Convention on Biological Diversity

UN environment programme WCMC

UNDP

# CREATING A NATURE-POSITIVE FUTURE

## THE CONTRIBUTION OF PROTECTED AREAS AND OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES

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**Citation:** UNDP, SCBD & UNEP-WCMC (2021). *Creating a Nature-Positive Future: The contribution of protected areas and other effective area-based conservation measures*. UNDP: New York, NY.



**Design by:** Kimberly Koserowski, First Kiss Creative LLC

**Photos:** cover page, Alex Fine
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The preparation of this report 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 report does not necessarily reflect their views.



# ACKNOWLEDGMENTS

This publication is the end product of a collaborative effort between the United Nations Development Programme (UNDP), the Secretariat for the Convention on Biological Diversity, and the UN Environment Programme - World Conservation Monitoring Centre (UNEP-WCMC).

Special thanks goes to Scott Atkinson, Technical Specialist and Biodiversity Spatial Planning Expert, UNDP who developed all of the spatial maps throughout the publication.

A number of United Nations officials generously gave their time to review the report and provided technical comments. Their cooperation is greatly appreciated. They include: Neil Burgess, Chief Scientist, UNEP-WCMC; Lauren Weatherdon, Senior Programme Officer, UNEP-WCMC; Osgur McDermott Long, Data Manager and Programme Officer, UNEP-WCMC; Edward Lewis Programme Officer, UNEP-WCMC; Terence Hay-Edie, Biodiversity Specialist, UNDP; Di Zhang, Spatial Planning Analyst, UNDP; Edjigayehu Seyoum-Edjigu, Technical Advisor/Consultant, SCBD; and Antonio Q››Apaj Conde Choque, Associate Programme Management Officer, SCBD.

We also thank Joji Carino, Senior Policy Advisor - Forest Peoples Programme for reviewing selected chapters and providing valuable insights.

We would also like to acknowledge the immense contributions that Dr. Sarat B. Gidda, former Senior Programme Management Officer and Head of the Biodiversity, Science, Policy and Governance unit, has made towards advancing the Protected Areas Agenda throughout his career. The improvement in protected areas and other effective area-based conservation measures and the realization of this report can be largely attributed to his tireless efforts and commitment to working with Parties, experts, and organizations in order to ensure that progress towards achieving Aichi Biodiversity Target 11 becomes a reality.

A number of national government officials, including CBD national focal points, representing countries covered by the report, cooperated in collecting current and unpublished data. Many also provided comments on the country dossiers, which informed the Report, and made themselves available for consultations to ensure the accuracy of the information. Their time and support is greatly appreciated by all agencies.

The team also thanks Kimberly Koserowski, First Kiss Creative LLC, who designed the cover and layout of the report and Rachael Phillips, Communications Specialist, UNDP who designed the infographics.

European Commission

DEUTSCHE ZUSAMMENARBEIT

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Japan Biodiversity Fund 生物多様性日本基金

UK Government

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# FOREWORD

We are in the midst of a global biodiversity crisis. Biodiversity and its contributions to people are increasingly under threat from changes in land and sea use and direct exploitation, among other direct drivers like climate change whose impacts are increasing. A majority of Earth's land and sea areas have now been significantly altered by human activities and as many as 25 per cent of species are threatened with extinction unless we address the drivers of biodiversity loss.

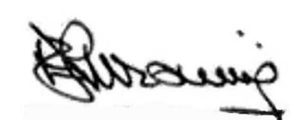
Protected and conserved areas are a cornerstone of biodiversity conservation, as recognised by Parties to the Convention on Biological Diversity. If well planned and designed as well as effectively and equitably managed, protected and conserved areas can play an important role in addressing many of the drivers of biodiversity loss. By maintaining intact biodiverse ecosystems, they can also sustain many of nature's contributions to people by supporting sustainable livelihoods, health, food, and water security, as well as climate change mitigation and adaptation and disaster risk reduction.

Aichi Biodiversity Target 11, focused on increasing the coverage and quality of protected and conserved areas, is among the most successful targets of the Strategic Plan for Biodiversity 2011-2020. Parties succeeded in increasing global coverage by more than 21 million $km^2$ over the last decade. This incredible growth in the coverage of protected and conserved areas represents an outstanding achievement. However, for maintaining ecological functions and supporting nature's contributions to people, more focus will be needed on the quality of protected and conserved areas. There is a need for better representation, increased emphasis on areas important for biodiversity and its contributions to people, improvement in management effectiveness, equity, and conservation outcomes, and a focus on connectivity and integration into wider landscapes and seascapes, as well as mainstreaming into key sectors, national plans and policies.

As Parties prepare to adopt the post-2020 global biodiversity framework, it is important to reflect on and learn from the progress made towards the achievement of Aichi Biodiversity Targets. For protected and conserved areas, this will require a greater focus on all of the quality elements (e.g., representation, connectivity, areas important for biodiversity), especially for those areas where progress has been lower or where appropriate indicators are still lacking. For instance, there is still a lack of global data for tracking management effectiveness, equity, and conservation outcomes in protected and conserved areas. These are important considerations for the development of the monitoring and reporting framework set to be adopted alongside the new global biodiversity framework.

This report presents an overview of the global status of the elements of Target 11, as the process for negotiating the post-2020 global biodiversity framework continues, pursuant to various decisions of the Conference of the Parties to the Convention (including decisions XII/2 and XIV/8). It discusses the potential benefits of protected and conserved areas for livelihoods, water, and food security, and as nature-based solutions for climate mitigation and disaster risk reduction. It also outlines some important considerations for more effective and equitable protected and conserved areas.

Successful achievement of ambitious targets for protected and conserved areas would help pave the pathway to the achievement of the post-2020 global biodiversity framework. It would also make major contributions to the Sustainable Development Goals and set us on a path towards achieving the 2050 Vision of "Living in harmony with nature".



**Elizabeth Maruma Mrema**
Executive Secretary
Secretariat of the Convention on Biological Diversity

# FOREWORD

Protected and conserved areas are the foundation for conserving biodiversity. To date, %16.65 of land and %7.74 of marine areas are reported as protected and conserved areas worldwide, a remarkable achievement, given that 42 percent of these areas – more than 21 million square kilometers – has been added just in the last decade.

This is good news for biodiversity, which is facing unprecedented pressure around the globe. But it is also good news for the future of our planet, and for humanity. Protected and conserved areas are essential for achieving the world's climate and sustainable development goals. These areas safeguard the world's water supplies, supporting the livelihoods of millions of people, and protecting communities from natural disasters. Moreover, by helping to avoid the loss and degradation of forests, peatlands and other carbon-rich ecosystems, protected and conserved areas are essential if we are to achieve our climate goals.

The economic arguments for continuing to invest in nature, including in protected and conserved areas, are clear. The benefits of protecting nature outweigh the costs by at least five to one. The current economic value of protected areas is estimated at about US 6$ trillion annually, and this figure is likely to rise as intact ecosystems become increasingly important for climate resilience and adaptation. Never has the recognition of diverse forms of conservation been so important to achieve global biodiversity, climate change and sustainable development ambitions.

The emerging post2020- Global Biodiversity Framework, and groups such as the High Ambition Coalition for Nature and People, point toward an ambitious goal of protecting %30 of the planet by 2030. Achieving this goal is not unimaginable, especially if governments focus on safeguarding the land rights of Indigenous peoples, who manage more than a third of the planet. But we must also consider issues such as ecoregional representativeness, connectivity, equity and effective management. Moreover, new protected and conserved areas will increasingly need to focus on essential ecosystem services, including water, carbon storage and climate resilience. This report presents clear opportunities for the role of protected and conserved areas to help create a nature-positive future.

**Achim Steiner**
Administrator
United Nations Development Programme

# EXECUTIVE SUMMARY

## I. Nature-positive future and the contribution of protected areas and other effective area-based conservation measures

Protected areas (PAs) are essential tools for biodiversity conservation. The last decade has seen the incredible growth in the coverage of the global PA network, making significant progress towards the coverage aspects of Aichi Biodiversity Target 11. Area-based conservation is recognized as a crucial component for achieving a nature positive future, for the resilience of the planet and biodiversity, as well as for humanity. Now, the process for developing the post-2020 Global Biodiversity Framework is underway, with the framework set to be adopted at the fifteenth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity, with a 2050 vision of “living in harmony with nature”.

To meet the post-2020 biodiversity goals and targets, the contribution of other effective area-based conservation measures (OECMs) and the lands that are collectively held and used by Indigenous Peoples and Local Communities (IPLCs) will be essential. A definition of OECMs was adopted at the fourteenth meeting of the COP, along with scientific and technical advice on the criteria for their identification. There is also now increasing evidence of the significant benefits provided by IPLCs territories, lands and waters. This is the opportunity to identify and fully recognize these sites outside of formally protected areas for their important contribution to global conservation efforts.

Improving the coverage and quality of PAs and OECMs will supply significant direct benefits and co-benefits, providing fundamental support for achieving the 2030 Sustainable Development Goals (SDGs), including poverty alleviation (SDG 1), food security (SDG 2), good health and well-being (SDG 3), water security (SDG 6), sustainable livelihoods and economic growth (SDG 8), life below water (SDG 14), and life on land (SDG 15). PAs and OECMs, through ecosystem-based approaches, further contribute to climate change mitigation and adaptation and for disaster risk reduction, providing substantial benefits for the Paris Agreement (and SDG 13) and the Sendai Framework for Disaster Risk Reduction.

## II. Protected areas and other effective area-based conservation measures: Current status and opportunities for action

### Terrestrial and marine coverage

- **Status:** As of May 2021[1], PAs and OECMs cover 16.65% of the non-Antarctic land area. Marine and coastal PAs and OECMs cover 7.74% of the ocean, reaching 18% coverage when considering only marine areas under national jurisdiction. Landmark data indicates that IPLCs lands in 31 countries cover almost 10% of non-Antarctic land areas and 0.7% of coastal and marine areas, though estimates for the total coverage of IPLCs territories, lands, and waters are much higher.
- **Opportunities for action:** 26 Parties are in the process of updating their data in the WDPA or WD-OECM, with many more planning to do so in the coming months. Efforts are needed to identify any unreported PAs and to recognize OECMs and report these sites in the appropriate global database. In the future, as new PAs and OECMs are planned, focus could be given to intact areas that are not currently protected, while addressing the remaining quality elements. The establishment of new PAs and OECMs should be done in a participatory way that is respectful of the rights of IPLCs and stakeholders.

### Ecological representativeness

- **Status:** Globally there are 826 non-Antarctic terrestrial ecoregions, 232 marine ecoregions and 37 pelagic provinces. Of these 43.7% of terrestrial ecoregions (361) have at least 17% coverage from reported PAs and OECMs, while 47.4% of marine ecoregions (110) and 10.8% of pelagic provinces (4) have at least 10% coverage. Half of terrestrial ecoregions overlap with IPLCs lands recognized by governments in 31 countries.
- **Opportunities for action:** increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs and OECMs, such as the 104 terrestrial ecoregions, 77 marine ecoregions and 13 pelagic provinces which currently have less than 3% protection.

### Areas important for biodiversity

- **Status:** Globally there are 16,343 Key Biodiversity Areas (KBAs) and 591 Ecologically or Biologically Significant Marine Areas (EBSAs); mean coverage by PAs and OECMs is 43.3% and 8.3%, respectively. There are 1,240 KBAs, which overlap with IPLCs lands acknowledged by governments.
- **Opportunities for action:** increase protection of KBAs; priority could be given to the 6,298 KBAs, which have <2% coverage from reported PAs and OECMs.

### Areas Important for Ecosystem Services

- **Status:** Globally, 24.57% of global aboveground biomass, 20.86% of global belowground biomass, 15.44% of soil organic carbon and 7.07% of marine sediment carbon are held within reported PAs and OECMs. More than 10% of total terrestrial biomass carbon is stored in IPLCs lands, including those both acknowledged and not acknowledged by governments. The average protection of watershed catchments in 19 geographic sub-regions is 21.9%; values for individual sub-regions range from 2.9% to 56.7%.
- **Opportunities for action:** develop or identify indicators that will help assess the conservation of areas important for ecosystem services. For carbon, increasing PA and OECM coverage in marine and terrestrial areas with high carbon stocks, and improving the management of all sites,

1 The latest statistics are available at www.protectedplanet.net

would help secure the benefits of carbon sequestration. For freshwater resources, improving the protection of watersheds and forest cover and reducing forest losses within catchments can provide significant benefits for water supply and water quality as well as stormwater management and disaster risk reduction.

### Connectivity and Integration

- **Status:** As of January 2021, global coverage of protected-connected lands (including OECMs) is 7.84%. Based on a different indicator for connectivity (the PARC-Connectedness Index) global connectivity of terrestrial PAs in 2019 was 0.51 (on a scale of 0-1). To date, there is no global assessment of the connectivity of marine PAs and OECMs.
- **Opportunities for action:** increase coverage of PAs and OECMs to reduce the impacts of fragmentation; where connectivity is already high, focus could be given to PA and OECM management for enhancing and maintaining connectivity. Restoration and improved management of unprotected areas may also be needed to secure the benefits of PAs and OECMs.

### Equitable governance

- **Status:** Currently, 84.0% of reported PAs are governed by governments, 1.8% under shared governance, 6.8% under private governance, and 0.5% under IPLCs governance (the remainder do not have their governance type reported). For OECMs, this is 64.5% government, 21.6% shared, 3.2% private, 1.7% IPLCs.
- **Opportunities for action:** increase reporting for PAs and OECMs under shared and IPLCs governance, with the consent of custodians. As simple assessments of governance diversity provide limited insight into PA and OECM equity, increased efforts to collect data on governance quality, equity and the social impacts of area-based conservation are needed.

### Protected Area Management Effectiveness

- **Status:** As of May 2021[2], 4.5% of the area of terrestrial PAs and 14.0% of the area of marine and coastal PAs within national waters have completed Protected Area Management Effectiveness assessments reported. A total of 42 CBD Parties have surpassed the 60% target for completed management effectiveness assessments for terrestrial PAs; 30 Parties have met the target for marine PAs.
- **Opportunities for action:** increase the completion and reporting of management effectiveness evaluations for both terrestrial and marine PAs and OECMs. As simply reporting on completed evaluations is not adequate, efforts should be made to ensure effective management is being implemented and achieved and biodiversity outcomes are being monitored.

2 Latest statistics are available at www.protectedplanet.net





### National commitments, policies and projects

Parties have committed to increasing PA and OECM coverage throughout the last decade, and if completed as planned, these commitments could further increase global coverage by millions of $km^2$ and provide benefits for other elements of quality. An analysis of 356 approved GEF-5 and GEF-6 projects from 131 countries, indicated that on average, each project benefited 4-5 elements of Aichi Biodiversity Target 11, primarily equitable governance and integration into the wider landscape and seascape. For 65 Green Climate Fund (GCF) projects, the contribution was primarily to integration into the wider landscape and seascape and management effectiveness. A separate analysis of 1,043 policy documents, from 51 countries, on nature, climate and sustainable development with potential links to Target 11, showed that policies most often focused on climate mitigation and ecosystem integrity.

## III. The benefits of protected areas and other effective area-based conservation measures

Effectively managed and equitably governed PAs and OECMs can improve biodiversity conservation as well as provide a vast range of other co-benefits. Direct biodiversity benefits include increased species richness and abundance (Gray et al., 2016) and a decrease in risk of extinction. The global increase in marine PA and OECM coverage over the last decade has significantly improved the coverage of reef-forming corals, as well as the coverage of threatened mangroves, seagrasses, marine mammals and bony fish (Maxwell et al., 2020).

Some of the most important co-benefits provided by PAs and OECMs relate to the provision of ecosystem-based approaches to climate change mitigation and disaster risk reduction. The protection and restoration of ecosystems provides significant carbon sinks and could provide a significant portion of the emission reductions necessary to stabilize warming below 2°C (Griscom et al., 2017). Healthy and intact ecosystems can help reduce disaster risk. Mangroves and coral reefs provide a significant reduction in the damage inflicted on communities from extreme weather events such as flooding and storms (Mercer and Salem, 2012), riparian and coastal vegetation stabilizes shorelines and riverbanks with erosion control (Ruitenbeek, 1992) and intact forested mountains and slopes can protect from landslides and avalanches by stabilizing sediments (Dudley et al., 2015).

PAs and OECMs protecting ecosystems that are a vital source of clean water will also increase water security. Restoration and protection of ecosystems can improve water retention and groundwater recharge, and ecosystems such as wetlands and forests can improve the water quality. PAs and OECMs are critical in the protection of pollinator populations, providing an essential contribution to food security (Klein et al., 2007). They allow fish populations to regenerate, which would have significant benefits for the billions of people who rely on fish as a major source of protein (FAO, 2016). Nature-based tourism in PAs provides significant economic benefits and contributes to sustaining livelihoods; while PAs and OECMs also have been shown to provide mental health benefits (Buckley et al., 2019). As a major portion of the world's total gross domestic product is highly or moderately dependent on nature and its services (WEF, 2020), PAs and OECMs are essential.

**Figure 1. The direct benefits and co-benefits provided by PAs and OECMs and the contribution of these towards the Sustainable Development Goals.**


## IV. Envisioning a nature-positive future: Takeaways for more effective and equitable protected areas and other effective area-based conservation measures

To achieve a nature-positive future, improving the quality of PAs and OECMs will be required. To attain this, three important considerations are discussed:

1. Increase coverage, prioritizing representativeness, connectivity, and the conservation of areas important for biodiversity; equitable expansion; and effective management and quality outcomes in PAs and OECMs
2. Scale up recognition of the contribution of Indigenous Peoples and Local Communities (IPLCs) territories, lands and waters and secure tenure rights
3. Embed PAs and OECMs into national policies and decision-making frameworks

It is important that PAs and OECMs are ecologically representative, well-connected, and focus on areas of particular importance for biodiversity and its contributions to people. Consideration of the level of intactness or integrity can further help maintain and restore connectivity where it has been lost. These actions must be supported with improvements in effective management and appropriate equity and governance measures. A shift is necessary away from focusing solely on the quantity of PAs and OECMs, to ensure that existing and new sites are effectively managed and equitably governed for the protection of biodiversity and delivery of other benefits and co-benefits. To do so, new approaches for the assessment of site performance may need to be developed and adopted. Monitoring and assessing progress on equitable governance is currently limited but must be a focus in the coming decade. This will ensure the acknowledgement and recognition of rights and values of various actors, to enhance inclusion in decision-making for improved transparency and accountability, and to improve the equitable sharing of benefits and costs.

Ensuring that PAs and OECMs are well-governed and equitable will require recognition of the contribution of IPLCs' territories, lands and waters. Any increase in PA and OECM coverage through recognizing the existing management of IPLCs, must be implemented with IPLCs consent, respect for their rights, and should be accompanied by appropriate recognition and support. It is estimated that IPLCs are stewards of at least 32% to 65% of the world's land area; however, recognition of their rights to this land is currently severely lacking, despite already making vast contributions to global conservation efforts and other international targets (Rights and Resources Initiative, 2015). Whilst recognition of these lands and human rights has improved in recent years, the importance of equitable procedures, distribution, and recognition in PAs and OECMs is critical for the post-2020 Global Biodiversity Framework to be achieved.

Finally, it is essential to integrate area-based conservation into national policies and decision-making frameworks, as well as sectoral plans and strategies. This process of mainstreaming biodiversity conservation will ensure the contribution of PAs and OECMs to addressing climate targets and sustainable development outcomes in addition to addressing the biodiversity crisis, as discussed in chapter 4. These efforts may also involve various spatial scales (local to global) and will rely on strong science-based biophysical and socio-economic data. An example of this approach is presented with the Essential Life Support Areas (ELSA) project in Costa Rica.

In conclusion, with hopes to achieve a nature-positive future, this report outlines the need for scaling up equitable, representative, and effective PAs and OECMs to halt and reverse the continuing loss of global biodiversity, and reap the extensive range of direct benefits and co-benefits outlined in this report. For this to be achieved, it is crucial that focus moves beyond just expanding PA and OECM coverage, towards ensuring sites are ecologically representative and well-connected, and giving greater focus to equitable governance and the achievement of conservation outcomes through effective management, all embedded within a rights-based approach. The delivery of a greater range of benefits will be possible through embedding area-based conservation in global, national and local policies and frameworks, alongside increased and sustained financial support and capacity development. As countries prepare to negotiate and adopt a new Global Biodiversity Framework, there is pressure to ensure that this adequately responds to the pressing issues of our time, such as continuing biodiversity loss, impacts of climate change and growing socio-economic inequality. With concerted efforts and consideration of the issues outlined in this report, we can collectively implement the transformative changes necessary to achieve the 2050 Vision of living in harmony with nature.

# CHAPTER 1

## Introduction: Area-based conservation for biodiversity, climate change and sustainable development

# INTRODUCTION: AREA-BASED CONSERVATION FOR BIODIVERSITY, CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

Protected areas (PAs) are an essential tool for biodiversity conservation and are an important focus of work under the Convention on Biological Diversity (CBD); they are mentioned in Article 8 of the Convention text (CBD, 1992), with provisions for PAs included in most other programmes of work (e.g., the Programme of Work on Marine and Coastal Biodiversity, Programme of Work on Forest Biodiversity, and Global Strategy for Plant Conservation). The global coverage of PAs has expanded rapidly in the last decade, with PAs and other effective area-based conservation measures (OECMs) now covering more than 50 million $km^2$, over 21 million $km^2$ higher than in 2010. This incredible growth across PA and OECM coverage globally over the last decade represents an outstanding conservation achievement, which is especially noticeable in the marine realm where coverage has tripled, increasing from ~9 million $km^2$ in 2010 to over 28 million $km^2$ today (UNEP-WCMC and IUCN, 2021). The impressive commitments to expanding the global PA and OECM network have supported the achievement of the 17% terrestrial coverage target of Aichi Biodiversity Target 11[1] and enhanced progress to meet the 10% target for the global ocean (for coastal and marine areas under national jurisdiction the 10% target has been surpassed) (UNEP-WCMC and IUCN, 2021).

With such success, continuing to increase coverage will likely remain a priority in the post-2020 Global Biodiversity Framework (GBF), where the contribution of PAs and OECMs has been recognized as a crucial component for achieving a "nature positive" future. Nature positive refers to actions that increase resilience of the planet and biodiversity, as well as societies, with the aim of creating a paradigm shift to reduce the loss of nature, secure nature's contributions critical for humanity, and enhance sustainable socio-economic development. With the definition of OECMs recently adopted,[2] along with scientific and technical advice on criteria for their identification (CBD, 2018), there is increasing opportunity to recognize successful site-based conservation initiatives outside of formal PAs while also contributing to ecologically representative and well-connected networks, improving effective management and restoration, and ensuring long-term conservation (Alves-Pinot et al., 2021). Already, several countries have reported on OECMs in the World Database on OECMs (WD-OECM), and many more are in the process of recognizing and reporting on these important sites. Continued submission of updated data on PAs and OECMs to the World Database on Protected Areas (WDPA) and WD-OECM is essential for an accurate and comprehensive global picture of area-based conservation.

1 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 (CBD, 2010).

2 "A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values." (CBD decision 14/8, 2018: Paragraph 2).





A recent report (ICCA Consortium, 2021) estimates that Indigenous Peoples and Local Communities (IPLCs) currently conserve 17% of the terrestrial areas outside of land governed by states or private actors, including a large portion of remaining intact lands. Efforts to reach the draft 30% post-2020 target will therefore have to rely on the increased recognition and support for these IPLCs conserved lands, some of which may be recognized as PAs or OECMs at the request of their custodians. As noted in COP decision 14/8 regarding OECMs, "Recognition of other effective area-based conservation measures in areas within the territories of indigenous peoples and local communities should be on the basis of self-identification and with their free, prior and informed consent, as appropriate, and consistent with national policies, regulations and circumstances, and applicable international obligations" (CBD, 2018). The same caveats should be applied to the recognition of IPLCs-governed PAs (CBD Secretariat, 2010).

### PAs, OECMs and the post-2020 Global Biodiversity Framework

Building on the Strategic Plan for Biodiversity 2011-2020, the process for developing a post-2020 Global Biodiversity Framework (GBF)[3] is underway. The framework is set to be adopted by the Conference of the Parties (COP) at its fifteenth meeting. To achieve the Convention's 2050 Vision of "living in harmony with nature,"[4] the draft framework sets out the necessary actions "required to transform economic, social and financial models so that the trends that have exacerbated biodiversity loss will stabilize in the next 10 years (by 2030) and allow for the recovery of natural ecosystems in the following 20 years, with net improvements by 2050" (CBD, 2021). The first draft of the framework was recently released (CBD, 2021), and it sets out long-term goals (for 2050) addressing the three objectives of the Convention, along with financial and other means of implementation; all 2050 goals have related milestones for 2030. The draft framework also has 21 action-oriented targets for the next decade (2021-2030), addressing threats to biodiversity (targets 1-8), meeting people's needs through sustainable use and benefit-sharing (targets 9-13), and tools and solutions for implementation and mainstreaming (targets 14-21). As PAs and OECMs form a cornerstone of biodiversity conservation, they will have an important role to play in many of the proposed targets, while progress towards other targets may have benefits for effective and equitable conservation within PAs and OECMs.

For example, PAs and OECMs can be an important tool for retaining existing intact and wilderness areas (Target 1), while ensuring that all land and sea areas are under integrated biodiversity-inclusive spatial planning could support the need for networks of PAs and OECMs to be integrated into the broader land- and seascapes, including relevant sectoral plans and policies (this will also be supported through Target 14 on fully integrating biodiversity values into *inter alia*, policies, planning, development processes, and environmental impact assessments). Many PAs employ active management and restoration to conserve biodiversity and other values (Keenleyside et al., 2012), while well-connected networks of PAs and OECMs will help maintain connectivity for priority freshwater, marine, and terrestrial ecosystems (Target 2). Effectively managed PAs and OECMs are a vital tool to enable the recovery and conservation of species and genetic diversity and manage human-wildlife interactions (Target 4) and effectively managed sites may also support addressing pathways for the introduction of invasive alien species (Target 6; e.g., Foxcroft et al., 2013) and contribute to climate change mitigation and adaptation (Target 8; further discussion below).

Improving the coverage and quality of PAs and OECMs, under a broad range of management types and governance arrangements, will also contribute to meeting the requirements of other multilateral environmental agreements like the Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention), Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, and Convention on the Conservation of Migratory Species of Wild Animals. PAs and OECMs provide a wealth of other direct benefits and co-benefits that can meet people's needs through sustainable use and benefit-sharing (Targets 9-13), and if the effective and equitable management of well-connected networks can be enhanced, will also support many goals and targets of the 2030 Agenda for Sustainable Development. The remaining targets of the post-2020 GBF (targets 14-21) cover the tools and solutions for implementation and mainstreaming that will be necessary to ensure the effective and equitable management of networks of PAs and OECMs integrated into the wider landscapes and seascapes, among other aims, and to ensure the sustained delivery of benefits for people and planet.

3 The term "post-2020 Global Biodiversity Framework" (shortened here to GBF) is used as a placeholder, pending a decision on the final name of the framework by the Conference of the Parties at its fifteenth meeting.

4 "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).

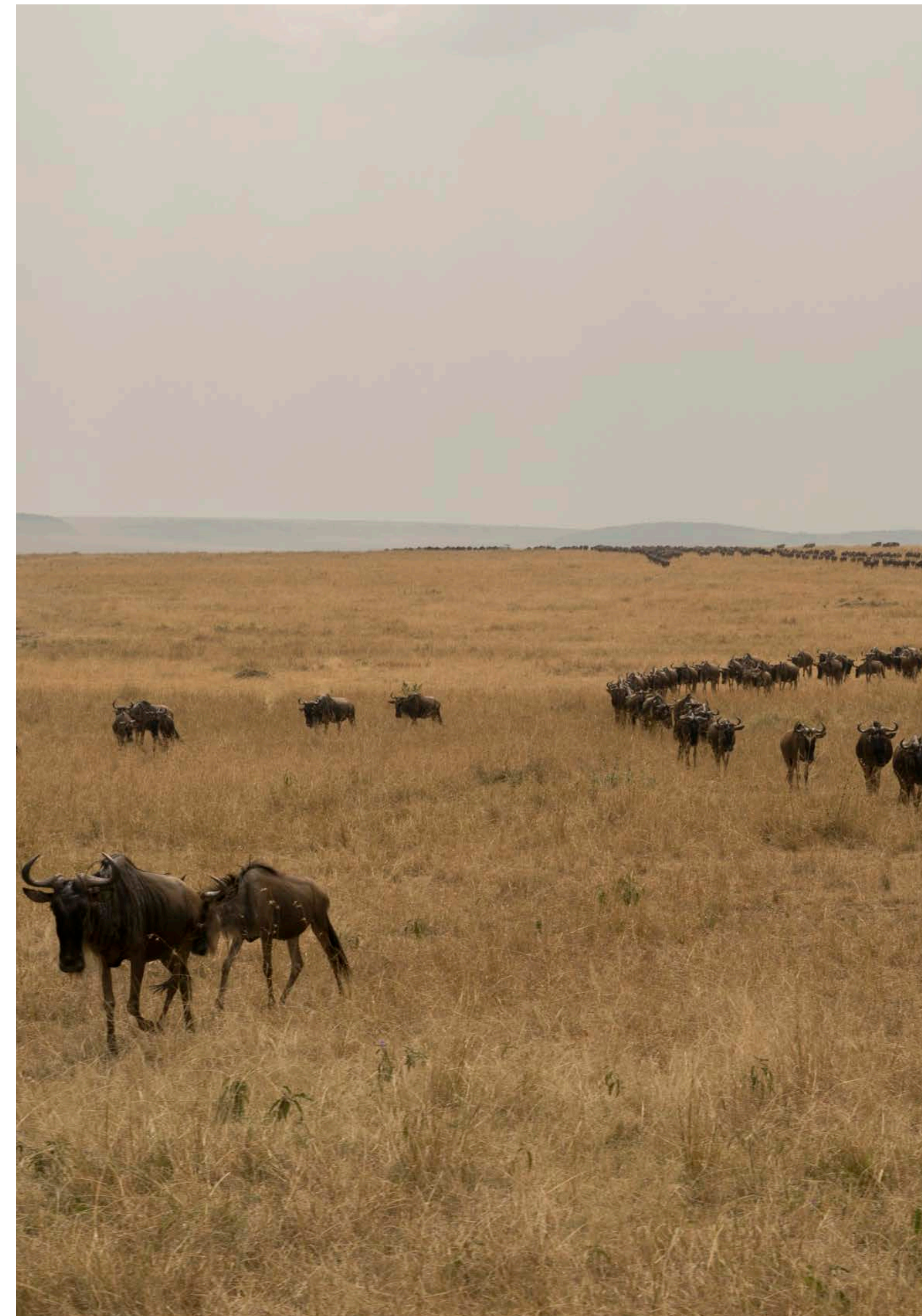
## PAs and OECMs and the Sustainable Development Goals (SDGs)

The IPBES Global Assessment Report concluded that half (22 of 44) of the assessed targets under the SDGs related to poverty, hunger, health, water, and others, are detrimentally affected by the significant and sustained negative trends identified for biodiversity and nature's contributions to people (IPBES, 2019). As such, if implementation of the post-2020 GBF is successful, this will make a fundamental contribution to the achievement of many of the SDGs. Chapter 3 examines the benefits of PAs and OECMs, focusing on the crucial contribution to life below water (SDG 14) and life on land (SDG 15), as well as other benefits and co-benefits of area-based conservation, including outcomes in support of poverty alleviation (SDG 1); food security and zero hunger (SDG 2); good health and well-being (SDG 3); water security and clean water and sanitation (SDG 6); and sustainable livelihoods, decent work and economic growth (SDG 8).

SDG 13, on climate action to support climate mitigation and adaptation as well as disaster risk resilience, addresses another of the most pressing environmental challenges facing the world today. The Paris Agreement adopted in 2015 notes "the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity" (UNFCCC Secretariat). In a 2019 review of 151 Nationally Determined Commitments (NDCs), more than one-third (67) identified PAs as a means of attaining their adaptation and mitigation goals; half of these (32) expressed an intention to add new PAs or expand coverage of those already in place (Hehmeyer et al., 2019). Only 21 countries (12%) specifically mentioned the carbon sequestration benefits that PAs can provide, and only 10 NDCs made specific pledges to manage PAs for current or anticipated climate change risks to ecosystems and biodiversity (Hehmeyer et al., 2019). Chapter 3 provides further discussion of the role that PAs and OECMs can play in addressing climate change and disaster risk reduction.

While PAs and OECMs can provide significant direct benefits and co-benefits to many of the goals and targets of the SDGs, care should be taken, given the potential interactions and trade-offs between SDGs, especially with respect to those targets that rely on, or will impact, biodiversity (Nilsson et al., 2016). For example, as affordable and clean energy is scaled up worldwide (SDG 7), especially renewable energy relying on ecosystems, it is essential that these do not further impact PAs and OECMs. Currently, more than 2,200 renewable energy facilities are built in areas of environmental significance, threatening natural habitats of plant and animal species; these facilities are impacting 886 PAs, 749 Key Biodiversity Areas (KBAs) and 40 distinct wilderness areas (Rehbein et al., 2020). Ensuring that PAs and OECMs are "integrated into the wider landscapes and seascapes," which is understood to include mainstreaming into sectoral plans and policies (Ervin et al., 2010; CBD, 2018), may help to address some potential trade-offs, as will effective progress towards the post-2020 GBF targets for meeting people's needs through sustainable use and benefit-sharing (Targets 9-13) and the tools and solutions for implementation and mainstreaming (Targets 14-21).

The following chapter presents an overview of the global status of elements of Target 11 (all of which are currently included in some way in draft Target 3 of the proposed post-2020 GBF), based on data currently reflected in global databases like the WDPA, WD-OECM, and the Global Database on Protected Area Management Effectiveness (GD-PAME), as well as several indicators based on this data. Chapter 2 also addresses the potential contribution of some of the territories, lands and waters that are collectively held and used by Indigenous Peoples and Local Communities, and commitments made by Parties to the Convention for improving PA and OECM coverage and quality. Chapter 3 presents some of the potential benefits of PAs and OECMs, for biodiversity conservation, water and food security, climate mitigation and disaster risk reduction, livelihoods, health and well-being. Finally, chapter 4 outlines important considerations for more effective and equitable PAs and OECMs.



# CHAPTER 2

## Global status, gaps and opportunities

CHAPTER 2

# GLOBAL STATUS, GAPS, AND OPPORTUNITIES

The *Nature-based Solutions in the Post-2020 Global Biodiversity Framework Project: Protected Areas and OECMs* is a joint effort between the Secretariat of the CBD and the United Nations Development Programme (UNDP), to assess progress on Aichi Biodiversity Target 11 building on the Protected Planet Report 2020 (UNEP-WCMC and IUCN, 2021a), and to inform and support the fifteenth meeting of the COP and the Post-2020 Global Biodiversity Framework (GBF). To present the current status of effective area-based conservation for each element of Aichi Biodiversity Target 11, country dossiers were compiled for 195 Parties to the Convention (as well as the USA, a non-Party country). The dossiers were compiled using data derived from the WDPA (UNEP-WCMC and IUCN, 2021b) and the WD-OECM which are joint products of UNEP and IUCN, managed by UNEP-WCMC (available at www.protectedplanet.net). Results on several key elements of Aichi Biodiversity Target 11 are derived from the Protected Planet Report 2020. The report and methods used can be viewed here. All geospatial analyses carried out by the UNDP were done using open-source tools, including PostGIS (version 3.1) and Google Earth Engine. The text and contents of the dossiers themselves were prepared and populated using markdown formatting (R Markdown, version 2.9). Where data was less readily available, such as for territories and areas conserved by Indigenous Peoples and Local Communities (ICCAs), and Privately Protected Areas (PPAs), data was also compiled from published reports and scientific literature. The dossiers also presented data from national policies, actions and commitments, to present a summary of Parties existing efforts towards achieving Target 11.

The objective of compiling these dossiers was to collaborate with Parties to establish a more accurate picture of the status of Aichi Biodiversity Target 11. Providing each Party with their dossier (country dossiers are publicly available here), allowed for potential gaps and discrepancies in the data to be identified and Parties were encouraged to update their data in the appropriate global database, where possible. This opened a means of communication whereby Parties were given the opportunity to provide feedback, comments and updates in a matrix or online survey, crafted by the CBD Secretariat and UNDP team, as well as the option to connect via video consultations. In total 9 video consultations were carried out with Parties and 76 Parties provided feedback via the survey, matrix or other written comments.

This participation was essential to ensuring the data provided was up to date, verified and validated and therefore representative of the national progress. This outreach also gave focus to identifying and understanding any barriers or needs at the national level. As part of this process, Parties were asked to comment on the accuracy of several indicators derived from the WDPA, WD-OECM and GD-PAME, alongside other data sources. The feedback presented here provides a useful indication of how well indicators derived from global datasets align with those produced at national level, but readers should be aware that misalignment does not necessarily indicate that either the global or national indicators are incorrect. While some gaps may be present in the reported data at global or national levels, additional reasons for misalignment often relate to the approach used: differences in methodologies, national boundaries, types of protected areas included, and the format of data inputs will all affect the results. While national-level analyses may benefit from finer-scale and country-specific datasets (e.g. on areas of importance for biodiversity), methodologies may differ significantly between countries. As such, there are clear benefits to standardized, global methodologies. Indicators derived from the WDPA and associated databases are based upon consistent methodologies and standard definitions that enable comparison across countries, while allowing for the aggregation of national datasets into meaningful global indicators.

This chapter therefore presents the global and regional status of each element of Aichi Biodiversity Target 11, alongside the results and feedback from outreach with Parties. Data is also presented on Indigenous Peoples' territories, lands and waters, based on spatial data from Landmark, which is publicly available for 31 countries.[5] As this dataset is only available for 31 countries, it is known to be incomplete, therefore it should not be assumed that uncovered areas of the Landmark maps are without IPLC lands and territories. In presenting the current global status, this chapter also aims to highlight any remaining gaps and opportunities for improving the status, whilst maximizing the multiple benefits that the conservation of biodiversity will provide towards the achievement of goals under other multilateral environmental agreements and the Sustainable Development Goals. Learning from these gaps and opportunities will result in positive change for the benefit of people and nature to realize the 2050 Vision for Biodiversity.

## I. Terrestrial and marine coverage

### Global PA and OECM coverage

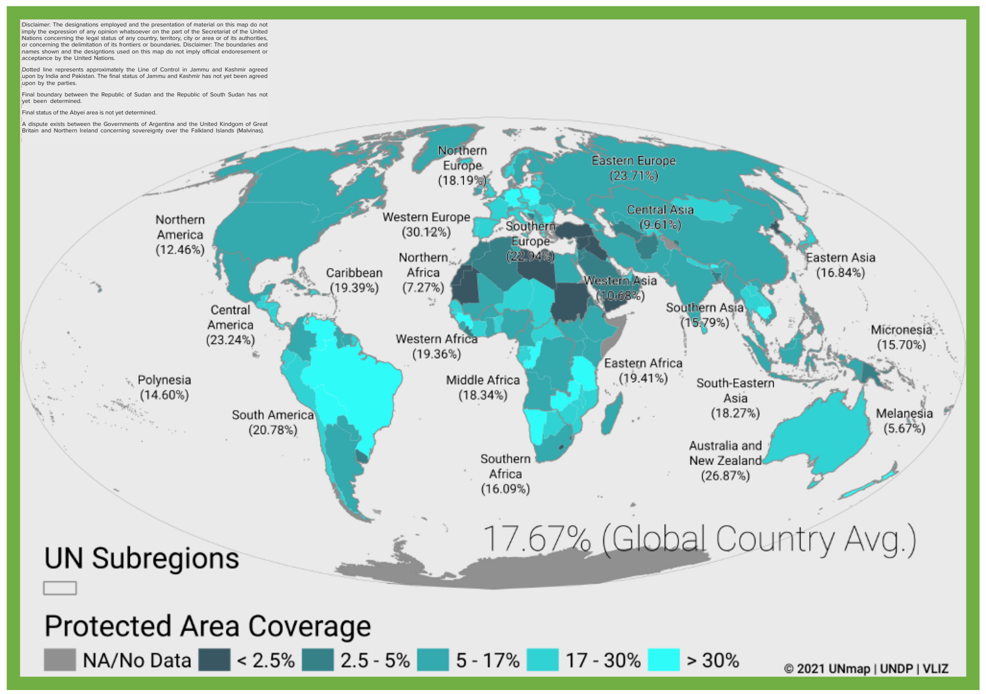
As of May 2021, there are 248,113 terrestrial PAs and 164 OECMs reported in the WDPA and WD-OECM, covering 16.65% of the non-Antarctic land area (UNEP-WCMC and IUCN, 2021b). As of May 2021, there are 17,828 marine and coastal PAs and 179 marine and coastal OECMs, covering 7.74% of the ocean; however, when considering only marine areas under national jurisdiction, coverage is over 18%. Sites that have a status of 'proposed' or do not have a reported status (1,455) and 588 UNESCO-MAB Biosphere Reserves are not included in the following statistics (a further 5,312 sites are reported as points only and have no reported area, thus do not contribute to the coverage statistics).[6]

Current global coverage:

- 16.65% terrestrial (248,133 PAs, 164 OECMs, 22,454,710 km$^2$)
- 7.74% marine (17,828 PAs, 179 OECMs, 28,054,196 km$^2$)

5 For other countries, an estimate of the total % of the country covered by Indigenous Peoples' territories, lands and waters is available, but here focus is given to the countries where spatial data was available.
6 See more on UNEP-WCMC's methods for calculating PA and OECM coverage here: https://www.protectedplanet.net/en/resources/calculating-protected-area-coverage

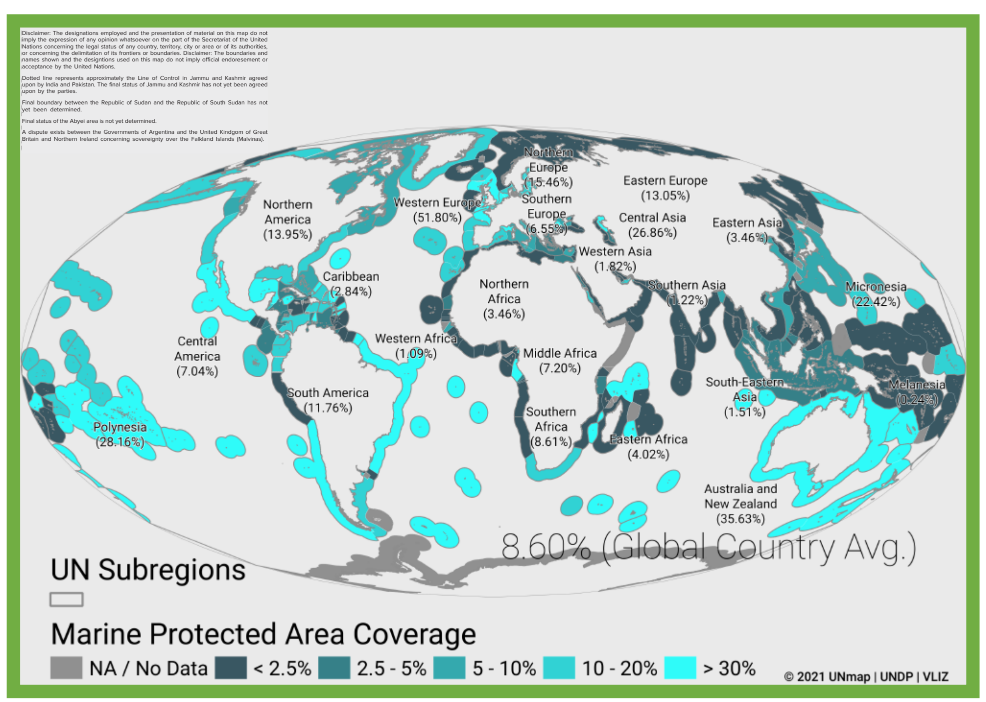
There are also 26 countries with new datasets under review by UNEP-WCMC for inclusion in the WDPA or WD-OECM, many of which contain sites designated in 2020 or earlier. It is clear that once all PAs designated in 2020 are reported, accompanied by more comprehensive data on OECMs and non-government protected areas, that the 17% terrestrial target will have been met (UNEP-WCMC and IUCN, 2021a). There are also more than 16 additional countries with new or expanded sites or PAs not currently reflected in the WDPA that are working on providing updates in the coming months.




**MAP 1.**

Global terrestrial coverage by PAs and OECMs, with averages presented per region.

*Data source: UNEP-WCMC and IUCN (2021b).*




**MAP 2.**

Global marine and coastal coverage by PAs and OECMs, with averages presented per region.

*Data source: UNEP-WCMC and IUCN (2021b).*





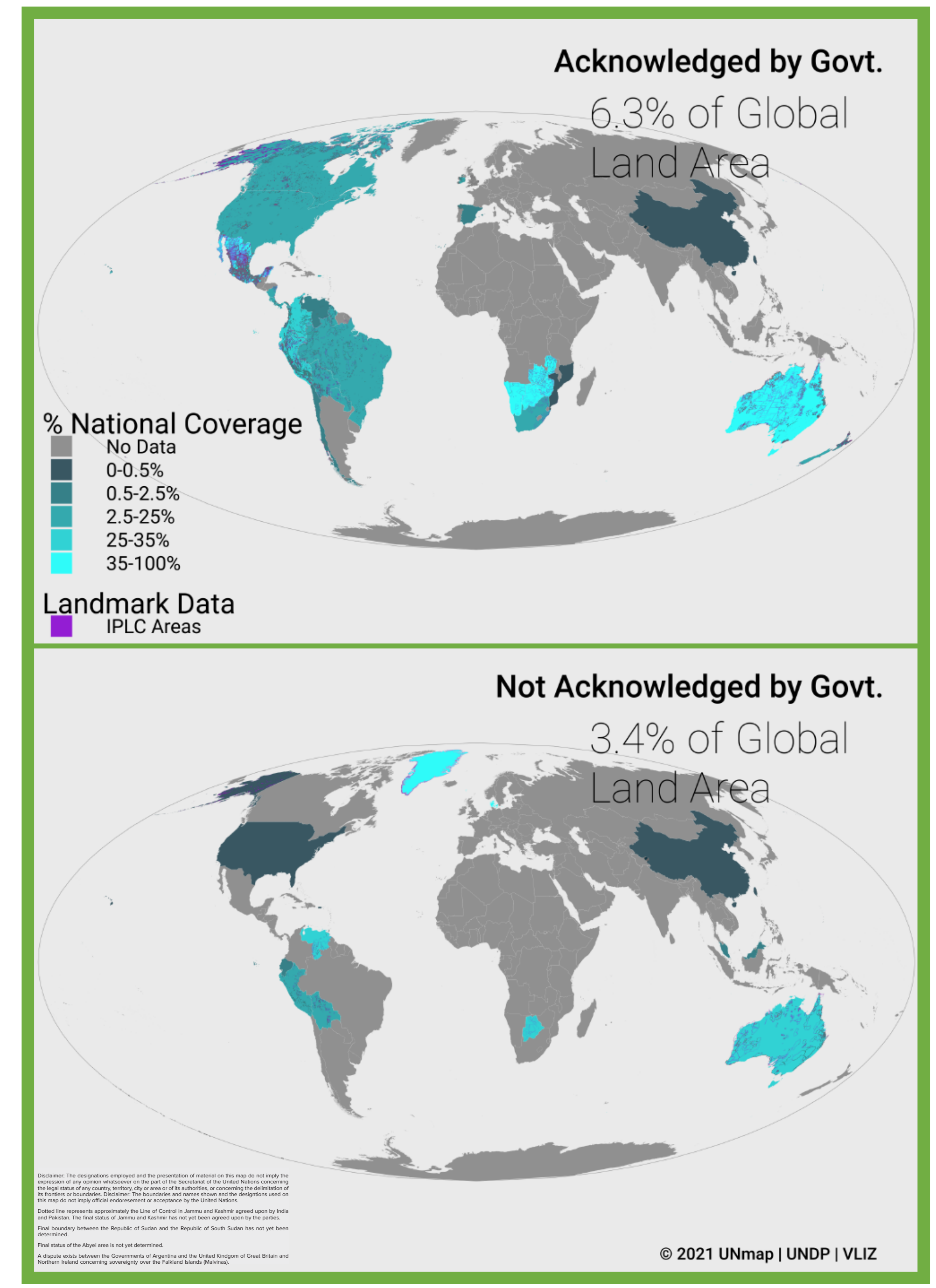
### Indigenous Peoples' and Local Communities' land, territories and marine coverage

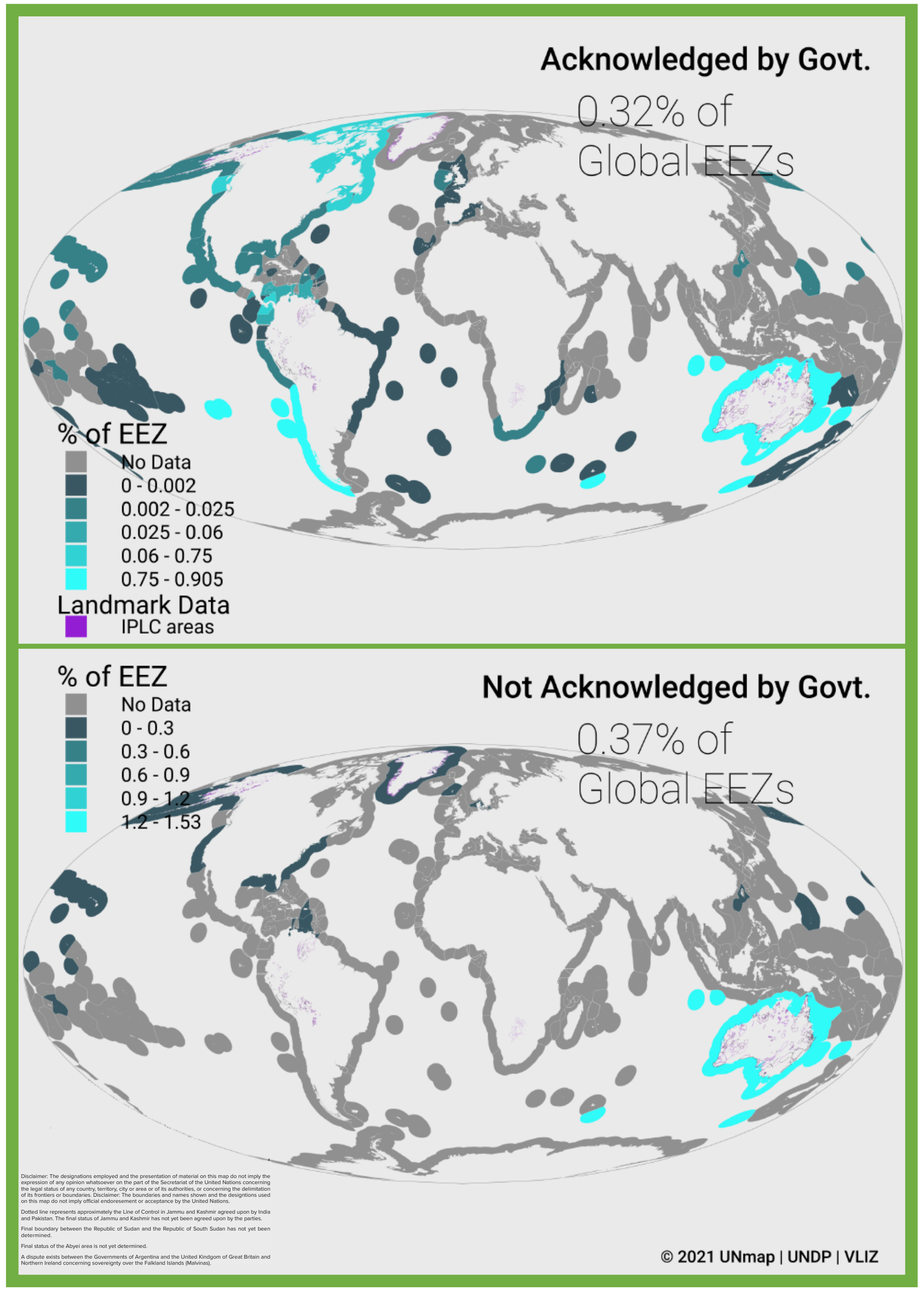
Here the terrestrial (map 3) and marine (map 4) coverage of Indigenous Peoples' territories, lands and waters, including both areas acknowledged (legally recognized) by governments and those that are not is presented. These IPLCs lands cover 6.3% and 3.4% of non-Antarctic terrestrial land area, though estimates for the total coverage of IPLCs lands are much higher (eg.. WWF et al., 2021; Rights and Resources Initiative, 2015) and IPLCs marine claims in 31 countries cover 0.32% and 0.37% of global Exclusive Economic Zones (EEZs) respectively.

