



Aichi Biodiversity Target 11 Country Dossier: VENEZUELA (BOLIVIAN REPUBLIC OF)

With generous support from:



















TABLE OF CONTENTS

GLOSSARY	3
EXECUTIVE SUMMARY	5
Aichi Biodiversity Target 11 Elements: Current status and opportunities for action	5
INTRODUCTION	8
SECTION I: CURRENT STATUS	10
COVERAGE - TERRESTRIAL & MARINE	11
ECOLOGICAL REPRESENTATIVENESS - TERRESTRIAL & MARINE	14
AREAS IMPORTANT FOR BIODIVERSITY	19
AREAS IMPORTANT FOR ECOSYSTEM SERVICES	25
CONNECTIVITY & INTEGRATION	29
GOVERNANCE DIVERSITY	30
PROTECTED AREA MANAGEMENT EFFECTIVENESS	32
SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS	34
PRIORITY ACTIONS FROM 2015-2016 REGIONAL WORKSHOPS	34
NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)	36
APPROVED GEF-5 & GEF-6 PROTECTED AREA PROJECTS	37
OTHER ACTIONS/COMMITMENTS	37
ANNEX I	38
FULL LIST OF TERRESTRIAL ECOREGIONS	38
ANNEX II	40
ADDITIONAL DETAILS ON PPAs	40
REFERENCES	41

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
OECM 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-OECM World Database on Other Effective Area-Based Conservation Measures

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. 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 CBD 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, terrestrial coverage in Venezuela (Bolivarian Republic of) is 521,789.5 km² (56.9%) and marine coverage is 20,589.6 km² (4.3%).
- 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 if planning new PAs or OECMs.

Ecological Representativeness—Terrestrial & Marine

- **Status:** Venezuela (Bolivarian Republic of) contains 25 terrestrial ecoregions, 3 marine ecoregions, and 1 pelagic province: the mean coverage by reported PAs and OECMs is 62.4% (terrestrial), 36.4% (marine), and 0.6% (pelagic); 1 terrestrial ecoregion has no coverage by reported PAs and OECMs (but covers <0.1% of the country).
- **Opportunities for action:** there is opportunity for Venezuela (Bolivarian Republic of) to increase protection in marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs; and focus on effective management for those that already have higher coverage.

Areas Important for Biodiversity

- **Status:** Venezuela (Bolivarian Republic of) has 80 Key Biodiversity Areas (KBAs): the mean coverage of KBAs by reported PAs and OECMs is 75.1%, while 8 KBAs have no coverage by reported PAs and OECMs.
- **Opportunities for action:** there is opportunity for Venezuela (Bolivarian Republic of) 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.

Areas Important for Ecosystem Services

- **Status:** coverage of areas important for ecosystem services: In Venezuela (Bolivarian Republic of), 72.1% of aboveground biomass carbon, 68.9% of belowground biomass carbon, 62.8% of soil organic carbon, 7.9% of carbon stored in marine sediments is covered by PAs and OECMs.
- **Opportunities for action:** for carbon, there is opportunity for Venezuela (Bolivarian Republic of) to increase PA and OECM coverage in marine areas with high carbon stocks, and to focus on PA management for terrestrial PAs with high carbon stocks. 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 34.7%.
- **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 Venezuela (Bolivarian Republic of) is: 92.4% under Government (92.1% Federal or national ministry or agency; 0.3% Sub-national ministry or agency).
- **Opportunities for action:** explore opportunities for governance types that have lower representation, this could relate to governance by Indigenous Peoples and/or local communities (IPLC), or shared governance.

• There is also opportunity for Venezuela (Bolivarian Republic of) 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:** 25.2% of terrestrial PAs and 20.0% 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 not** 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 both terrestrial and 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 Venezuela (Bolivarian Republic of). Section I of the dossier presents data on the current status of Venezuela (Bolivarian Republic of)'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 Venezuela (Bolivarian Republic of), in relation to each Target 11 element. The analyses present options for improving Venezuela (Bolivarian Republic of)'s area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on Venezuela (Bolivarian Republic of)'s existing PA and OECM commitments as a summary of existing

efforts towards achieving Target 11. This gives focus not only to national policy 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, 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.

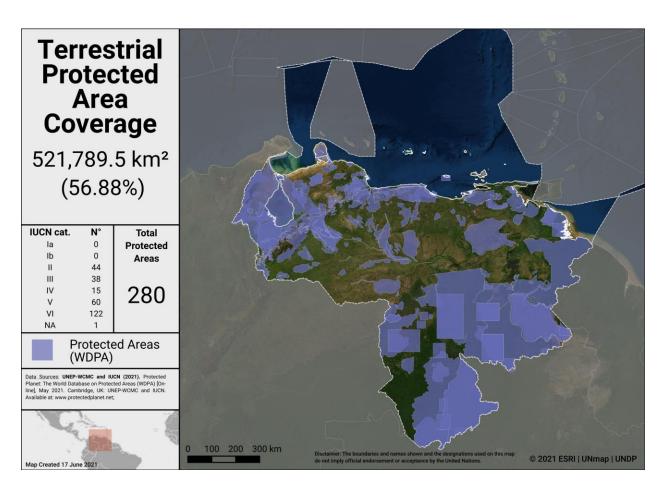
COVERAGE - TERRESTRIAL & MARINE

As of May 2021, Venezuela (Bolivarian Republic of) has **290** protected areas reported in the World Database on Protected Areas (WDPA). 2 UNESCO-MAB Biosphere Reserves are not included in the following statistics (see details on UNWP-WCMCs methods for calculating PA and OECM coverage **here**).

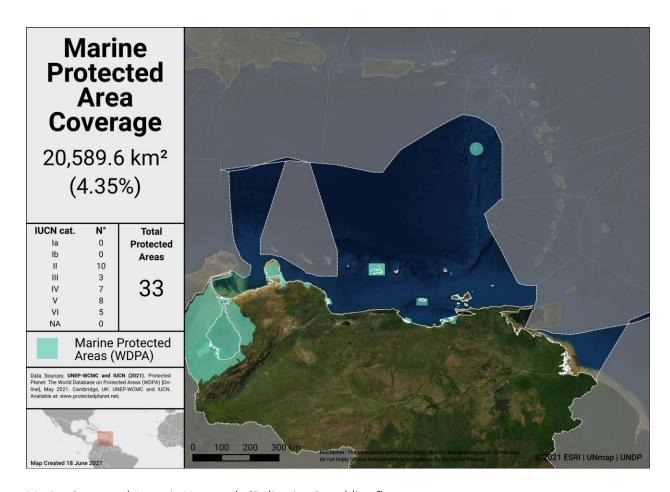
As of May 2021, Venezuela (Bolivarian Republic of) has **0** OECMs reported in the world database on OECMs (WD-OECM).

Current coverage for Venezuela (Bolivarian Republic of):

- 56.9% terrestrial (280 protected areas, 521,789.5 km²)
- 4.3% marine (33 protected areas, 20,589.6 km²)



Terrestrial Protected Areas in Venezuela (Bolivarian Republic of)



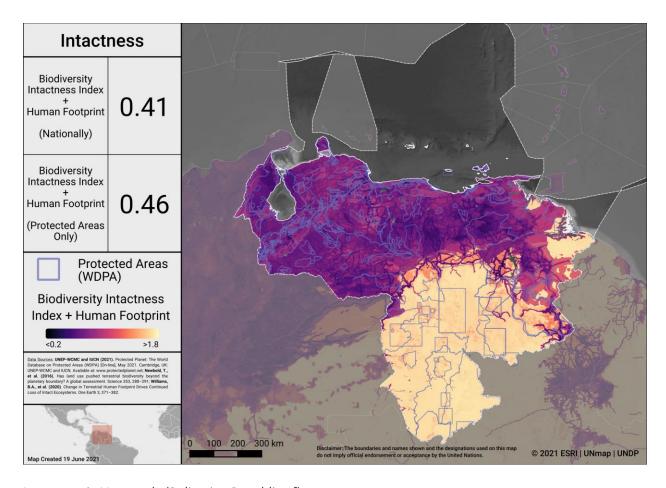
Marine Protected Areas in Venezuela (Bolivarian Republic of)

Potential OECMs

There are currently no potential OECM examples for Venezuela (Bolivarian Republic of).

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 Venezuela (Bolivarian Republic of) considers where to add new PAs and OECMs, the map below identifies areas in Venezuela (Bolivarian Republic of) 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 Venezuela (Bolivarian Republic of)

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 broadscale 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).

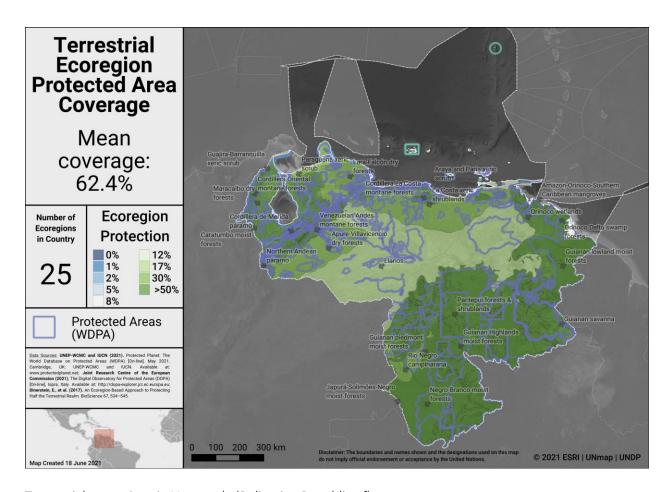
Venezuela (Bolivarian Republic of) has 25 terrestrial ecoregions. Out of these:

- 24 ecoregions have at least some coverage from PAs and OECMs.
 - The 1 remaining ecoregion covers <0.1% of the coutnry
- 23 ecoregions have at least 17% protected within the country.
- The average coverage of terrestrial ecoregions is 62.4%.

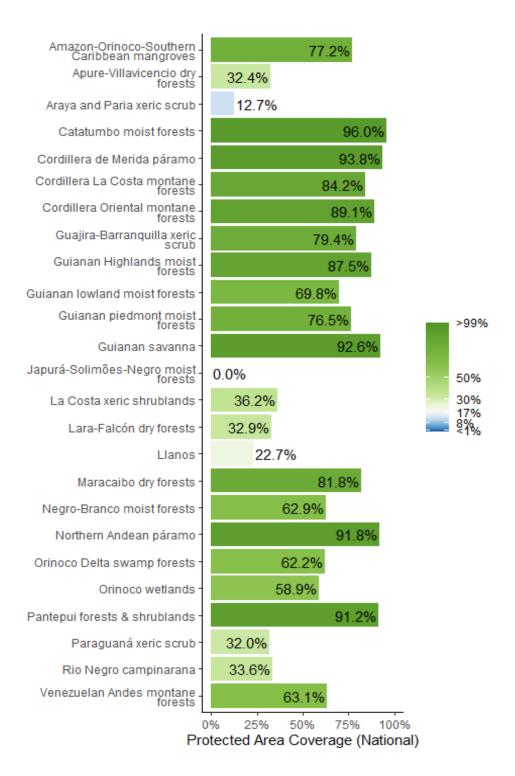
Venezuela (Bolivarian Republic of) has 3 **marine** ecoregions and 1 **pelagic province**. Out of these:

- All 3 marine ecoregions and 1 pelagic province have at least some coverage from reported PAs and OECMs.
- 2 marine ecoregions and 0 pelagic provinces have at least 10% protected within Venezuela (Bolivarian Republic of)'s exclusive economic zone (EEZ).
- The average coverage of marine ecoregions is 36.4% and the coverage of the 1 pelagic province is 0.6%.

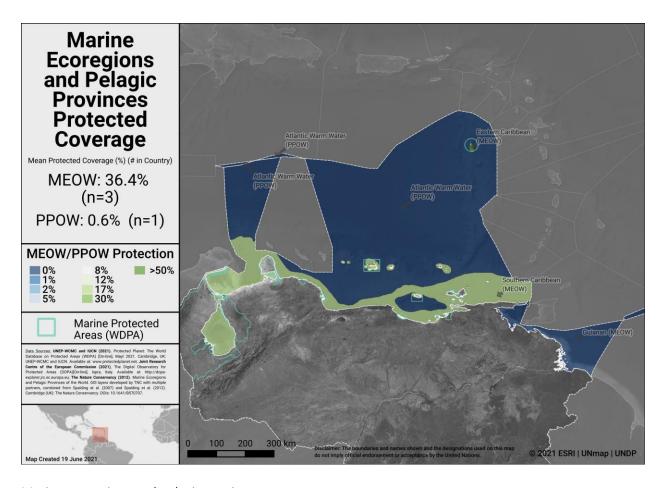
A full list of terrestrial ecoregions in Venezuela (Bolivarian Republic of) is available in Annex I.



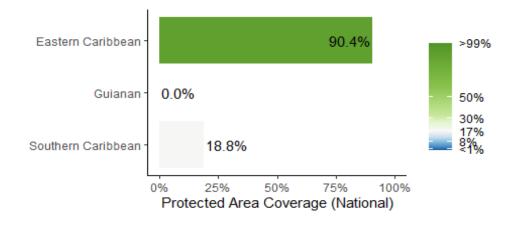
Terrestrial ecoregions in Venezuela (Bolivarian Republic of)



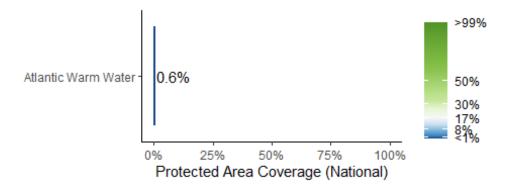
Terrestrial ecoregions of the World (TEOW) in Venezuela (Bolivarian Republic of)



Marine ecoregions and pelagic provinces



Marine Ecoregions of the World (MEOW) in Venezuela (Bolivarian Republic of):



Pelagic Provinces of the World (PPOW) in Venezuela (Bolivarian Republic of):

Opportunities for action

There is opportunity for Venezuela (Bolivarian Republic of) to increase protection in marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs; and focus on effective management for those that already have higher coverage.

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.

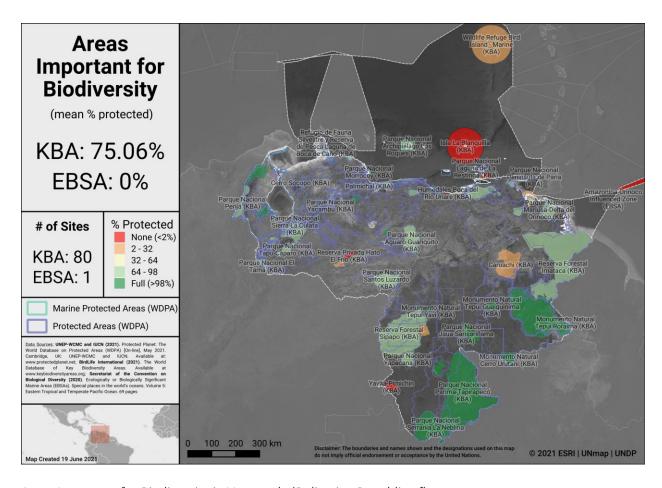
Venezuela (Bolivarian Republic of) has 80 Key Biodiversity Areas (KBAs).

- Mean percent coverage of all KBAs by PAs and OECMs in Venezuela (Bolivarian Republic of) is 75.1%.
- **24** KBAs have full (>98%) coverage by PAs and OECMs.
- **48** KBAs have partial coverage by PAs and OECMs.
- **8** KBAs have no (<2%) coverage by PAs and OECMs.

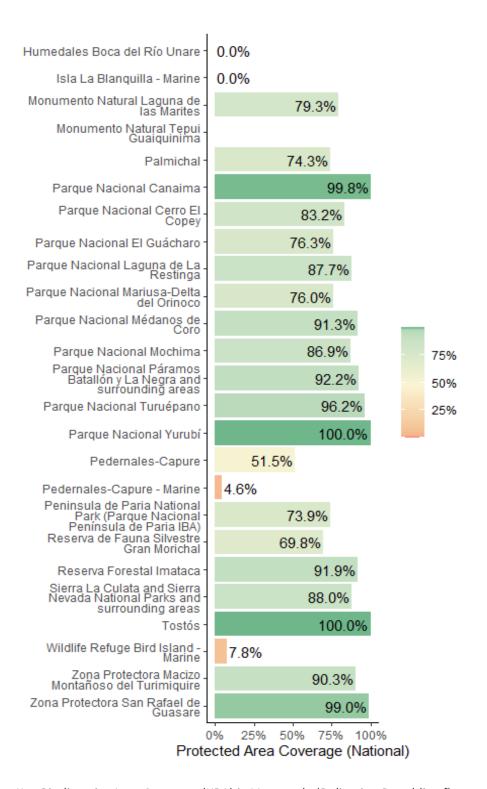
Ecologically or Biologically Significant Marine Areas (EBSAs)

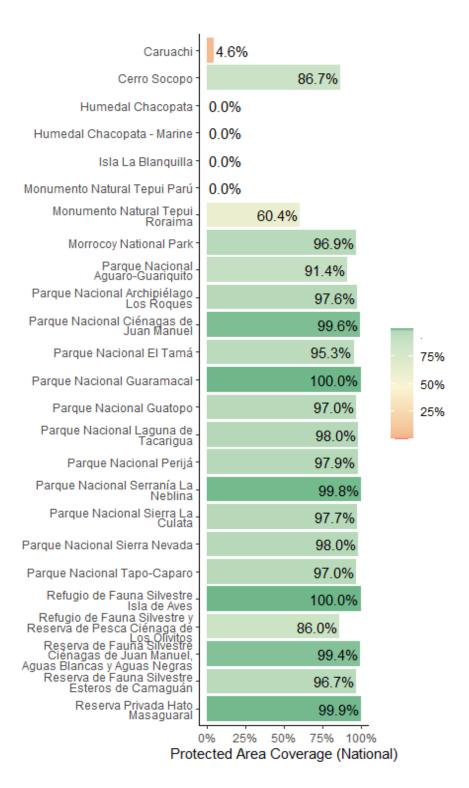
Other important areas for biodiversity may also include Ecologically or Biologically Significant Marine Areas (EBSAs), which were identified following the scientific criteria adopted at COP-9 (Decision IX/20; see more at: https://www.cbd.int/ebsa/). Sites that meet the EBSA criteria may require enhanced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

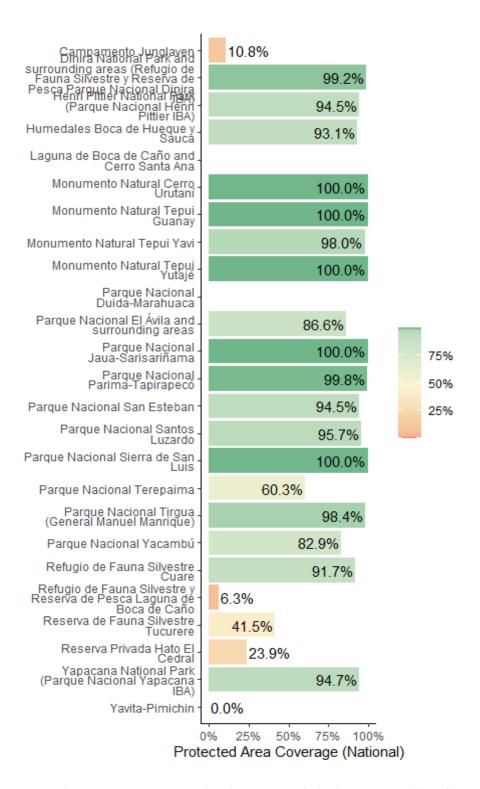
There is 1 EBSA with some portion of its extent within Venezuela (Bolivarian Republic of)'s EEZ; this 1 EBSA has no coverage from PAs or OECMs.

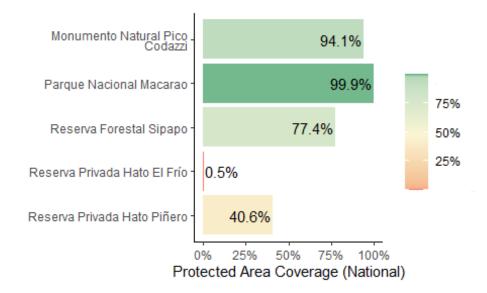


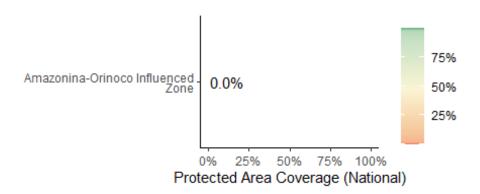
Areas Important for Biodiversity in Venezuela (Bolivarian Republic of)











Ecologically or Biologically Significant Marine Areas (EBSAs) in Venezuela (Bolivarian Republic of)

Opportunities for action

There is opportunity for Venezuela (Bolivarian Republic of) 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.

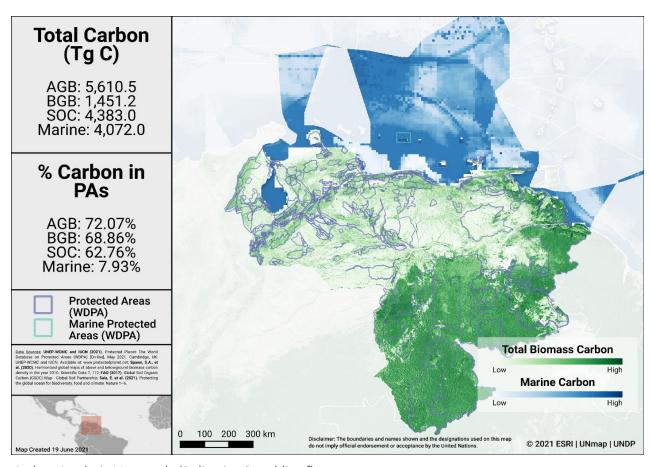
AREAS IMPORTANT FOR ECOSYSTEM SERVICES

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

Data for biomass carbon comes from temporally consistent and harmonized global maps of aboveground biomass and belowground biomass carbon density (at a 300-m spatial resolution); the maps integrate land-cover specific, remotely sensed data, and land-cover specific empirical models (see Spawn et al., 2020 for details on methodology). The Global Soil Organic Carbon Map present an estimation of SOC stock from 0 to 30 cm (see FAO, 2017). Data is also presented from global maps of marine sedimentary carbon stocks, standardized to a 1-meter depth (see Sala et al., 2021, and Atwood et al., 2020).

The map below presents the total carbon stocks in Venezuela (Bolivarian Republic of) and the percent of carbon in protected areas. The total carbon stocks is 5,610.5 Tg C from aboveground biomass (AGB), with 72.1% in PAs; 1,451.2 Tg C from below ground biomass (BGB), with 68.9% in PAs; 4,383.0 Tg C from soil organic carbon (SOC), with 62.8% in PAs; and 4,072.0 Tg C from marine sediment carbon, with 7.9% in MPAs.



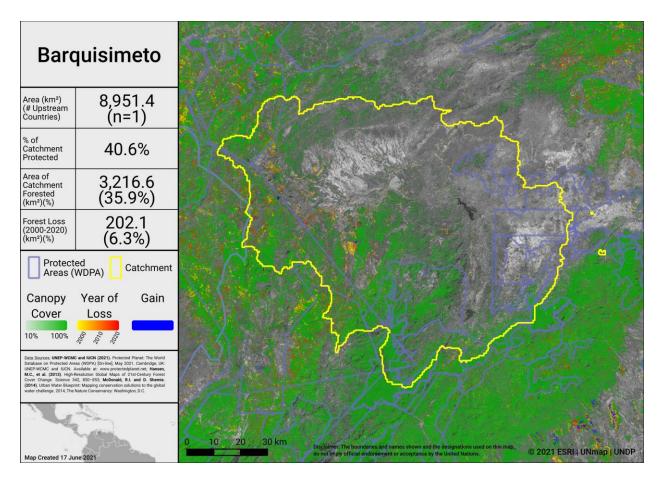
Carbon Stocks in Venezuela (Bolivarian Republic of)

Water

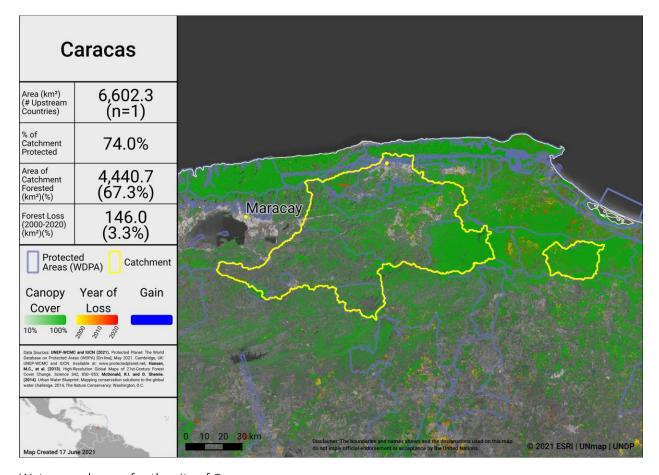
Information on the water sources for 534 cities is available via the City Water Map (CWM) and provides details on the catchment area of the watershed that supplies these cities (see McDonald et al., 2014 for details on methodology).

Forests 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)

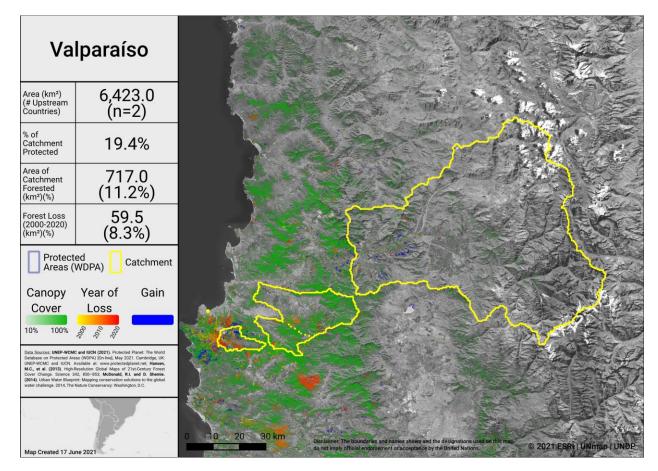
Drinking water supplies for cities in Venezuela (Bolivarian Republic of) may similarly depend on protected forest areas within and around water catchments The maps below show the percentage forest cover and the forest loss from 2000-2020 in the most heavily populated water catchments of Venezuela (Bolivarian Republic of). Intact catchments can support more consistent water supply and improved water quality.



Water supply area for the city of Barquisimeto



Water supply area for the city of Caracas



Water supply area for the city of Valparaiso

Opportunities for action

For carbon, there is opportunity for Venezuela (Bolivarian Republic of) to increase PA and OECM coverage in marine areas with high carbon stocks, as identified in the map above; and to focus on PA management for terrestrial PAs with high carbon stocks. 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).

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 Venezuela (Bolivarian Republic of) was 34.7%.

PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in Venezuela (Bolivarian Republic of) is 0.67. This represents no significant change since 2010.

Corridor case studies

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

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.

As of May 2021, PAs in Venezuela (Bolivarian Republic of) reported in the WDPA have the following governance types:

- 92.4% are governed by **governments**
 - 92.1% by federal or national ministry or agency
 - 0.3% by sub-national ministry or agency
 - 0.0% by government-delegated management
- 7.2% are under **shared** governance
 - 7.2 % by collaborative governance
 - 0.0% by joint governance
 - 0.0% by transboundary governance
- 0.0% are under **private** governance
- 0.0% are under **IPLC** governance
 - 0.0% by Indigenous Peoples
 - 0.0% by local communities
- 0.3% **do not** report a governance type
 - (this site is a World Heritage Site)

OECMs

As of May 2021, there are **0** OECMs in Venezuela (Bolivarian Republic of) reported in the WD-OECM, therefore there is no data available on OECM governance types.

Privately Protected Areas (PPAs)

From Gloss et al. (2019), a UNDP study on PPA data for Venezuela (Bolivarian Republic of):

- PPAs are not formally defined in PA legislation (Although Venezuela does not explicitly establish privately-owned protected areas through law, there does exist language that denotes the priority of environmental protection, including that of privately-owned lands).
- PPAs **are not** directly identified in Venezuela's recent NBSAP.
- PPAs are not included as part of the current PA network.

See additional info in country profile (http://nbsapforum.net/knowledge-base/resource/venezuela-country-profile-international-outlook-privately-protected-areas) and presented in Annex II.

Information on territories and areas conserved by Indigenous Peoples and local communities (ICCAs) reported from CBD technical series case studies:

There is currently no data available on ICCAs for Venezuela (Bolivarian Republic of) (see Kothari et al., 2012 and the ICCA Registry for further details).

Other Indigenous lands

Lands managed and/or controlled by Indigenous Peoples cover an area of 461,272.0 km², of which 168,849.0 km² falls outside of formal protected areas. Indigenous lands with a human footprint less than 4 (considered as 'natural landscapes') cover an area of 384,045.0 km² (for details on analysis see Garnett et al., 2018).

For Venezuela (Bolivarian Republic of), evidence for the presence of Indigenous Peoples comes from: Indigenous Work Group on Indigenous Affairs. Indigenous World 2017 (Indigenous Working Group on Indigenous Affairs, 2017).

Boundaries of the lands Indigenous Peoples manage or have tenure rights over come from: Amazônia Socioambiental. Rede Amazônica de Informação Socioambiental Georreferenciada. https://www.amazoniasocioambiental.org/mapas/ (2017); and Aguilar, V. & Bustillos Ramirez, L. in Pueblos indígenas en aislamiento voluntario y contacto inicial en la Amazonía y el Gran Chaco (ed. Parellada, A.) 156–165 (Grupo Internacional de Trabajo Sobre Asuntos Indígenas, 2007).

Opportunities for action

Explore opportunities for governance types that have lower representation, for Venezuela (Bolivarian Republic of) this could relate to governance by Indigenous Peoples and/or local communities (IPLC), or shared governance.

There is also opportunity for Venezuela (Bolivarian Republic of) 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.

Protected area management effectiveness (PAME) assessments

As of May 2021, Venezuela (Bolivarian Republic of) has 290 PAs reported in the WDPA; of these PAs, 54 (18.6%) have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

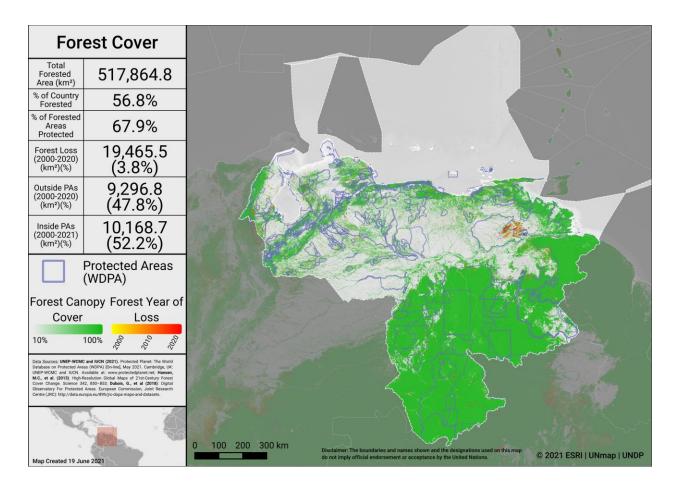
- 14.3% (131,343 km²) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
 - 25.2% of the area of terrestrial PAs have completed evaluations.
- 0.9% (4,121 km²) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
 - 20.0% of the area of marine PAs have completed evaluations.

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

As of May 2021, there are 0 OECMs in Venezuela (Bolivarian Republic of) 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 Venezuela (Bolivarian Republic of) cover approximately 56.8% of the country, an area of 517,864.8 km². Approximately 67.9% (351,827.0 km²) of this is within the protected area estate of Venezuela (Bolivarian Republic of). Over the period 2000-2020 loss of forest cover amounted to over 19,465.5 km², or 2.1% of the country (3.8% of forested area), of which 10,168.7 km² (52.2% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in Venezuela (Bolivarian Republic of) 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 Venezuela (Bolivarian Republic of)

Opportunities for action

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** 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 both terrestrial and 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/

The following actions were identified during the workshops:

Terrestrial and marine coverage:

- 1) Strengthen interagency coordination to achieve jointly and efficiently managing ABRAE.
- 2) Ensure financial resources for the management of protected areas.
- 3) Develop management plans and regulations of uses (PORU) for those areas that do not yet have such plans.
- 4) Strengthen the training of human resources for the management and handling of these conservation areas.
- 5) Make policies and standards for the conservation of components of biodiversity in Areas Under Special Administration Regime.
- 6) Define and establish coordination mechanisms between government agencies, research centers and local communities for the diagnosis and management of ABRAE.
- 7) Establish guidelines for research ABRAE management and development planning tools.

Ecological representation:

- 1) develop planning tools including integrated management of ABRAE (Areas Under Special Administrative Regime)
- 2) Assess the coverage of the representativeness of the ecosystems protected by ABRAE.
- 3) define new priority areas for conservation.

Areas Important for biodiversity and ecosystem services:

- 1) promote national implementation of the strategic plan (2010-2020) and the national action plan in strategic areas for conservation
- 2) Definition and declaration of a new protected areas.

Connectivity: promote activities to establish biological corridors and integrated management.

Management effectiveness: Promote the development of PORU (management plans and use regulations) for the rest of the ABRAE.

Governance and Equity:

- 1) promote the development of management and use plans for the rest of the conservation areas
- 2) The incorporation of local communities in the management of ABRAE.

Integration:

- 1) Develop basic tools for management planning and management of protected areas, allowing zoning, regulation, uses and activities.
- 2) Implement policies and programs integrated management of ABRAE.

OECMs:

- 1) Implement policies and programs integrated management of strategic areas for conservation
- 2) Prioritize the creation of new figures socially inclusive conservation, stemming from the territorial management of the inhabitants.

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

Venezuela (Bolivarian Republic of) has submitted an NBSAP during the Strategic Plan for Biodiversity 2011-2020 (most recent NBSAP is available at: https://www.cbd.int/nbsap/search/).

Actions from the NBSAP will address elements of Aichi Biodiversity Target 11:

NBSAP Action number	Action (original language from NBSAP)	Action (English or clarified language)
1.1.2.3	Generar el mapa de los ecosistemas por biorregión.	Create map of ecosystems by bioregion
1.1.3.2	Determinar las especies y ecosistemas susceptibles a los efectos del cambio climático y proponer medidas de mitigación y adaptación.	Identify species and ecosystems susceptible to climate change effects and propose mitigation and adaptation measures
3.1.2.1	Conformar y activar el Sistema Nacional de Áreas Bajo Régimen de Administración Especial.	Configure and activate the National System of Areas Under Special Administration Regime.
3.1.3.1	Realizar un inventario nacional de las Áreas Estratégicas para la Conservación.	Conduct a national inventory of Strategic Areas for Conservation.
3.1.3.2	Consolidar la gestión comunitaria de las Áreas Estratégicas para la Conservación (AEC).	Consolidate the community management of Strategic Areas for Conservation (AEC).
3.1.4.3	Avanzar hacia la creación de nuevas reservas de biósfera (RB) eficientes en aquellas regiones del territorio con alto potencial para el desarrollo sustentable.	Progress towards the creation of new biosphere reserves (RB), functional in those regions of the country with high potential for sustainable development.
3.2.1.1	Conocer el estado de conservación y grado de intervención de las AEC.	Determine the conservation status and degree of intervention of the AEC.
4.2.4.1	Promover la gestión comunitaria para la conservación de la Diversidad Biológica en las Comunas en construcción.	Promote community management for conservation of Biodiversity in the Communes under construction.

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).

GEF ID	PA increase?	Area to be added (km²)	Qualitative elements potentially benefitting (based on keyword search of PIFs)
5410	No	N/A	Areas important for biodiversity; Ecosystem services; Effectively managed; Equitably managed

OTHER ACTIONS/COMMITMENTS

Venezuela (Bolivarian Republic of)'s statement at the 2020 UN Biodiversity Summit mentions PAs, OECMs or corridors:

Venezuela is one of the 17 megadiverse countries in the world and therefore attaches extreme importance to the essential strengthening of the national system of protected areas. This system is mainly based on our biosphere reserves, our national parks, natural monuments, sanctuaries, woodland wildlife refuges, and protected areas. The area of these has increased from 33 to 43% of our national territory.

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
Amazon-Orinoco- Southern Caribbean mangroves	12,279.2	30.0	1.3	9,478.1	77.2
Apure-Villavicencio dry forests	43,704.0	64.0	4.8	14,153.1	32.4
Araya and Paria xeric scrub	5,260.2	100.0	0.6	665.8	12.7
Catatumbo moist forests	16,127.4	70.9	1.8	15,476.1	96.0
Cordillera de Merida páramo	2,797.6	100.0	0.3	2,623.8	93.8
Cordillera La Costa montane forests	14,281.6	100.0	1.6	12,032.8	84.3
Cordillera Oriental montane forests	8,710.8	12.9	1.0	7,764.8	89.1
Guajira-Barranquilla xeric scrub	3,678.0	11.7	0.4	2,919.8	79.4
Guianan Highlands moist forests	89,788.2	61.5	9.8	78,526.7	87.5
Guianan lowland moist forests	32,324.1	6.8	3.5	22,566.1	69.8
Guianan piedmont moist forests	144,648.9	62.9	15.9	110,620.6	76.5
Guianan savanna	12,858.9	12.3	1.4	11,910.7	92.6
Japurá-Solimões- Negro moist forests	75.7	0.0	0.0	0.0	0.0
La Costa xeric shrublands	68,181.5	100.0	7.5	24,717.5	36.3

Ecoregion Name	Area (km²)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km²)	% Protected in Country
Lara-Falcón dry forests	16,869.9	100.0	1.8	5,557.5	32.9
Llanos	223,120.4	59.4	24.5	50,679.1	22.7
Maracaibo dry forests	30,084.6	100.0	3.3	24,607.3	81.8
Negro-Branco moist forests	55,122.8	27.4	6.0	34,675.6	62.9
Northern Andean páramo	274.6	0.9	0.0	252.0	91.8
Orinoco Delta swamp forests	24,142.8	86.1	2.6	15,016.6	62.2
Orinoco wetlands	5,988.4	100.0	0.7	3,524.0	58.8
Pantepui forests & shrublands	44,054.3	86.9	4.8	40,186.1	91.2
Paraguaná xeric scrub	15,909.1	100.0	1.7	5,092.7	32.0
Rio Negro campinarana	12,444.5	13.0	1.4	4,181.5	33.6
Venezuelan Andes montane forests	29,230.7	99.9	3.2	18,441.7	63.1

ANNEX II

ADDITIONAL DETAILS ON PPAS

- Although Venezuela does not explicitly establish privately-owned protected areas through law, there does exist language that denotes the priority of environmental protection, including that of privately-owned lands.
- The Venezuelan Network of Private Areas for the Conservation of Nature, APRINATURA, was created to bring together private land conservation projects in order to institutionalize private conservation, encourage the creation of a formal legal framework, and build a community of practice around private land conservation. In 2008, 36 properties were a part of APRINATURA, preserving 443,000 hectares. However, shortly thereafter, the network was dismantled.
- Currently, the Venezuelan Society of Natural Sciences is monitoring the initiatives for in situ conservation in private lands, as well as other effective area-based conservation measures, through a database, as a contribution to eventually install a communication and cooperation network among them. To date 51 areas have been identified, six of them being identified as PPAs.

Case studies/best practices:

- *Hato Masaguaral*: **7,500 ha** property, located in the Los Llanos bioregion, is dedicated to agricultural production with low environmental impact, where natural ecosystems have been modified as little as possible in order to function as a protected area for biodiversity, and especially for wildlife.
- Reserva Ecológica Privada Guáquira: **2,000 ha** of mountains and foothills covered by tropical moist and cloud forests, home to a diverse array of species within the Coastal Cordillera bioregion. It is one of the few examples of private conservation in mountain ecosystems in Venezuela. The land was purchased by the company Agropecuaria Moparam in 1984 with 70 percent of the land initially set aside for conservation
- Hato Garza: An area of around 7,000 ha located in the biogeographic region of Los Llanos in southwestern Venezuela, within the third most important wetland in South America known as "Floodplains of the Orinoco". Hato Garza has been dedicated to the conservation of biodiversity for several decades and considers itself a wildlife sanctuary. The main economic activity of Hato Garza is raising livestock complemented by ecotourism specifically dedicated to the observation of birds and wildlife.

See additional info in country profile (http://nbsapforum.net/knowledge-base/resource/venezuela-country-profile-international-outlook-privately-protected-areas).

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-parcconnectedness

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.

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.