Convention on Biological Diversity

UNDP

Aichi Biodiversity Target 11 Country Dossier: PANAMA

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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.

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 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 Panama is 24,110.9 km^2 (31.9%) and marine coverage is 38,489.5 km^2 (11.6%); the recent expansion of the Cordillera de Coiba Managed Resources Area to 67,742 km^2 (not yet reflected in the WDPA) has increased marine coverage to ~30%

- **Opportunities for action:** opportunities for the near-term include updating the WDPA with any unreported PAs (including the recently expanded Cordillera de Coiba Managed Resources Area), 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:** Panama contains 9 terrestrial ecoregions, 3 marine ecoregions, and 2 pelagic provinces (all of which have at least partial coverage by PAs and OECMs): the mean coverage by reported PAs and OECMs is 36.9% (terrestrial), 11.9% (marine), and 11.8% (pelagic).

- **Opportunities for action:** there is opportunity for Panama to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs.

Areas Important for Biodiversity

- **Status:** Panama has 54 Key Biodiversity Areas (KBAs): the mean protected coverage of KBAs by reported PAs and OECMs is 55.4%, while 13 KBAs have no coverage by reported PAs and OECMs.

- **Opportunities for action:** there is opportunity for Panama 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 Panama, 52.0% of aboveground biomass carbon, 51.1% of belowground biomass carbon, 50.5% of soil organic carbon, 12.3% of carbon stored in marine sediments is covered by PAs and OECMs.

- **Opportunities for action:** for carbon, there is opportunity for Panama to focus on effective management for PAs and OECMs in terrestrial and marine areas with high carbon stocks. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area. There is opportunity to explore the possibilities of carrying out joint projects between the Protected Areas Directorate and MIAMBIENTE Climate Change Directorate, and to evaluate the opportunities for the creation of new protected areas or the expansion of boundaries.

- 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 16.5%. Several proposals for Biological Corridors have been made in Panama over the years. However, it is still necessary to establish the legal framework to create biological corridors that ensure the conservation of biodiversity and gene flow, while maintaining connectivity

- **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:** responsibility for the management of protected areas corresponds to the government through the environmental institution (Ministry of the Environment).
- **Opportunities for action:** explore opportunities for governance types that have lower representation, for Panama this could relate to shared governance, etc.
- There is also opportunity for Panama 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:** 71.7% of terrestrial PAs and 11.3% 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 Panama. Section I of the dossier presents data on the current status of Panama'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 Panama, in relation to each Target 11 element. The analyses present options for improving Panama's area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on Panama'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 (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, Panama has **117** protected areas reported in the World Database on Protected Areas (WDPA). 35 PAs that have no spatial boundary and no area listed in the WDPA,[1] and a further 2 UNESCO-MAB Biosphere Reserves, are not included in the following statistics (see details on UNWP-WCMC's methods for calculating PA and OECM coverage **here**).

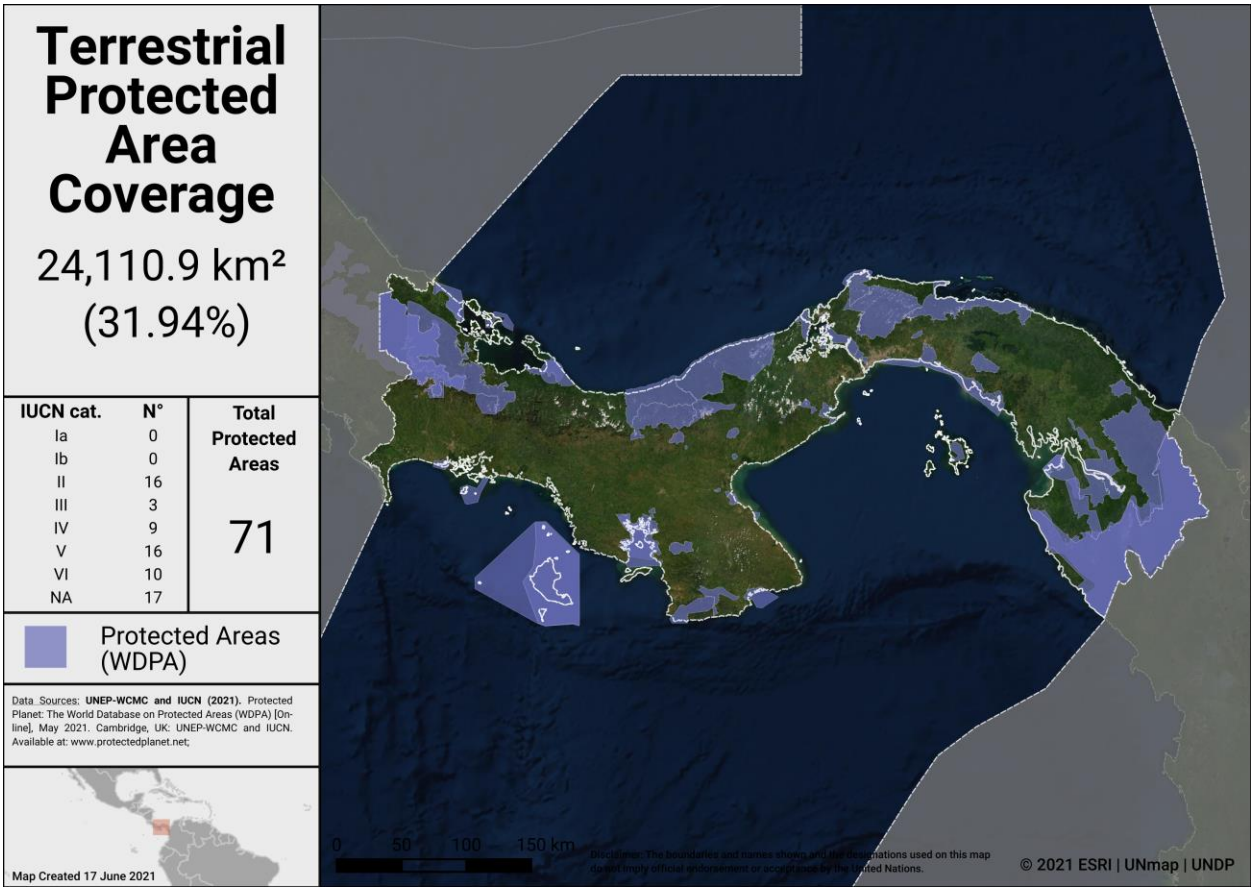
As of May 2021, Panama has **0** OECMs reported in the world database on OECMs (WD-OECM).

Current coverage for Panama (per the WDPA):

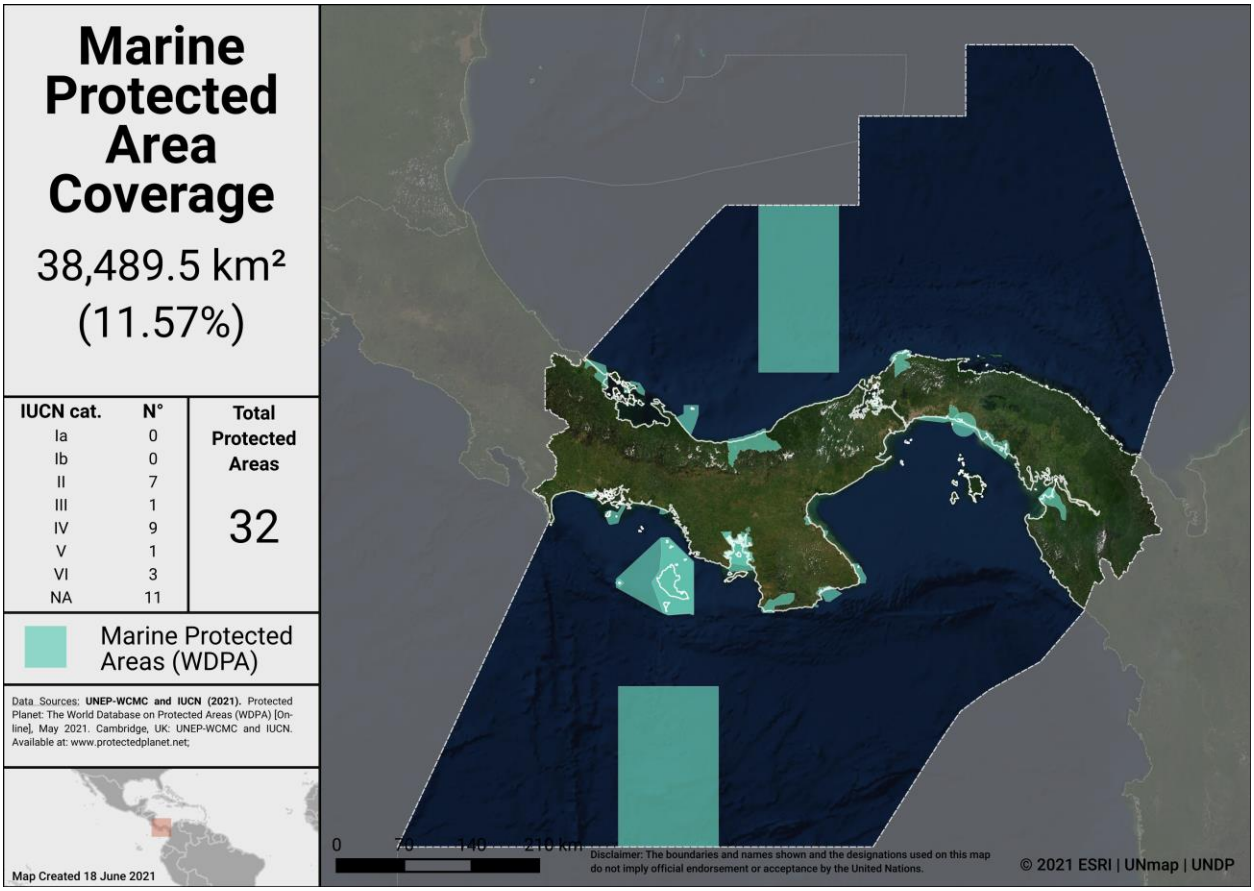
- 31.9% terrestrial (71 protected areas, 24,110.9 km^2)
- 11.6% marine (32 protected areas, 38,489.5 km^2)

In June 2021, Panama expanded the marine surface of protected areas by extending the limits of the Cordillera de Coiba Managed Resources Area to 67,742 km^2 [an increase of **>50,000km^2**]; this information has not yet been registered in the world database of protected areas (WDPA). With this expansion, Panama has **now reached ~30%** coverage by marine protected areas.

[1] Of the 107 nationally designated PAs reported in the WDPA, 32% do not have spatial limits, most of these areas are established by municipal agreements. This is a situation that limits our management actions (24,110.9 Km^2, 31.9%). Every year a work effort is made to verify the limits and generate a new legal instrument for these protected areas.



Terrestrial Protected Areas in Panama



Marine Protected Areas in Panama

Potential OECMs

In August 2020, a Cooperation Agreement was signed between the Ministry of the Environment and the Network of Private Reserves of Panama. The objective of the Convention is to promote the conservation of natural wealth, biodiversity and forests as a means of carbon sequestration; in turn, promote connectivity between protected areas and private nature reserves. In Panama, private reserves are recognized as complementary areas to the National System of Protected Areas, but they are not included within the system. In Panama, the term *Private Protected Areas* is not used as it appears in the dossier (see below).

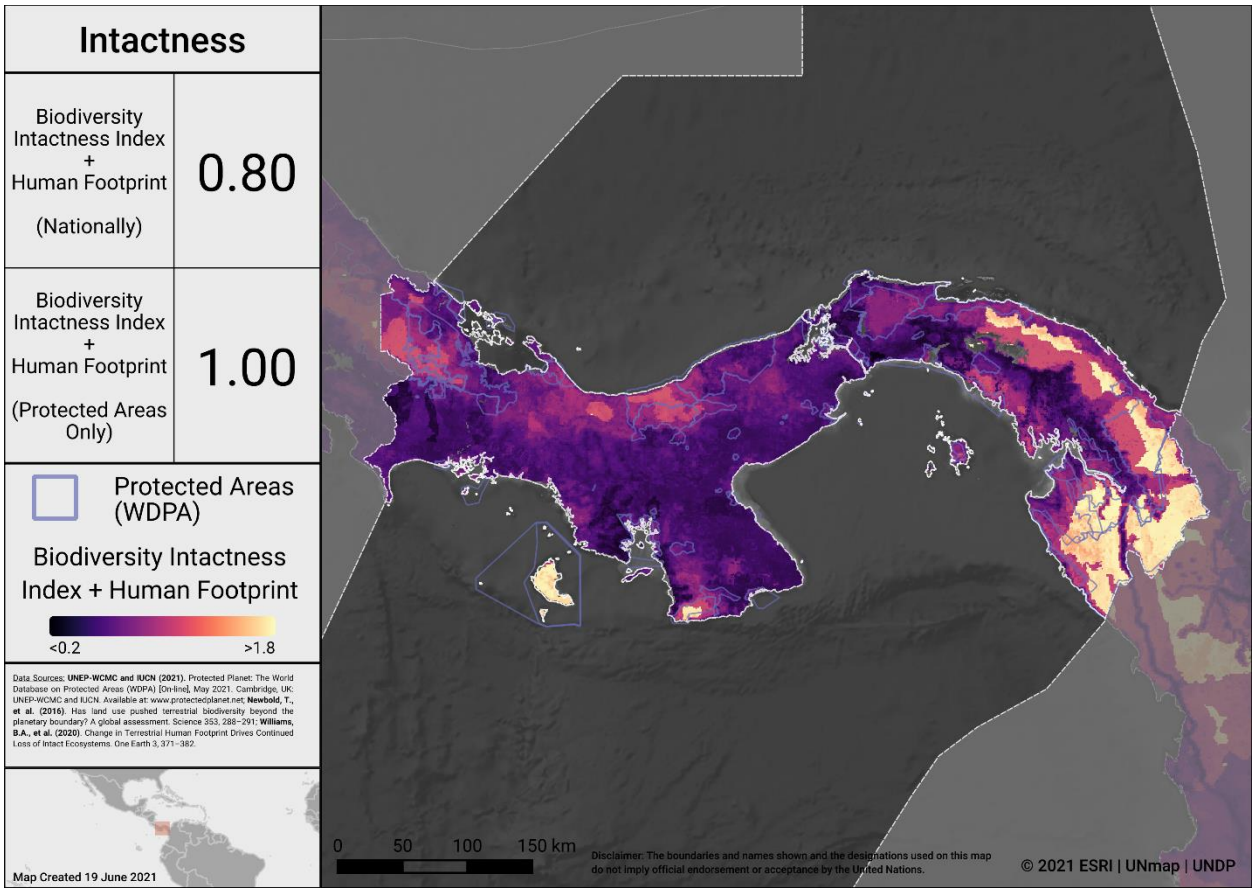
The general environmental law establishes “The State will stimulate the creation of private natural reserves, ecological easements on private lands, with institutional support, through incentive systems and market mechanisms. Incentive systems will be established by regulation and their benefits may also be applied to private lands that are located within the limits or buffer zones of protected areas established according to the law. The foregoing will apply whenever the owner of the private land voluntarily decides to join these systems.

For both private nature reserves and areas conserved by indigenous peoples (see information below), the opportunities to register them as OECMs will be explored, the required consultations will be initiated. These elements would be taken into account for national objectives in a review of the NBSAP as a contribution towards the global goals that are agreed in the post-2020 global Biodiversity framework.

Currently Panama has not established a mechanism to incorporate OECMS as part of a strategy for the conservation of Biodiversity, although it recognizes their importance and value.

Opportunities for action

Opportunities for the near-term include updating the WDPA with any unreported PAs (including the recently expanded Cordillera de Coiba Managed Resources Area), and recognizing and reporting OECMs to the WD-OECM. In the future, as Panama considers where to add new PAs and OECMs, the map below identifies areas in Panama where intact terrestrial areas are not currently protected. Focus on relatively intact areas, while addressing the elements in the following sections, could be considered if planning new PAs or OECMs.



Intactness in Panama

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).

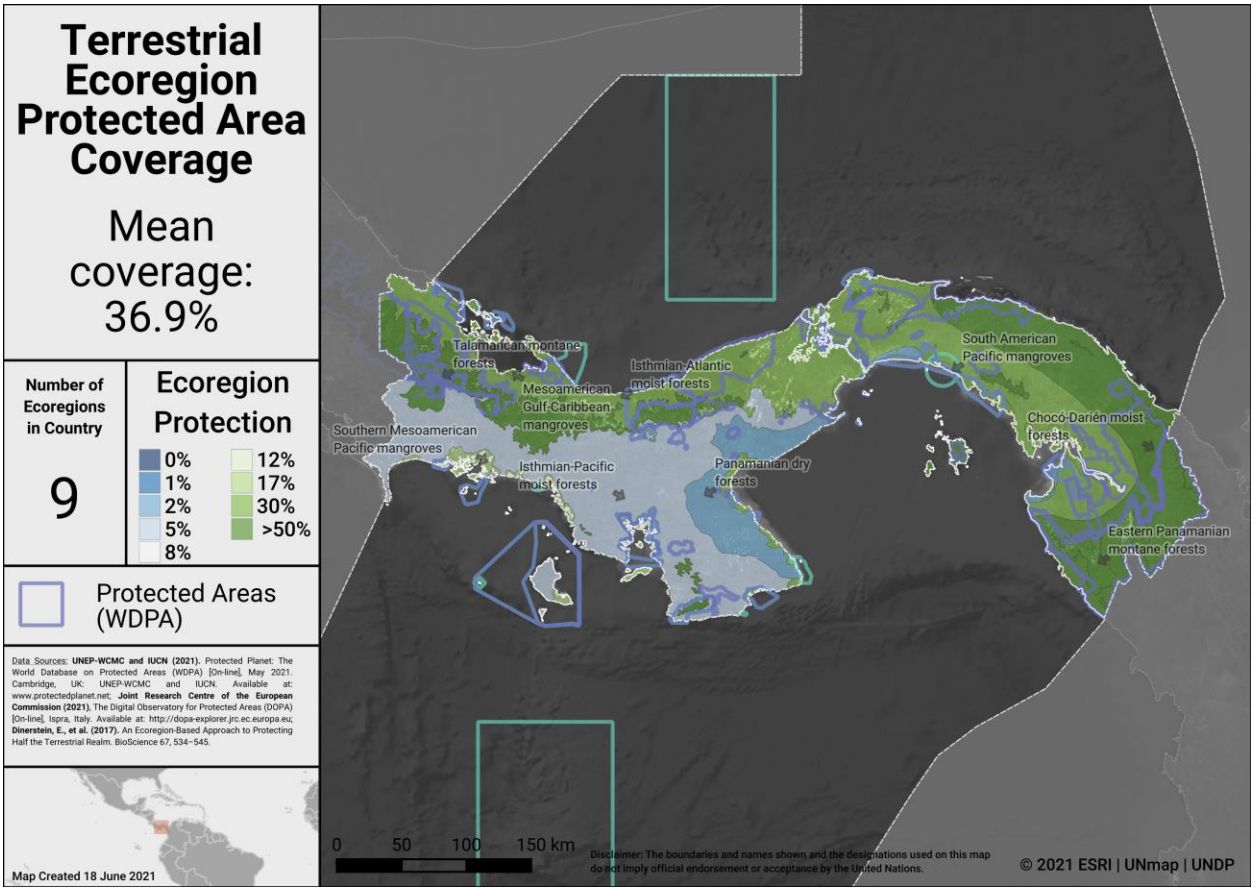
Panama has 9 **terrestrial** ecoregions. Out of these:

- All 9 ecoregions have at least some coverage from PAs and OECMs.
- 7 ecoregions have at least 17% protected within the country.
- The average coverage of terrestrial ecoregions is 36.9%.

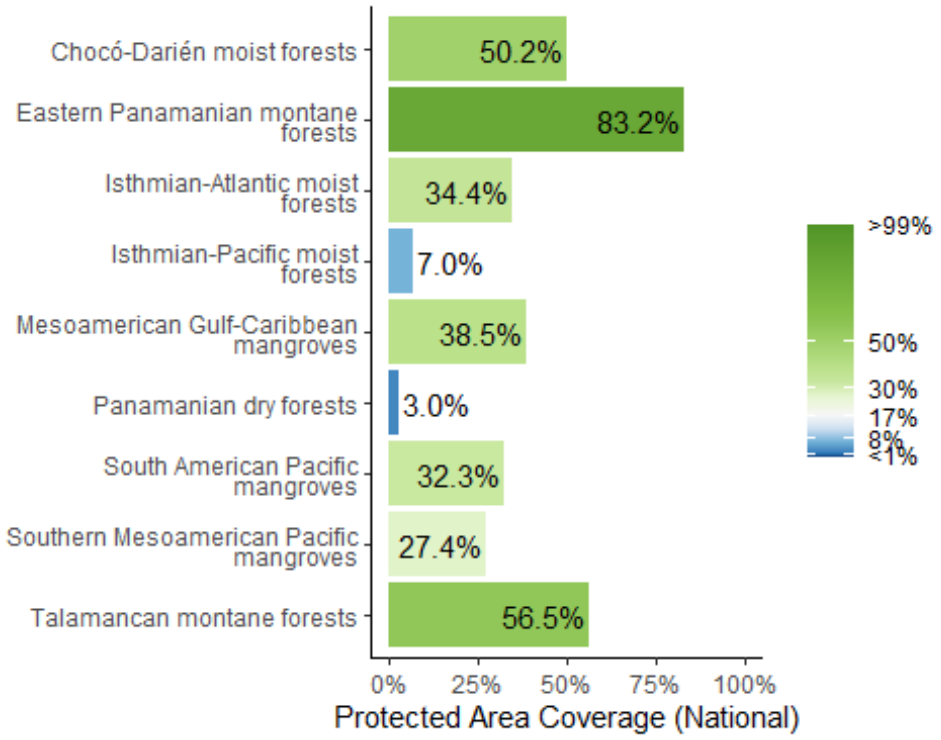
Panama has 3 **marine** ecoregions and 2 **pelagic provinces**. Out of these:

- All 3 marine ecoregions and 2 pelagic provinces have at least some coverage from reported PAs and OECMs.
- 1 marine ecoregion and 2 pelagic provinces have at least 10% protected within Panama's exclusive economic zone (EEZ).
- The average protected area coverage of marine ecoregions is 11.9% and the average protected area coverage of Pelagic Provinces is 11.8%.
- *Coverage of marine ecoregions and pelagic provinces will have increased following the expansion of the Coiba Managed Resources Area*

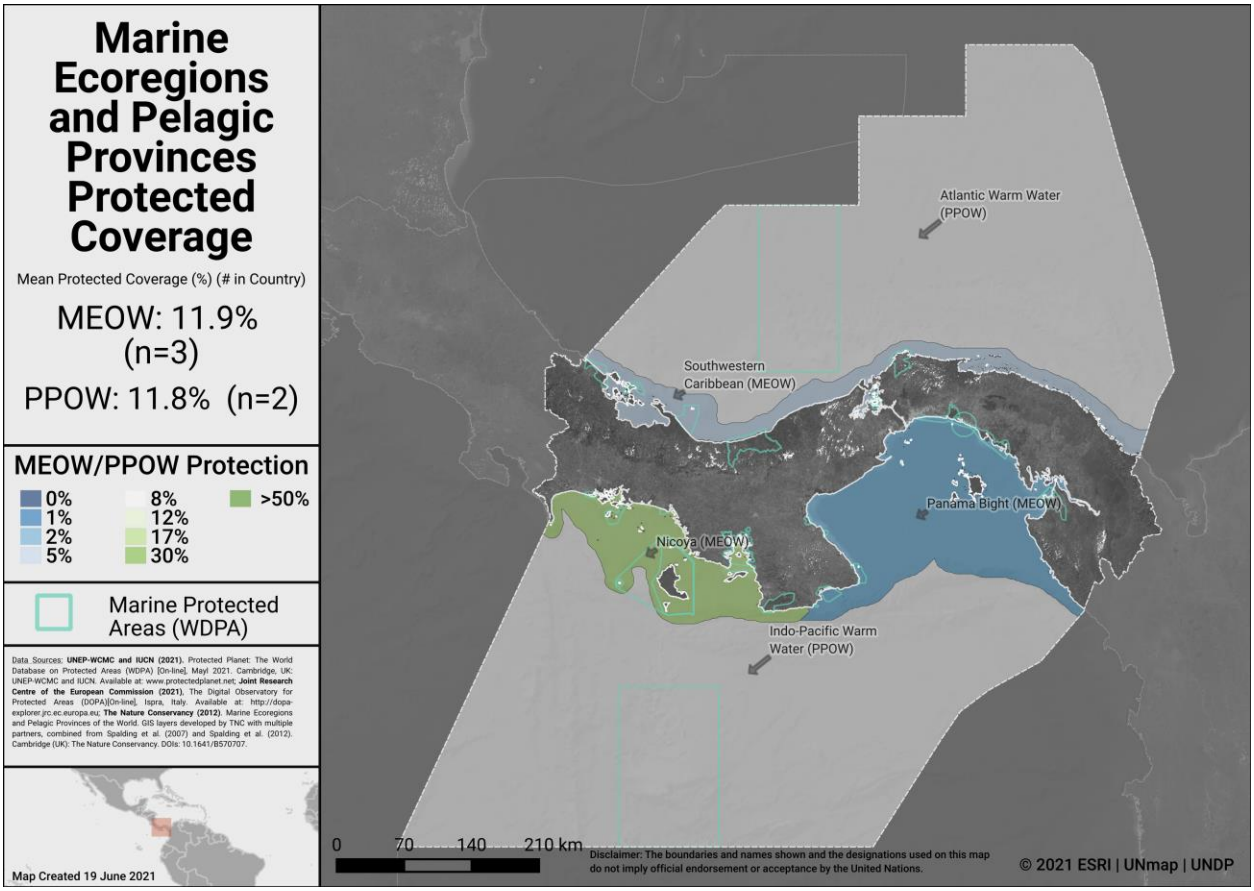
A full list of terrestrial ecoregions in Panama is available in Annex I.



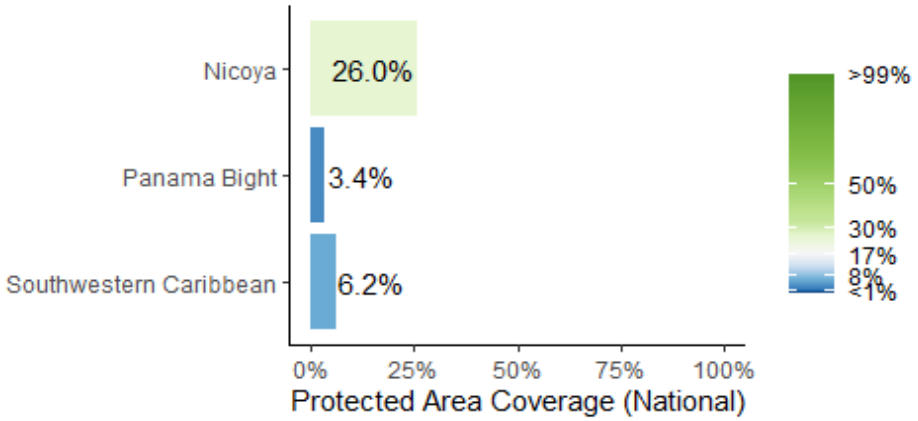
Terrestrial ecoregions in Panama



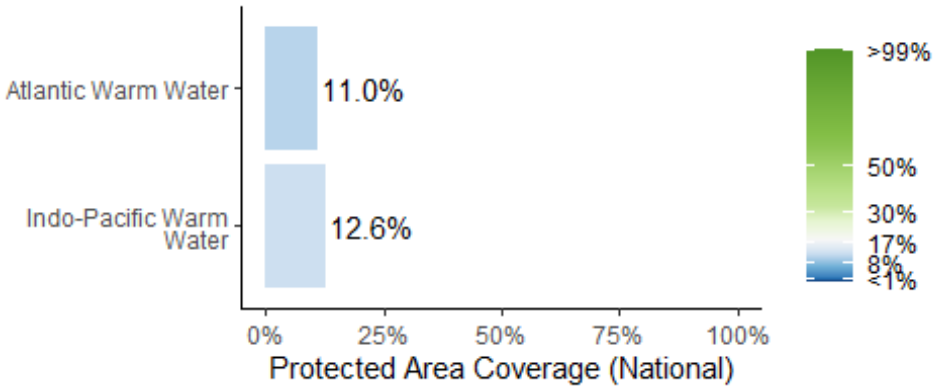
Terrestrial ecoregions of the World (TEOW) in Panama



Marine ecoregions and pelagic provinces



Marine Ecoregions of the World (MEOW) in Panama



Pelagic Provinces of the World (PPOW) in Panama

Opportunities for action

There is opportunity for Panama to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs.

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.

Panama has **54** Key Biodiversity Areas (KBAs).

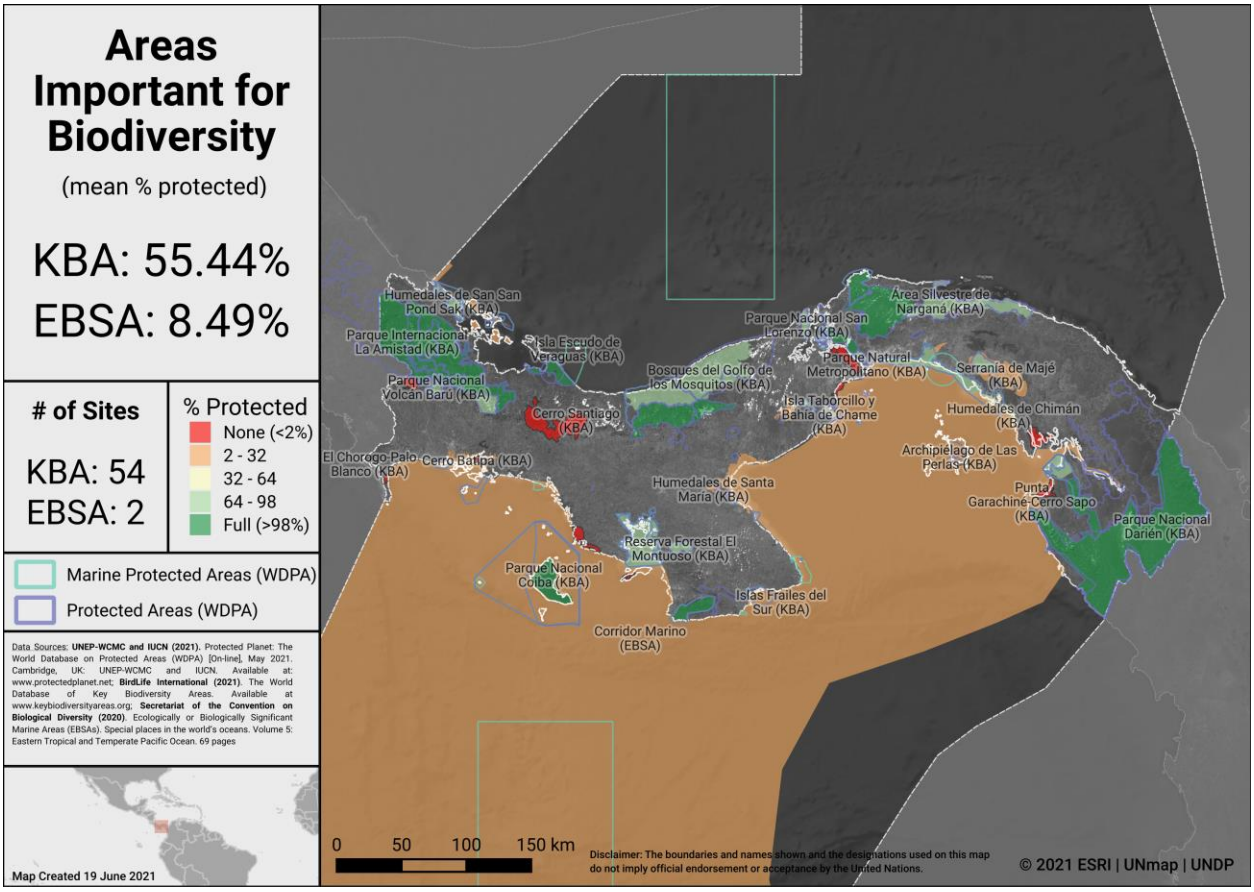
- Mean percent coverage of all KBAs by PAs and OECMs in Panama is **55.4%**.
- **13** KBAs have full (>98%) coverage by PAs and OECMs.
- **28** KBAs have partial coverage by PAs and OECMs.
- **13** KBAs have no (<2%) coverage by PAs and OECMs.

Goal 1 of Panama's NBSAP 2018-2050 takes into account KBAs, to be incorporated into the National System of Protected Areas. Most KBAs overlap with protected areas, though ways to address those KBAs that do not have conservation coverage and those that have only partial coverage, will be analyzed. This element will be taken into account for the national objectives in a revision of the NBSAP as a contribution towards the global goals that are agreed in the post-2020 global Biodiversity framework.

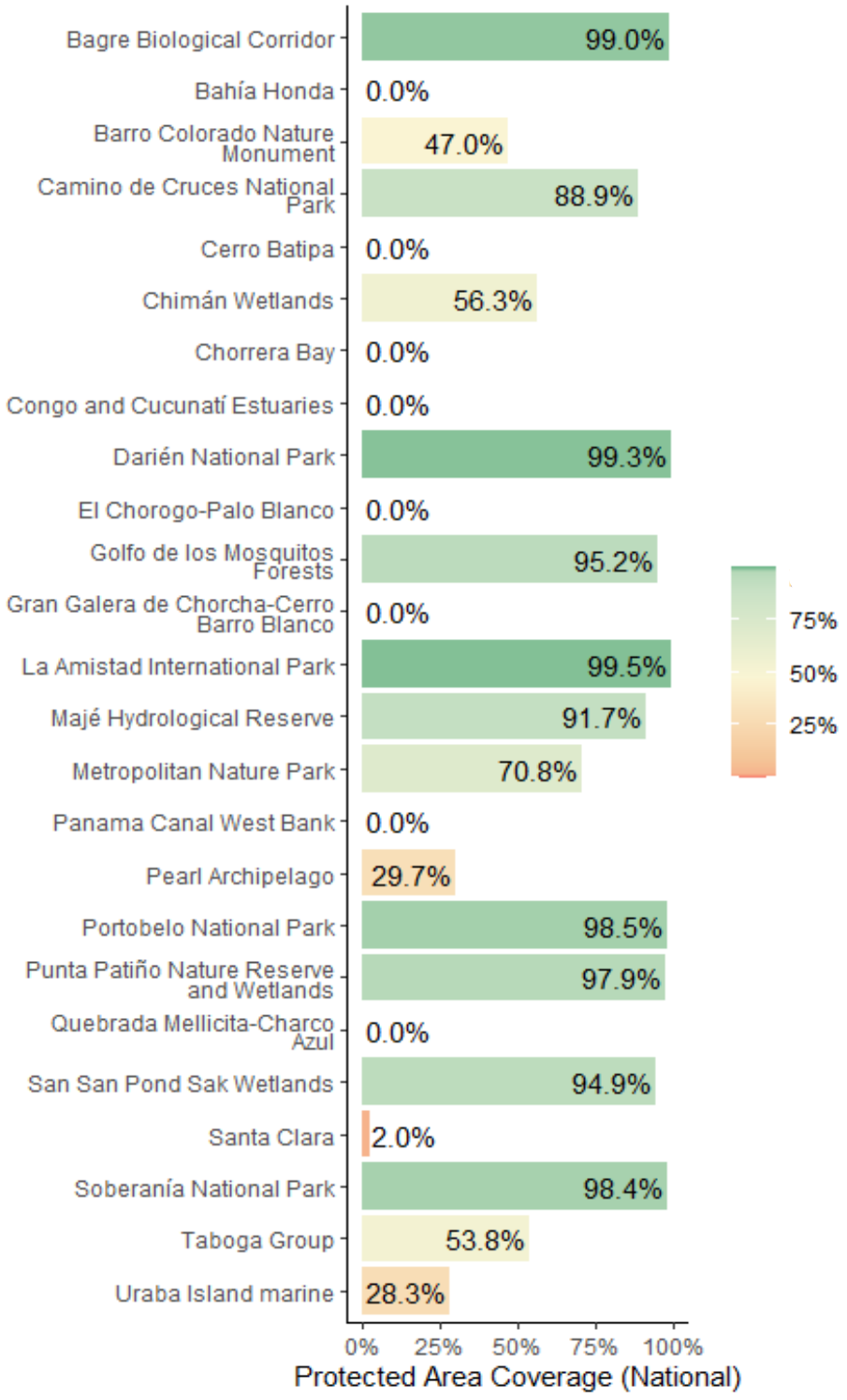
Ecologically or Biologically Significant Marine Areas (EBSAs)

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.

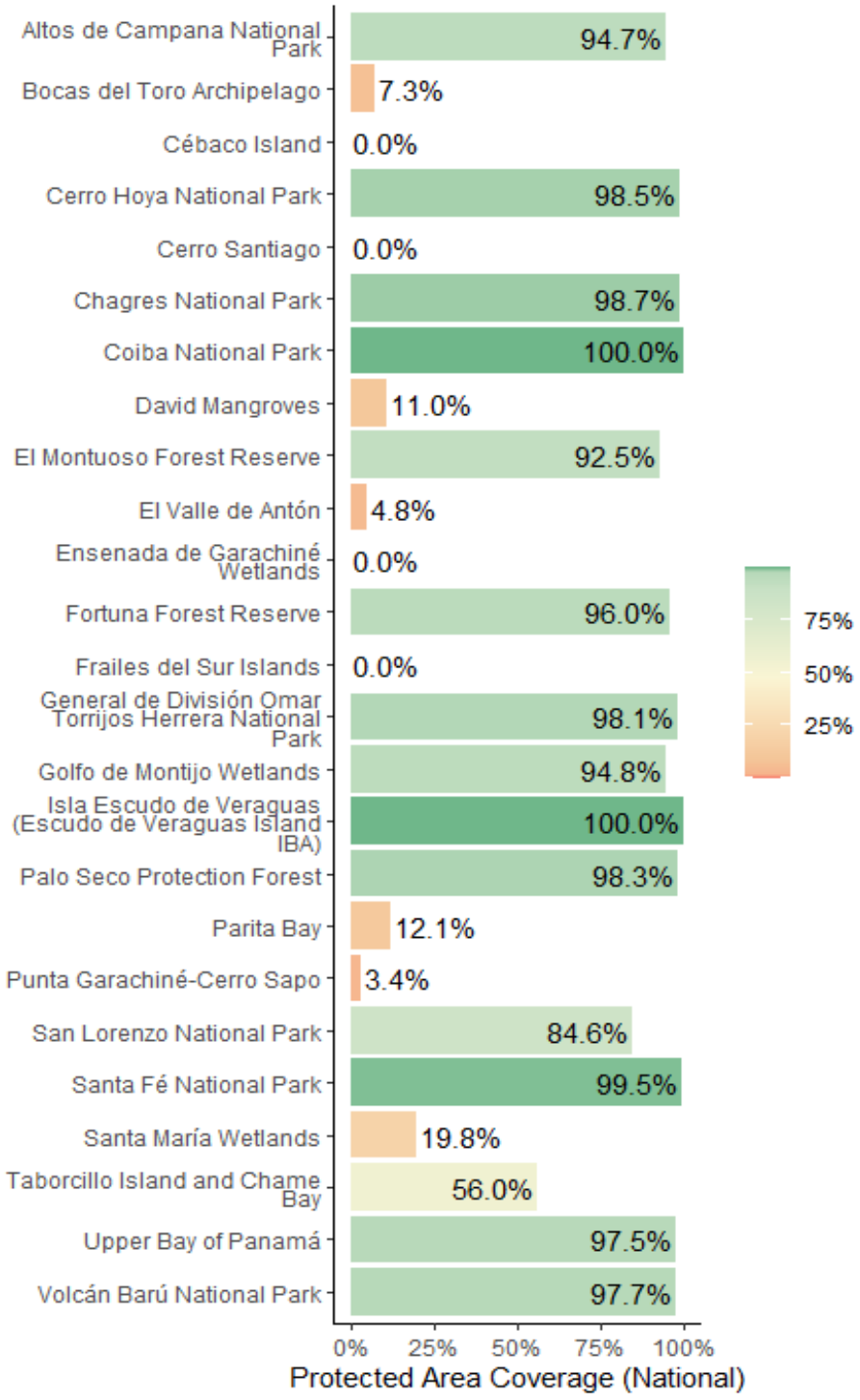
There are 2 EBSAs with some portion of their extent within Panama's EEZ, both of which have at least partial coverage from PAs and OECMs (and coverage may further increase with the recent MPA expansion).



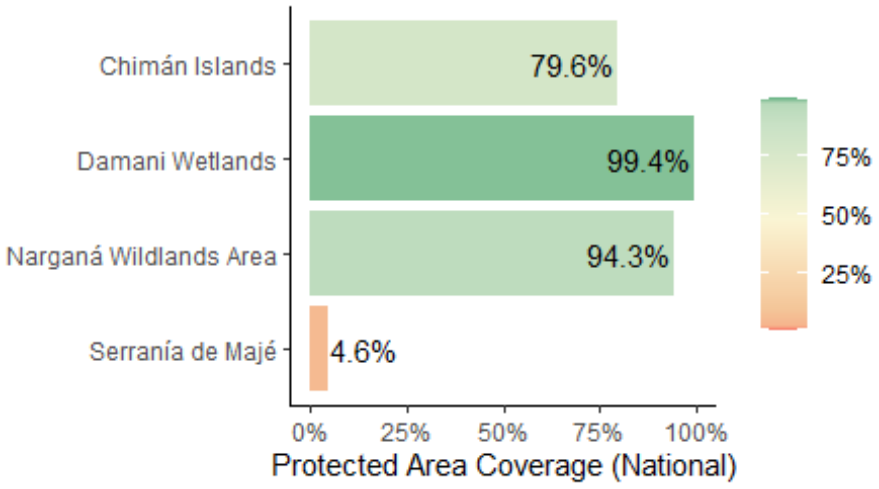
Areas Important for Biodiversity in Panama



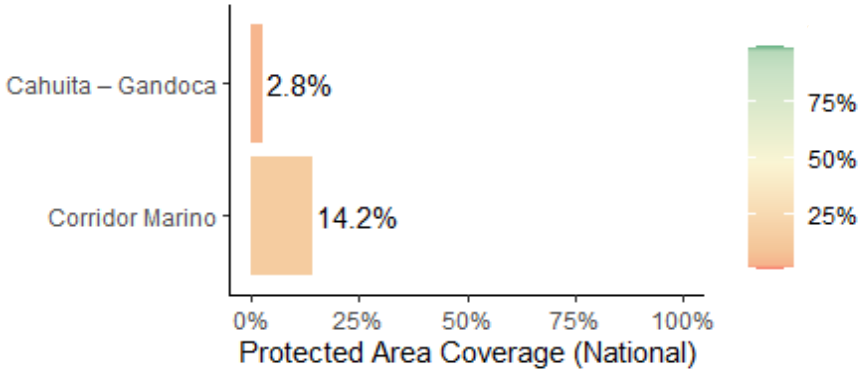
Key Biodiversity Area Coverage (KBA) in Panama



Key Biodiversity Area Coverage (KBA) in Panama (continued)



Key Biodiversity Area Coverage (KBA) in Panama (continued)



Ecologically or Biologically Significant Marine Areas (EBSAs) in Panama

Opportunities for action

There is opportunity for Panama 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

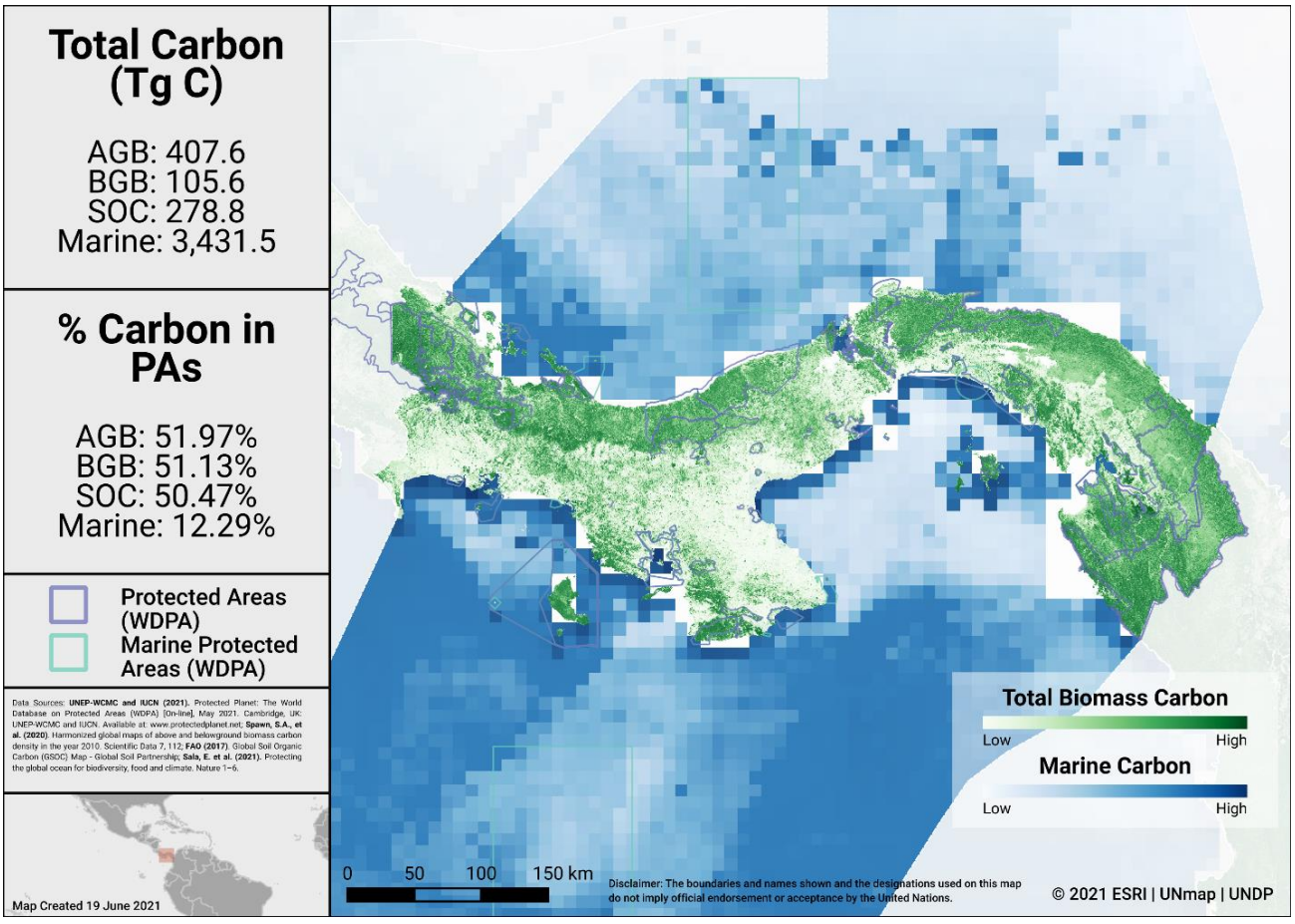
AREAS IMPORTANT FOR ECOSYSTEM SERVICES

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 Panama and the percent of carbon in protected areas. The total carbon stocks is 407.6 Tg C from aboveground biomass (AGB), with 52.0% in protected areas; 105.6 Tg C from below ground biomass (BGB), with 51.1% in protected areas; 278.8 Tg C from soil organic carbon (SOC), with 50.5% in protected areas; and 3,431.5 Tg C from marine sediment carbon, with 12.3% in protected areas.



Carbon Stocks in Panama

Coordination with the MIAMBIENTE Climate Change Directorate, to explore the possibilities of carrying out joint projects with the Protected Areas Directorate, and to evaluate the opportunities for the creation of new protected areas or the expansion of boundaries, will be explored, as appropriate.

Water

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 Panama 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 Panama to focus on effective management for PAs and OECMs in terrestrial and marine areas with high carbon stocks, as identified in the map above. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area. There is opportunity to explore the possibilities of carrying out joint projects between the Protected Areas Directorate and MIAMBIENTE Climate Change Directorate, and to evaluate the opportunities for the creation of new protected areas or the expansion of boundaries.

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 Panama was 16.5%.

PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in Panama is 0.50. This represents no significant change since 2010.

Corridor case studies

Several proposals for Biological Corridors have been made in Panama over the years. However, it is still necessary to establish the legal framework to create biological corridors that ensure the conservation of biodiversity and gene flow, while maintaining connectivity.

Below are details of a case study on corridors and connectivity in Panama:

Case study title	Type of study region	Greatest threat to connectivity	Approaches to conserving ecological corridors
The Jaguar Corridor Initiative: A rangewide species conservation strategy	terrestrial, rural	human land-use changes	• modelled ecological corridors • prioritised populations and ecological corridors • validated modelled corridors using a rapid assessment interview-based methodology • varied implementation action at local level

Further details are available in Hilty et al., 2020.

Regarding the Jaguar Corridor Initiative, a GEF-UNEP project "Conservation of wild cats and their prey species" has been applied (2020), and is soon to be approved; it will seek to support the rehabilitation of critical habitats for wild cats. In 2019, Panama launched a new

special fund within the GEF's Small Grants Program, aimed at jaguar conservation through initiatives led by community-based organizations and local NGOs in the Darien region.

Integration into the wider landscape and seascape

Panama is part of the regional initiative *Corredor Marino del Pacífico Este Tropical*, which seeks the proper management of biodiversity and marine and coastal resources across four countries: Costa Rica, Panama, Colombia and Ecuador.

Opportunities for action

There is opportunity to focus on PAs and OECMs management for enhancing and maintaining connectivity. Increasing 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 (as reflected in the WDPA), PAs in Panama reported in the WDPA have the following governance types:

- 88.0% are governed by **governments**
  - 86.3% by federal or national ministry or agency
  - 0.0% by sub-national ministry or agency
  - 1.7% by government-delegated management
- 0.0% are under **shared** governance
- 0.0% are under **private** governance
- 3.4% are under **IPLC** governance
  - 3.4% by Indigenous Peoples[2]
  - 0.0% by local communities
- 8.5% **do not** report a governance type
  - (All of which are internationally designated sites; and all are managed by the State / Government)

Mostly it has been understood that the responsibility for the management of protected areas corresponds to the government through the environmental institution (Ministry of the Environment). Progress has been made in legal instruments that regulate other types of governance, such as shared management. This element will be taken into account for national objectives in a review of the NBSAP as a contribution towards the global goals that are agreed upon in the global framework of Biodiversity post2020.

OECMs

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

[2] Panama notes: In the case of governance by indigenous peoples, we consider that it should be assessed whether this is really the case, since it is through the Ministry of the Environment that these areas are managed, with indigenous personnel, as government officials, but they are not the indigenous authorities/traditional ones that have control over handling. The General Environmental Law states that "The right of the regions and indigenous peoples is recognized in relation to the use, management and sustainable traditional exploitation of renewable natural resources, located within their territories. These resources should be used in accordance with the purposes protection and conservation of the environment, established in the Political Constitution, this Law and other national laws."

Privately Protected Areas (PPAs)

From Gloss et al. (2019), a UNDP study on PPA data for Panama:

- PPAs **are** formally defined in PA legislation (though in Panama, the term Private Protected Areas is not used as it appears in the country file).
- private reserves **are** directly identified in Panama's recent NBSAP.
- private reserves are recognized as complementary areas to the National System of Protected Areas, but they are not included within the system
- As of 2010, there were **40** Private Nature Reserves covering **35,000 ha**.

See full details in Panama's country profile and summarized in Annex II.

For private nature reserves, areas conserved by indigenous people, the opportunities to register them as OECMs will be explored.

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

There is currently no data available on ICCAs for Panama (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 30,811.0 km^2, of which 21,177.0 km^2 falls outside of formal protected areas. Indigenous lands with a human footprint less than 4 (considered as 'natural landscapes') cover an area of 15,026.0 km^2 (for details on analysis see Garnett et al., 2018).

For Panama, 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: International Union for Conservation of Nature. Map of Indigenous Peoples, protected areas and natural ecosystems of Central America. http://www.burness.com/pressrooms/iucn-map-briefing/ (2015).

Opportunities for action

Explore opportunities for governance types that have lower representation, for Panama this could relate to shared governance, etc. There is also opportunity for Panama 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, Panama has 107 nationally designated PAs[3] reported in the WDPA; of these PAs, 35 (33%) have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

- 22.9% (17,283 km^2) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
  - 71.7% of the area of terrestrial PAs have completed evaluations.
- 1.3% (4,358 km^2) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
  - 11.3% 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.

The Management Effectiveness Program for protected areas was carried out in Panama until 2014. Subsequently, the tool was reviewed, and the indicators were updated and modified. It is expected that in 2021 the evaluations will be carried out again.

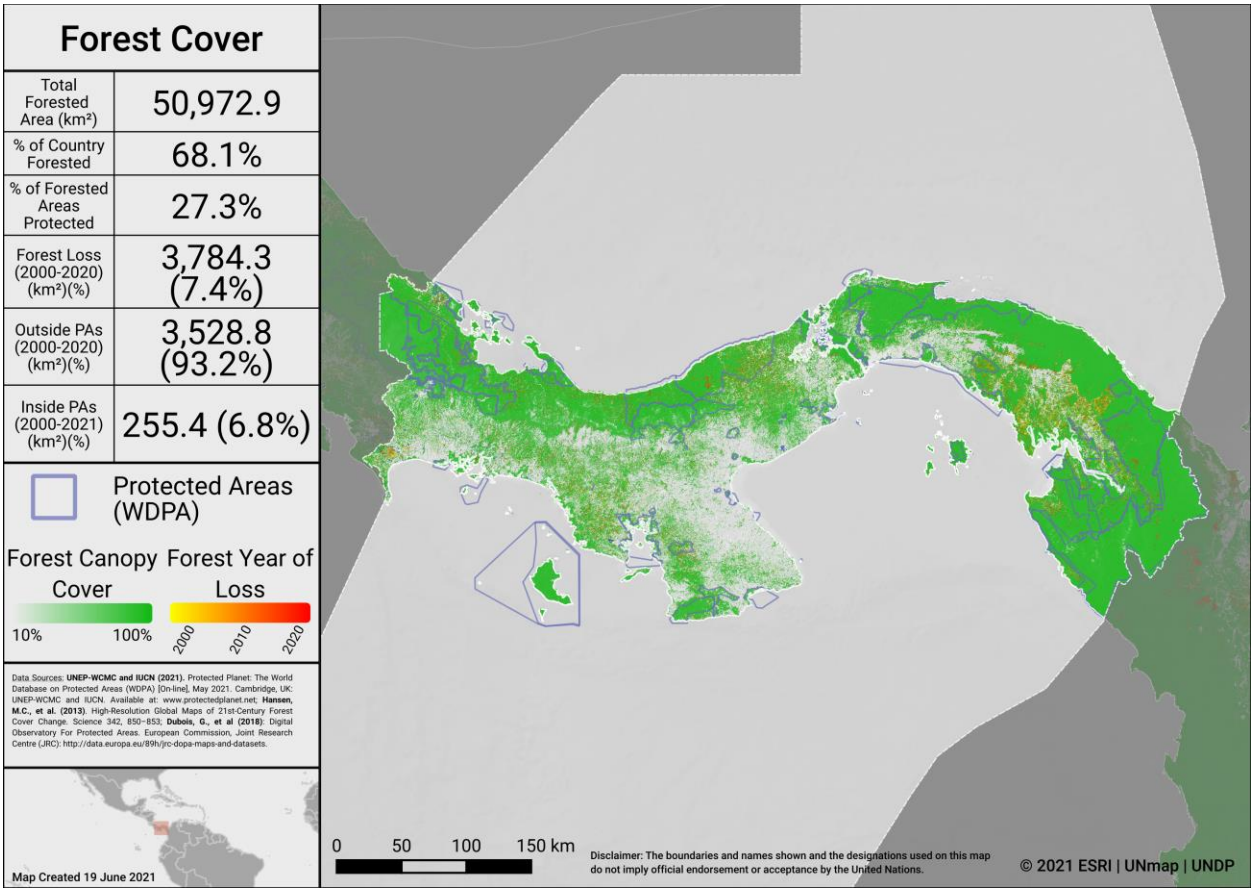
As of May 2021, there are 0 OECMs in Panama reported in the WD-OECM and no information available on the management effectiveness of potential OECMs.

Changes in forest cover in protected areas and OECMs

Forested areas in Panama cover approximately 68.1% of the country, an area of 50,972.9 km^2. Approximately 27.3% (13,911.2 km^2) of this is within the protected area estate of

[3] This include 32% of PAs that do not have spatial limits, most of these areas are established by municipal agreements. This is a situation that limits our management actions (24,110.9 Km^2, 31.9%).

Panama. Over the period 2000-2020 loss of forest cover amounted to over 3,784.3 km^2, or 5.1% of the country (7.4% of forest area), of which 255.4 km^2 (6.8% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in Panama 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 Panama

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/

Actions from the workshop:

Terrestrial and marine coverage: Evaluate and incorporate biodiversity and priority ecosystems in the SINAP.

Ecological representation:

1) The KBAs should be the top priority for immediate designation as areas
2) Assess and monitor critically endangered species, including the AZE list, to implement adaptive management measures necessary.

Areas Important for biodiversity and ecosystem services:

1) Increase and strengthen the co-management of protected areas
2) To approve the national wetland policy
3) Maintain the ecological character of wetlands through strengthening actions for conservation and sustainable use of wetlands within and outside protected areas
4) KBAs should be the top priority for immediate designation as areas.

Connectivity:

1) To establish the legal framework to create biological corridors to ensure the conservation of biodiversity and gene flow, maintaining connectivity
2) Implement the resources required to implement activities under the management of Sustainable Production Systems and Conservation of Biodiversity in the Mesoamerican Biological Corridor of Panama.

Management effectiveness: Allocate human, financial and equipment management of protected areas and its biennial evaluation.

Governance and Equity:

1) Establish at least 10 co-management agreements in 2017.
2) Provide at least 5 new concessions for the realization of ecotourism in protected areas and other activities compatible with the conservation objectives of protected areas.

Integration:

1) Implement the MAB Strategy 2015-2025 adopted by the MAB-ICC at its 27th session (UNESCO, Paris, 8-12 June 2015) and endorsed by the General Conference UNESCO at its 38th session (UNESCO, Paris, 3-18 November 2015)
2) Implement the Lima Plan of Action 2016-2025.

OECMs:

1) Regulate the establishment of private nature reserves and conservation easements on private land
2) Create incentive systems and market mechanisms.

Updates on progress:

Areas Important for biodiversity and ecosystem services:

- The KBAs have already been taken into account in the national goals within the National Biodiversity Strategy and Action Plan 2018-2050. Internal coordination is required between the Biodiversity and Protected Areas departments, also with the Environmental Information Directorate, Geomatics department.
- The alliance zero extinction (AZE) sites in Panama are all within Protected Areas. For critically endangered species, some have been made recent reports by national researchers, Harlequin Frog, Pygmy sloth, the solitary fruit bat there are no recent studies. For the salamander Oedipina grandis, and for the coral Siderastrea glynni, a review of scientific publications is required.
- A consultation will be held with experts on the subject in Panama to monitor the species that are located in the AZE areas.
- The national wetlands policy and its action plan were approved by Executive Decree No. 127 of December 18, 2018.

Governance and Equity:

- Panama currently has 7 shared management agreements in force and activities are carried out according to their action plans.
- In the case of concessions for ecotourism, Panama has not been able to advance with these mechanisms, on the one hand the legal instruments are very bureaucratic and many stakeholders are not in a position to comply with what is requested. On

the other hand, the issue of the COVID 19 Pandemic, stopped all tourist activity. We hope that in the coming years the interest in establishing these concessions will increase.

The elements of the country file will be taken into account to explore the proposal to reformulate the national goals of the NBSAP related to terrestrial and marine protected areas, to align as a national contribution towards the achievement of the goals of the CBD's post2020 Global Biodiversity Framework

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

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

By 2030, Conservation, Management and Co-Management Plans in protected areas will have been updated and will be in execution that contribute to the conservation of biodiversity.

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)
5546	No	N/A	N/A	Effectively managed; Integration
9804	No	N/A	N/A	Areas important for biodiversity; Effectively managed; Equitably managed; Integration
9889	No	N/A	N/A	Ecologically representative; Effectively managed; Equitably managed

OTHER ACTIONS/COMMITMENTS

Leaders' Pledge for Nature

Panama **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.

Panama's statement at the 2020 UN Biodiversity Summit mentions PAs, OECMs or corridors:

1. Panama already has over 33% of its land area as part of our national system of protected areas, and over 13% of our jurisdictional waters are Marine Protected Areas. 2. We have signed a cooperation convention and agreement with the private reserves network in Panama. This was an initiative of civil society, promoting connections between protected areas and other conservation zones to form biological corridors.

High Ambition Coalition for Nature and People

Panama **has** joined the High Ambition Coalition for Nature and People.

The High Ambition Coalition for Nature and People (HAC) is an intergovernmental group, co-chaired by France and Costa Rica [currently including 65 countries and the European Commission]. Its objective is to support the adoption of a target aiming to protect 30% of the planet's land and 30% of its oceans by 2030 (30x30 target), within the future global framework of the Convention on Biological Diversity (CDB) for the protection of biodiversity, which is to be adopted at the next COP in China this autumn.

Global Ocean Alliance

Panama **has** joined the Global Ocean Alliance: 30by30 initiative

The Global Ocean Alliance 30by30 is a UK led initiative [currently containing 53 countries as signatories]. Its aim is to protect at least 30% of the global ocean as Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measures (OECMs) by 2030.

Commitments for PAs and OECMs from Other National Policies

Policy document	Ecosystem	Policy text
Nationally Determined Contribution	Forest ecosystems	Promote and incentivize landowners to protect water sources; maintain and / or increase the forest cover of their farms through the establishment of agroforestry, silvopastoral systems, and fast-growing forest plots; and the maintenance of the forest cover of their farm
Nationally Determined Contribution	Forest ecosystems	increase the adaptive capacity of the most vulnerable populations and promote the transition towards a low-emission development model
Nationally Determined Contribution	Coastal ecosystems	Adopt voluntary measures in the international maritime and air sectors that facilitate the compliance of these industries, within the framework of the International Maritime Organization (IMO) and the Civil Aviation Organization (ICAO), through market-based measures
National Development Plan	Forest ecosystems	Prevent illegal logging in provinces such as Darien and water-producing basins, working closely with communities and local authorities
National Development Plan	Forest ecosystems	Strengthen the adventure and ecotourism products in buffer zones of national parks and protected areas
National Development Plan	Forest ecosystems	Prepare and update management plans for the country's critical protected areas (Humedal Bahía de Panamá, Chagres National Park, Coiba, among others)
National Water Security Plan	Forest ecosystems	Reach 750 thousand hectares reforested by 2030, one million by 2035, and increase forest cover to 47.9% by 2050
Sustainable Tourism Master Plan	Forest ecosystems	Develop "environmentally friendly" projects (such as green roads, leaving the natural land, modifying only what is strictly necessary), considering the characteristics of the forests and areas to be intervened
Sustainable Tourism Master Plan	Forest ecosystems	Use the economic value collected due to the implementation of walkways/roads, to improve the conservation of the site and the entire reserve
National Water Security Plan	Grasslands & Agricultural systems	Increase the availability of water resources through the construction of multipurpose reservoirs that allow the storage of water to meet current and future needs in terms of drinking water consumption, food production, energy generation, industry, transportation, recreation, ecosystems

Policy document	Ecosystem	Policy text
National Water Security Plan	Grasslands & Agricultural systems	Efficient use of water resources in agriculture through precision supply and irrigation systems (drip), reaching a covered area of 70% by 2030 and 100% by 2050
Food and nutrition security plan	Grasslands & Agricultural systems	Improve the local economy and employment linked to rural tourism and the maintenance of agricultural production, forest conservation, etc
National Biodiversity Strategy Action Plan	Forest ecosystems	By 2025, ex situ conservation programs will have been strengthened, with the support of public-private partnerships
National Biodiversity Strategy Action Plan	Forest ecosystems	By 2025, harmful subsidies will have been reduced and positive incentives for the conservation of biodiversity will have been established, incorporating sustainability criteria, including Certification of Green Seal products
National Biodiversity Strategy Action Plan	Forest ecosystems	By 2030, Conservation, Management and Co-Management Plans have been updated and are being implemented in protected areas that contribute to the conservation of biodiversity
National Forest Strategy	Forest ecosystems	Reduce the rate of deforestation, forest degradation and recover degraded soils by 2050
National Forest Strategy	Wetland ecosystems	Ensure the protection and restoration of riparian zones, water recharge zones, protected areas, their buffer zones, and biological corridors by 2050
National Wetlands Policy	Wetland ecosystems	Incorporate protection, sustainable use and conservation of wetlands and their biodiversity as key element within planning processes and land use planning in wetland areas
National Wetlands Policy	Wetland ecosystems	Promote the implementation of the National Plan for Water Security as an instrument that contributes significantly to wetlands conservation
National Biodiversity Strategy Action Plan	Coastal ecosystems	By 2030, the resilience of at least 25% of vulnerable ecosystems, both terrestrial and marine, will have been improved through: (1) a Diagnosis of factors / processes / activities involved in the degradation and loss of priority vulnerable ecosystems; and (2) Strategies and action plans on prevention, early response and monitoring actions for degradation and loss of vulnerable ecosystems
National Forest Strategy	Coastal ecosystems	Ensure the protection and restoration of riparian zones, water recharge zones, protected areas, their buffer zones, and biological corridors by 2050

Policy document	Ecosystem	Policy text
National Wetlands Policy	Coastal ecosystems	Incorporate protection, sustainable use and conservation of wetlands (including coastal and marine) and their biodiversity as key element within planning processes and land use planning in wetland areas
National Wetlands Policy	Coastal ecosystems	Promote the implementation of the National Plan for Water Security as an instrument that contributes significantly to wetlands (including coastal and marine) conservation
Annex 6 Legal Framework, National Security Authority	Coastal ecosystems	Legislation for the conservation and planning of coastal zones, including marine protected areas

ANNEX I

FULL LIST OF TERRESTRIAL ECOREGIONS

Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
Chocó-Darién moist forests	13,553.5	18.5	18.2	6,799.8	50.2
Eastern Panamanian montane forests	2,194.1	72.4	2.9	1,824.6	83.2
Isthmian-Atlantic moist forests	23,165.7	39.7	31.1	7,970.7	34.4
Isthmian-Pacific moist forests	19,985.0	68.5	26.8	1,402.1	7.0
Mesoamerican Gulf-Caribbean mangroves	507.3	1.9	0.7	195.5	38.5
Panamanian dry forests	5,087.4	100.0	6.8	151.6	3.0
South American Pacific mangroves	2,025.8	15.0	2.7	654.3	32.3
Southern Mesoamerican Pacific mangroves	1,194.7	15.3	1.6	327.3	27.4
Talamancan montane forests	7,137.2	43.9	9.6	4,034.3	56.5

ANNEX II

ADDITIONAL DETAILS ON PPAs

In Panama, the term *Private Protected Areas* is not used as it appears in the country profile

- The Red de Reservas Naturales Privadas de Panamá has created a definition of PPAs and provides much of the technical support to PPAs in Panama. Privately protected areas in Panama are legally designated through article 68 of Law 41, the General Environmental Law:
  - The general environmental law establishes "The State will stimulate the creation of private natural reserves, ecological easements on private lands, with institutional support, through incentive systems and market mechanisms. Incentive systems will be established by regulation and their benefits may also be applied to private lands that are located within the limits or buffer zones of protected areas established according to the law. The foregoing will apply whenever the owner of the private land voluntarily decides to join these systems.
- The Panamanian Network of Private Nature Reserves is mentioned as an organization, among others, that is responsible for pursuing national goals. As of 2010, there were 40 Private Nature Reserves in Panama, occupying approximately 35,000 ha
  - In Panama, private reserves are recognized as complementary areas to the National System of Protected Areas, but they are not included within the system.

Case studies/best practices:

- *Punta Patiño Private Nature Reserve, Darién, Panama*: **30,000 ha**, of ecologically important primary and secondary forest and coastal wetlands, formed by the organization ANCON in 1993 with the objective to improve the livelihood of local Indigenous communities residing near the reserve, develop community activities based off natural capital that is sustainable, have community participation in management plans, improve coconut production, and reduce the occurrences of environmentally damaging activities in the area.
- *The Mamoní Valley Preserve, Panamá Este, Panama*: **11,500 ha**, located in the mountainous region east of Panama City, was selected for conservation due to its unique and vulnerable location. It is sourcing one of the Panama province's major watersheds and forms a crucial biological corridor. The preserve was also formed to address the threat of land clearing by cattle farmers and other settlers. The Mamoni Valley Preserve is a formally recognized non-profit organization comprised of its association members which own over half of the land within the reserve. The land is conserved through pledges, ownership, and conservation easements.

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