**MAP 3.**

The percent national terrestrial coverage by legally acknowledged Indigenous Peoples' lands (top) and lands not acknowledged by governments (bottom).

*Data sources: UNEP-WCMC and IUCN (2021b) and LandMark (2021).*






**MAP 4.**

The percent of national marine coverage by legally acknowledged Indigenous marine areas

**Feedback from Parties and opportunities for action:**

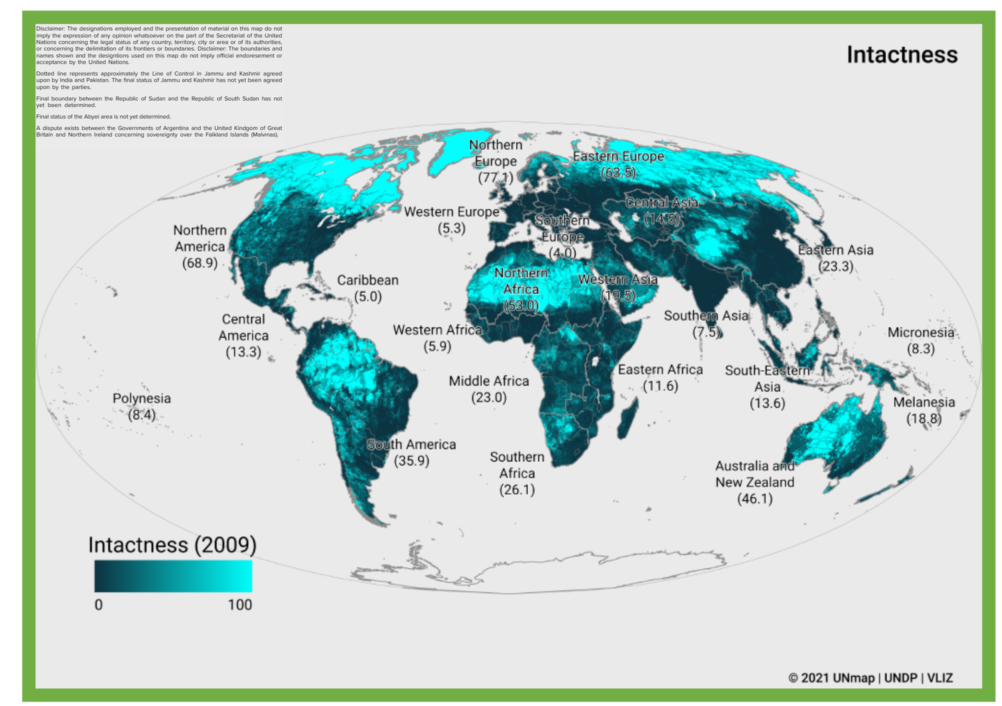
Feedback from 76 countries in the matrix, surveys and consultations indicated that the data for terrestrial coverage presented in the Aichi Biodiversity Target 11 Country Dossiers was aligned with the results of analyses conducted at the national level for 32 (42%) countries and, excluding 18 landlocked countries, 25 countries (43%) reported data for marine coverage was aligned with national statistics. Most differences come from the use of different baselines (e.g., for land area or coastlines), different methodologies, or differences in the types of sites that are reported. For example, in some countries, only nationally-designated sites are reported, excluding international designations (e.g., Ramsar sites) which may or may not have legal recognition within the country, in others privately protected areas are not reported to the WDPA due to privacy and other considerations. Many Parties reported that there are recently designated or expanded sites that are not yet reported in the WDPA or WD-OECM. Work is ongoing to facilitate the addition of these to the appropriate database, which could see global increases of over 120,000km$^2$ in terrestrial and over 70,000km$^2$ in marine coverage. Three others noted that there are proposed additions or new sites in progress that will be designated and reported in the near future.

Opportunities for the near-term include updating the WDPA with any unreported or recently designated PAs. The recognition and reporting of OECMs could also make a significant contribution over the next decade, though there may be a need for increased capacity-development regarding their identification and reporting. In the future, as countries consider where to add new PAs and OECMs, the map below identifies intact terrestrial areas that are not currently protected (similar approaches have been applied to the marine realm, see for example Jones et al., 2018b). Focus on relatively intact areas, (map 5) while addressing the elements in the following sections, could be considered when planning new PAs or OECMs. Global priority setting exercises need to be accompanied by participatory on-the-ground processes. The recognition of IPLC lands through appropriate mechanisms, and with IPLC consent, could contribute to filling some gaps.

**MAP 5.**

Global intactness.

*Data source: Beyer et al. (2020).*




## II. Ecological representativeness

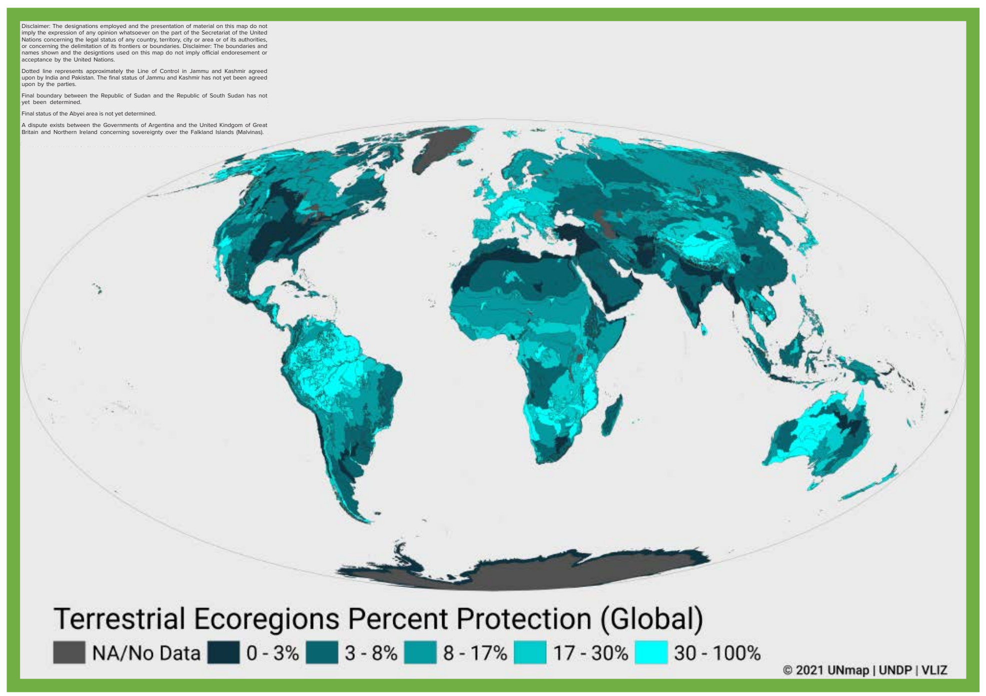
There is a need for networks of PAs and OECMs to capture a broad range of biodiversity features (e.g., different ecosystems, species). Ecological representativeness is often assessed based on the coverage of broad-scale biogeographic units like ecoregions (e.g., UNEP-WCMC and IUCN, 2021a;

CBD Secretariat, 2020). Globally, ecoregions have been described for terrestrial areas (Olson et al., 2001), marine coastal and shelf ecosystems (to a depth of 200m; Spalding et al 2007) and surface pelagic waters (Spalding et al 2012). Other approaches could be adopted (e.g., coverage of threatened species) and several countries use a finer-scale classification system more appropriate for national planning.

Global ecoregions

Globally, there are 826 **terrestrial** ecoregions (excluding Antarctica). Out of these:

- 104 terrestrial ecoregions have 0-3% coverage from PAs and OECMs
- 164 terrestrial ecoregions have 3-8% coverage from PAs and OECMs
- 192 terrestrial ecoregions have 8-17% coverage from PAs and OECMs
- 145 terrestrial ecoregions have 17-30% coverage from PAs and OECMs
- 221 terrestrial ecoregions have 30-100% coverage from PAs and OECMs.




**MAP 6.**

The percentage protection of each global terrestrial ecoregion by PAs and OECMs.

*Data sources: Olson et al. (2001) and UNEP-WCMC and IUCN (2021b).*

Globally, there are 232 **marine** ecoregions and 37 **pelagic provinces**. Out of these:

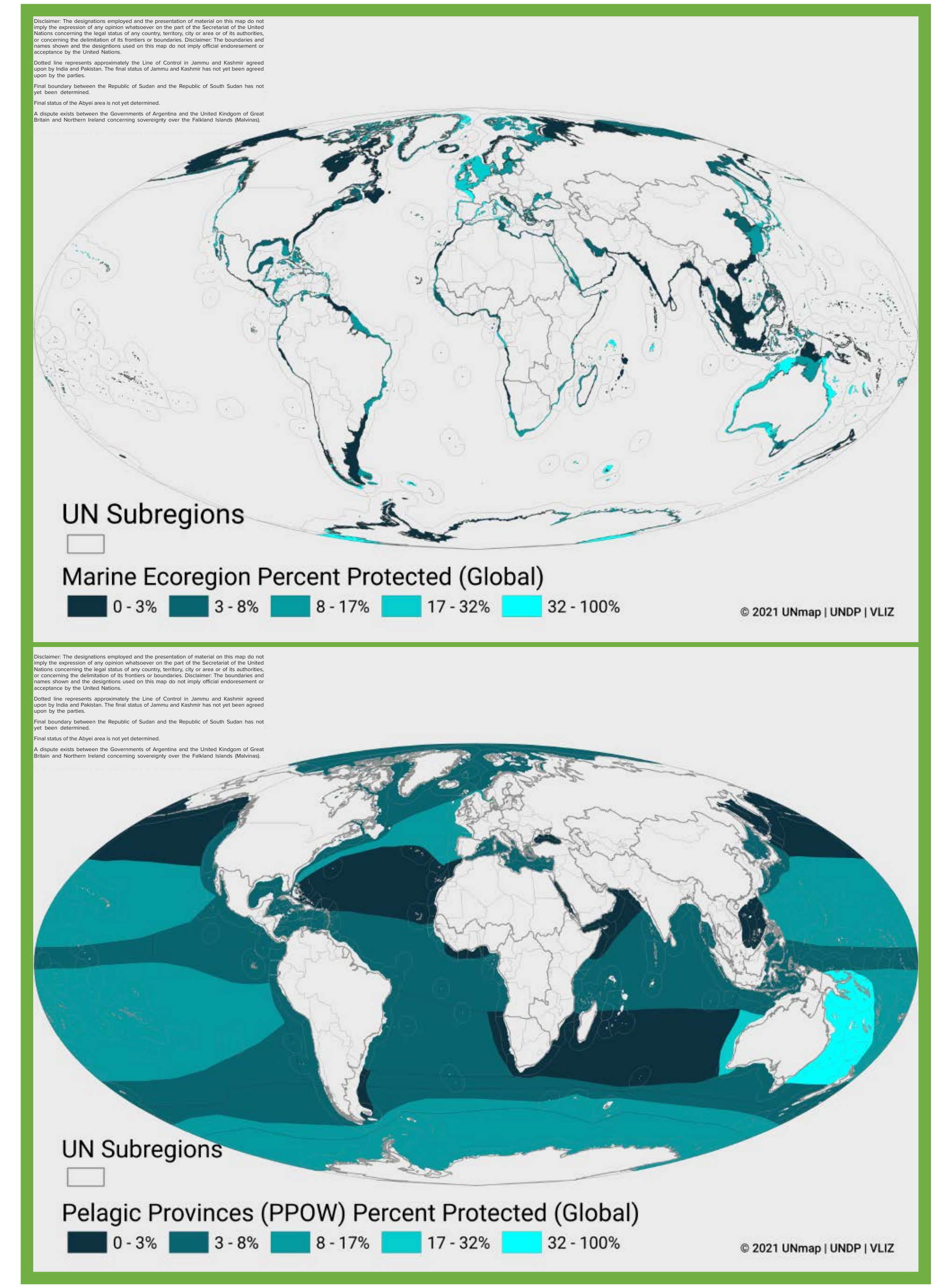
- 77 marine ecoregions and 13 pelagic provinces have 0-3% coverage
- 36 marine ecoregions and 17 pelagic provinces have 3-8% coverage
- 36 marine ecoregions and 5 pelagic provinces have 8-17% coverage
- 30 marine ecoregions and 1 pelagic province has 17-32% coverage
- 53 marine ecoregions and 1 pelagic province has 32-100% coverage

Globally, 47.4% (110) of marine ecoregions and 10.8% (4) pelagic provinces have at least 10% coverage.

**MAP 7.**

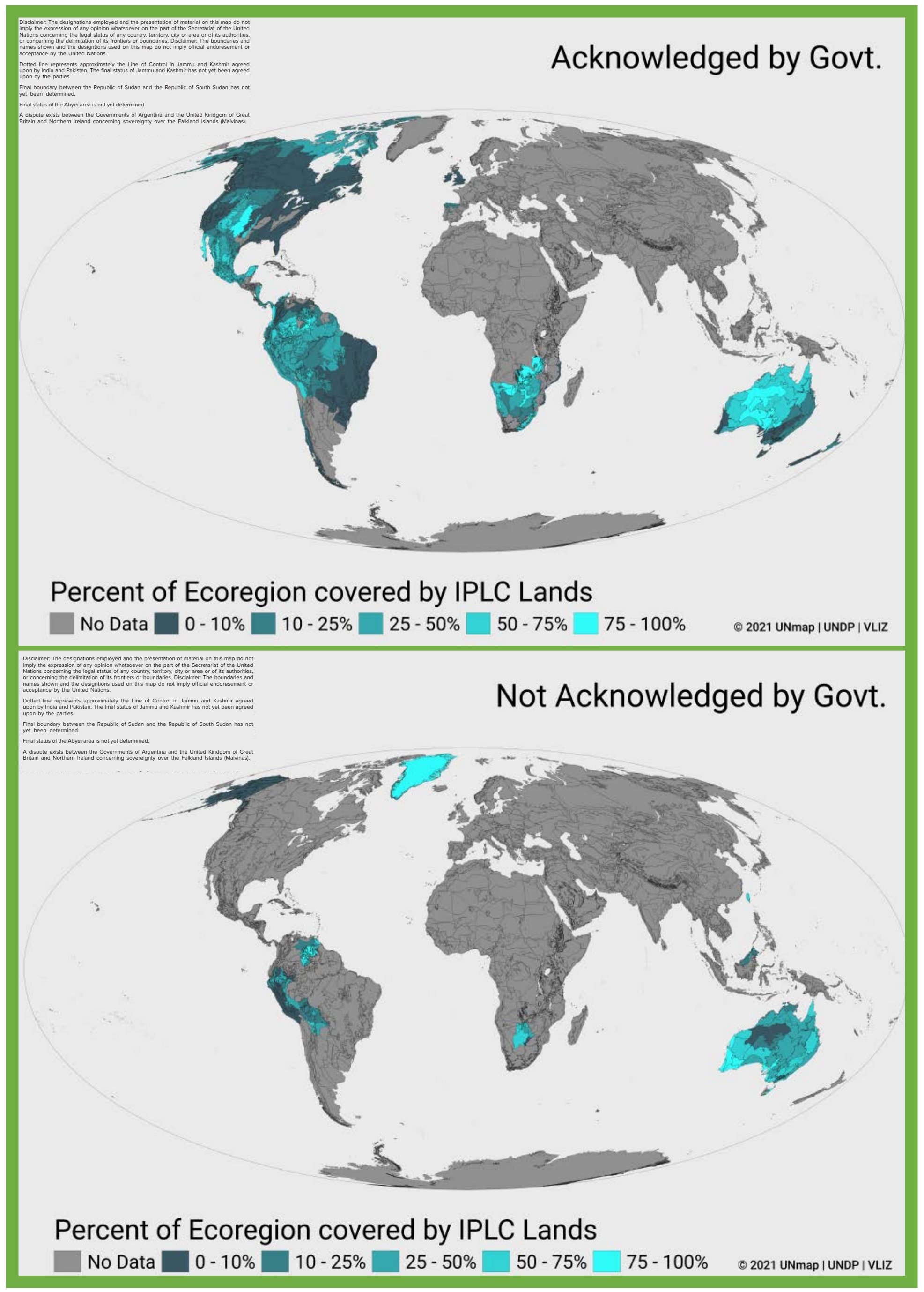
The percentage protection of global marine ecoregions (top) and pelagic provinces (bottom), by PAs and OECMs.

*Data sources: Spalding et al. (2021) and UNEP-WCMC and IUCN (2021b).*



### Indigenous Peoples' and Local Communities' lands and ecoregions

Globally, there are 419 and 102 terrestrial ecoregions that overlap with the IPLCs lands and territories in these 31 countries, both lands that are acknowledged and not acknowledged by governments, respectively. A majority of these ecoregions have >25% of their extent within IPLCs lands (216 for acknowledged and 62 for unacknowledged). The percentage of ecoregions covered by these IPLCs lands can be seen in map 8.




**MAP 8.**

The coverage of each terrestrial ecoregion by legally acknowledged Indigenous lands (top) and lands not acknowledged by governments (bottom).

*Data sources: Dinerstein et al. (2017) and LandMark (2021).*





### Feedback from Parties and opportunities for action:

Seventy countries provided feedback regarding the data on terrestrial ecological representation presented in the Aichi Biodiversity Target 11 Country Dossiers. Of these, information aligned with the results of analysis conducted at national level for 37 (53%) countries, did not fully align for 19 (27%) countries and partially aligned for one country. For 13 countries it is unknown if the data aligns with national statistics, in some cases due to the use of different indicators. For marine ecological representation there was feedback from 46 countries; 27 (59%) countries indicated that data aligned with national information, 8 (17%) stated that it did not align and for 11 countries it is unknown. It was noted that the scale of global ecoregion mapping may not be appropriate and that there are limits inherent in any global indicator (precision, reliability, underlying assumptions, etc.) when applied at a national-level, highlighting the importance of national-level assessments. Many countries reported on the use of other methods for assessing representativeness nationally, for example using species representation, habitats and species of European concern, different classifications of bioregions, bioclimatic zones, or national systems of ecoregions, in one case using ecosystem types aligned with the IUCN Red List of Threatened Ecosystems classification system.

Opportunities for the near-term involve focusing global PA and OECM expansion efforts in ecoregions with lower levels of protection currently, with the greatest priority given to the 104 terrestrial ecoregions, 77 marine ecoregions and 13 pelagic provinces mapped with protection levels of just 0-3%. Focus on under-protected ecoregions with remaining intact lands (Mappin et al., 2019) or that also contain KBAs or important areas for ecosystem services could support multiple elements of the target. Focus could also be given to threatened species, which lack adequate coverage (discussed further in chapter 4). Improved reporting on recently designated and unreported PAs and OECMs, and increased recognition and data on the extent and conservation status of IPLCs lands will also affect our understanding of how ecoregions are represented in protected and conserved areas worldwide.

## III. Areas important for biodiversity

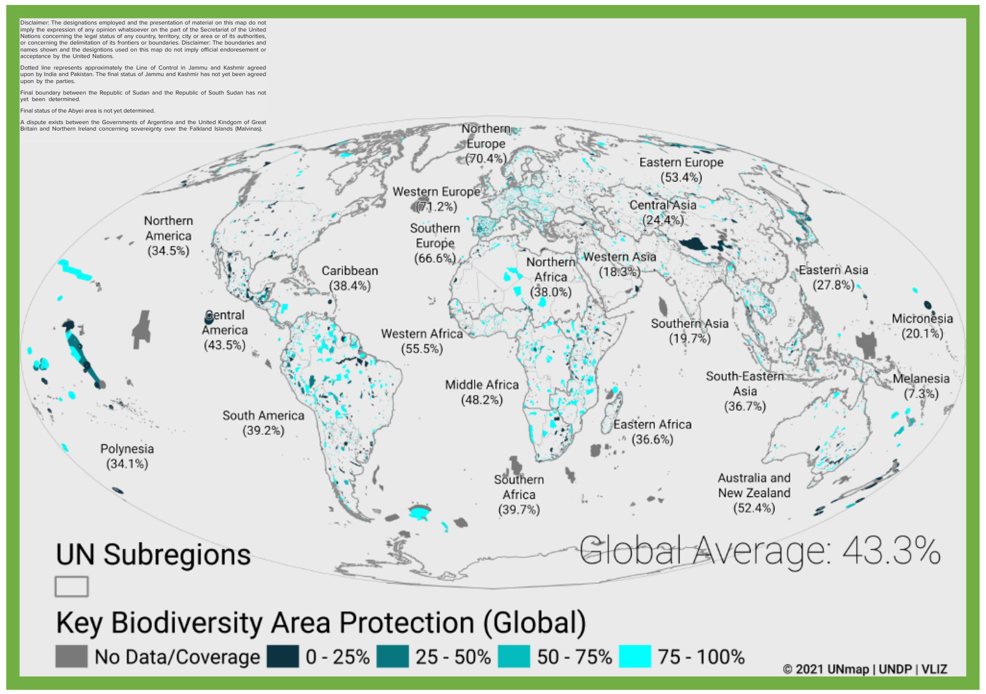
### Key Biodiversity Areas (KBAs)

The protection of Key Biodiversity Areas (KBAs) provides one proxy for assessing the conservation of areas important for biodiversity. KBAs are sites that make significant contributions to the global persistence of biodiversity (IUCN, 2016). To date, more than 16,000 KBAs have been identified globally, including Important Bird and Biodiversity Areas (IBAs), Alliance for Zero Extinction sites (AZEs), and other important sites identified for mammals, reptiles, amphibians, fish, plants, and invertebrates through the Critical Ecosystem Partnership Fund (CEPF) hotspot profiling process. The World Database of Key Biodiversity Areas hosts data on KBAs, and can be accessed from: www.keybiodiversityareas.org.

Globally there are 16,343 Key Biodiversity Areas (KBAs).

- Mean percent coverage of all KBAs by PAs and OECMs globally is 43.3%.
- 38.54% (6,298) of KBAs have no protection (<2%).

- 10.47% (1,711) of KBAs have 0-25% coverage by PAs and OECMs
- 6.88% (1,125) of KBAs have 25-50% coverage
- 7.94% (1,298) of KBAs have 50-75% coverage
- 36.17% (5,911) of KBAs have 75-100% coverage




**MAP 9.**

The protection of Key Biodiversity Areas by PAs and OECMs.

*Data sources: BirdLife International (2021) and UNEP-WCMC and IUCN (2021b).*

### Ecologically or Biologically Significant Marine Areas (EBSAs)

Other important areas for biodiversity also include Ecologically or Biologically Significant Marine Areas (EBSAs), which were identified following the scientific criteria adopted at COP9 (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.

Globally, there are 591 EBSAs

- Mean percent coverage of all EBSAs by PAs and OECMs globally is 18.32%.
- 54.82% (324) of EBSAs have no protection (<2%).
- 21.66% (128) of EBSAs have 0-25% coverage by PAs and OECMs
- 8.12% (48) of EBSAs have 25-50% coverage
- 4.40% (26) of EBSAs have 50-75% coverage
- 11.00% (65) of EBSAs have 75-100% coverage

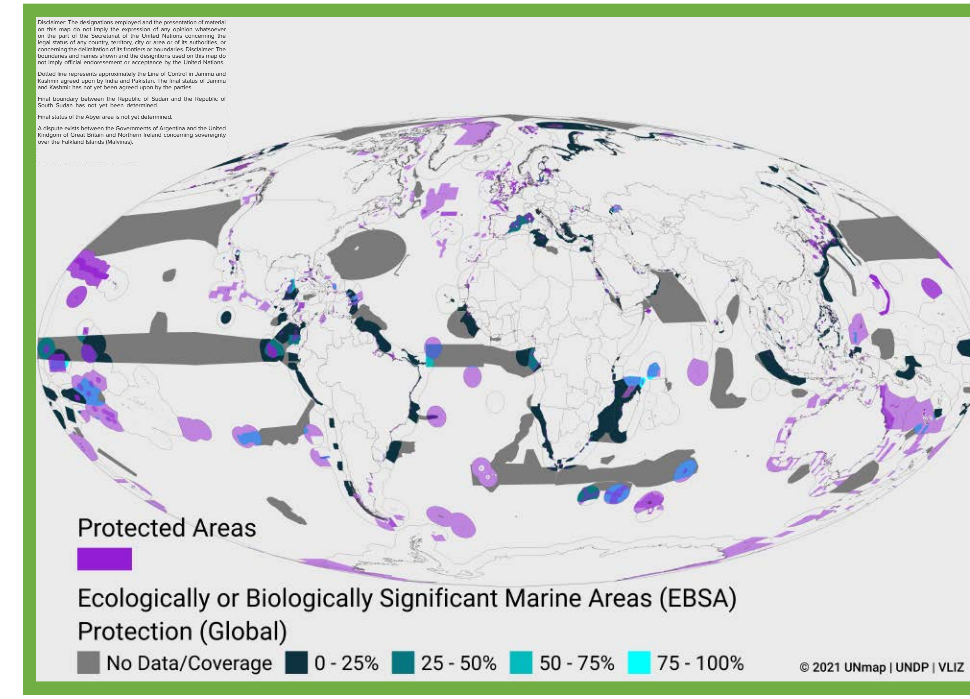




**MAP 10.**

The protection of Ecologically or Biologically Significant Marine Areas by PAs and OECMs.

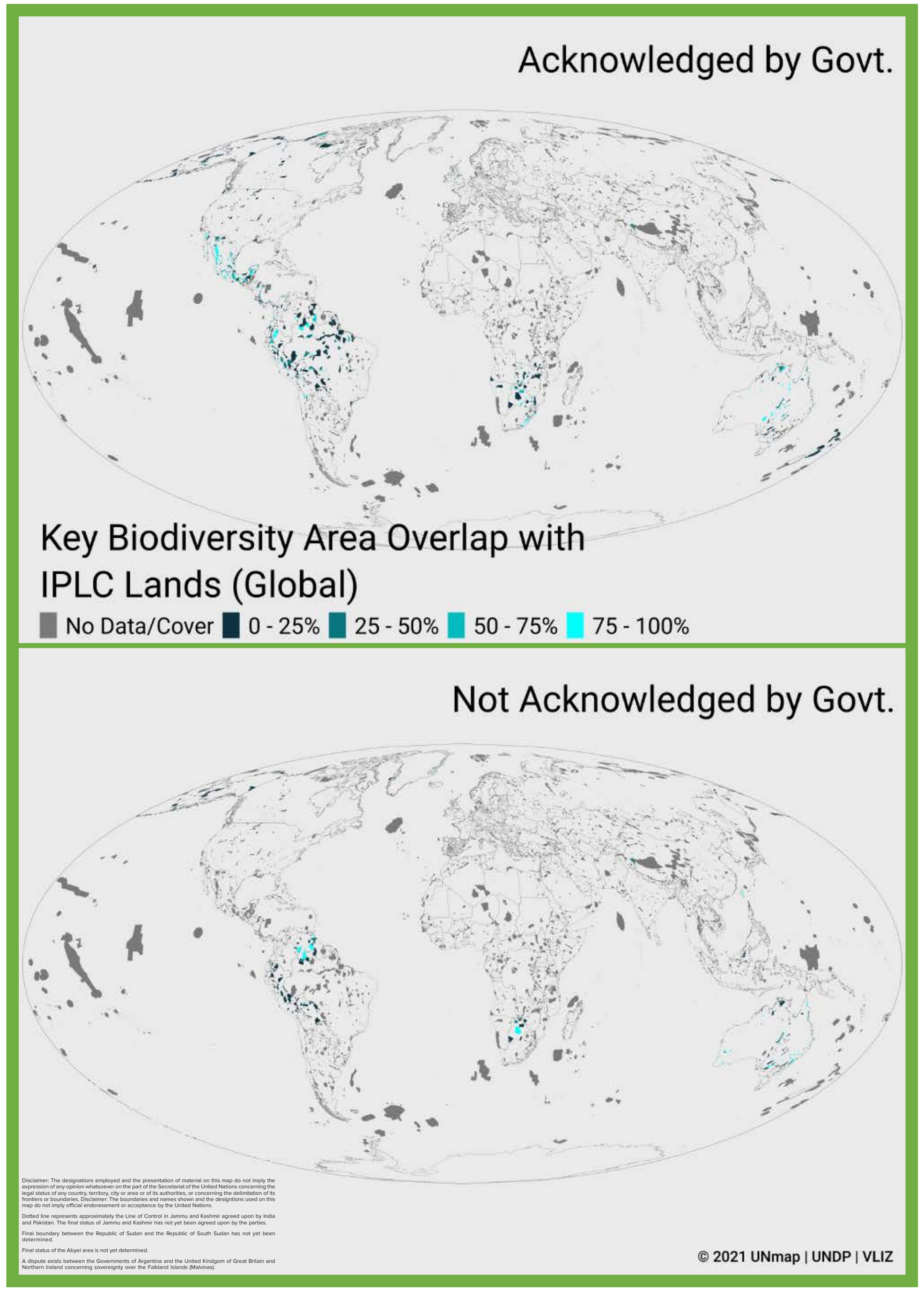
*Data source: Convention on Biological Diversity (2021b) and UNEP-WCMC and IUCN (2021b).*




### Indigenous Peoples and local communities' territories, land sand waters and KBAs

Globally there are 1,240 KBAs that overlap more than 2% with IPLCs territories, lands and waters in these 31 countries, 961 of these are acknowledged by governments (5.88% of all KBAs) and 279 KBAs overlap with those that are not acknowledged by governments (1.71% of all KBAs). Of these KBAs, 561 have more than 25% cover by IPLCs territories, lands and waters acknowledged by governments and 209 have 25% cover by IPLCs territories, lands and waters not acknowledged by governments.

There are 4 EBSAs that overlap by more than 2% with IPLCs territories, lands and waters in these 31 countries, all 4 of these are in areas acknowledged by governments (0.68% of all EBSAs), with none in territories, lands or waters not acknowledged by governments. Of these EBSAs, 2 (50%) have more than 50% coverage by acknowledged IPLCs territories, lands and waters.




**MAP 11.**

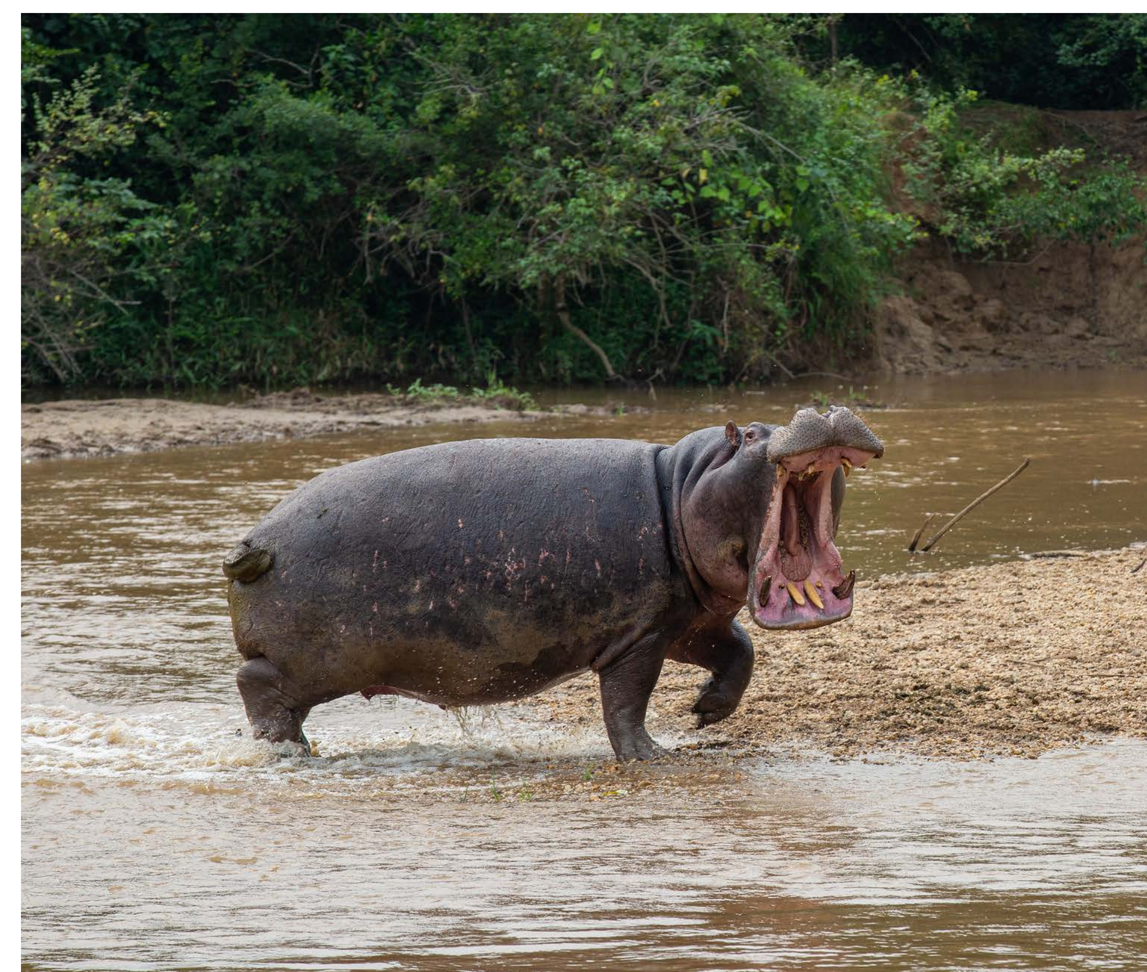
The overlap between Key Biodiversity Areas and legally acknowledged Indigenous lands (top) and lands not acknowledged by governments (bottom).

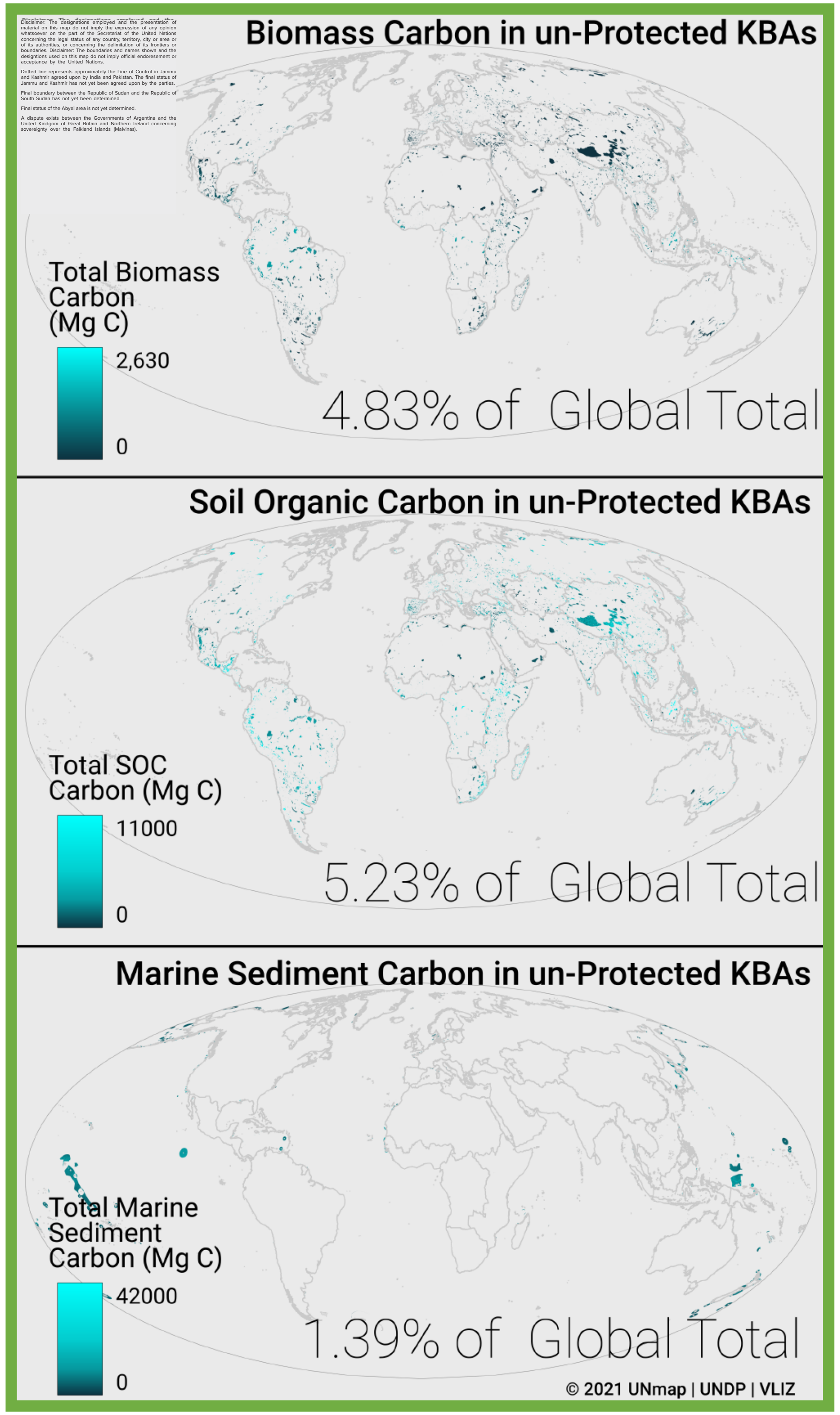
*Data sources: BirdLife International (2021) and LandMark (2021).*

**Feedback from Parties and opportunities for action:**

From the matrix, survey and consultation results from 70 countries, the data on areas important for biodiversity presented in the Aichi Biodiversity Target 11 Country Dossiers did not align fully with the results of analyses conducted at national level for 23 (33%) countries, it did align for 41 (59%) countries and was partially aligned for one country. For five countries it is unknown if the data presented aligns with national statistics. A few Parties reported on plans for carrying out a national KBA identification assessment (or updating older assessments), while others provided information on important areas for biodiversity in their country which should be reviewed for inclusion in the World Database of KBAs in the future. Several responses reported different numbers of KBAs, which may relate to the version of the KBA database used (which is updated regularly with new additions). Several Parties reported that there is no agreed national approach or that KBAs have not been adopted for use nationally, while others reported that they employ their own system for identifying sites of importance for conservation that may include a broader spectrum of biodiversity features. It was also noted that recently designated sites, or other proposed sites will increase coverage of KBAs.

Opportunities for the near-term should include the informed expansion of PAs and OECMs to successfully protect KBAs for the greatest biodiversity benefits. Here, it is most urgent to protect the 6,298 KBAs which currently have no coverage from PAs or OECMs as these sites have been identified for their significant biodiversity value. Increasing the recognition and reporting of OECMs could have a significant impact. For example, in just 10 countries, over 75% of unprotected KBAs had at least partial coverage from a potential OECM (Donald et al., 2019). Over the next decade, efforts will also be needed to scale-up the identification of KBAs, in order to include a more geographically and taxonomically comprehensive database of sites of global importance for biodiversity. Increasing coverage of currently unprotected KBAs will also have significant benefits for carbon sequestration, with these KBAs, which cover 18,457,915 km$^2$, storing 2,612.1 Tg C biomass carbon, 36,374.3 Tg C soil organic carbon and 32,470.1 Tg C in marine sediments (map 12). Prioritizing protection of areas with greatest carbon stocks would therefore provide many benefits for climate change mitigation.






**MAP 12.**

The amount of global biomass carbon (top), soil organic carbon (middle) and marine sediment carbon (bottom) in unprotected Key Biodiversity Areas.

### IV. 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. Going forward, further research could explore other critical ecosystem services.

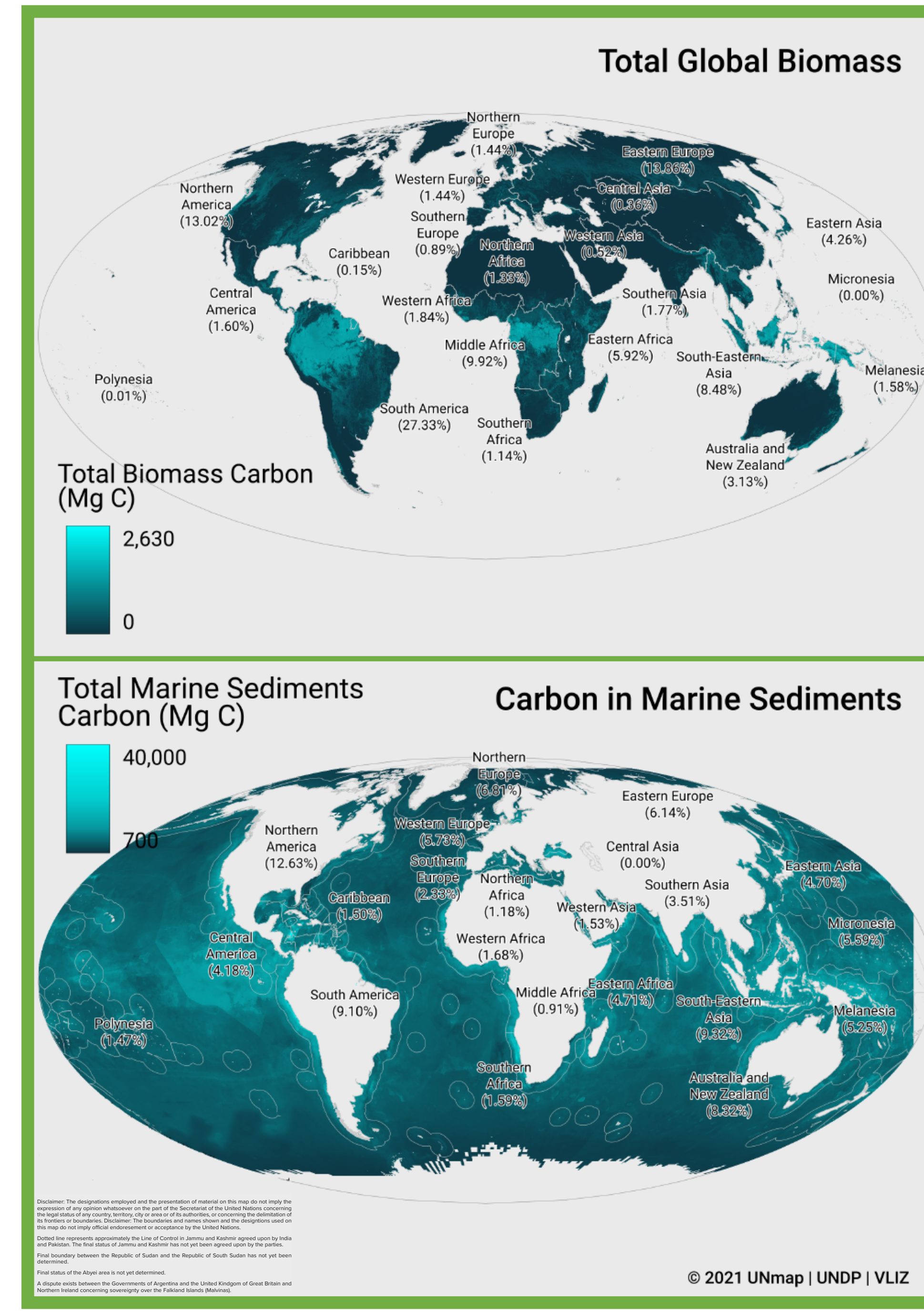
#### Carbon

The global carbon stocks are 287,398.7 Tg C from aboveground biomass (ABG), with 24.57% (or 70,604.3 Tg C) in PAs; 121,936.1 Tg C from belowground biomass (BGB), with 20.86% (or 25,440.6 Tg C) in PAs; 697,236.3 Tg C from soil organic carbon (SOC), with 15.44% (or 107,641.3 Tg C) in PAs; and 2,347,040.7 Tg C from marine sediment carbon, with 7.07% (or 165, 962.3 Tg C) in PAs. Map 13 presents the total carbon stocks globally and the percent of carbon in PAs.

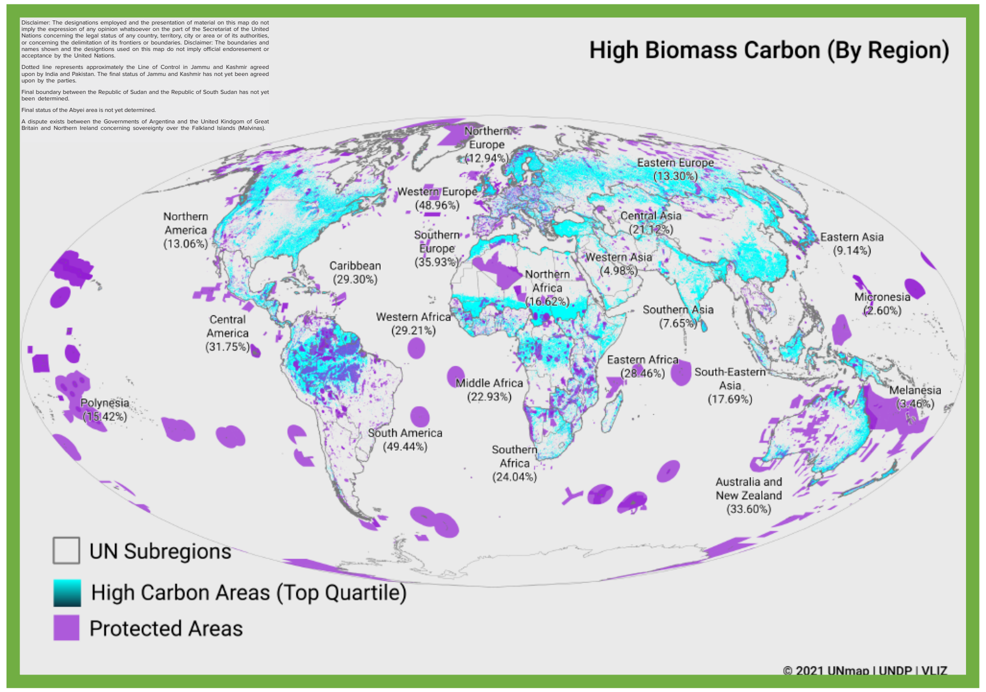
**MAP 13.**

The total global carbon biomass (Mg C) per region (top) and the total marine sediment carbon (Mg C) per region (bottom).

*Data source: Spawn et al. (2020).*



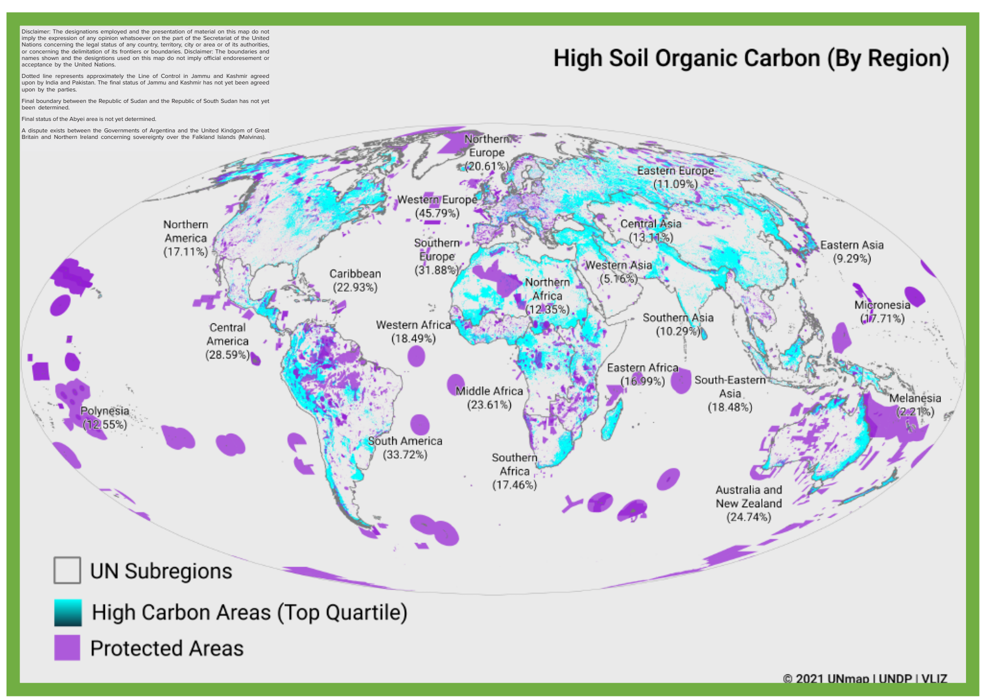
Areas with high biomass carbon (map 14), high soil organic carbon (map 15), and high marine sediment carbon stocks (map 16) have varying levels of protection by region. High carbon areas that remain unprotected are potential priority areas for new PAs and OECMs.




**MAP 14.**

Areas with the top 20-25% of carbon biomass within each region and the levels of protection.

*Data sources: Spawn et al. (2020) and UNEP-WCMC and IUCN (2021b).*




**MAP 15.**

Areas with the top 20-25% of soil organic carbon within each region and the levels of protection.

*Data sources: FAO, GSP and ITPS (2019) and UNEP-WCMC and IUCN (2021b).*

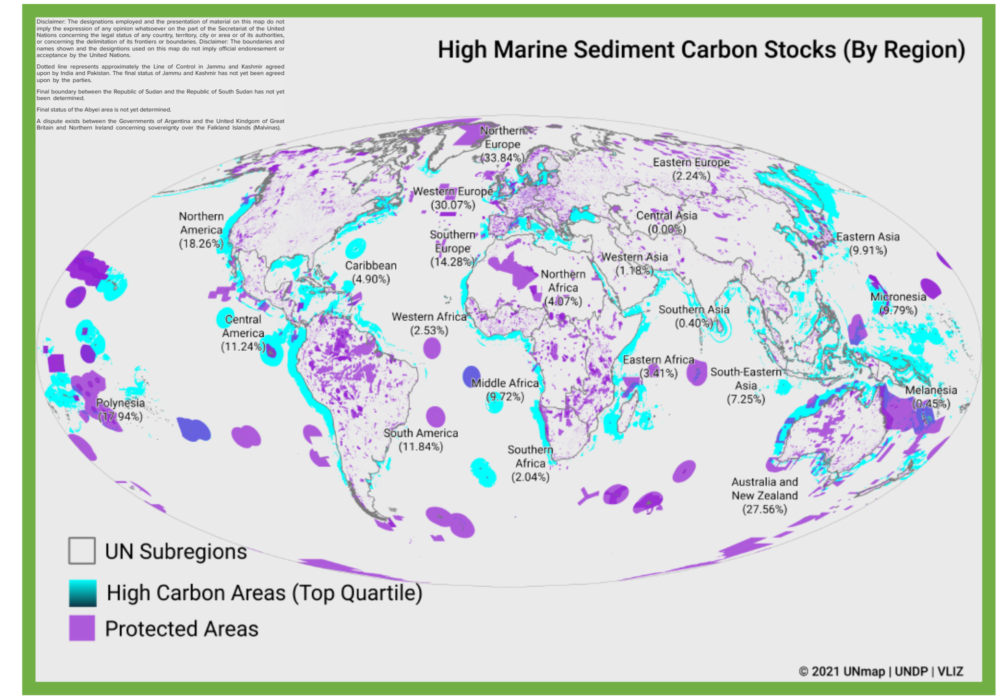




**MAP 16.**

Areas with the top 20-25% marine sediment carbon stocks within each region and the levels of protection.

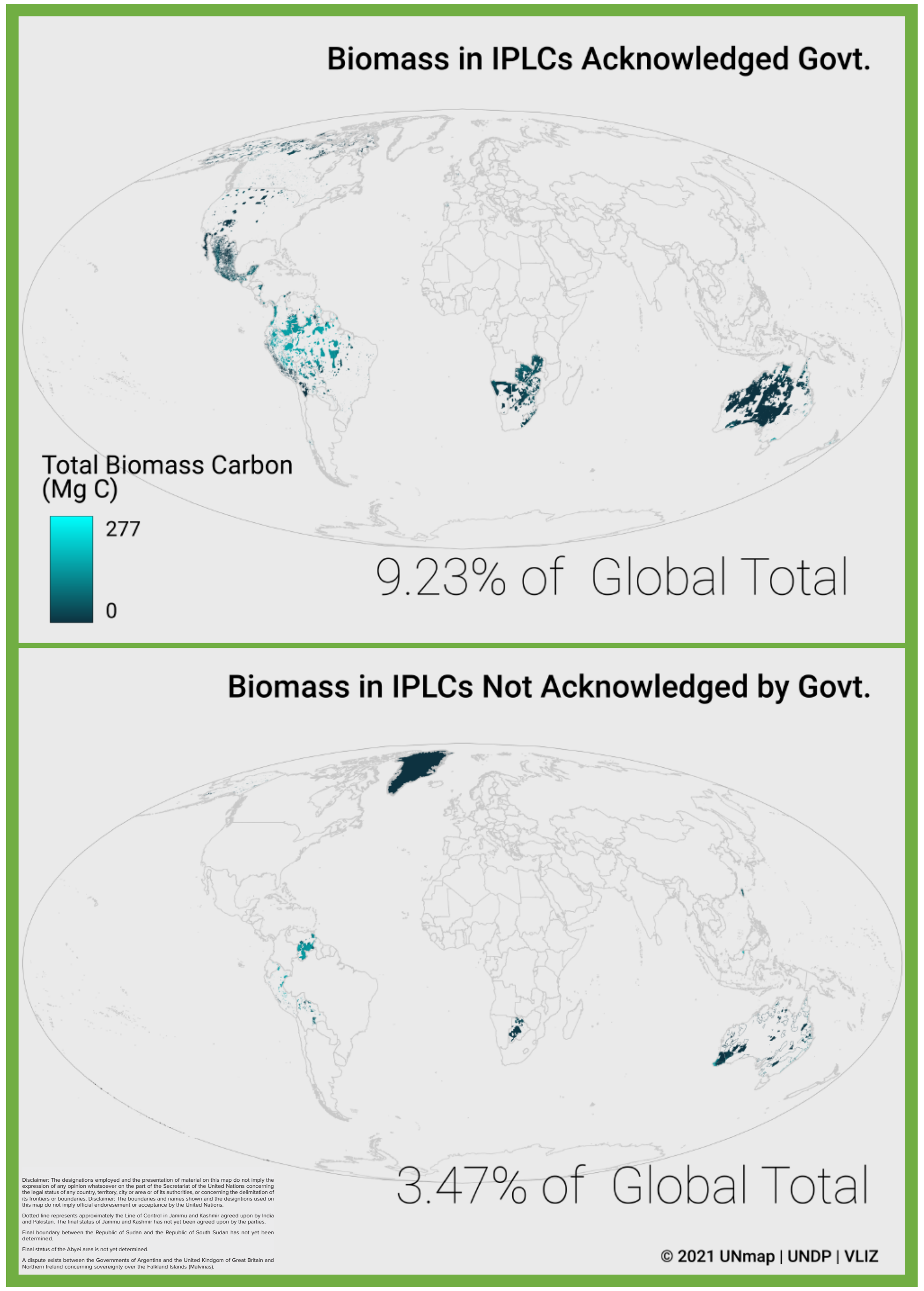
*Data sources: Atwood et al. (2020) and UNEP-WCMC and IUCN (2021b).*




### Carbon and Indigenous Peoples and Local Communities' territories, lands and waters

The global total biomass carbon in IPLCs territories, lands and waters *acknowledged by governments* (map 17) is 9.23%. Specifically, carbon stocks in these areas *acknowledged by governments* is 27,092.1 Tg C from aboveground biomass (AGB) (9.43% of total global AGB); 10,639.2 Tg C from below ground biomass (BGB) (8.73% of total global BGB); 40,641.9 Tg C from soil organic carbon (SOC) (5.83% of total global SOC); and 2,314.2 Tg C from marine sediment carbon (0.10%) of total global marine sediment carbon).

The global total biomass carbon in IPLCs territories, lands and waters *not acknowledged by governments* (also presented in map 17) is 3.47%. Specifically, carbon stocks in these areas *not acknowledged by governments* is 9,284.1 Tg C from aboveground biomass (AGB) (3.23% of total global AGB); 4,904.5 Tg C from below ground biomass (BGB) (4.02% of total BGB); 19,048.6 Tg C from soil organic carbon (SOC) (2.73% of global SOC); and 3,155.6 Tg C from marine sediment carbon (0.13% of global marine C).




**MAP 17.**

The total global carbon biomass (Mg C) in legally acknowledged Indigenous lands (top) and lands not acknowledged by governments (bottom).

*Data sources: Spawn et al. (2020) and LandMark (2021).*

### Water

Forests can 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 100 largest cities, more than 30% (33 cities) rely heavily on the local protected forests, which support local drinking water availability and quality (Dudley and Stolton, 2003).

Table 1 shows the average PA and OECM coverage of watersheds in each global region, the standard deviation must be noted here as for some regions a very limited number of catchments were included in the calculations. The global average for all regions is 21.9%. The table also indicates losses of forest (both % and area) within these catchments between 2000 and 2020. As drinking water supplies for cities globally may similarly depend on protected forest areas within and around water catchments, intact catchments can support more consistent water supply and improved water quality. Therefore, protection of forest cover and reducing forest losses within watershed catchments has many benefits for water security.

**Table 1. The average protection of watershed per region, with the loss of forest cover in the same watershed from 2000-2020.**

| Region | Average protection of watersheds (%) | Standard deviation | Loss of forest cover in watershed catchments from 2000-2020 (%) | Total area of forest loss (km²) |
|---|---|---|---|---|
| Australia and New Zealand | 21.86 | 9.45 | 26.97 | 11755.99 |
| Northern Europe | 29.41 | 31.22 | 20.04 | 14639.50 |
| Southern Europe | 40.54 | 27.48 | 17.19 | 9117.80 |
| South-Eastern Asia | 14.59 | 10.12 | 13.56 | 247519.43 |
| South America | 34.04 | 29.10 | 13.05 | 1112781.26 |
| Caribbean | 13.59 | 5.10 | 12.79 | 751.14 |
| Eastern Europe | 22.14 | 19.24 | 10.23 | 97871.79 |
| Southern Africa | 27.43 | 41.07 | 9.21 | 2032.82 |
| Northern America | 18.43 | 27.99 | 8.28 | 753211.80 |
| Central America | 21.72 | 21.28 | 6.88 | 16551.64 |
| Western Africa | 20.68 | 28.32 | 6.69 | 30149.21 |
| Western Europe | 31.99 | 10.40 | 6.08 | 13484.30 |
| Middle Africa | 8.22 | 8.02 | 5.73 | 822612.61 |
| Eastern Africa | 22.51 | 19.45 | 5.39 | 18749.19 |
| Eastern Asia | 11.29 | 16.37 | 2.93 | 164338.65 |
| Southern Asia | 3.93 | 14.48 | 2.35 | 21400.99 |
| Northern Africa | 14.43 | 20.05 | 2.12 | 125939.75 |
| Western Asia | 2.86 | 3.87 | 1.42 | 1146.09 |
| Central Asia | 56.69 | 49.09 | 0.52 | 1.98 |

**Feedback from Parties and opportunities for action:**

Feedback from 67 countries in the matrix, surveys and consultations indicated that the data for ecosystem services presented in the Aichi Biodiversity Target 11 Country Dossiers did not align fully with the results of analyses conducted at national level for 14 (21%) countries, did align for 40 (60%) countries and was partially aligned for one country; for 12 countries it is not known, in some cases because national data is unavailable. A number of submissions reported that national studies have been, or soon will be, carried out regarding the identification and/or economic valuation of ecosystem services, though several countries noted that there is no standard nationally collected data for this element of the Target. Some noted that PAs are generally not established primarily for ecosystem services (although contributions to people are certainly provided), while in other cases, where ecosystem services may be evaluated nationally, their overlap with PAs or OECMs has not been assessed. As noted earlier, there are further opportunities for expanding the types of ecosystem services that could be assessed, and this will often vary based on national, or local, circumstance, and the types of services valued, for example, those related to food security or marine economic opportunities. A number of countries also noted that they use different data and methodologies for assessing carbon storage nationally, for example following reporting methods under the UNFCCC.

Opportunities for carbon could include protecting terrestrial areas with high biomass carbon (map 14), high soil organic carbon (map 15), and marine areas with high marine sediment carbon stocks (map 16) as important environments for climate mitigation. Improving the management of PAs and OECMs in order to secure their carbon storage potential is also essential. Integrating this with global conservation efforts will have significant benefits for biodiversity and climate change. Opportunities for water could aim to improve the protection of watersheds to provide significant benefits for stormwater management and the quality of drinking water. Protecting forest cover in watersheds or potentially reforesting would therefore be highly beneficial for water security, among other actions.

## V. Connectivity and integration

Maintaining the connectivity of networks of PAs and OECMs is essential to ensure their continued effectiveness at conserving biodiversity, especially in light of the increasing impacts of climate change. Two global indicators, the Protected Connected land indicator (ProtConn; European Commission's Joint Research Centre, 2021; Saura et al., 2018) and the PARC-Connectedness indicator (CSIRO, 2019a), have been proposed for assessing the terrestrial connectivity of PA and OECM networks. To date, there is not a 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 (e.g., Lausche et al., 2021).

As of January 2021, according to the Joint Research Centre of the European Commission's Digital Observatory for Protected areas (DOPA), the global coverage of protected-connected lands (a measure of connectivity of PA networks, assessed using the ProtConn indicator) is almost 8% (Joint Research Centre of the European Commission, 2021).[7]

7 Weighted average (see Saura et al., 2018 or DOPA for further details on methodology).

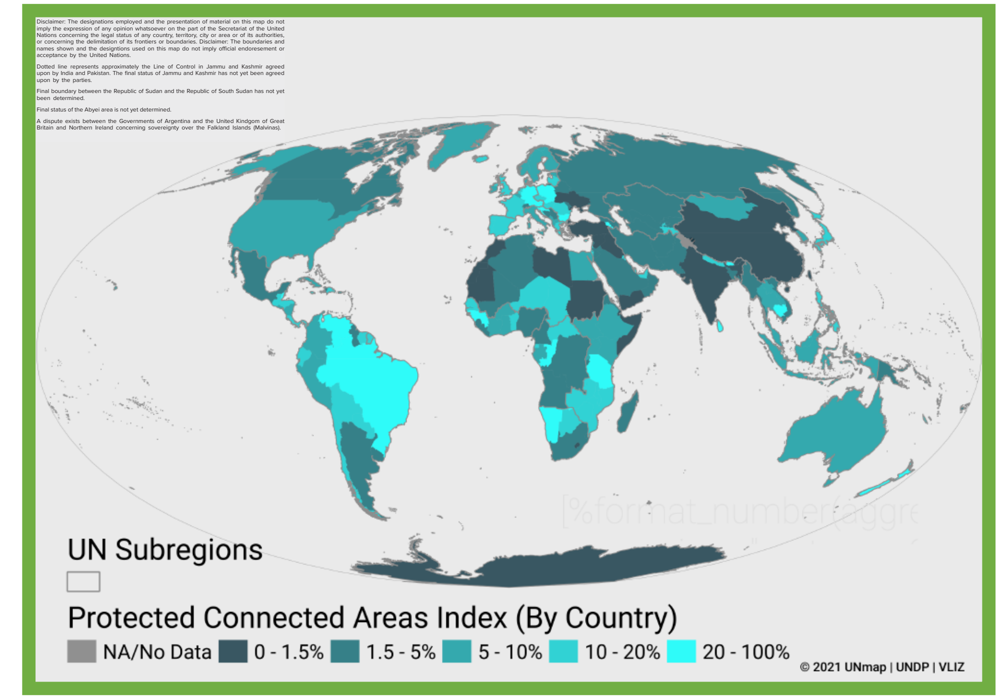




**MAP 18.**

Protected Connected Areas Index, indicating the percentage of the country covered by protected and connected lands.

*Data sources: UNEP-WCMC and IUCN (2021b) and Saura et al. (2018).*

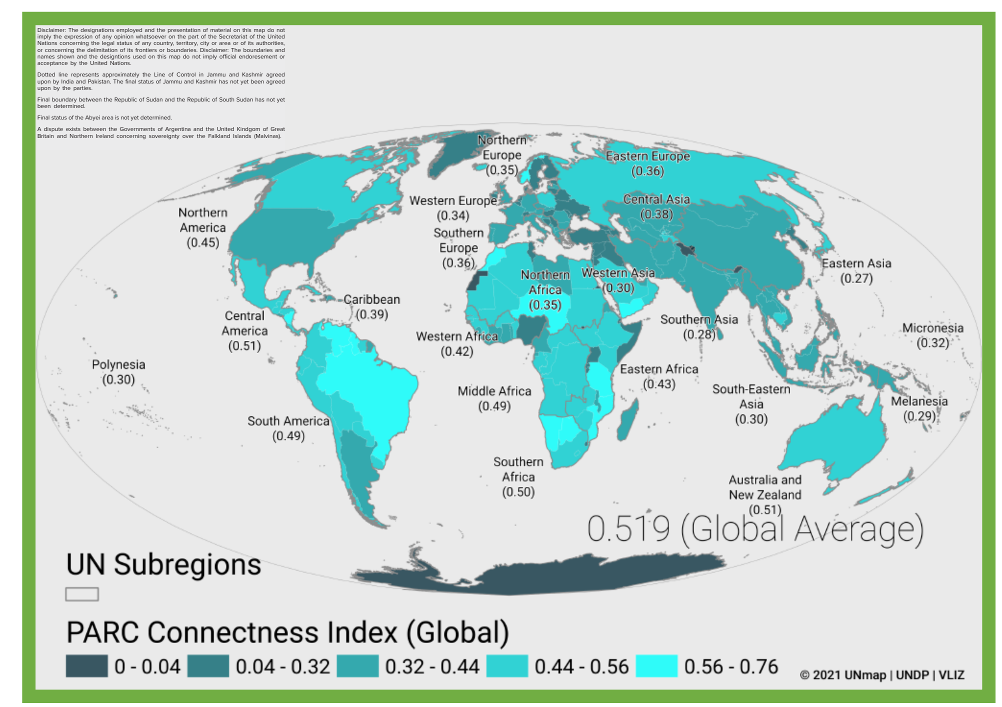



In 2019, as assessed using CSIRO's PARC-Connectedness Index[8] (which accounts for the connectivity between PAs, but also includes the contribution of areas containing primary vegetation in the surrounding non-protected landscape), global PA connectivity is 0.51 (map 19), representing no significant change from 2010 (CSIRO, 2019a).

**MAP 19.**

PARC-Connectedness Index for each country.

*Data sources: UNEP-WCMC and IUCN (2021b) and Commonwealth Scientific and Industrial Research Organization (CSIROa) (2019).*




8 PARC-Connectedness Index values range from 0-1, indicating low to high connectivity

**Ecological corridors**[9]

Corridors are an important tool for improving and maintaining connectivity that is vital for well-functioning ecosystems, and are increasingly being used in many countries. For example, in Bhutan, all PAs are now connected by biological corridors first established in 1999; while in Costa Rica 51 officially established biological corridors cover more than 38% of the country's land area. Corridors may or may not be captured with use of the ProtConn indicator (only if they are designated as PAs or OECMs and reported in the global database), while the PARC-Connectedness Index could also capture their impact if they are maintaining intact primary vegetation cover. Guidelines for conserving connectivity through ecological networks and corridors were recently published and contain a range of principles for the planning and implementation of ecological corridors (Hilty et al., 2020). Corridors can also be an essential part of ensuring that PAs and OECMs are integrated within the wider landscape and seascape, as discussed further in two case studies in boxes 1 and 2.

Box 1

CASE STUDY: CAMBODIA - NORTHERN PLAINS LANDSCAPE (NPL) (ERVIN ET AL., 2010)

The Cambodian Northern Plains Landscape (NPL) covers 18,000 km across 5 of Cambodia's northern provinces and is one of the largest blocks of deciduous dipterocarp forest left in Southeast Asia. The corridor is home to 30 species on the IUCN Red List and includes PAs, wildlife sanctuaries and logging concessions. The project has given focus to improving community-based conservation, through the establishment of rights and responsibilities for local communities via empowerment and the protection of village resources. Locals were encouraged and incentivized to improve conservation efforts through nature-based tourism to stop wildlife hunting, with a 400% increase in tourism from 2005 to 2008. The project Ibis Rice was established to give preferential prices for rice produced by local communities which adhere to conservation standards. Locals were also paid for reporting the locations of nests of threatened birds and protecting them. This is thought to protect over 400 nests every year and has seen great improvements in populations of the Giant Ibis, Saurus Crane, Vultures and Lesser Adjutant.

9 https://www.cbd.int/doc/publications/cbd-ts-44-en.pdf





Box 2

CASE STUDY: THE EASTERN TROPICAL PACIFIC MARINE CONSERVATION CORRIDOR (CMAR) (ERVIN ET AL., 2010)

The CMAR covers 2,000,000 km$^2$ in the national waters of Costa Rica, Panama, Colombia and Ecuador. It contains many important habitats such as coral reefs, mangrove forests, estuaries, coastal cliff, and beaches and has many productive upwellings that are valuable for species diversity and endemism. The area is also a crossroads for the migration of whales, turtles, tuna, sharks, and seabirds, making this area highly biodiverse and important for conservation action. The corridor includes four UNESCO World Heritage sites and multiple MPAs and there is technical and financial support available from governments for hundreds of different marine conservation and management projects. The corridor was implemented with the ambition of meeting the CBD goal of 10% coverage of national waters.

**Feedback from Parties and opportunities for action:**

There were 59 country responses via matrix, survey or consultation for the connectivity and corridor data presented in the Aichi Biodiversity Target 11 Country Dossiers. The data did not align fully with the results of analyses conducted at national level for 11 (19%) countries, did align for 38 countries (64%), and was partially aligned for two countries; seven countries were unable to confirm whether the presented data aligned with national statistics. Many responses reported on the presence of biological or ecological corridors at various stages of development; some of these are classified as protected areas, others not. In some cases, a legal framework to establish corridors is still needed. Some of these corridors were developed specifically to support migratory species and one example reported on the use of corridors for marine species. One Party noted that landscape connectivity is considered in assessing protected area management.

There is no proposed indicator for addressing the integration of PAs and OECMs into wider landscapes and seascapes, but in their responses, Parties reported on a range of policies and national strategies for addressing integration, protected landscapes, restoration, and green infrastructure, among other approaches. Some national approaches also include transboundary cooperation.

In some countries, focus should be on a general increase in terrestrial coverage from PAs and OECMs, while in other countries a targeted designation of PAs or OECMs to enhance connectivity may be more appropriate. In some countries, where coverage and connectivity are already high, focus on PA and OECM management for enhancing and maintaining connectivity would be a priority, also addressing coordinated management of neighboring PAs or transboundary PAs, where appropriate. Improving connectivity can increase the effectiveness of PAs and OECMs. Opportunities should also be explored for the integration of PA and OECM networks into the wider landscape and seascape and into relevant sectoral plans and national policies (see further discussion in chapter 4).

## VI. Equitable Governance

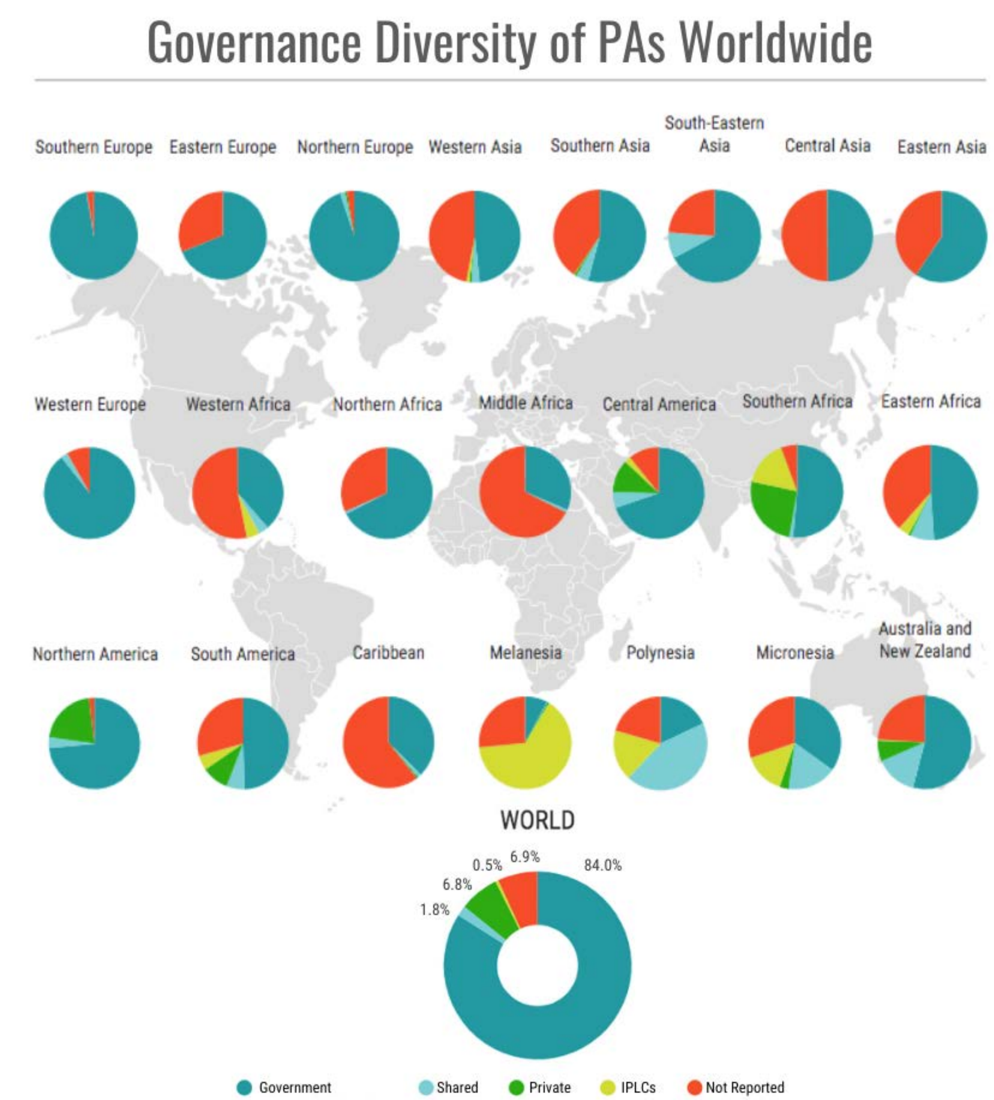
There is a lack of comprehensive global data on equitable governance in PAs and OECMs, though diverse and equitable governance models are recognized as critical for PAs and OECM effectiveness and equitability. Here, data is provided on the diversity of governance types for reported PAs and OECMs.

Globally, as of May 2021, PAs reported in public version of the WDPA have the following governance types per region (based on the number of sites[10]):

- Type A 84.0% are governed by **governments**
- Type B 1.8% are under **shared** governance
- Type C 6.8% are under **private** governance
- Type D 0.5% are under **IPLCs** governance
- 6.9% **do not** report a governance type

10 excluding UNESCO-MAB Biosphere Reserves and sites have a status of 'proposed' or 'not reported'

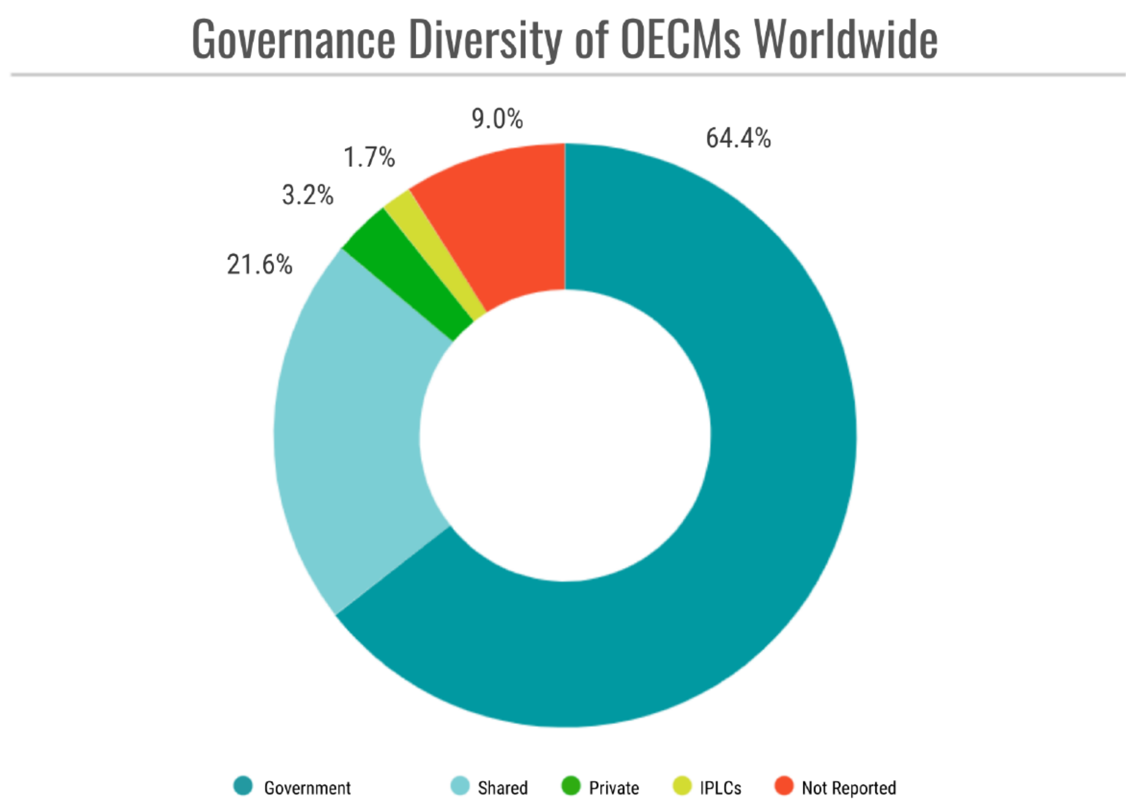
**Figure 2. The governance types reported the WDPA for PAs regionally and globally.**




Globally, as of May 2021, OECMs reported in the WD-OECM have the following governance types (based on the number of sites):

- Type A 64.4% are governed by **governments**
- Type B 21.6% are under **shared** governance
- Type C 3.2% are under **private** governance
- Type D 1.7% are under **IPLCs** governance
- 9.0% **do not** report a governance type

Figure 3. The governance types reported the WDPA for OCEMs globally.




A simple assessment of the attributed governance category offers a relatively limited insight into the social equity of a PA or OECM. Therefore, there is a need for greater focus on the equity and effectiveness of PAs and OECMs in the post-2020 approach to effective area-based conservation efforts. The importance of equitable governance, alongside suggestions of potential equity assessment methodologies is discussed in greater detail in chapter 4.

#### Summary of outreach by Parties and opportunities for action:

For the matrix, according to the survey and consultation results of 65 countries, the data presented on governance diversity in the Aichi Biodiversity Target 11 Country Dossiers was reported as aligning with national level analysis for 34 (52%) countries, not fully aligning for 25 (38%) countries and partially aligned for four countries. For one country it was unknown if the data presented was accurate. Similar to the other elements, some responses noted the need to include recently designated sites or others that are not yet reported in the WDPA or WD-OECM. Some also noted potential problems for assessing governance diversity arising from multiple designations for the same site (e.g., national park and World Heritage site, etc.). Countries may also employ a different concept of governance that may not translate easily to the IUCN governance types used for this reporting. The figures presented in the dossier reported on the proportion of sites under different governance types; if this had included the proportion of PA extent (total area) under different governance types the values would have been very different. In some countries there is significant variation in the size of PAs under different governance types (e.g., non-state PAs may make up a majority of sites, but government PAs account for >90% of the area covered). It was also noted that updating governance types for non-state PAs may not fall under the government's jurisdiction to report. Where feasible, work is ongoing to facilitate updating records in the WDPA.

Globally, there is opportunity to increase efforts for completing governance and equity assessments, to establish baselines and identify relevant actions for improving the quality, equity, and effectiveness of PAs and OECMs governance (see further discussion on equity in chapter 4). Examples of existing tools and methodologies include Governance Assessment for Protected and Conserved Areas (Franks and 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). In addition, a priority for reporting also includes reporting more PAs and OECMs under non-government governance, with the consent of custodians.

## VII. Protected areas management effectiveness

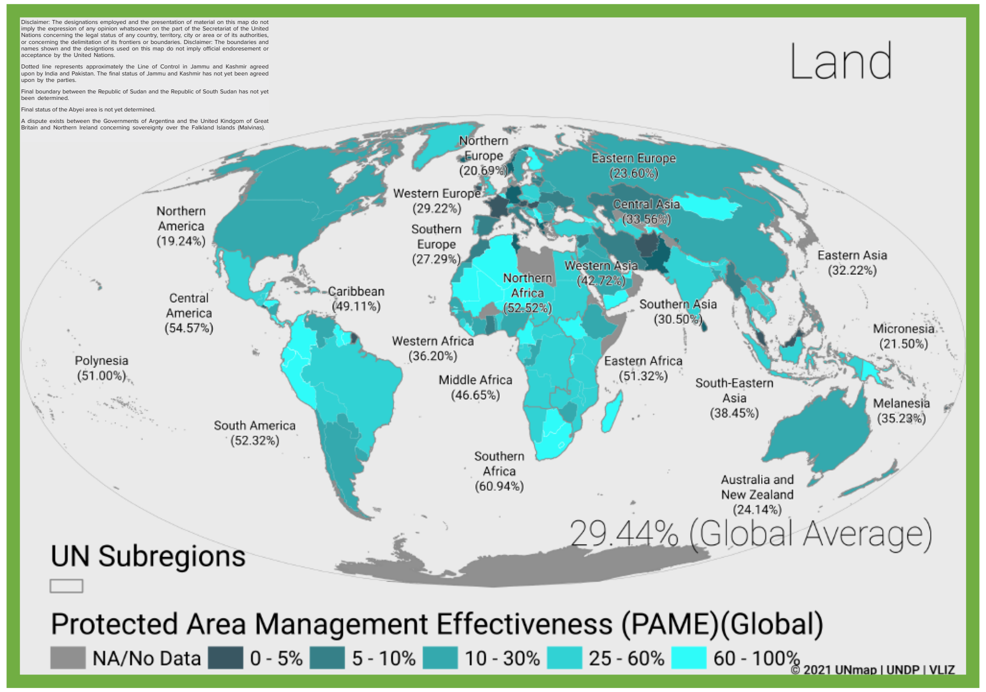
Ensuring that PAs and OECMs are effectively managed is essential to safeguard biodiversity and its contributions to people. To date, reporting of progress on the 'effectively managed' element of Target 11 has focused on the completion of management effectiveness evaluations, generally compared with the 60% target agreed to in COP10 decision X/31. Here data is provided on completed protected area management effectiveness (PAME) assessments as reported in the global database on PAME (GD-PAME; UNEP-WCMC and IUCN, 2021c). Information is also included regarding changes in forest cover nationally within PAs and OECMs.

#### Protected area management effectiveness (PAME) assessments

As of May 2021, globally there are 265,941 PAs reported in the WDPA; of these, only ~10% have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

- 4.5% (6,091,398 km$^2$) of the global terrestrial area is covered by PAs with completed management effectiveness evaluations.
  - 28.8 of the area of terrestrial PAs have completed evaluations
- 1% (3,527,163 km$^2$) of the ocean (2.5% of marine area under national jurisdiction) is covered by MPAs with completed management effectiveness evaluations.
  - 14.0% of the area of MPAs within national waters have completed evaluations

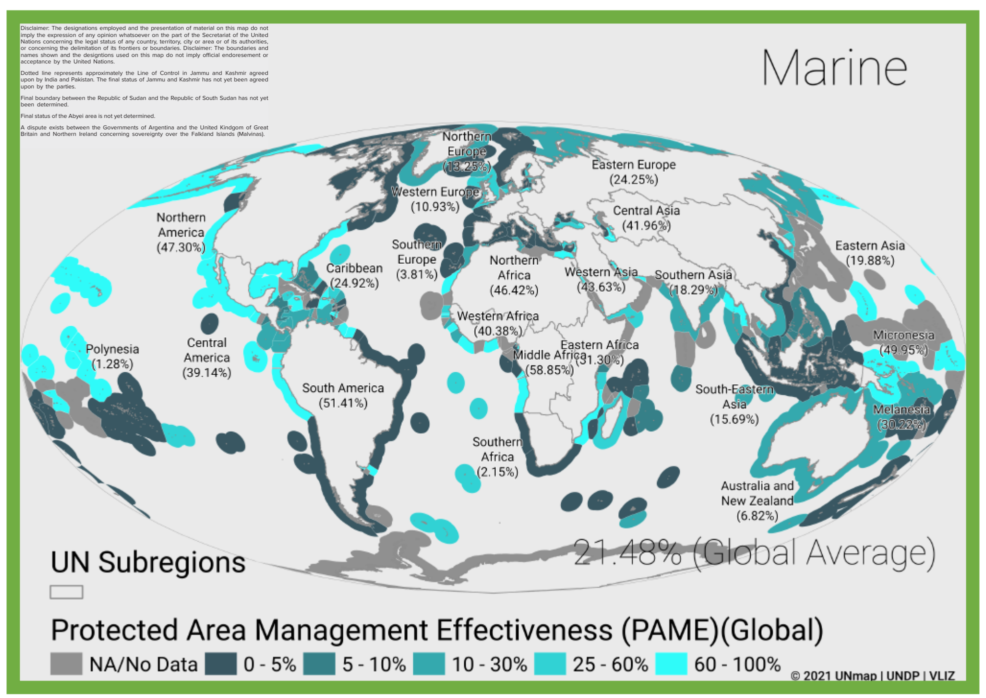
Less than one-quarter of CBD Parties (42) have surpassed the 60% target for completed management effectiveness assessments (per COP decision X/31) for terrestrial PAs. For marine PAs, 30 out of 154 CBD Parties have met the 60% target, based on reported evaluations in the GD-PAME (UNEP-WCMC and IUCN, 2021c). Approximately a third of countries have not submitted any data on completed assessments for inclusion in the GD-PAME, though many of these do have frameworks for assessing effectiveness (e.g. EU, UK and Canada have alternative methods for assessment).




**MAP 20.**

The percentage of protected terrestrial area with management effectiveness assessments complete and reported to the WDPA.

*Data sources: UNEP-WCMC and IUCN (2021b) and UNEP-WCMC and IUCN (2021c).*




**MAP 21.**

The percentage of protected marine area with management effectiveness assessments complete and reported to the WDPA.

*Data sources: UNEP-WCMC and IUCN (2021b) and UNEP-WCMC and IUCN (2021c).*

Although there has been some progress on completing PAME evaluations, simply reporting on the completion of evaluations is not adequate; the results of these evaluations need to be examined to determine whether sites are reporting sound management. Globally, there are more than 100 tools in use to assess management effectiveness of PA, which has made it a challenge to standardize reported management effectiveness evaluations and metrics. Global data is lacking due to inadequate reports on the quality scores for PA and OECMs, which has limited the ability to analyze broad global management effectiveness results across PAs and OECMs (discussed further in chapter 4).

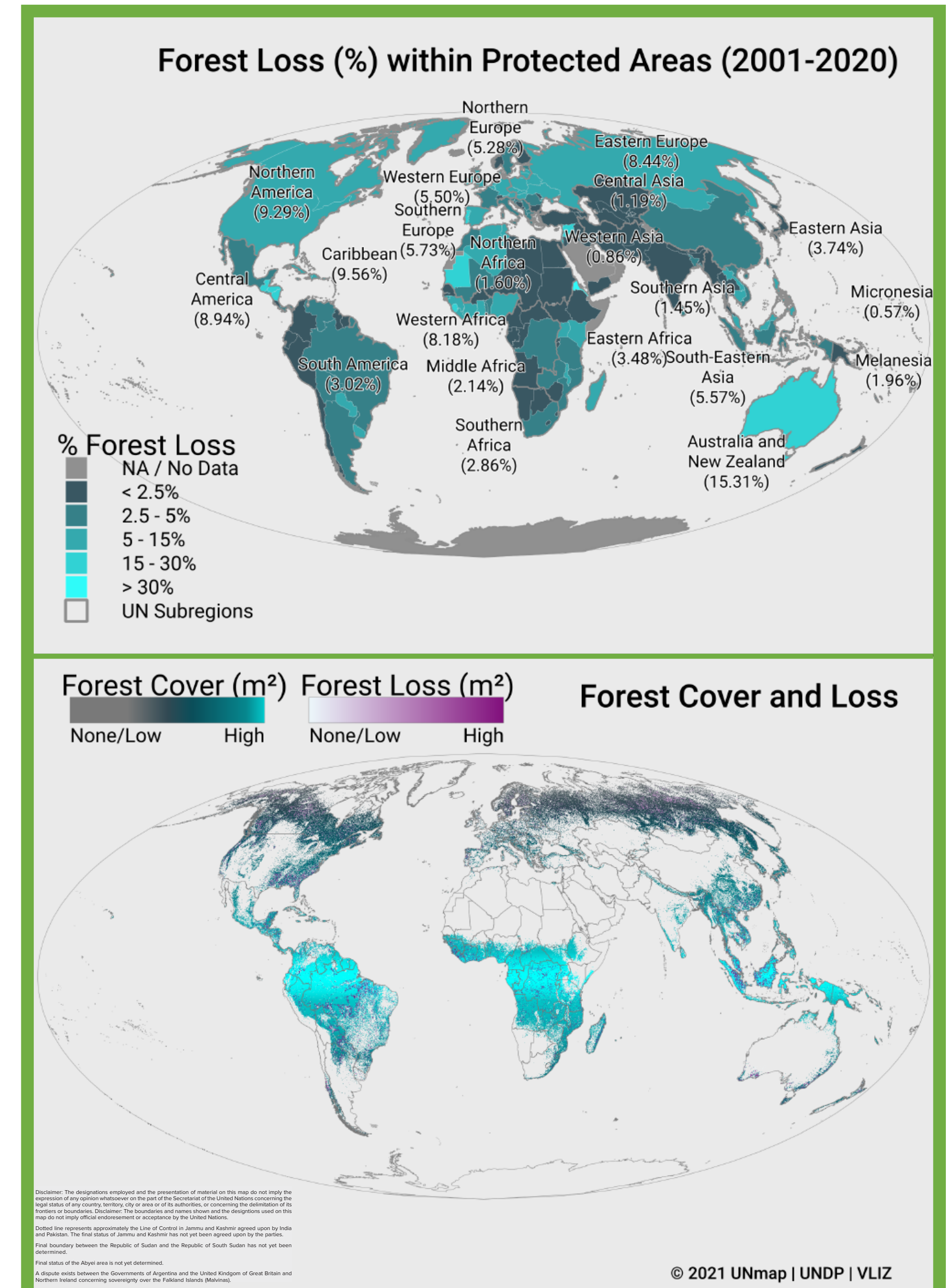
### Changes in forest cover in PAs and OECMs

Forested areas globally cover approximately 33.1% of the world, an area of 48,703,859 km². Approximately 20.44% (9,955,304 km²) of this is within PAs. Over the period 2000-2020 loss of forest cover amounted to over 4,445,840 km², or 9.13% of total forest cover, of which 526,439 km² (11.84%) occurred within PAs. Map 22 shows how forest cover has changed globally from 2000-2020 both inside and outside of PAs. This can indicate how effective PAs are in reducing forest cover loss.

**MAP 22.**

The forest loss (%) withing PAs from 2001 to 2020 (top) and global forest cover and forest loss (m2) (bottom).

*Data sources: UNEP-WCMC and IUCN (2021b) and Hansen et al. (2013).*



**Summary of outreach by Parties and opportunities for action:**

Feedback from 71 countries in the matrix, surveys and consultations indicated that the data presented on protected area management effectiveness in the Aichi Biodiversity Target 11 Country Dossiers did not align fully with the results of analyses conducted at national level for 31 (44%) countries, did align for 31 (44.4%) countries and partially aligned for four countries; for five countries it was unknown if the data presented was accurate. Some differences relate to the same issue discussed for PAs and OECMs coverage, where different baselines or methodologies will lead to slightly different calculations of total coverage, also affecting coverage of sites with completed assessments. However, many responses also noted that there are completed evaluations not yet reflected in the GD-PAME. Work is ongoing to support the addition of these records. Several countries also reported on the outcomes of PAME assessments, noting the proportion of sites with effective management in place. In a few cases, Parties reported the use of nationally designed assessment frameworks, some of which are applied annually. It was also noted that conducting PAME evaluations requires both technical and financial support, or that a lack of equipment and appropriate human resources hinders effective PA management, barriers that will need to be addressed in the coming decade. Several countries also noted that they use different metrics for assessing forest cover change nationally and reiterated the fact that assessments of forest cover will be highly dependent on methodologies and definitions used (e.g., the height and canopy cover used to define 'forest cover', etc.).

Opportunities for the near future include improving both the reporting of PAME data and the assessment of management effectiveness for the many PAs that do not yet have any assessments reported on the GD-PAME.  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. Moving beyond management effectiveness there is opportunity to assess all elements of PA quality, such as governance quality (including equitable governance), and the delivery of conservation outcomes.

## VIII. National commitments, policies, and projects

Parties have committed to increasing PA and OECM coverage throughout the last decade of the Strategic Plan for Biodiversity 2011-2020, through various fora, including National Biodiversity Strategies and Action Plans (NBSAPs), national priority actions identified through a series of regional capacity-building workshops, the 2017 UN Oceans Conference, and various regional initiatives (e.g. the Micronesia Challenge). If completed, these commitments could increase global coverage of terrestrial areas by around 4 million $km^2$ and marine areas by 11 million $km^2$.

Countries have also committed to addressing the qualifying elements of Target 11. They have increasingly recognized PAs and OECMs as a method to synergistically achieve biodiversity, climate change, and sustainable development priorities. A range of actions, policies, and projects were examined, including: 1) NBSAPs; 2) Global Environment Facility (GEF) and Green Climate Fund (GCF) projects; and 3) a Nature for Climate policy analysis of more than 50 countries, exploring protection actions across their national biodiversity, climate, and development policies.

### 1. NBSAPs

In total, 605 NBSAP actions from 71 countries were reviewed for their contribution to elements of Target 11. The most commonly addressed elements were management effectiveness (addressed by over half of the actions assessed), followed by governance and equity (155 actions), increasing coverage (129), and integration (116), with fewer actions directly addressing areas important for biodiversity (87), ecological representativeness (62), areas important for ecosystem services (40), and connectivity (40).

### 2. GEF and GCF projects

*Approved GEF Projects*

The GEF serves as a financial mechanism to five conventions, including the Convention on Biological Diversity (CBD). In total, 356 approved GEF-5 and GEF-6 projects were assessed from 131 countries for their potential impact for qualifying elements of Aichi Biodiversity Target 11, based on the information provided in the Project Identification Form (PIF). On average, each project benefited 4 to 5 qualifying elements. This included; ecological representativeness (161 projects), areas important for biodiversity (219), areas important for ecosystem services (167), connectivity (143), management effectiveness (331), governance and equity (301) and integration (293).

*Green Climate Fund (GCF) Projects*

In total, 65 GCF projects were analyzed for links to elements of Aichi Biodiversity Target 11. Many of the projects will provide benefits for multiple elements. Overall, projects most commonly addressed integration into the wider landscape and seascape (60 projects) and management effectiveness (50), followed by governance and equity (23), areas important for ecosystem services (21), increased coverage of PAs or OECMs (11 projects), connectivity (10), and areas important for biodiversity (10). No projects directly referenced ecological representativeness, though projects including an increase in coverage have the opportunity to address this element.

### 3. Nature for Climate policy analyses

A total of 1,043 policy documents from 51 countries were examined, many of which have actions relevant for Target 11. The policy documents followed three main themes: nature, climate, and sustainable development. Within these general themes, policies related to several topics: ecosystem integrity (334, 32%), species persistence (52, 5%), climate adaptation (105, 10.1%), climate mitigation (348, 33.4%), disaster risk reduction (15, 1.4%), food security (54, 5.2%), jobs and livelihoods (51, 4.9%) and water security (84, 8.1%). It was found that 263 policy documents (25.2%) included quantifiable targets, 230 (22%) were time-bound and 71 (6.8%) were area-specific.

### 4. Other Commitments and Pledges

The Leaders' Pledge for Nature has been endorsed by governments from 88 countries (and the EU), representing 37% of global GDP and more than 2 billion people.[11] Among the 10 commitments to support the UN Decade of Action to achieve Sustainable Development and to put nature and biodiversity on a path to recovery by 2030 are commitments to: "the development and full implementation of an ambitious and transformational post-2020 global biodiversity framework" and "to address the direct and indirect drivers of biodiversity loss and halt human induced extinction of species, to ensure species populations recover, and to significantly increase the protection of the planet's land and oceans through representative, well- connected and effectively managed systems of Protected Areas and Other Effective Area- Based Conservation Measures, and to restore a significant share of degraded ecosystems."

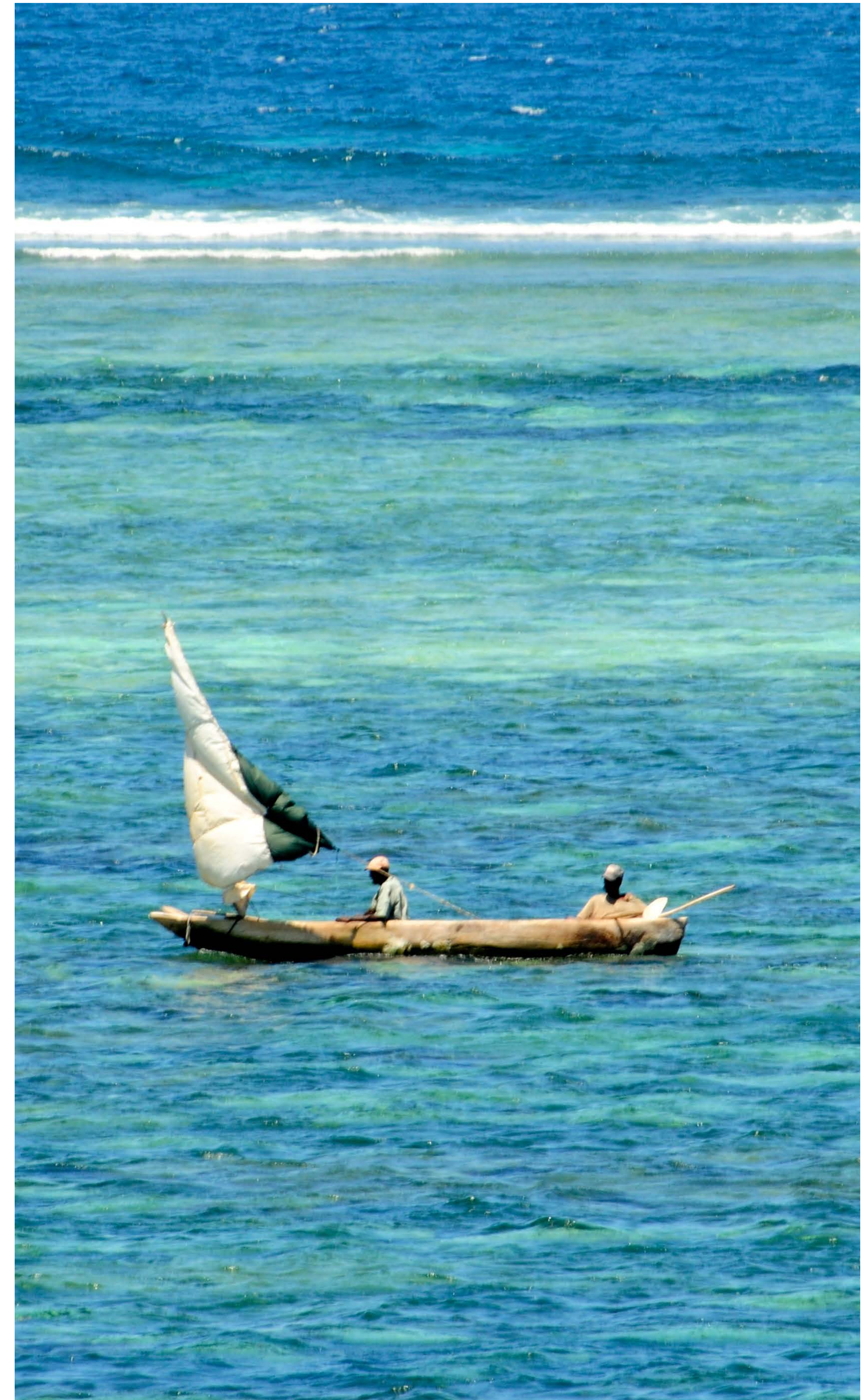
Other similar initiatives undertaken by Parties to facilitate the transformative change necessary to reach the 2030 goals and targets include the High Ambition Coalition for Nature and People (joined by 65 countries and the European Commission),[12] and the Global Oceans Alliance (joined by 53 countries).

### UN Ocean Commitments

Many Ocean Actions submitted as voluntary commitments during the first UN Ocean Conference in 2017 are already complete and have contributed to the great increase in ocean coverage over the last few years. Examining 110 actions from 63 CBD Parties, shows that remaining voluntary commitments could add almost 750,000km$^2$ in ocean coverage, with another 675,000km$^2$ over the next decade. Another 33 actions committed to increase MPA coverage but with no indication of the extent. There were also 44 actions from 32 countries addressing other elements of Target 11. Of these, 36 address effective management, 19 address integration into the wider seascape, 12 address issues related to governance and/or equity, 13 address ecosystem services, and 3 address areas important for biodiversity (most actions had benefits for multiple elements).

The next UN Ocean Conference has been postponed due to the COVID-19 pandemic, but it will likely offer the opportunity for another round of voluntary commitments, to address the increased ambition needed for the next decade of action for marine conservation.

11 see more at: https://www.leaderspledgefornature.org
12 see: https://www.hacfornatureandpeople.org/home



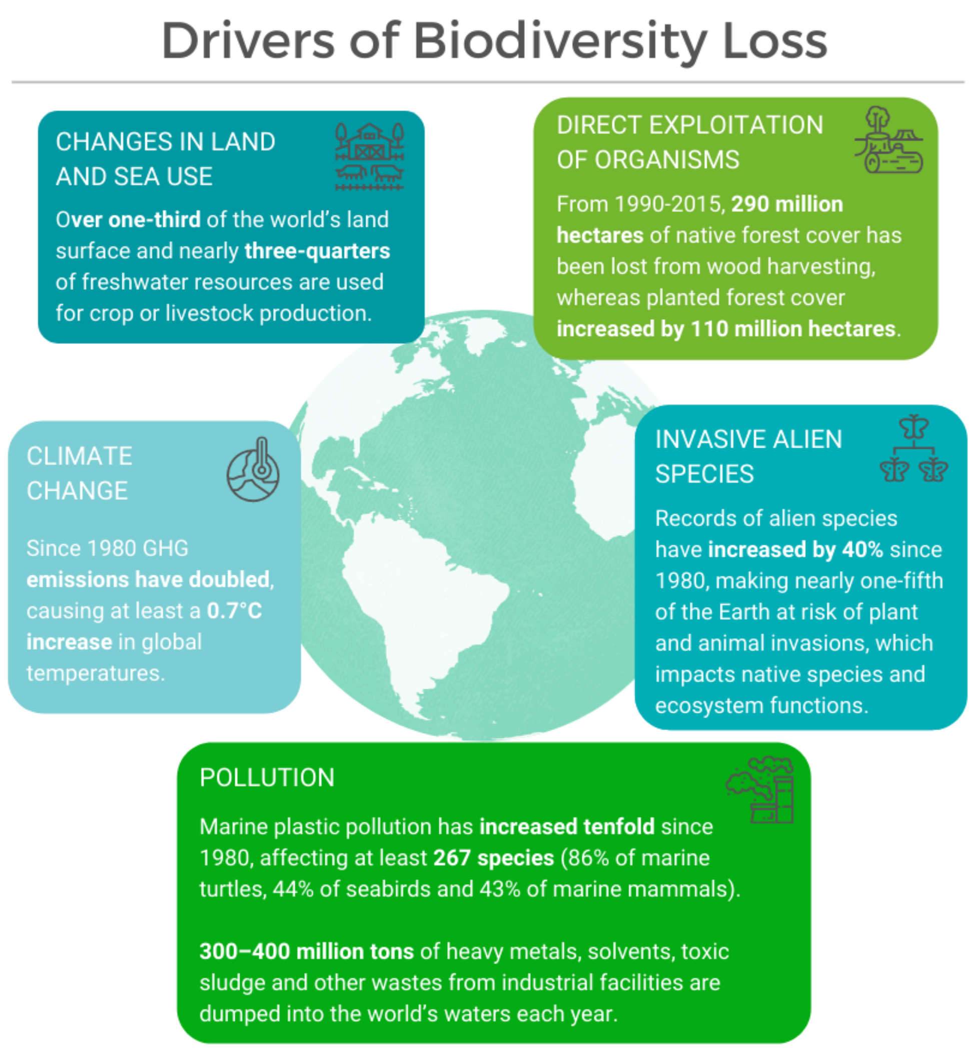
# CHAPTER 3

## The benefits of filling protected area gaps

# BENEFITS OF FILLING PROTECTED AREA GAPS

Extensive ecosystem degradation and destruction and the accelerated rate of global species extinctions means Earth is facing a global biodiversity crisis. It is now estimated that 1 million species are threatened with extinction and rates of extinction are at least ten to a hundred times higher than the average over the last million years (IPBES, 2019). Many of the drivers of this biodiversity loss are direct or indirect results of unsustainable human action (Figure 4), with around 60 billion tons of renewable and non-renewable resources extracted each year, an increase of roughly 100% since 1980 (IPBES, 2019). Around 75% of Earth's terrestrial areas and 55% of marine areas have now been significantly altered by human actions, a major driver of which is agricultural expansion, with 30% of terrestrial surfaces and 75% of freshwater resources now devoted to crop or livestock production (IPBES, 2019). 80% of the IPLCs lands and territories at high potential risk of future development pressure are currently under good or moderate ecological conditions (WWF et al., 2021).

**Figure 4. The top five leading drivers of global biodiversity loss.**








Effective and equitably managed PAs and OECMs can help to mitigate the biodiversity crisis by protecting and restoring species and ecosystems. Area-based conservation also protects the extensive contributions and benefits provided by biodiversity. This chapter examines the contribution of PAs and OECMs (Figure 5) to biodiversity conservation as well as other direct benefits and co-benefits including water security, food security, climate mitigation, disaster risk reduction, livelihoods, health, and human well-being.

**Figure 5. The direct benefits and co-benefits provided by PAs and OECMs and the contribution of these towards the Sustainable Development Goals.**

## I. Conservation of biodiversity

Area-based conservation approaches are essential for the protection and restoration of ecosystems and species. The current global network of PAs and OECMs is already supporting global conservation efforts, though gaps persist (as shown in Chapter 2 for various elements of Target 11). Progress is slowly improving, with PA coverage for vulnerable, endangered, and critically endangered species increasing by 1.6% from 2010 to 2019 (Maxwell et al., 2020). Another recent study found that terrestrial species richness and abundance were 10.6% and 14.5% (respectively) higher in PAs than outside of PAs (Gray et al., 2016), while the proportion of threatened species with adequate coverage was 37% for mammals, 34% for birds, 14% for reptiles, 11% for amphibians, and 19% for freshwater species (Maxwell et al., 2020). Impressive progress with marine PA and OECM coverage over the last decade has seen greater increases in protection for marine species, for example, coverage of reef-forming corals expanded from 9.1% to 44.0% and MPAs now provide adequate coverage to 50% of threatened mangrove species, 50% of threatened seagrasses, 43.2% of threatened marine mammals and 42.1% of threatened bony fishes (Maxwell et al., 2020).

It is estimated that 21–32 bird and 7–16 mammal species would have gone extinct without conservation action from 1993 to 2020 (Bolam et al., 2021) and improvements in the status of area-based conservation resulted in 58 species removed from the Alliance for Zero Extinction list (AZE)[13] between 2005 and 2018 (Luther et al., 2021). However, more than one-third of AZE sites currently have no coverage from PAs and OECMs (Luther et al., 2021). As such, improved efforts to increase coverage of unprotected AZE sites and improve effective management could benefit nearly 3,000 endangered and critically endangered species[14] (Luther et al., 2021). Alongside these direct conservation benefits provided by PAs and OECMs for ecosystems and species, improvements in effective and equitable area-based conservation also provides a diverse range of other co-benefits, which are outlined in this chapter.

## II. Water security

One critical co-benefit provided by PAs and OECMs is their contribution to water security[15] (SDG 6). The human right to water was adopted by the United Nations as binding international law in 2010, however, currently 40% of the world still lacks access to clean and safe drinking water (IPBES, 2019) and around 3.6 billion people live in water-stressed regions, where water scarcity occurs during at least 1 month per year. This can severely impact human health; in the developing world, as much as 80% of illness and death can be associated with water-related diseases (The Nature Conservancy, 2018). Water scarcity also has significant impacts on the economy, with inadequate access to water and sanitation costing an estimated US$323 billion annually (Global Agenda Councils and Water Leader, 2017).

Water insecurity is impacted by ever-increasing global consumption, and it is expected that water demands will increase 55% by 2050 (UN WWAP, 2015), putting a potential 5.7 billion people at risk of living in water-stressed regions (UN WWAP, 2018). Much of this consumption can be attributed to unsustainable agricultural practices, which utilize more than 70% of global water withdrawals for irrigation (WEF Water Initiative, 2011). Water security is also impacted by ecosystem degradation, as around 40% of the world's urban watersheds (The Nature Conservancy, 2018) and an estimated two-thirds of water-cycle-regulating forests are now degraded (UN WWAP, 2018). Furthermore, the pollution and contamination of surface and ground water is now one of the leading threats to freshwater availability (Biswas and Tortajada, 2019).

Increased focus on the protection, restoration, and sustainable management of ecosystems like wetlands, forests, and others, will be vital over the coming decades to support people living in regions facing water scarcity (Sumaila et al., 2017). For this, PAs and OECMs will be essential as they can act as nature-based solutions (NBS) to improve water security worldwide. It is estimated that the water-related services of tropical forests account for US$7000 per hectare annually, this is 45% of their total value, higher than benefits relating to timber, tourism, or carbon storage (TEEB, 2009). PAs are already having significant contributions, with 33 of the world's largest cities sourcing clean water from PAs (Ervin et al., 2010) and nearly two-thirds of the world's population living downstream of PAs, which provide them with freshwater resources (Harrison et al., 2016). Less than 10% of current water provisions from PAs are exposed to high-level threats, whereas nearly 25% of provisions from outside of PAs are highly threatened (Harrison et al., 2016). Despite the clear benefits nature conservation can have for water security, NBS represent less than 1% of water infrastructure investments (UN WWAP, 2018). This approach is now recognized in global water policy frameworks, which stress that "ecosystem-based management should be the primary means of climate change adaptation—and this largely involves using NBS for water" (UN WWAP, 2018). Recognition of these benefits provided by PAs and OECMs will be immensely important for the future of water security.

## III. Food security

It is estimated that in 2019, 690 million people went hungry (10 million more than in 2018) and 750 million experienced severe food insecurities; a further 2 billion people did not have regular access to sufficient or nutritious food (FAO et al., 2020). These shocking statistics can be attributed to an ever-increasing demand for food, due to the growth of the global population, resulting in a 300% increase in food crop production since 1970 (IPBES, 2019). If this trend continues it is estimated that 9.8% of the global population will be affected by hunger by 2030 (FAO et al., 2020).

An inability to feed the global population is an increasing risk, in part due to the decline of global biodiversity. Unsustainable fishing practices and ocean acidification from CO2 emissions are impacting food supplies across the oceans. In 2016, one-third of commercial fish stocks were fished at unsustainable levels, with 90% fully exploited (FAO, 2018) and the maximum catch from fisheries

13 AZE sites that hold the last-remaining populations (>95% of the known population) of 1,483 Endangered or Critically Endangered (CR) species.
14 This includes the 1,483 AZE species and another 1,359 Critically Endangered and Endangered amphibian, bird, and mammal species that have distributions overlapping with identified AZE sites
15 Defined as "the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human-well-being and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability" (UN Water, 2013).

could decline by 24.1% by 2100 if GHG emissions continue to rise (IPCC, 2019). The impacts of this on food security will be detrimental as global fisheries provide almost one-sixth of the global protein consumed (Sumaila et al., 2017). Loss of pollinator biodiversity is also impacting food availability and quality, with declines in insect populations as high as 76% observed in Germany from 1989 to 2016 (Hallmann et al., 2017). Around 75% of global food crops rely to some extent on pollinators for growth, crop quality or seed production (Klein et al., 2007) and our reliance on pollinators has increased by 300% in the last 50 years (Smith et al., 2015). A continued loss of pollinators could reduce global supplies of fruit by 22.9%, vegetables by 16.3%, and nuts and seeds by 22.1% in a worst-case scenario (Smith et al., 2015). Biodiversity loss can also directly affect food supplies to the 5-8 million people in South America who regularly rely on wild meat for protein (Rushton et al., 2005) and rural regions in West and Central Africa where wild meat contributes 80-90% of animal protein (Ntiamoa-Baidu, 1997, Pearce, 2005). Finally, ecosystem degradation is also reducing the productivity of around one-fifth of vegetated Earth, resulting in 1.3 billion people living on degrading agricultural land (UNCCD, 2017).

Where losses of biodiversity are contributing to food insecurity, PAs and OECMs can provide benefits through protecting biodiversity essential to global food supplies, such as oceans and pollinators. Marine PAs could have significant benefits for the 3 billion people worldwide who rely on fish as their major source of protein (FAO, 2016) as recent studies indicate that, on average, whole fish biomass is more than 670% higher in fully protected MPAs than in surrounding unprotected areas (Sala and Giakoumi et al., 2018). Protecting and restoring biodiversity is also essential for the benefits of crop wild relatives (CWR), which act as genetic resources against pests, diseases, and climate stress for global crop species. Currently, it is predicted that 27-47% of CWR will be lost by 2080, but protection of these species would have significant benefits for food security, with global CWR estimated to generate benefits of US$115-120 billion annually for the world food economy (Maxted et al. 2013). PAs and OECMs may also offer essential areas where IPLCs can continue to access food following sustainable traditional practices (ICCA Consortium, 2021).





However, issues may arrive when considering the expansion of the PA network, as this may impact land available for agriculture or livestock. Currently, 6% of all terrestrial PAs are already made up of croplands, these heavily modified landscapes are unsuitable for supporting wildlife, despite this, 22% of croplands occur in PAs with the strictest levels of protection (Vijay and Armsworth, 2021). A recent analysis indicated that, depending on the landscape conservation strategy used (either nature-only landscapes or shared-landscapes) 15-31% of cropland, 10-45% of pastureland and 3-29% of food calories from crops could be lost if PA coverage was expanded to cover half of Earth's terrestrial ecoregions (Mehrabi et al. 2018).

## IV. Climate change mitigation

Climate change is among the most pressing environmental crises facing the world today. Climate change will continue to increase the frequency and intensity of many hot extremes, marine heat waves, heavy precipitation, droughts, and cyclones, while reducing levels of Arctic Sea ice, snow and permafrost (IPCC, 2021). Already, these warming temperatures and increasing climatic extremes are wreaking havoc on species and ecosystems and negatively impacting livelihoods (IPBES, 2019) and one in six species are now at risk of extinction from climate change (Urban, 2015). Under all emissions scenarios considered in the IPCC's forthcoming Sixth Assessment Report, surface temperatures will continue increasing until mid-century, with warming more than 1.5–2°C reached during this century, unless a rapid and significant reduction in greenhouse gas (GHG) emissions can be implemented (IPCC, 2021). There are many factors contributing to the release of GHGs and climate change, such as burning fossil fuels and land-use change resulting in ecosystem degradation and destruction. The related risks will be much lower if global warming gradually stabilizes at 1.5°C rather than if warming exceeds this before returning to a lower level by 2100. For example, out of more than 100,000 species of plants, insects, and vertebrates assessed, the proportion projected to lose more than half of their climate-based geographic range doubles at 2°C of warming (compared to 1.5°C) (IPCC, 2018).[16] In the marine realm, impacts may also be much lower if warming is kept to 1.5°C, which can lower the likelihood of marine and coastal ecosystems experiencing irreversible losses. At 2°C of warming, coral reefs may experience losses of >99%, while at 1.5°C these declines may be kept to 70–90% (IPCC, 2018).

Well-managed PAs and OECMs can play a critical role in climate change mitigation and adaptation strategies, while also reducing the ecological and social vulnerability of communities to the impacts of climate change. Many ecosystems act as significant carbon sinks, sequestering approximately 5.6 Gt CO2 or 60% of global anthropogenic emissions each year (IPBES, 2019), so protection and restoration of these ecosystems acts as a nature-based climate solution. Planting an extra 0.9 billion hectares of forest or tree canopy cover, could store 205 Gt of carbon, equal to two thirds of atmospheric carbon resulting from human activity (Bastin et al., 2019). Currently, over 2,000 tropical PAs store nearly 15%

16 At 1.5°C of global warming, 8% of plants, 6% of insects, and 4% of vertebrates are projected to lose >50% of their climatically determined range, compared to 16% of plants, 18% of insects, and 8% of vertebrates at 2°C of warming (IPCC, 2018).

of the carbon captured in tropical forests (Collins and Mitchard, 2017), and increasing PA and OECM coverage to 30% could reduce atmospheric CO2 by 0.9-2.6 Gt each year, approximately 4-12% of the annual emissions reductions needed by 2030 to limit global warming to 1.5°C (Claes et al., 2020). Another study estimates that nature-based climate solutions could provide over one-third (37%) of the GHG reductions necessary to stabilize warming to 2°C (Griscom et al., 2017). Land conserved by IPLCs also plays a significant role in climate change mitigation, estimated to store around 13% of all carbon stored in terrestrial ecosystems (IUCN, 2019). Expanding protection of 'important biodiversity areas' for coverage of 30% of unprotected land areas could secure 1,360 Gt of carbon (Dinerstein et al., 2020) and jointly prioritizing biodiversity and carbon in area-based conservation expansion could maintain almost 23% of global carbon and 27% of vertebrate and plant species with just an additional 10% of land area (Jung et al., 2021).

The role of PAs and OECMs as nature-based solutions to the climate crisis is addressed in the draft Target 8 of the post-2020 GBF calling for ecosystem-based approaches to be scaled up, contributing at least 10 Gt$CO_2$e per year to global mitigation efforts. Currently, it is estimated that PAs contain 25% of global AGB, 21% of global BGB, 15% of global SOC and 7% of marine sediment carbon (see map 13). The role of NBS is also prominent throughout the United Nations Framework Convention on Climate Change (UNFCCC). Within the Paris Agreement "the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity..." is stated and the importance of conservation and protection of carbon sinks is also apparent in UNFCCC Article 4.1[17]. Despite this, the WWF reviewed 151 countries Nationally Determined Commitments to the UNFCCC 2015 Paris Agreement and found that only 67 identified PAs as means to achieve mitigation and adaptation goals (WWF, 2019). Of these, only 21 countries specifically mentioned the carbon sequestration benefits of PAs and only 8 acknowledge the ecosystem services provided by PAs for helping vulnerable populations adapt to climate change. Therefore, it is essential that future targets strengthen the links between conservation and climate adaptation and mitigation, as protecting and restoring nature is a valuable nature-based solution to climate change.

## V. Disaster risk reduction

Climate change is increasing the intensity and frequency of natural disasters, which now occur three times more often than 50 years ago (FAO, 2021). In 2020, this cost the global economy a record US$268 billion and resulted in the loss of around 8,100 lives (AON, 2020). The impacts of natural disasters are also exacerbated through the degradation of natural environments, which when intact act as buffers to these hazards, and destruction of these environments and biodiversity may also affect recovery and regeneration in the aftermath of a disaster (UNDRR, 2020).

One significant co-benefit of PAs and OECMs is their contribution to disaster risk reduction (DRR) (Doswald et al., 2020). Protecting and restoring biodiversity and ecosystems can provide a nature-based solution to buffer against hazards, prevent disasters, and reduce the impacts of disasters on people and ecosystems, as well as on vital infrastructure (UNDRR, 2020). For example, healthy, intact mangroves can provide a significant reduction in the damage imposed on communities from extreme weather events (Mercer and Salem, 2012), providing an estimated value of $82 billion annually (Beck et al., 2018). Riparian and coastal vegetation is beneficial for stabilizing shorelines and riverbanks (Ruitenbeek., 1992) and maintaining intact forested mountains and slopes protects from landslides and avalanches by stabilizing sediments (Dudley et al., 2015). In the ocean, coral reefs may reduce wave energy by an average of 97%, thus providing protection against extreme storms for almost 200 million people (Ferrario et al., 2014). Furthermore, DRR can also relate to the reduction in global health disasters. Expanding PAs and OECMs coverage to 30% of Earth could significantly reduce the risk of a zoonotic-disease transmission events (Claes et al., 2020), the benefits of which have come to the forefront of international discussions due to the events of the COVID-19 pandemic this past year.

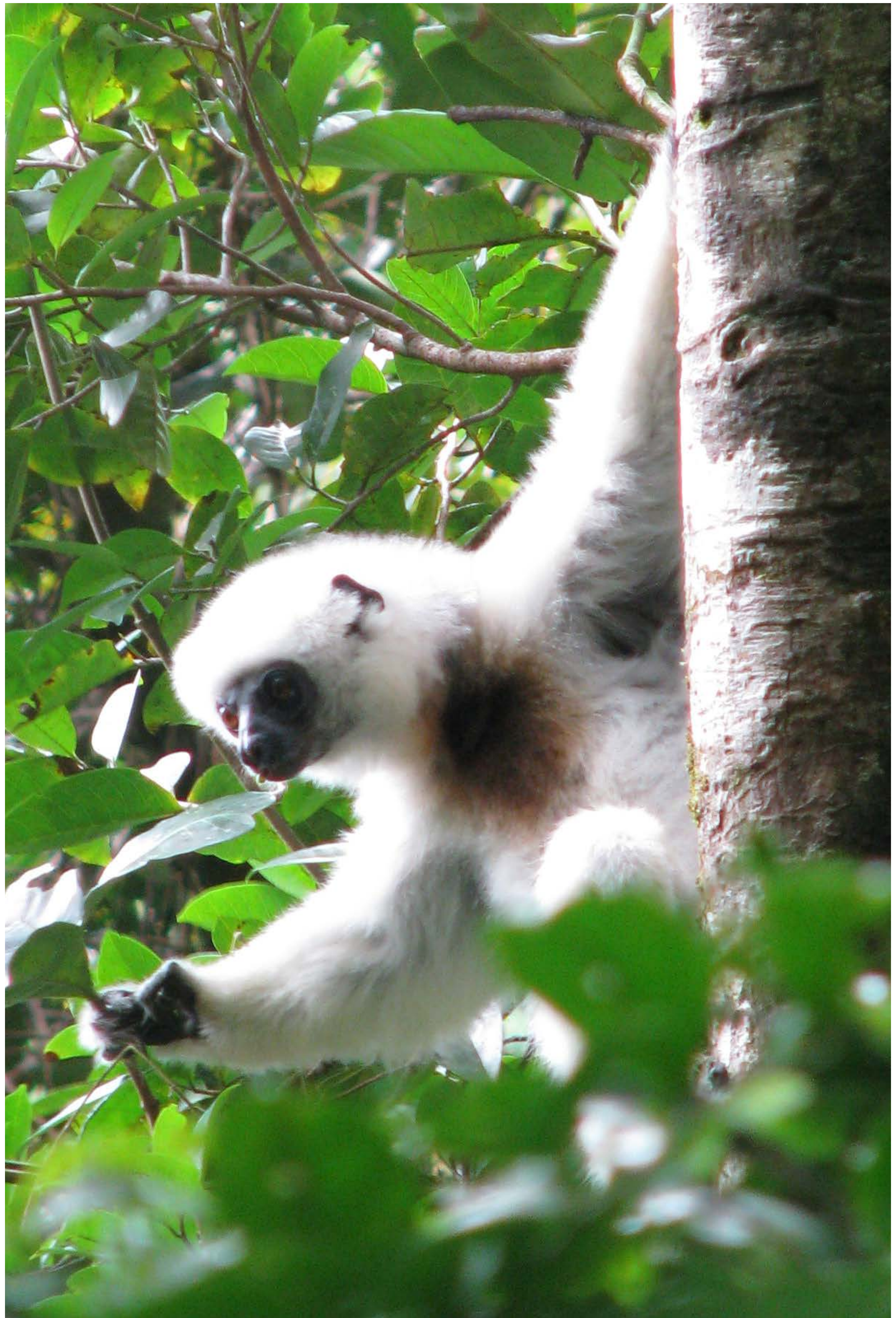
Ecosystem-based DRR is not exclusively reliant on PAs or OECMs (e.g., see approaches to Eco-DRR in CBD Secretariat, 2019); however, these sites can certainly make an important contribution (Dudley et al., 2015). Target 13.1 under SDG 13 calls for strengthening the resilience and adaptive capacity to climate-related hazards and natural disasters, while the Sendai Framework for Disaster Risk Reduction 2015-2030 outlines seven global targets for the next 15 years, prioritizing ecosystem-based approaches to build resilience and reduce disaster risk. The framework was developed after three tragic natural disasters in Asia; the Indian Ocean Tsunami (2004), Great East Japan Earthquake (2011) and Haiyan/Yolanda typhoon (2013), and aims to give focus to the importance of enhancing PA management and governance and integrating conservation with development. This acknowledges "ecosystem-based disaster risk reduction and protected areas enhance local resilience in areas at high risk of disasters and encourages proactive approaches that contribute to disaster prevention and mitigation through utilization of ecosystem services" (IUCN, 2013).

## VI. Livelihoods, health and well-being

Finally, there are extensive benefits of area-based conservation that contribute to the economy and livelihoods, public health and human well-being. Increasingly, the value of nature is being assessed for the services provided, many of which have been outlined in this chapter. Currently, more than half of the world's total GDP (at least US$44 trillion) is moderately or highly dependent on nature and its services, making the global biodiversity crisis one of the top risks to the global economy (WEF, 2020). Managing ecosystems and the use of wildlife, through an integrated approach, is important for promoting healthy ecosystems and healthy people (SDG 3: Good health and well-being) and represents one of the key transitions required to set us on a path to achieving the 2050 Vision for Biodiversity, as described in GBO-5 (CBD Secretariat, 2020).

In 2014, the entire biosphere was valued at US$125-145 trillion per year (Constanza et al., 2014), with oceans worth at least US$24 trillion (Hoegh-Guldberg et al. 2015). A significant portion of this comes through increasing recognition of the links between biodiversity and mental and physical health. PAs and OECMs may impact health through opportunities for exercise and relaxation (Kettunen et al., 2021), with the mental health benefits of expanding coverage to 30% valued at US$6 trillion a year

17 "...all Parties shall promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems".



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(Buckley et al., 2019). These sites can also support the continued supply of important medicines; it is estimated that around 4 billion people rely primarily on natural medicines for their health care (IPBES, 2019). UNESCO Biosphere Reserves are learning places for sustainable development which promote the conservation of biodiversity in alignment with sustain socio-culturally and ecologically sustainable uses; currently there are 727 biosphere reserves that have been identified in 131 countries, including 22 transboundary sites, which connect more than 250 million people[18].

PAs and OECMs may also support the achievement of poverty alleviation targets (SDG 1: No Poverty). PAs and OECMs may provide economic opportunities to poor and marginalized people in locations offering few other options (Kettunen et al., 2021). For example, in Zambia, an analysis of visitor spending within the Lower Zambezi and South Kuangwa National Parks determined that each visitor contributed an average of US$3,957-4,423 to household income for communities in surrounding areas (Stolton et al., 2021). A study across 34 developing countries found that households close to PAs with tourism had 17% higher levels of wealth and 16% lower likelihood of poverty than similar households further away from PAs (Naidoo et al., 2019). Expanding PA coverage to 30% is thought to generate between 400,000 and 650,000 jobs in wildlife management and infrastructure plus a further 30 million in ecotourism and sustainable fishing (Claes et al., 2020). This expansion is estimated to cost around $140 billion per year by 2030; the output of such expansion is predicted to generate $250-350 billion dollars annually (Waldron et al., 2020). This can be seen in existing efforts, as every dollar governments have invested in PAs and support for nature-based tourism in 2019 had an economic return of at least six times the original investment (World Bank, 2021).

Box 3 highlights an example of how PAs and OECMs can be used for the economic benefits of local people and communities:

## Box 3

### MAKIRA NATURAL PARK, MADAGASCAR – AN EXAMPLE OF HOW CARBON CREDITS CAN PROVIDE BENEFITS FOR THE LOCAL ECONOMY AND WELL-BEING

Makira Natural Park contains the largest remaining areas of low and mid-altitude rainforest in eastern Madagascar. The site has historically suffered from severe deforestation of an estimated 15,000 hectares from 1995-2005 (Makira Carbon Initiative, 2021). Since 2005, the Wildlife Conservation Society (WCS) and local stakeholders have halved deforestation rates. The avoidance of $CO_2$ emissions has allowed for the sale of carbon credts and deforestation reductions equating to 1.2 million tco2 (US$300,00) annually. From 2005 to 2017 total of US$3.8 million has been generated from carbon credit sales. Half of the money generated is used in socio-economic development projects such as training locals in natural resource management, education on ecotourism and the production of sustainable crops such as vanilla, cloves and cacao (Natural Capital Partners, 2021). The rest of the revenue goes towards REDD+ training, WCS management, the management of community funds and carbon certification fees (Makira Carbon Initiative, 2021).

18 More information available here: https://en.unesco.org/biosphere

# CHAPTER 4

## Important considerations for more effective and equitable PA and OECMs

# IMPORTANT CONSIDERATIONS FOR MORE EFFECTIVE AND EQUITABLE PAS AND OECMS

## Achieving a nature-positive future with conservation

Protected areas (PAs) and other effective area-based conservation measures (OECMs) are a cornerstone of conservation and can help secure biodiversity and its contributions to people, including important co-benefits for climate change mitigation and adaptation, sustainable economies and livelihoods, disaster risk reduction, food and water security, and public health and well-being (discussed in the previous chapter). Achieving a nature-positive future with 30% of land conserved is possible, and dependent on PAs and OECMs that are representative, well-connected, equitable, and effectively managed. Three important considerations have emerged that contribute to stimulating and catalyzing action to expand and scale up effective and equitable PAs and OECMs:

1. Increase coverage, prioritizing representativeness, connectivity, and the conservation of areas important for biodiversity; equitable expansion; and effective management and quality outcomes in PAs and OECMs
2. Scale up recognition of the contribution of Indigenous Peoples and Local Communities (IPLCs) territories, lands and waters and secure tenure rights
3. Embed PAs and OECMs into national policies and decision-making frameworks

## I. Increase coverage, prioritizing representativeness, connectivity, and the conservation of areas important for biodiversity; equitable expansion; and effective management and quality outcomes in protected areas and other effective area-based conservation measures

### Increasing coverage can contribute to a nature-positive future

Under the current Strategic Plan for Biodiversity 2011-2020, Target 11 (on improving the quality and coverage of PAs and OECMs)[19] was one of the few Aichi Biodiversity Targets that was partially achieved (none were fully achieved), with several elements of the target (those related to % coverage) showing good progress (UNEP-WCMC and IUCN, 2021a; CBD Secretariat, 2020; IPBES, 2019). However, despite the partial achievements and ongoing conservation efforts, biodiversity continues to deteriorate; the declining trends for nature and its contributions to people are projected to continue or worsen under a business-as-usual scenario (CBD Secretariat, 2020; IPBES, 2019). As noted in the CBD's Fifth Global Biodiversity Outlook (GBO-5), "the actions needed to achieve the CBD's 2050 Vision for Biodiversity will require a significant shift away from 'business as usual'" (CBD Secretariat, 2020). As Parties prepare to negotiate and adopt the next global biodiversity framework, it is important to look back on and learn from the progress made towards the 20 Aichi Biodiversity Targets. For PAs and OECMs, beyond scaling up the coverage of terrestrial and marine areas, this will require a greater focus on all of the quality elements (e.g., representation, connectivity, effective management, and equitable governance), especially for those where progress has been lower or where appropriate indicators are still needed (CBD Secretariat, 2020; UNEP-WCMC and IUCN, 2021a). A greater consideration of these quality elements in the next decade of PA and OECM expansion, including increased efforts for equitable governance and effective management, is essential as trends have shown that increasing coverage alone is insufficient to stop global biodiversity loss. Therefore, the new Global Biodiversity Framework should aim to achieve a higher quality of protection, which is just and fair for all. To do so, three important considerations are outlined:

### 1. Ecological representativeness, connectivity, and the conservation of areas important for biodiversity

Ecological representation refers to the protection of the full range of biodiversity for a region, including terrestrial, marine, freshwater and coastal, ranging from genetic diversity to species and ecosystems (Gauthier 1992, Davis et al. 2006). A study looking at ecoregion and species representation within PAs from 1954 to 2013 found that while ecoregion representation steadily increased, species representation increased much less (Venter et al., 2018). Ensuring the conservation of PAs which are fully ecologically representative can lead to increased resilience and viability (Fischer et al. 2006), which will be increasingly important under the pressures of climate change. When focusing on the expansion of the global PA and OECM network post-2020, consideration should therefore be given to underrepresented biodiversity to optimize the benefits of new sites. Establishing sites without consideration of representation can minimize beneficial outcomes for biodiversity (Venter et al., 2018; Barnes et al., 2018). It has been estimated that the strategic placement of PAs could result in 30 times more species adequately protected for the same extent (Symes et al., 2016).

Informing the expansion of PAs and OECMs to cover under-represented biodiversity benefits greatly from recent advances in high-resolution spatial data, and the application of systematic conservation planning to optimally prioritize areas for greater representation, but also connectivity and the conservation of areas important for biodiversity (see below). Map 22 is an example of this, presenting the terrestrial ecoregions currently with the lowest level of protection. These areas should be prioritized in the coming decades, as expanding coverage will only achieve maximum desirable biodiversity benefits if sites are truly representative of all levels of biodiversity. Beyond ecoregions, examples of such spatial data include the method proposed by Sayre et al. (2020), which mapped 431 terrestrial World Ecosystems based on climate, landforms, vegetation and land-

19 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 (CBD, 2010).

use and assessed the coverage of protection and protection level.[20] Another proposed indicator, the Protected Areas Representativeness Index (PARC-representativeness; CSIRO, 2019b), is based on modeling the relationships between spatial turnover in biodiversity composition (for plants, vertebrates and invertebrates) and fine-scaled environmental variation in climate and other variables. As of 2016, the global value was approaching 0.1,[21] indicating that a large proportion of the world's relatively unique environments and biodiversity have less than 10% of their extent in PAs (CSIRO, 2019b).

As effective representation may also be a function of quality, it may be worthwhile to also consider the level of intactness, or integrity, which varies significantly among global ecoregions (Mappin et al., 2019). Over the next decade it will therefore also be important to both maintain connectivity where it still exists and restore connectivity where it has been lost, especially considering the increasing impacts of climate change. PAs and OECMs can be a useful tool for this, though given the wide range of intactness and the variation in fragmentation across different landscapes, there may be a need for different actions to be taken to maintain or restore connectivity in different places. Currently, the portion of remaining intact wilderness areas included within terrestrial and marine PAs remains low (Maxwell et al., 2020). Globally, approximately 40% of forested areas can be considered as having high integrity, and as of 2018, only 27% of this was found within PAs, and only 56% of forests within PAs are in high health (Grantham et al., 2020). This highlights the need for improved management and restoration activities, but also for increasing the area of intact forests under protection. Additionally, as of 2019, only 10% of Earth's terrestrial PA network was considered structurally connected through intact lands (Ward et al., 2020). It has recently been shown (Dinerstein et al., 2020) that to connect all remaining intact land areas, would require only a small addition of PAs, OECMs, or corridors. Connecting all current terrestrial PAs (with 2.5km wide 'wildlife and climate corridors') would require over 5.7 million km$^2$ (~4% of unprotected lands; Dinerstein et al., 2020).

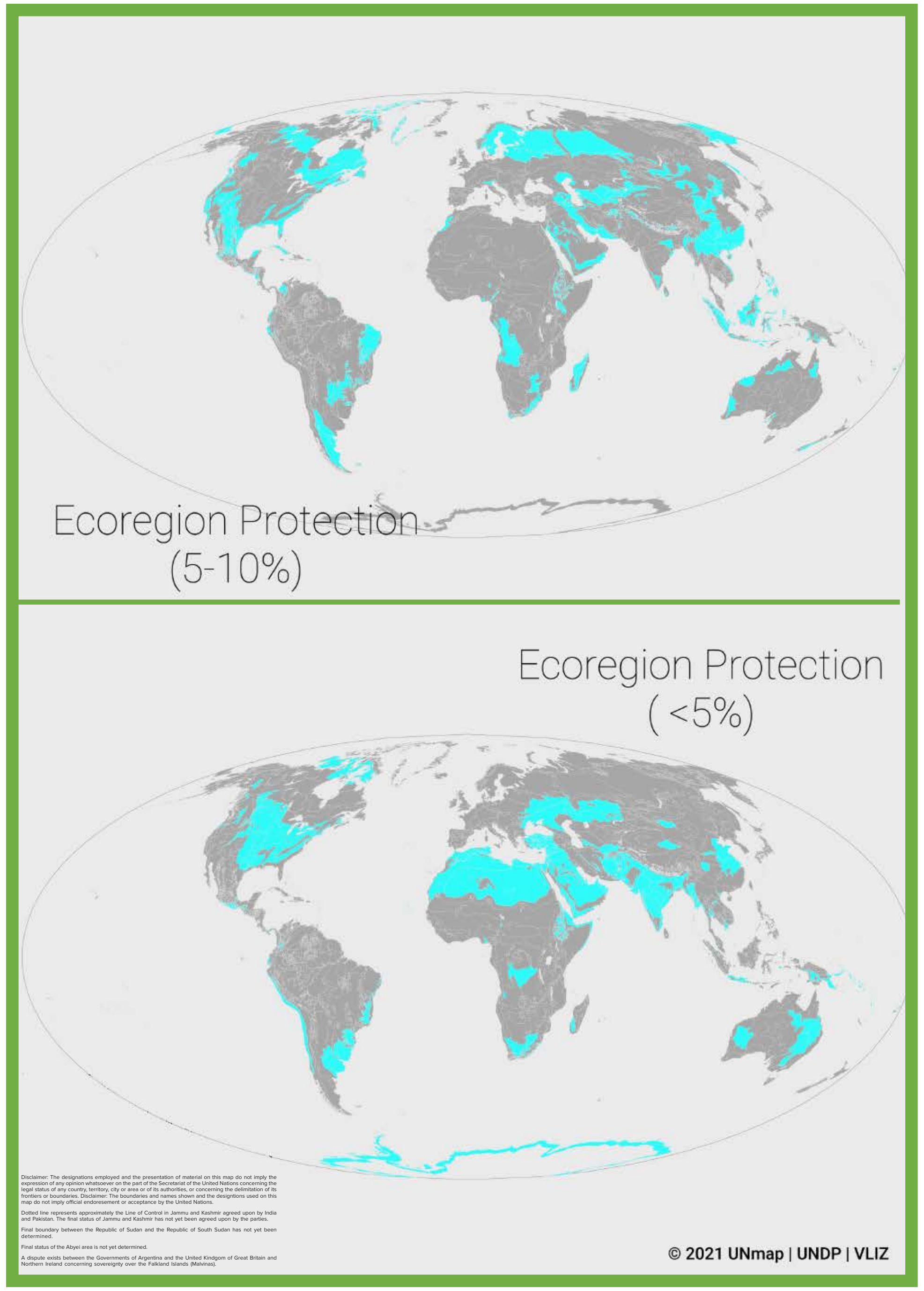


Finally, it is essential that PAs and OECMs focus on the areas of greatest importance for biodiversity. This can be based on rarity and threatened biodiversity, geographically restricted biodiversity, ecological integrity, demographic aggregations, biological processes, and irreplaceability, among other approaches. The most common metric for assessing areas important for biodiversity are Key Biodiversity Areas (KBAs), identified based on a global standard (IUCN, 2016) but identified and implemented at the national level (as noted above, many countries are currently or are planning to undertake assessments). KBAs are currently incomplete, both taxonomically and geographically, so over the next decade efforts will be needed to complete their identification, so that they can be used to prioritize conservation action. Other approaches for identifying important biodiversity areas have been proposed (e.g., centers of endemism, Vulnerable Marine Ecosystems, climate refugia)[22] and many are in use nationally.

20 Of 278 natural or semi-natural global ecosystems, only 9 had coverage by PAs under IUCN management category I-IV exceeded 17%, 206 having less than 8.5% coverage (Sayre et al., 2020).
21 Values range from 0 (no representation) to 100% (fully representative of ecological diversity).
22 A full list of potential means for identifying areas of importance for biodiversity mentioned during the Thematic Workshop on Area-based Conservation Measures for the Post-2020 Global Biodiversity Framework area are available in the workshop report here: https://www.cbd.int/conferences/post2020/post2020-ws-2019-09/documents



The connections between biodiversity and other social, economic and environmental aspects are especially valuable. The links between cultural and biological diversity have been explored in research, recognizing nature and culture as dual aspects of a single entity where threatened species and endangered languages indicate a tandem extinction crisis for global biocultural diversity (Loh & Harmon, 2014). Further research could explore biocultural diversity, (e.g., prioritizing areas of high biocultural diversity) and how multiple prioritization methods could also be combined. Dinerstein et al (2020) combined 11 biodiversity layers, addressing "species rarity, distinct species assemblages, rare phenomena, and intactness" showing that expanding coverage to important unprotected biodiversity would require over 40 million km$^2$ (30.6% of unprotected land). For identifying important ocean areas, Gownaris et al. (2019) explored ten different methods for identifying important ocean areas, showing that over half of the ocean is identified as important by at least one initiative, with over 14% of the ocean identified as important by multiple initiatives, most of which (~88%) were still unprotected. Other proposals, combining biodiversity conservation, with climate stabilization and the maintenance of ecological function and ecosystem services have been proposed, like the Global Deal for Nature (Dinerstein et al. 2019) and Global Safety Net (Dinerstein et al. 2020). Synergistic prioritization could protect 42.5% of vertebrate and vascular plant species, 26% of total carbon and 22% of potential clean water with just 10% of land area conserved (Jung et al., 2021). Increasing this to 30% of land optimally conserved could protect over 60% of terrestrial carbon stocks, 66% of clean water, and 58% vertebrate and vascular plant species, though adjusting for the current distribution of PAs globally, these figures would be much lower (Jung et al., 2021).




**Map 23.**

Global ecoregions with the lowest levels of protection by the existing PA network.

Data sources: Dinerstein et al. (2017) and UNEP-WCMC (2021).

### 2. Importance of equitable expansion

To ensure maximum conservation impact, it is important that PAs and OECMs are situated to improve representativeness, connectivity and the coverage of areas important for biodiversity; however, it is also critical that greater focus is given to ensure effective and equitable governance. Equity is one component of good governance and was one of the elements of Target 11 where progress has been difficult to assess. The notion of equitable governance was first introduced by the CBD's 2004 Programme of Work on PAs in goal 2.1 and 2.2, which called for the promotion of equity and benefit sharing and enhancing involvement of IPLCs and stakeholders. More recently, the role of equitable governance of PAs for the development and implementation of the Strategic Plan for Biodiversity 2011-2020 was outlined by the CBD Secretariat (2010)[23]. However, equity for area-based conservation is still poorly defined and understood (Franks et al., 2018a). There are three commonly recognized dimensions of equity which, follow from earlier work in environmental justice (Schreckenberg et al., 2016):

- Recognition: acknowledging and respecting rights and the diversity of identities, knowledge systems, values and institutions of different actors.
- Procedure: participation of actors in decision-making, transparency, accountability, and processes for dispute resolution.
- