently reported in global databases (the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM)). It also includes details on the status of the other qualifying elements of Aichi Biodiversity Target 11 based on this data. These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage, differences in the base maps used to measure terrestrial and marine area of a country or territory, or if global datasets differ from the criteria and indicators used at the national level. Where available, data from national statistics for the elements of Target 11 are included alongside records from these global databases. This dossier also provides a summary of commitments made under Aichi Biodiversity Target 11, and a summary of potential opportunities regarding elements of the target for future planning.

The dossier has been developed in consultation with the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), which manages the WDPA, WD-OECM and Global Database on Protected Area Management Effectiveness (GD-PAME). Parties to the SCBD are requested to contact protectedareas@unep-wcmc.org with any updates to the information in these databases.

Aichi Biodiversity Target 11 Elements: Current status and opportunities for action

Coverage - Terrestrial & Marine

- **Status:** as of May 2021 (per the WDPA), terrestrial coverage in Antigua and Barbuda is 95.6 km² (21.0%) and marine coverage is 324.9 km² (0.3%); according to national records, established PAs cover 25.3 km² terrestrial and 364.1 km² marine area.
- **Opportunities for action:** opportunities for the near-term include updating the WDPA with any unreported PAs, and the recognizing and reporting OECMs to the WD-OECM. In the future, focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.

Ecological Representativeness— Terrestrial & Marine

- **Status:** Antigua and Barbuda contains 3 terrestrial ecoregions, 1 marine ecoregion, and 1 pelagic province: the mean coverage by reported PAs and OECMs is 23.6% (terrestrial), 4.5% (marine), and 0.0% (pelagic); 1 pelagic province has no coverage by reported PAs and OECMs.
- **Opportunities for action:** there is opportunity for Antigua and Barbuda to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs. Ecoregions which currently have no coverage by PAs or OECMs are key areas for action.



6 | Aichi Biodiversity Target 11 Country Dossier: ANTIGUA & BARBUDA

Areas Important for Biodiversity

- **Status:** Antigua and Barbuda has 13 Key Biodiversity Areas (KBAs): the mean protected coverage of KBAs by reported PAs and OECMs is 31.9%, while 8 KBAs have no coverage by reported PAs and OECMs.
- **Opportunities for action:** there is opportunity for Antigua and Barbuda to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage (at least 2 of which will be addressed by proposed PAs expected to be designated by 2022).

Areas Important for Ecosystem Services

- **Status:** coverage of areas important for ecosystem services: In Antigua and Barbuda, 16.7% of aboveground biomass (AGB) carbon and 23.7% of belowground biomass (BGB) carbon is covered by established PA; with proposed PAs increasing coverage of AGB by 14.3% and BGB by 10.4%
- **Opportunities for action:** for carbon, there is opportunity for Antigua and Barbuda to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks, including through the finalization of proposed PAs. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.
- For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

Connectivity and Integration

- **Status:** coverage of protected-connected lands is 21.1%. Several proposed PAs will further enhance connectivity (e.g., with boundaries connecting existing PAs to enhance the movement of species between key biodiversity areas).
- **Opportunities for action:** there is opportunity to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.
- As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

Governance Diversity

- **Status:** the most common governance type(s) for reported PAs in Antigua and Barbuda is: 83.3% under Government (Federal or national ministry or agency).



7 | Aichi Biodiversity Target 11 Country Dossier: ANTIGUA & BARBUDA

- **Opportunities for action:** explore opportunities for governance types that have lower representation, for Antigua and Barbuda this could relate to shared governance, etc.
- There is also opportunity for Antigua and Barbuda to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

Protected Area Management Effectiveness

- **Status:** 77.1% of terrestrial PAs and 11.9% of marine PAs have completed Protected Area Management Effectiveness (PAME) assessments reported.
- **Opportunities for action:** the 60% target for completed management effectiveness assessments (per COP Decision X/31) **has** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for marine PAs to achieve the target.
- There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.



INTRODUCTION

The Strategic Plan for Biodiversity 2011-2020 was adopted at the tenth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) held in Nagoya, Aichi Prefecture, Japan from 18-29 October 2010. The vision of the Strategic Plan is one of “Living in harmony with nature” where *“By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people”* (CBD, 2010). In addition to this vision, the Strategic Plan is composed of 20 targets, under five strategic goals. Aichi Biodiversity Target 11 states that *“By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.”*

With the conclusion of the Aichi Biodiversity Targets in 2020, Target 11 on area-based conservation has seen success in the expansion of the global network of protected areas (PA) and other effective area-based conservation measures (OECMs). The negotiation of the post-2020 Global Biodiversity Framework (GBF) and its future targets provide an essential opportunity to further improve the coverage of PAs and OECMs, to improve other aspects of area-based conservation, to accelerate progress on biodiversity conservation more broadly, while also addressing climate change, and the Sustainable Development Goals. This next set of global biodiversity targets are to be adopted at the fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity. These new targets must aim to build upon lessons learned from the last decade of progress to deliver transformative change for the benefit of nature and people, to realize the 2050 Vision for biodiversity.

The United Nations Development Programme (UNDP) and the Secretariat of the Convention on Biological Diversity have developed the Aichi Biodiversity Target 11 Country Dossiers, which provide countries with an overview of the status of Target 11 elements, opportunities for action, and a summary of commitments made by Parties over the last decade. Each dossier can support countries in assessing their progress on key elements of Aichi Biodiversity Target 11 and identifying opportunities to prioritize new protected areas and OECMs.

This dossier provides an overview of area-based conservation in Antigua and Barbuda. Section I of the dossier presents data on the current status of Antigua and Barbuda’s PAs and OECMs. The data presented in Section I relates to each element of Target 11. Section I also presents the PA and OECM coverage for two critical ecosystem services: water security and carbon stocks. In addition, the dossier presents potential opportunities for action for Antigua and Barbuda, in relation to each Target 11 element. The analyses present options for improving Antigua and Barbuda’s area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on Antigua and Barbuda’s existing PA and OECM commitments as a summary of existing efforts towards achieving Target 11. This gives focus not only to national policy

9 | Aichi Biodiversity Target 11 Country Dossier: ANTIGUA & BARBUDA

and actions but also voluntary commitments to the UN. Furthermore, where data is available, this dossier provides information on potential OECMs, Indigenous and Community Conserved Areas (ICCAs; also, often referred to as territories and areas conserved by Indigenous peoples and local communities or “territories of life”) and Privately Protected Areas (PPAs) and the potential contribution they will have in achieving the post-2020 targets.

The information on PAs and OECMs presented here is derived from the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM). These databases are joint products of UNEP and IUCN, managed by UNEP-WCMC, and can be viewed and downloaded at www.protectedplanet.net. Parties are encouraged to provide data on their PAs and OECMs to UNEP-WCMC for incorporation into the databases (see e.g., Decisions 10/31 and 14/8). The significant efforts of Parties in updating their data in the build up to the publication of the Protected Planet Report 2020 (UNEP-WCMC and IUCN, 2021) were greatly appreciated. UNEP-WCMC welcomes further updates, following the data standards described here (www.wcmc.io/WDPA_Manual), and these should be directed to protectedareas@unep-wcmc.org. The statistics presented in this dossier are derived from the May 2021 WDPA and WD-OECM releases, unless explicitly stated otherwise. Readers should consult www.protectedplanet.net for the latest coverage statistics (updated monthly).

Some data from the WDPA and WD-OECM are not made publicly available at the request of the data-provider. This affects some statistics, maps, and figures presented in this dossier. Statistics provided by UNEP-WCMC (terrestrial and marine coverage) are based upon the full dataset, including restricted data. All other statistics, maps, and figures are based upon the subset of the data that is publicly available.

Where data is less readily available, such as for potential OECMs, ICCAs and PPAs, data has also been compiled from published reports and scientific literature to provide greater awareness of these less commonly recorded aspects. These data are provided to highlight the need for comprehensive reporting on these areas to the WDPA and/or WD-OECM. Parties are invited to work with indigenous peoples, local communities and private actors to submit data under the governance of these actors, with their consent, to the WDPA and/or WD-OECM.

Overall, PAs and OECMs are essential instruments for biodiversity conservation and to sustain essential ecosystem services that support human well-being and sustainable development, including food, medicine, and water security, as well as climate change mitigation and adaptation and disaster risk reduction. The data in this dossier, therefore, aims to celebrate the current contributions of PAs and OECMs, whilst the gaps presented hope to encourage greater progress, not just for the benefit of biodiversity and the post-2020 GBF, but also to recognize the essential role of PAs and OECMs to the Sustainable Development Goals and for addressing the climate crisis.



SECTION I: CURRENT STATUS

Aichi Biodiversity Target 11 refers to both protected areas (PAs) and other effective area-based conservation measures (OECMs). This section provides the current status for all elements of Aichi Biodiversity Target 11 where indicators with global data are available. Statistics for all elements are presented using data on both PAs and OECMs (where this data is available and reported in global databases like the WDPA and WD-OECM). It is recognized that statistics reported in the WPDA and WD-OECM might differ from those reported officially by countries due to differences in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. Details on UNEP-WCMC's methods for calculating PA and OECM coverage area available [here](#). The global indicators adopted here for presenting the status of other elements of Target 11 may also differ from those in use nationally. Where available, results from national reporting are also included.



COVERAGE - TERRESTRIAL & MARINE

As of May 2021, Antigua and Barbuda has **18** protected areas reported in the World Database on Protected Areas (WDPA). 3 proposed PAs are not included in the following statistics (see details on UNWP-WCMC's methods for calculating PA and OECM coverage [here](#)).

As of May 2021, Antigua and Barbuda has **0** OECMs reported in the world database on OECMs (WD-OECM).

Current coverage for Antigua and Barbuda:

- 21.0% terrestrial (9 protected areas, 95.6 km²)
- 0.3% marine (13 protected areas, 324.9 km²)

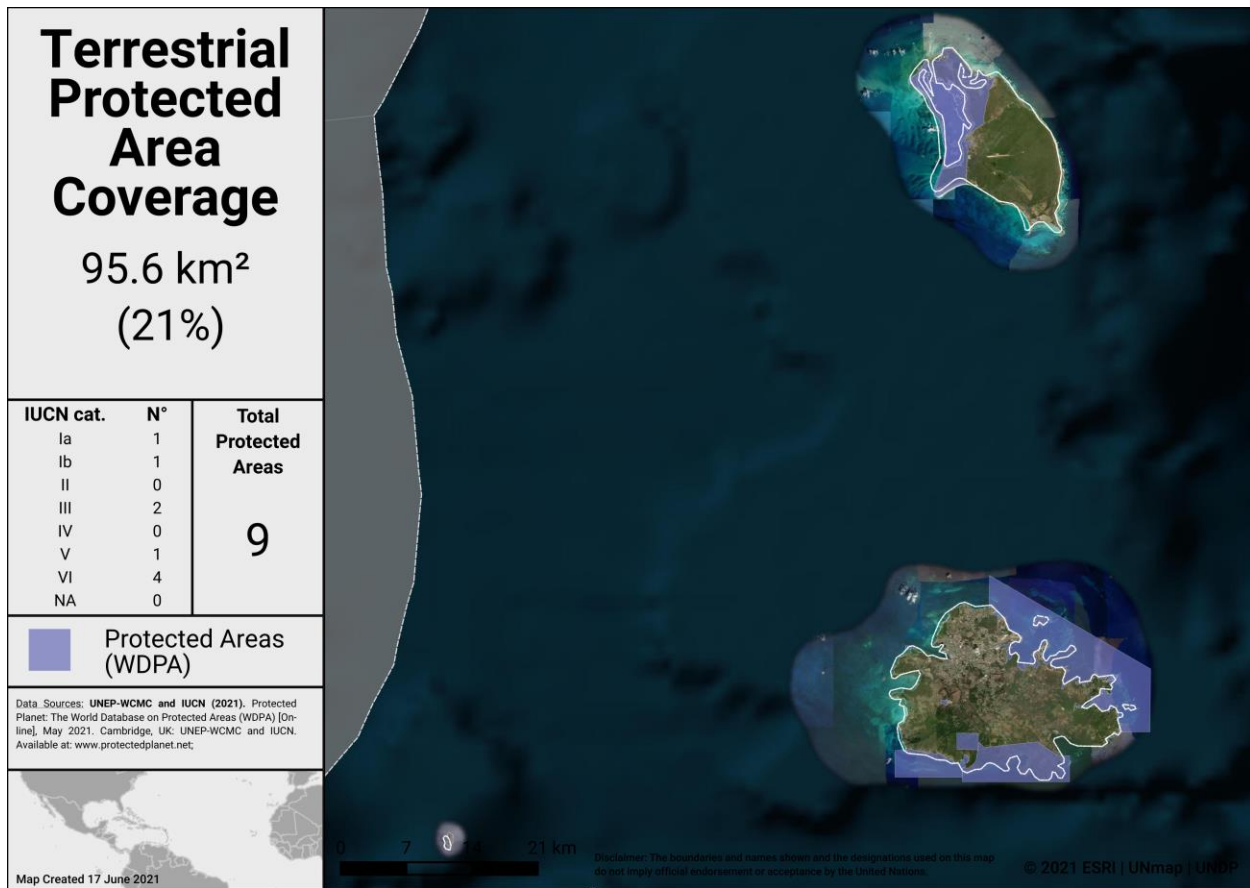
According to National records, established terrestrial PAs¹ cover 25.3 km² and established marine PAs² cover 364.1 km²

There are several proposed PAs (expected to be added by 2022) which will further increase coverage:

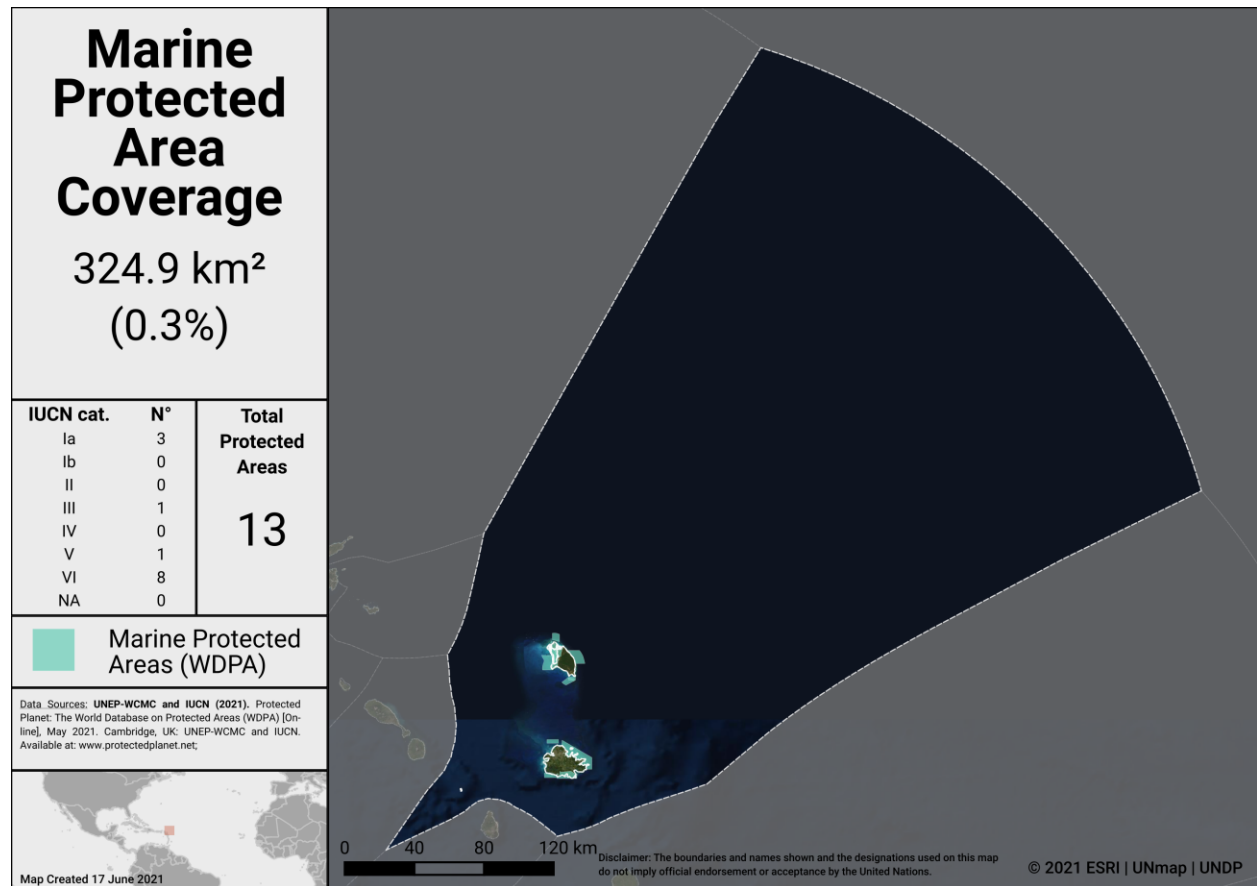
- Proposed terrestrial PAs (Shekerley Mountain Management Area and Boggy Peak National Park) will add 22.7 km²
- Proposed marine PA (Redonda Ecosystem Reserve) will add 299.4 km²

¹ Fort Barrington NP; Nelsons Dockyard NP; Antigua Naval Dockyard UNESCO World Heritage Site (included within the Nelson's Dockyard NP); Greencastle Hill NP; Devil's Bridge NP; Wallings Nature Reserve

² Cades Bay Marine Reserve; Diamond Reef and Salt Fish Tail Reef; Northeast Marine Management Area; Nelson's Dockyard NP, Marine Portion; Goat Point Sanctuary; Low Bay Sanctuary; Two Foot Bay Sanctuary; Palaster Reef and Palaster Reef Sanctuary; Codrington Lagoon NP



Terrestrial Protected Areas in Antigua and Barbuda



Marine Protected Areas in Antigua and Barbuda

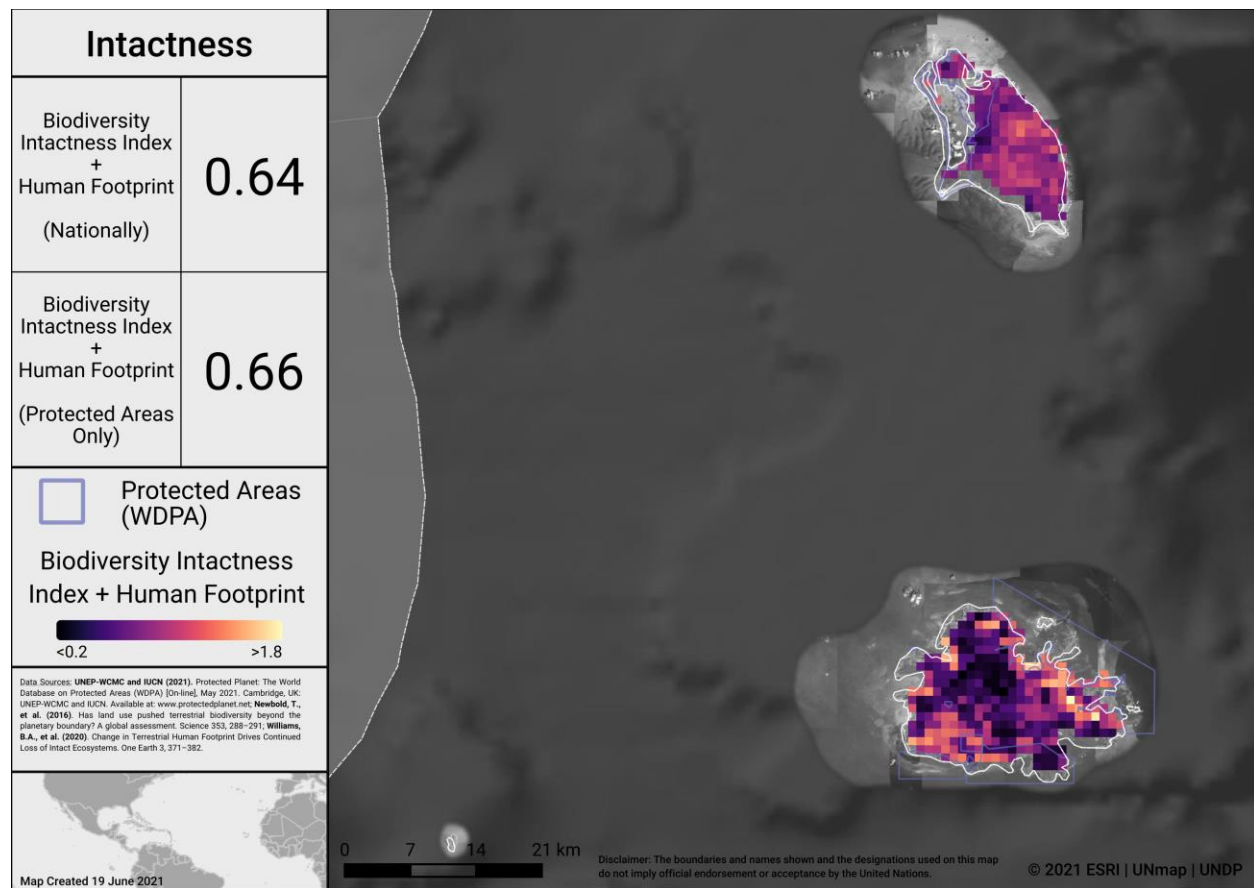
Potential OECMs

There are currently no potential OECM examples for Antigua and Barbuda.

Antigua and Barbuda will work to determine potential OECMs in the future. This work will initially be done in collaboration with BIOPAMA-IUCN.

Opportunities for action

Opportunities for the near-term include updating the WDPA with any unreported PAs, and the recognizing and reporting OECMs to the WD-OECM. In the future, as Antigua and Barbuda considers where to add new PAs and OECMs, the map below identifies areas in Antigua and Barbuda where intact terrestrial areas are not currently protected. Focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.



Intactness in Antigua and Barbuda

To explore more on intactness visit the UN Biodiversity Lab: map.unbiodiversitylab.org.

ECOLOGICAL REPRESENTATIVENESS – TERRESTRIAL & MARINE

Ecological representativeness is assessed based on the PAs and OECMs coverage of broad-scale biogeographic units. Globally, ecoregions have been described for terrestrial areas (Dinerstein et al., 2017), marine coastal and shelf ecosystems (to a depth of 200m; Spalding et al., 2007) and surface pelagic waters (Spalding et al., 2012).

Antigua and Barbuda has 3 **terrestrial** ecoregions. Out of these:

- All 3 ecoregions have at least some coverage from PAs and OECMs.
- 1 ecoregion has at least 17% protected within the country.
- The average coverage of terrestrial ecoregions is 23.6%.

With the completion of proposed PAs (Shekerley Mountain Management Area and Boggy Peak National Park), coverage of Leeward Islands Moist Forests will increase to >83%, and coverage of Caribbean shrublands will also increase.

It is worth noting, that some known mangrove populations have been classified as 'Caribbean Shrubland' in the global ecoregion dataset.

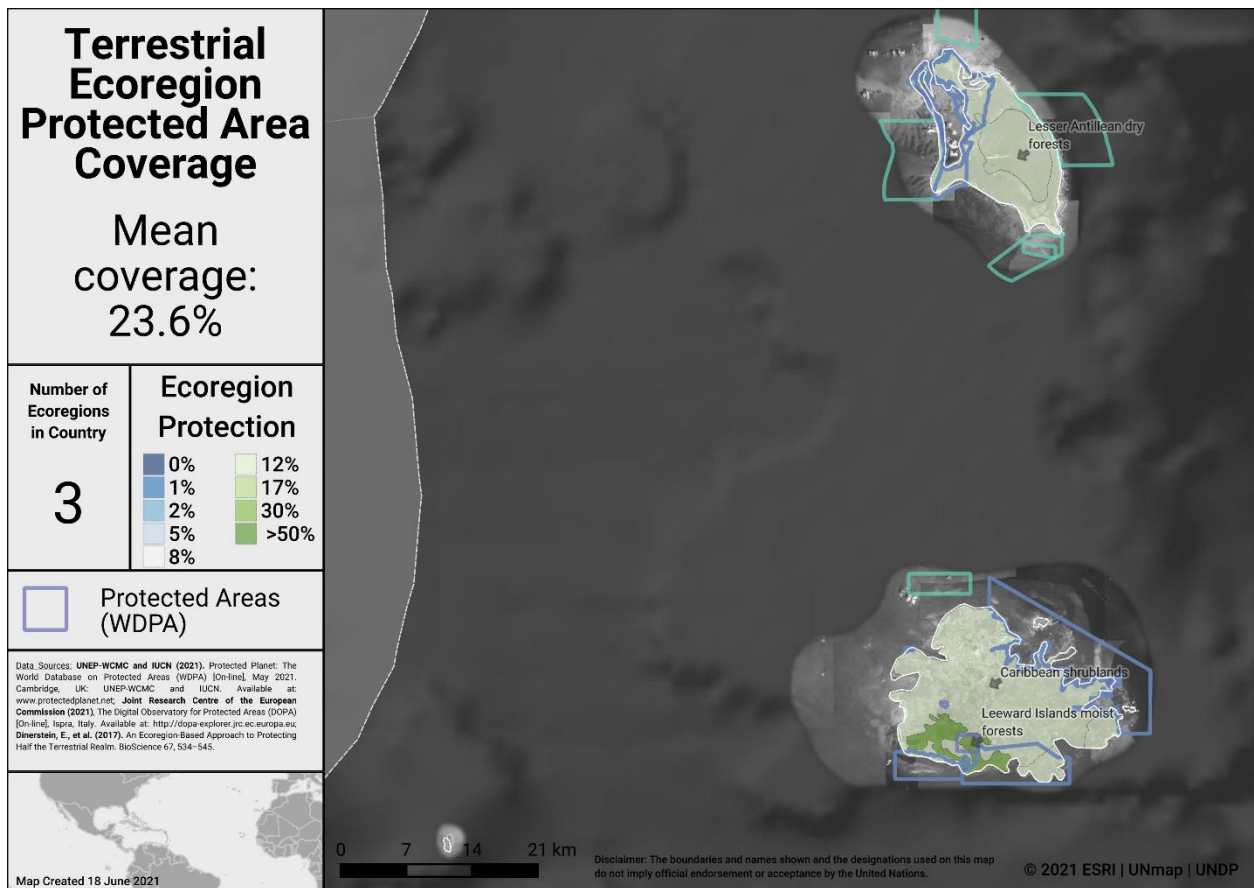
A full list of terrestrial ecoregions in Antigua and Barbuda is available in Annex I.

Antigua and Barbuda has 1 **marine** ecoregion and 1 **pelagic province**:

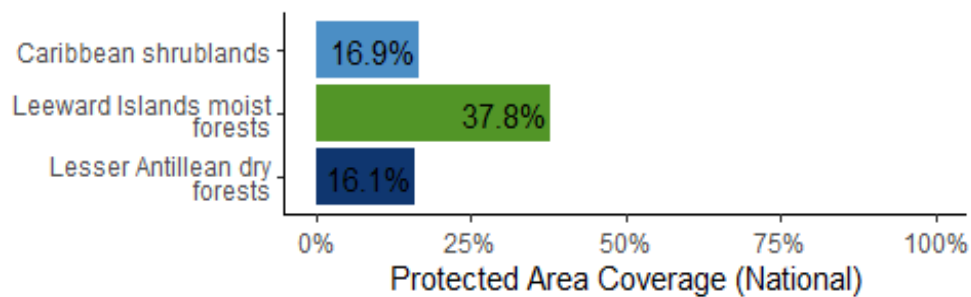
- Coverage from reported PAs and OECMs is 4.5% (marine ecoregion) and 0.0% (pelagic province).

Completion of the proposed PA (Redonda Ecosystem Reserve) will increase coverage of both marine ecoregion and pelagic province.



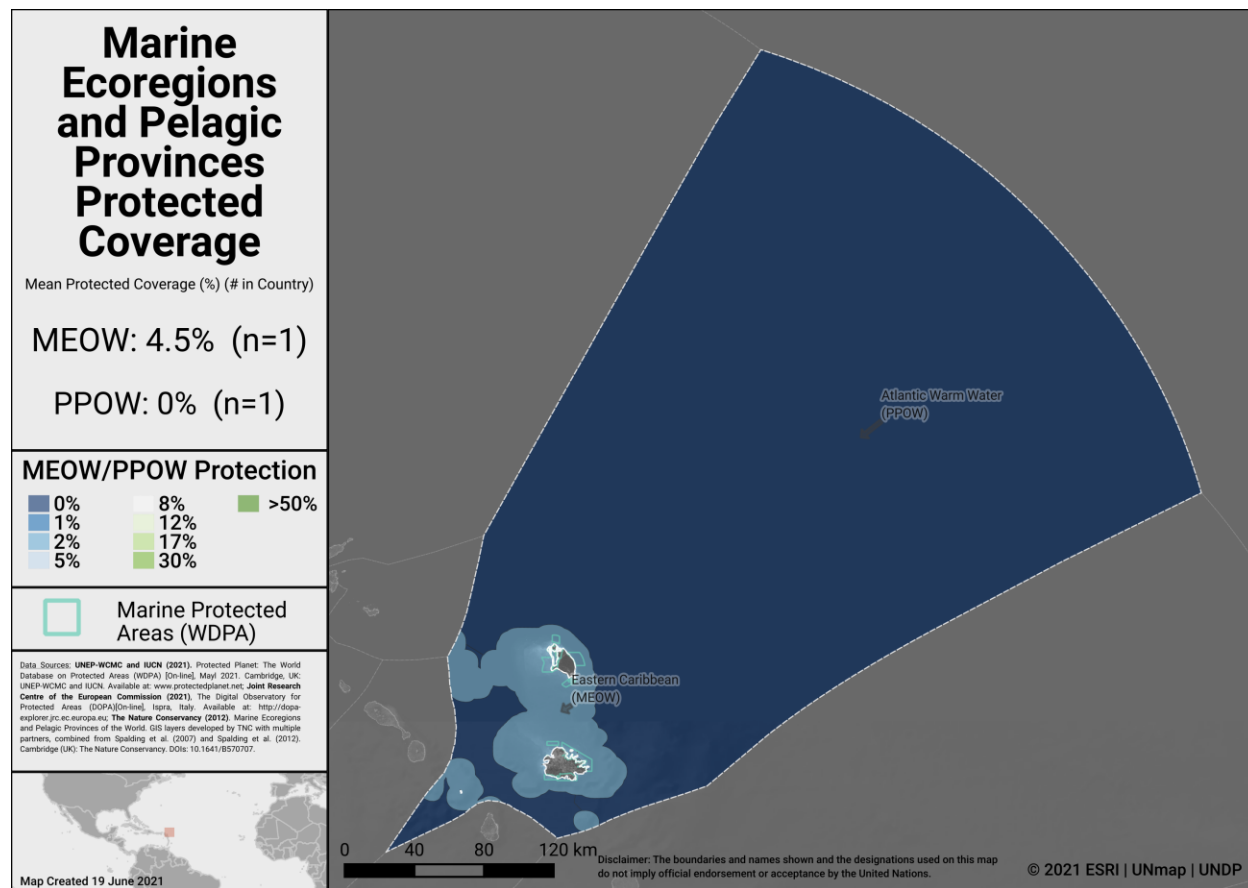


Terrestrial ecoregions in Antigua and Barbuda

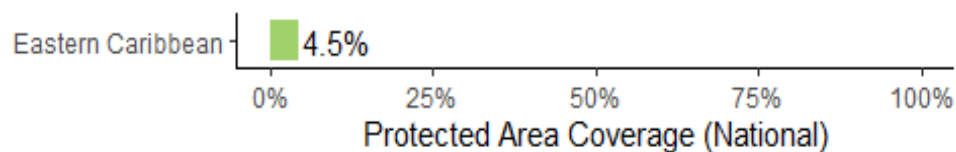


Terrestrial ecoregions of the World (TEOW) in Antigua and Barbuda

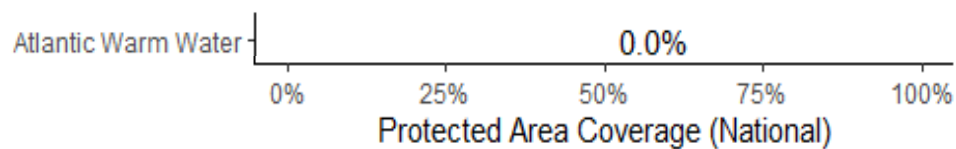




Marine ecoregions and pelagic provinces



Marine Ecoregions of the World (MEOW) in Antigua and Barbuda



Pelagic Provinces of the World (PPOW) in Antigua and Barbuda

Opportunities for action

There is opportunity for Antigua and Barbuda to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs. Ecoregions which currently have no coverage by PAs or OECMs are key areas for action.



AREAS IMPORTANT FOR BIODIVERSITY

Key Biodiversity Areas (KBAs)

Protected area and OECM coverage of Key Biodiversity Areas (KBAs) provide one proxy for assessing the conservation of areas important for biodiversity at national, regional and global scales. KBAs are sites that make significant contributions to the global persistence of biodiversity (IUCN, 2016). The KBA concept builds on four decades of efforts to identify important sites for biodiversity, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and KBAs identified through Hotspot ecosystem profiles supported by the Critical Ecosystem Partnership Fund. Incorporating these sites, the dataset of internationally significant KBAs includes Global KBAs (sites shown to meet one or more of 11 criteria in the Global Standard for the Identification of KBAs, clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability), Regional KBAs (sites identified using pre-existing criteria and thresholds, that do not meet the Global KBA criteria based on existing information), and KBAs whose Global/Regional status is Not yet determined, but which will be assessed against the global KBA criteria within 8-12 years. Regional KBAs are often of critical international policy relevance (e.g., in EU legislation and under the Ramsar Convention on Wetlands), and many are likely to qualify as Global KBAs in future once assessed for their biodiversity importance for other taxonomic groups and ecosystems. To date, nearly 16,000 KBAs have identified globally, and information on each of these is presented in the World Database of Key Biodiversity Areas: www.keybiodiversityareas.org.

Antigua and Barbuda has **13** Key Biodiversity Areas (KBAs).

- Mean percent coverage of all KBAs by PAs and OECMs in Antigua and Barbuda is **31.9%**.
- **0** KBAs have full (>98%) coverage by PAs and OECMs.
- **5** KBAs have partial coverage by PAs and OECMs.
- **8** KBAs have no (<2%) coverage by PAs and OECMs.

The proposed Redonda Ecosystem Reserve will fully cover the Redonda IBA/KBA, and the proposed Shekerley Mountain Management Area will offer significant coverage to the Christian Valley Forest IBA/KBA (the designation process for both has already been initiated).

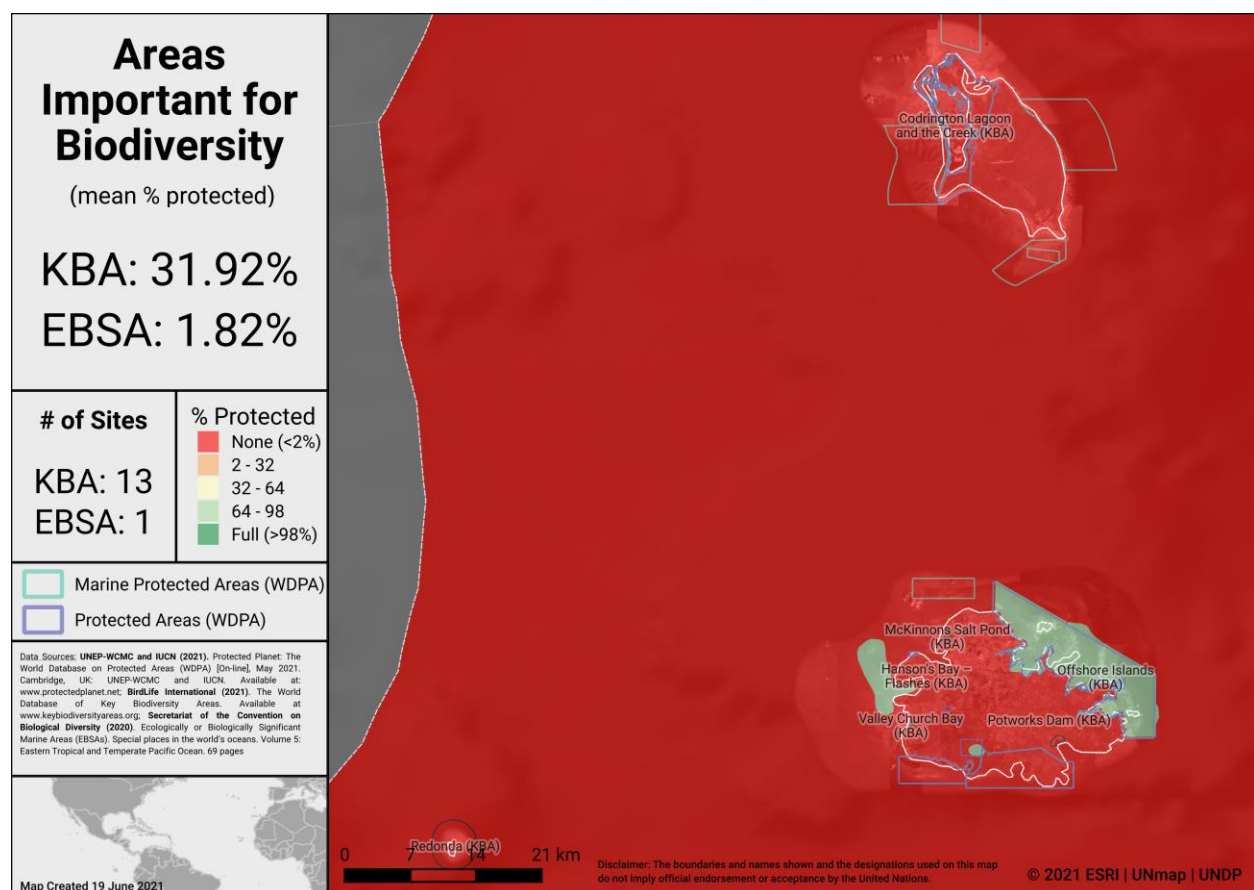
The Northeast Marine Management Area, the Codrington Lagoon National Park, and the Wallings Nature Reserve offer near complete coverage to the Offshore Islands East, Codrington Lagoon, and Wallings Forest IBA/KBAs, respectively.



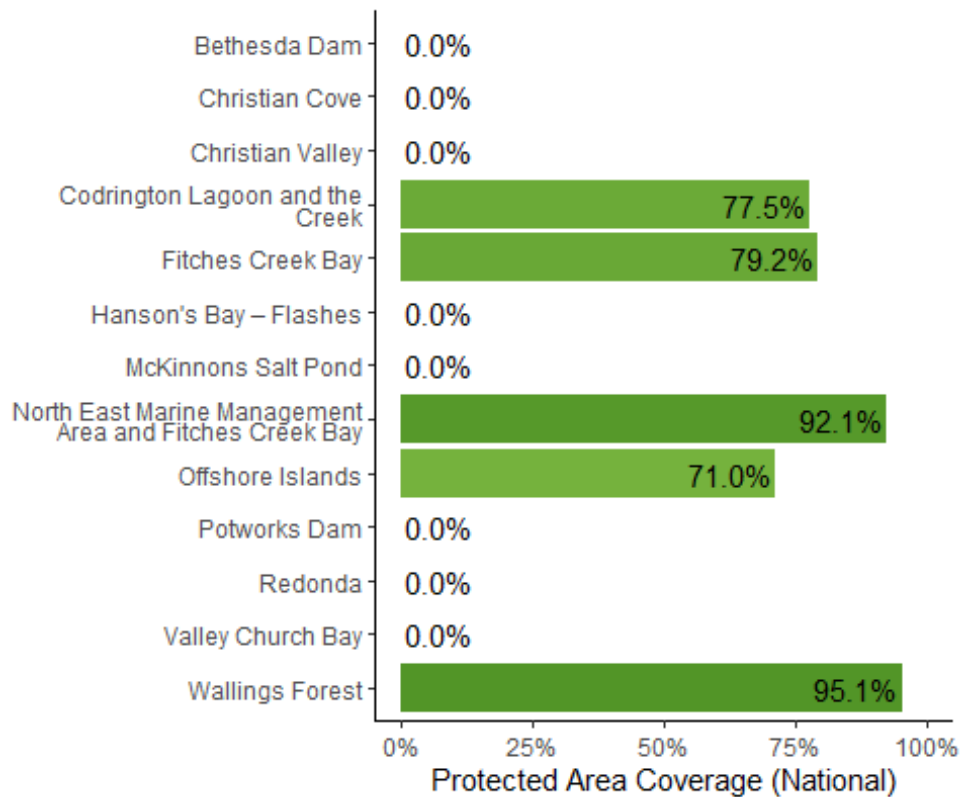
Ecologically or Biologically Significant Marine Areas (EBSAs)

Other important areas for biodiversity may also include Ecologically or Biologically Significant Marine Areas (EBSAs), which were identified following the scientific criteria adopted at COP-9 (Decision IX/20; see more at: <https://www.cbd.int/ebsa/>). Sites that meet the EBSA criteria may require enhanced conservation and management measures; this could be achieved through means including MPAs, OECMs, marine spatial planning, and impact assessment.

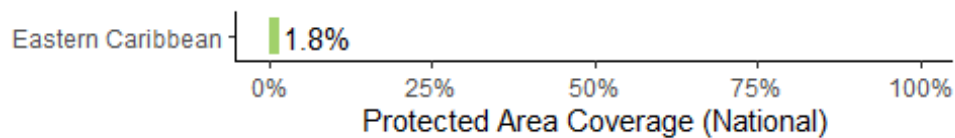
There is 1 EBSA with some portion of its extent within Antigua and Barbuda’s EEZ, coverage from PAs and OECMs is ~2%.



Areas Important for Biodiversity in Antigua and Barbuda



Key Biodiversity Area Coverage (KBA) in Antigua and Barbuda



Ecologically or Biologically Significant Marine Areas (EBSAs) in Antigua and Barbuda

Opportunities for action

There is opportunity for Antigua and Barbuda to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage (at least 2 of which will be addressed by proposed PAs expected to be designated by 2022).



AREAS IMPORTANT FOR ECOSYSTEM SERVICES

There is no single indicator identified for assessing the conservation of areas important for ecosystem services. For simplicity, two services with available global datasets are assessed here (carbon and water). In future, other critical ecosystem services could be explored.

Carbon

Using data downloaded from NASA Earthdata, Antigua and Barbuda has calculated:

- the total coverage of aboveground biomass (AGB) within established protected areas is 16.7%
 - with proposed PAs adding a further 14.3%
- the total coverage of below ground biomass (BGB) within established protected areas is 23.7%
 - with proposed PAs adding a further 10.4%

Water

Forests and intact ecosystems support stormwater management and clean water availability, especially for large urban populations. Research that has examined the role of forests for city drinking water supplies shows that of the world's 105 largest cities, more than 30% (33 cities) rely heavily on the local protected forests, which provide ecosystem services that underpin local drinking water availability and quality (Dudley & Stolton, 2003).

Drinking water supplies for cities in Antigua and Barbuda may similarly depend on protected forest areas within and around water catchments. Intact catchments can support more consistent water supply and improved water quality.

Opportunities for action

For carbon, there is opportunity for Antigua and Barbuda to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks, including through the finalization of proposed PAs. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.



CONNECTIVITY & INTEGRATION

Two global indicators, the Protected Connected land indicator (ProtConn; EC-JRC, 2021; Saura et al., 2018) and the PARC-Connectedness indicator (CSIRO, 2019), have been proposed for assessing the terrestrial connectivity of PA and OECM networks. To date there is no global indicator for assessing marine connectivity, though some recent developments include proposed guidance for the treatment of connectivity in the planning and management of MPAs (see Lausche et al., 2021).

In Antigua, increased connectivity between PAs is planned. For example, the proposed SMMA boundaries will connect with the Nelson's Dockyard National Park boundaries enhancing the movement of species between key biodiversity areas; the boundaries will also closely align with the Cades Marine Reserve (see further details on progress towards this element [below](#)). The total area of connected PAs considering both established and proposed PAs is **45.7 km²**.

Protected Connected Land Indicator (Prot-Conn)

As of January 2021, as reported in the Joint Research Centre of the European Commission's Digital Observatory for Protected Areas (DOPA) (JRC, 2021), the coverage of protected-connected lands (a measure of the connectivity of terrestrial protected area networks, assessed using the ProtConn indicator) in Antigua and Barbuda was 21.1%.

PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in Antigua and Barbuda is 0.40. This represents no significant change since 2010.

Corridors and integration into the sider landscape and seascape

There are currently no corridor case studies available for Antigua and Barbuda (but see general details on conserving connectivity through ecological networks and corridors in Hilty et al 2020).

The GEF funded Path to 2020 project is implementing a PA System Plan that will outline the overall management principles for all protected areas and will be integrated into national policies (see further details on progress towards this element [below](#)).

Opportunities for action

There is opportunity to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).



GOVERNANCE DIVERSITY

There is a lack of comprehensive global data on governance quality and equity in PAs and OECMs. Here, we provide data on the diversity of governance types for reported PAs and OECMs.

In Antigua and Barbuda, with respect to equity, the governance structure of proposed PAs are designed to be inclusive of the rights of the people working in, living in and around the Protected Area. Especially with respect to the proposed governance structure of the SMMA (Shekerley Mountain Management Area), it is intended that the local communities, land owners, farmers, and workers at the agricultural stations within the PA have a role in its management (see further details on progress towards this element [below](#))

As of May 2021, PAs in Antigua and Barbuda reported in the WDPA have the following governance types:

- 83.3% are governed by **governments** (by federal or national ministry or agency)
- 11.1% are under **shared** governance
 - 5.6 % by collaborative governance
 - 5.6% by joint governance
 - 0.0% by transboundary governance
- 5.6% are under **private** governance (by non-profit organisations)
- 0.0% are under **IPLC** governance
 - 0.0% by Indigenous Peoples
 - 0.0% by local communities
- 0.0% **do not** report a governance type

OECMs

As of May 2021, there are **0** OECMs in Antigua and Barbuda reported in the WD-OECM, therefore there is no data available on OECM governance types.

Privately Protected Areas (PPAs)

There is currently no data available on PPAs for Antigua and Barbuda (see Gloss et al., 2019, and Stolton et al., 2014 for details).

Territories and areas conserved by Indigenous Peoples and local communities (ICCAs)

There is currently no data available on ICCAs for Antigua and Barbuda (see Kothari et al., 2012 and the [ICCA Registry](#) for further details).

Other Indigenous lands

There is currently no data available on lands managed and/or controlled by Indigenous Peoples in Antigua and Barbuda (see Garnett et al 2018 for details).



Opportunities for action

Explore opportunities for governance types that have lower representation. There is also opportunity for Antigua and Barbuda to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. Examples of existing tools and methodologies include: Governance Assessment for Protected and Conserved Areas (Franks & Brooker, 2018), Social Assessment of Protected Areas (Franks et al 2018), and Site-level assessment of governance and equity (IIED, 2020). As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).



PROTECTED AREA MANAGEMENT EFFECTIVENESS

This section provides information on the coverage of PAs and OECMs with completed protected area management effectiveness (PAME) assessments as reported in the global database (GD-PAME). The proportion of terrestrial and marine PAs with completed PAME assessments is also calculated and compared with the 60% target agreed to in COP-10 Decision X/31. Information is also included regarding changes in forest cover nationally within PAs and OECMs.

A range of actions the management effectiveness of PAs have been completed, or are in progress, in Antigua and Barbuda (see full updated details on national progress towards this element [below](#)).

Protected area management effectiveness (PAME) assessments

As of September 2021, Antigua and Barbuda has 18 PAs reported in the WDPA; of these PAs, 3 (16.7%) have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

- 16.2% (74 km²) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
 - 77.1% of the area of terrestrial PAs have completed evaluations.
- 0.04% (39 km²) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
 - 11.9% of the area of marine PAs have completed evaluations.

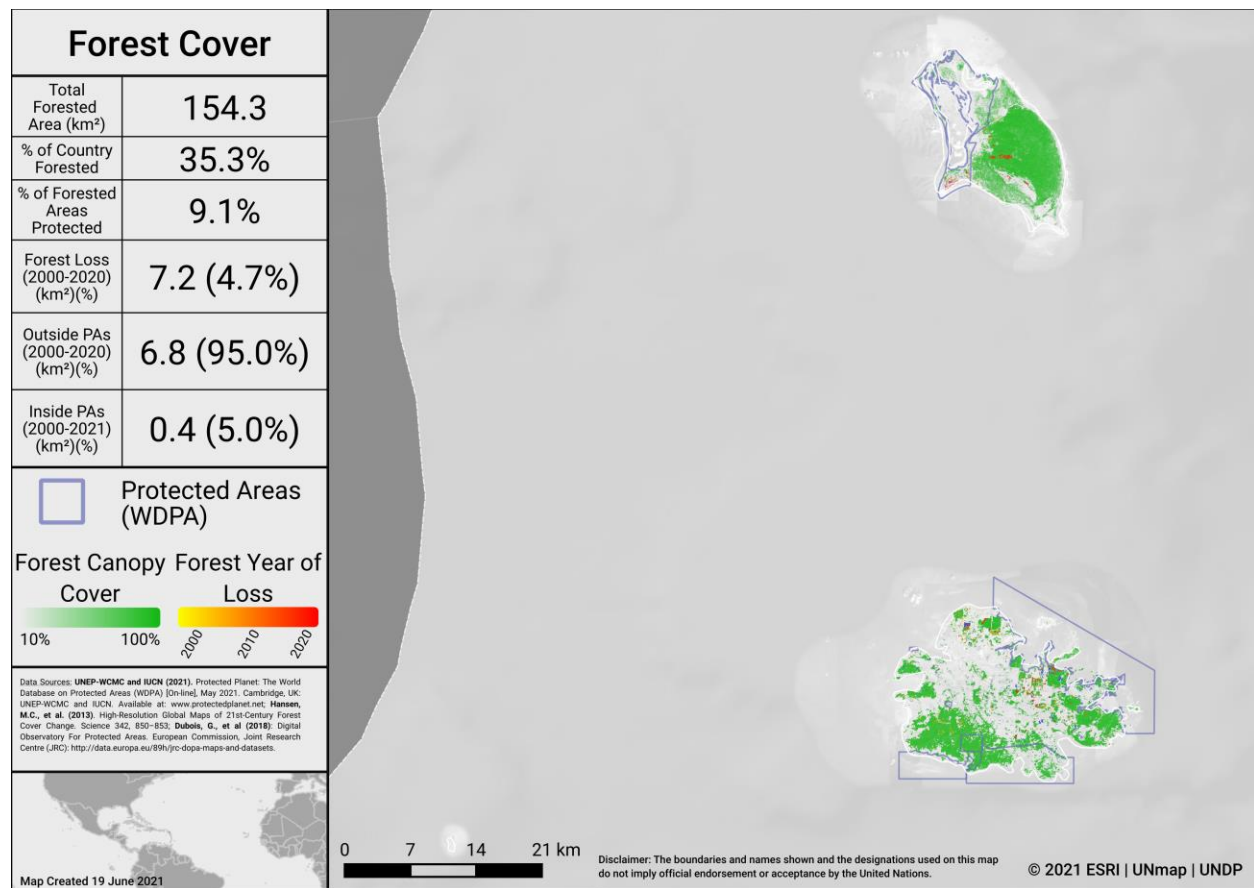
The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has** been met for terrestrial PAs and **has not** been met for marine PAs.

As of May 2021, there are 0 OECMs in Antigua and Barbuda reported in the WD-OECM and no information available on the management effectiveness of potential OECMs.

Changes in forest cover in protected areas and OECMs

Forested areas in Antigua and Barbuda cover approximately 35.3% of the country, an area of 154.3 km². Approximately 9.1% (14.1 km²) of this is within the protected area estate of Antigua and Barbuda. Over the period 2000-2020 loss of forest cover amounted to over 7.2 km², or 1.6% of the country (4.7% of forest area), of which 0.4 km² (5.0% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in Antigua and Barbuda from 2000-2020 both inside and outside of PAs. This can indicate how effective PAs are in reducing forest cover loss.





Forest Cover and Forest Loss in Antigua and Barbuda

Opportunities for action

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for marine PAs to achieve the target.

There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS

PRIORITY ACTIONS FROM 2015-2016 REGIONAL WORKSHOPS

National priority actions for Aichi Biodiversity Target 11 were provided by Parties following a series of regional workshops in 2015 and 2016. The Capacity-building workshop for Latin America and the Caribbean on achieving Aichi Biodiversity Targets 11 and 12 took place 28 September - 1 October 2015 in Curitiba, Paraná, Brazil. Progress towards the quantitative targets for marine and terrestrial coverage has been assessed based on data reported in the WDPA and WD-OECM as of 2021. For more information, see the workshop report at: <https://www.cbd.int/meetings/>

Summary from the workshop:

Priority actions and identified opportunities, if completed as proposed, will provide benefits for the qualifying elements of Aichi Biodiversity Target 11.

The following actions were identified during the workshops:

Terrestrial and marine coverage: The FP-the Environment Division will also be partnering with local communities to host the Caribbean Workshop on Training Workshop for the Caribbean region on Community – Based Monitoring, Indicators on Traditional Knowledge and Customary Sustainable Use.

Areas Important for biodiversity and ecosystem services: Supporting Redonda (IBA), an offshore island to become a PA.

Governance and Equity: The German funded ECMMAN project is supporting the full development of the NEMMA MPA (Co management Board with local community persons and other stakeholders) through small grants to NGO's, a public education and awareness campaign for school, community groups and the public and the revision of the management plan. Many government and stakeholder groups are coming together in a unified coalition to make this effective. Funding to support this MPA is coming through the MEPA Trust Fund through the Caribbean Biodiversity Fund and through the SIRF Fund-Antigua, sustainable financing mechanism being developed through the GEF funded SPPARE project.

No actions were identified for the remaining elements of Target 11: Ecological Representation; Connectivity; Management effectiveness; Integration into the wider landscape and seascape



NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

Antigua and Barbuda has submitted an NBSAP during the Strategic Plan for Biodiversity 2011-2020 (most recent NBSAP is available at: <https://www.cbd.int/nbsap/search/>).

National Target 11: A national system, including protected areas, for the management and conservation of biodiversity is developed and established by 2020 This will include, terrestrial areas, wetlands, areas important to migratory species and marine environments.

Indicators:

- By 2020 Antigua and Barbuda has a plan for the effective management of a system of protected areas approved by Government
- By 2020, 17% of the terrestrial and inland water areas of Antigua and Barbuda and 10% of the coastal and marine areas have been protected by the Government and/or measures put in place to sustainably manage these areas

Activities:

- 1.1 Establish a Protected areas System for terrestrial and marine conservation in Antigua and Barbuda
- 1.2 Identify and develop management plans for critical habitats and species (terrestrial and marine) that may be used sustainably

This NBSAP **did** include a quantitative target for **terrestrial** PAs or OECMs.

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **YES**

This NBSAP **did** include a quantitative target for **marine** protected areas or OECMs.

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **NO**
- Accounting for other projects, actions and commitments, if this target is met, coverage in the country will increase by **10,524 km²**.



APPROVED GEF-5 & GEF-6 PROTECTED AREA PROJECTS

Approved GEF-5 and GEF-6 PA-related biodiversity projects

This includes biodiversity projects from the fifth and sixth replenishment of the Global Environment Facility (GEF-5 and GEF-6) with a clear impact of the quantity or quality of PAs; also including some projects occurring within the wider landscapes/seascapes around PAs. Only those with a status of 'project approved' or 'concept approved' as of June 2019 were considered. The qualifying elements likely benefiting from each GEF project is assessed based on a keyword search of Project Identification Forms (PIF). Where spatial data for the proposed PAs was available, further details (based on an analysis by UNDP) regarding their impacts for ecological representation, coverage of KBAs, and coverage of areas important for carbon storage is included.

GEF ID	PA increase?	Area to be added (km ²)	Type of new protected area	Qualitative elements potentially benefitting (based on keyword search of PIFs)
5390	No	N/A	N/A	All except Ecologically representative and Equitably managed
9402	Yes	already in WDPA	Terrestrial	All except Ecosystem services and Connectivity

UN OCEAN CONFERENCE VOLUNTARY COMMITMENTS

Other Ocean Actions

Other Ocean Actions submitted as voluntary commitments for SDG 14.5, will also create benefits for the qualifying elements of Aichi Biodiversity Target 11:

#OceanAction20800: Blue Halo Barbuda: Sustainable and comprehensive ocean and coastal management initiative, by The Government of Antigua and Barbuda/Blue Halo Barbuda (Government).

- Types of actions involved: enact legislation for management; strengthening compliance and enforcement; Marine spatial planning; sustainable use.
- Target 11 element addressed: Integration; Effectively managed.
- Progress report: No progress report submitted (as of May 2021).
- Further details available at: <https://oceanconference.un.org/commitments/?id=20800>



OTHER ACTIONS/COMMITMENTS

Leaders' Pledge for Nature

Antigua and Barbuda **has** signed onto the Leaders' Pledge for Nature.

Political leaders participating in the United Nations Summit on Biodiversity in September 2020, representing 84 countries from all regions and the European Union, have committed to reversing biodiversity loss by 2030. By doing so, these leaders are sending a united signal to step up global ambition and encourage others to match their collective ambition for nature, climate, and people with the scale of the crisis at hand.

Commitments for PAs and OECMs from Other National Policies

Policy document	Ecosystem	Policy text
Nationally Determined Contribution	Wetland ecosystems	Protect all waterways to reduce the risks of flooding and health impacts
Nationally Determined Contribution	Wetland ecosystems	Protect all remaining wetlands and watershed areas with carbon sequestration potential as carbon sinks
Sustainable Island Resource Management Zoning Plan	Forest ecosystems	Protect, preserve and sustainable use of forests which will reduce further loss of valuable flora, and the fauna to which they provide habitat, this step also conserves soil and water
Sustainable Island Resource Management Zoning Plan	Wetland ecosystems	Protection of environmentally-valued mangrove and wetland system
Sustainable Island Resource Management Zoning Plan	Coastal ecosystems	National Parks, Marine Areas, public parks and beaches are listed in the country's Protected Areas list
Sustainable Island Resource Management Zoning Plan	Coastal ecosystems	Policies for protection of coral reefs
National Biodiversity Strategy Action Plan	Wetland ecosystems	The rate of loss of forests, is at least halved and where feasible brought close to zero, and degradation is significantly reduced
National Biodiversity Strategy Action Plan	Wetland ecosystems	At least 2 major watershed and mangrove wetland areas are effectively protected



Policy document	Ecosystem	Policy text
National Biodiversity Strategy Action Plan	Wetland ecosystems	At least 17% of terrestrial and inland water, especially areas of particular importance for biodiversity and ecosystem services are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape
National Biodiversity Strategy Action Plan	Coastal ecosystems	Watershed areas are officially protected
National Biodiversity Strategy Action Plan	Coastal ecosystems	Mangrove areas are officially protected



UPDATED PROGRESS ON ACTIONS AND COMMITMENTS

Terrestrial Coverage

- The addition of the Shekerley Mountain Management Area (SMMA) to the existing protected area system will increase the PA system area by 3,035 hectares. Due to delays caused by the Covid-19 pandemic the expected declaration is expected by 2022.
- The proposed Redonda Ecosystem Reserve (RER) is expected to add an additional estimated terrestrial coverage of 60 hectares. Due to delays caused by the Covid-19 pandemic the expected declaration is expected by 2022.

Marine Coverage

- The proposed Redonda Ecosystem Reserve (RER) is expected to add an additional estimated marine coverage of 29,500 hectares. Due to delays caused by the Covid-19 pandemic the expected declaration is expected by early 2022.
- Despite there being no planned expansion of boundaries of the Nelson's Dockyard National Park, the National Parks Authority has future plans to conduct spatial planning to refine land/sea use categories and improve management of specific marine and terrestrial areas within the boundaries

Ecological Representation

- Under the GEF funded Path to 2020 project, Antigua and Barbuda is finalizing a national level biodiversity gap analysis to identify:
 - a. the coverage provided by existing PAs to critical ecosystems/species, and to
 - b. additional areas to be protected
 - c. identify species for the update of Schedule VIII – List of Protected Wildlife in the Environmental Protection Management Act 2019
- It is expected that this information will show the current ecological representation in Antigua and Barbuda and provide information necessary for conservation purposes.

Areas Important for biodiversity and ecosystem services

- The designation of SMMA and the RER has been initiated. Both areas include Key Biodiversity Areas (KBAs); 2 in the SMMA inclusive of important bat species and the entire island of Redonda is considered a KBA; Redonda is also an important birding area (IBA).
 - NB: The Airport Authority in Barbuda recently recognized a no-fly zone over the Bird Sanctuary within the Codrington Lagoon National Park (CLNP)

Connectivity

- In Antigua, increased connectivity between PAs is noted
- The proposed SMMA boundaries will connect with the Nelson's Dockyard National Park boundaries enhancing the movement of species between key biodiversity areas



- The boundaries will also closely align with the Cades Marine Reserve The boundaries of the Cades Bay Marine Protected area is also connected to the Nelson Dockyard National Park to promote a ridge to reef effect
- In Barbuda, the Codrington Lagoon National Park (CLNP) borders the Low Bay Sanctuary which may promote a ridge to reef protection of biodiversity. Low Bay Sanctuary falls within the specified no-net zone.

Management effectiveness

- The GEF funded Path to 2020 project is actively working on this through training and the development of several deliverables. The current general findings include: the lack of human resources and financial constraints are impacting the effectiveness of management of the PAs. The actions identified to assist include collaboration with other PA agencies and negotiating a sharing of resources that could help to build management capacity.
- Project deliverables addressing management effectiveness include:
 - 1. A National Protected Areas System Plan (in progress): to provide a comprehensive framework governing the management of all PAs in Antigua and Barbuda
 - 2. Cost-effective and participatory monitoring method for protected areas, which will allow for early detection of threats and support the implementation of mitigation measures to reduce biodiversity loss (in progress)
 - 3. Methodologies/guidelines to standardize roles and responsibilities for PA management authorities and procedures for the development of PA Management Plans (in progress)
 - 4. Development of national standards and key performance indicators for PA management according to IUCN guidance for PA categories to monitor management effectiveness for individual sites and the overall system (completed)
 - 5. The establishment of the Protected Area Coordinating Mechanism (in progress): a national committee for all agencies responsible for biodiversity management within protected areas
 - 6. Training of PA management agencies on assessment, planning and capacity building to strengthen PA management (in progress)
- Training completed:
 - A Protected Areas Monitoring Workshop was carried out. It was a short training session on the use of the participatory monitoring methods for Protected Areas (PAs) in Antigua and Barbuda, and included training on how to use the Management Effectiveness Tracking Tool (METT-4). The following agencies participated in this session:
 - Barbuda Council/CLNP
 - Environmental Awareness Group (EAG)
 - National Parks Authority (NPA)
 - Department of Environment
 - Wallings Nature Reserve

- Completed METT-4 assessments done as a method to assess the current status of PAs by:
 - Forestry Unit for the proposed Body Ponds Upper Watershed Area
 - Wallings Nature Reserve for the Wallings Forest Area
 - Barbuda Council/CLNP for the Codrington Lagoon National Park
 - The National Parks Authority METT assessment was done in 2018
- A PA Management Planning Workshop was also conducted with the objective of building awareness on the key elements of management planning for a protected area while increasing the understanding of the major elements that make up a management plan. The following forms were provided to PA managers for completion:
 - Identifying the Value of PA Sites: This form was used to determine how each PA entity/agency valued the PA Sites that they were tasked with managing.
 - Identifying the Roles and Responsibilities for PA sites in Antigua and Barbuda: This form was used to determine the required roles and responsibilities of all protected area agencies in A&B in order to identify what each entity/agency considered to be important when managing a protected area under its care.
- Completed Forms were submitted by:
 - National Parks Authority (NPA)
 - Wallings Nature Reserve
 - Environmental Awareness Group (EAG)
 - Forestry Division
 - Codrington Lagoon National Park (CLNP)
- Other matters:
 - The CLNP is having an updated management plan done under the GEF funded project Advancing Conservation in the Eastern Caribbean. The proposed SMMA and the NDNP has a management plan being developed under the GEF funded Path to 2020 project.

Governance and Equity

- The proposed PAs have different governance types:
 - Proposed SMMA: Type B
 - Proposed RER: Type B
- The established PAs are still type A governance.
- With respect to equity, the governance structure of the proposed PAs are designed to be inclusive of the rights of the people working in, living in and around the Protected Area. Especially with respect to the proposed governance structure of the SMMA, it is intended that the local communities, the land owners, the farmers, the workers at the agricultural stations within the Protected Area have a role in the management of it.
- In the case of the Redonda Ecosystem Reserve (RER), an uninhabited island, a local environmental NGO would be responsible for day to day management, with an overarching steering committee consisting of various government agencies, private individuals and academia.

Integration

- The GEF funded Path to 2020 project is implementing a Protected Area System Plan that will outline the overall management principles for all protected areas and will be integrated into national policies.
- The Local Area Plan for the Saint Mary's Parish will integrate the management of the Proposed SMMA into the development plans for that parish.
- Under the GEF funded Path to 2020 Project, the Protected Area Coordinating Mechanism (PACM) will be a national committee responsible for biodiversity management within protected areas and the prospective members will include PA management authorities.



ANNEX I

FULL LIST OF TERRESTRIAL ECOREGIONS

Ecoregion Name	Area (km²)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km²)	% Protected in Country
Caribbean shrublands**	335.7	10.8	75.7	56.5	16.8
Leeward Islands moist forests	27.8	2.8	6.3	10.5	37.8
Lesser Antillean dry forests	73.3	11.5	16.5	11.8	16.1

** some known mangrove populations have been classified as 'Caribbean Shrubland'



REFERENCES

- Atwood, TB, Witt, A, Mayorga, J, Hammill, E, & Sala, E. (2020). Global patterns in marine sediment carbon stocks. *Frontiers in Marine Science*.
<https://doi.org/10.3389/fmars.2020.00165>
- BirdLife International (2021). World Database of Key Biodiversity Areas. Available at:
<http://www.keybiodiversityareas.org>
- CBD (2010). Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting. Decision X/2. Strategic plan for biodiversity 2011–2020. Retrieved from <https://www.cbd.int/doc/decisions/cop-10/cop-10-dec02-en.pdf>.
- CSIRO (2019). Protected area connectedness index (PARCconnectedness).
<https://www.bipindicators.net/indicators/protected-area-connectedness-index-parconnectedness>
- Dinerstein, E., et al. (2017). An ecoregion-based approach to protecting half the terrestrial realm. *BioScience* 67(6), 534-545.
- Donald et al., 2019, The prevalence, characteristics and effectiveness of Aichi Target 11' s "other effective area-based conservation measures" (OECMs) in Key Biodiversity Areas. *Conservation Letters*, 12(5).
- EC-JRC (2021). DOPA Indicator factsheets: <http://dopa.jrc.ec.europa.eu/en/factsheets>
- FAO (2017). Global Soil Organic Carbon (GSOC) Map - Global Soil Partnership [WWW Document]. URL <http://www.fao.org/global-soil-partnership/pillars-action/4-information-and-data/global-soil-organic-carbon-gsoc-map/en/>.
- Franks, P and Booker, F (2018). Governance Assessment for Protected and Conserved Areas (GAPA): Early experience of a multi-stakeholder methodology for enhancing equity and effectiveness. IIED Working Paper, IIED, London. <https://pubs.iied.org/17632IIED>
- Franks, P. et al. (2018). Social Assessment for Protected and Conserved Areas (SAPA). Methodology manual for SAPA facilitators. Second edition. IIED, London.
<https://pubs.iied.org/14659iied>
- Garnett et al. (2018). A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, 1(7), 369.
- Global Environment Facility (GEF-5 and GEF-6); all projects can be found online at:
<https://www.thegef.org/projects>
- Gloss, L. et al. (2019). International Outlook for Privately Protected Areas: Summary Report. International Land Conservation Network (a project of the Lincoln Institute of Land Policy) and United Nations Development Programme. Summary report, and individual country profiles, available at: <https://nbsapforum.net/knowledge-base/resource/international-outlook-privately-protected-areas-summary-report>

Hansen, M.C., Potapov, P.V., Moore, R., Hancher, M., Turubanova, S.A., Tyukavina, A., Thau, D., Stehman, S.V., Goetz, S.J., Loveland, T.R., Kommareddy, A., Egorov, A., Chini, L., Justice, C.O., Townshend, J.R.G., (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. *Science* 342, 850–853. <https://doi.org/10.1126/science.1244693>

Hilty, J et al. (2020). Guidelines for conserving connectivity through ecological networks and corridors. Best Practice Protected Area Guidelines Series No. 30. Gland, Switzerland: IUCN. <https://portals.iucn.org/library/sites/library/files/documents/PAG-030-En.pdf>

IIED 2020. Site-level assessment of governance and equity (SAGE)
<https://www.iied.org/site-level-assessment-governance-equity-sage>.

IUCN (2016). A Global Standard for the Identification of Key Biodiversity Areas, Version 1.0. First edition. Gland, Switzerland: IUCN.
<https://portals.iucn.org/library/sites/library/files/documents/2016-048.pdf>

IUCN-WCPA (2017). IUCN-WCPA Task Force on OECMs collation of case studies submitted 2016-2017. <https://www.iucn.org/commissions/world-commission-protected-areas/our-work/oecms/oecm-reports>

Joint Research Centre of the European Commission (JRC) (2021), The Digital Observatory for Protected Areas (DOPA) Explorer 4.1 [On-line], [Apr/2021], Ispra, Italy. Available at: <http://dopa-explorer.jrc.ec.europa.eu>

Kothari, A., et al. (Eds) (2012). Recognising and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies. Secretariat of the CBD, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64.

Lausche, B., Laur, A., Collins, M. (2021). *Marine Connectivity Conservation 'Rules of Thumb' for MPA and MPA Network Design*. Version 1.0. IUCN WCPA Connectivity Conservation Specialist Group's Marine Connectivity Working Group.

McDonald, R.I., Weber, K., Padowski, J., Flörke, M., Schneider, C., Green, P.A., Gleeson, T., Eckman, S., Lehner, B., Balk, D., Boucher, T., Grill, G., Montgomery, M., (2014). Water on an urban planet: Urbanization and the reach of urban water infrastructure. *Global Environmental Change* 27, 96–105. <https://doi.org/10.1016/j.gloenvcha.2014.04.022>

National Biodiversity Strategy and Action Plan (NBSAPs); most recent NBSAP is available at: <https://www.cbd.int/nbsap/search/>

Newbold, T., Hudson, L.N., Arnell, A.P., Contu, S., Palma, A.D., Ferrier, S., Hill, S.L.L., Hoskins, A.J., Lysenko, I., Phillips, H.R.P., Burton, V.J., Chng, C.W.T., Emerson, S., Gao, D., Pask-Hale, G., Hutton, J., Jung, M., Sanchez-Ortiz, K., Simmons, B.I., Whitmee, S., Zhang, H., Scharlemann, J.P.W., Purvis, A., (2016). Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment. *Science* 353, 288–291.
<https://doi.org/10.1126/science.aaf2201>

Sala, E. et al. (2021). Protecting the global ocean for biodiversity, food and climate. *Nature*, 592(7854), 397-402. <https://doi.org/10.1038/s41586-021-03496-1>

Saura, S. et al. (2018). Protected area connectivity: Shortfalls in global targets and country-level priorities. *Biological Conservation*, 219, 53-67.

Saura, S. et al (2017). Protected areas in the world's ecoregions: How well connected are they? *Ecological Indicators*, 76, 144-158.

Spalding, M.D., et al. (2012). Pelagic provinces of the world: a biogeographic classification of the world's surface pelagic waters. *Ocean & Coastal Management* 60, 19–30.

Spalding, M.D., et al. (2007). Marine ecoregions of the world: a bioregionalization of coastal and shelf areas. *BioScience* 57(7): 573–583.

Spawn, S.A., Sullivan, C.C., Lark, T.J., Gibbs, H.K., (2020). Harmonized global maps of above and belowground biomass carbon density in the year 2010. *Scientific Data* 7, 112. <https://doi.org/10.1038/s41597-020-0444-4>

Stolton, S. et al. (2014). *The Futures of Privately Protected Areas*. Gland, Switzerland: IUCN.

UNEP-WCMC and IUCN (2021) *Protected Planet Report 2020*. UNEP-WCMC and IUCN: Cambridge UK; Gland, Switzerland.

UNEP-WCMC and IUCN (2021), *Protected Planet: The Global Database on Protected Area Management Effectiveness (GD-PAME)* [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), *Protected Planet: The World Database on Protected Areas (WDPA)* [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), *Protected Planet: The World Database on Other Effective Area-based Conservation Measures (WD-OECM)* [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UN Ocean Conference Voluntary Commitments, available at: <https://oceanconference.un.org/commitments/>

Williams, B.A., Venter, O., Allan, J.R., Atkinson, S.C., Rehbein, J.A., Ward, M., Marco, M.D., Grantham, H.S., Ervin, J., Goetz, S.J., Hansen, A.J., Jantz, P., Pillay, R., Rodríguez-Buriticá, S., Supples, C., Virnig, A.L.S., Watson, J.E.M., (2020). Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems. *One Earth* 3, 371–382. <https://doi.org/10.1016/j.oneear.2020.08.009>

This document was created using the knitr package with R version 4.0.5.

For any questions please contact support@unbiodiveristylab.org.

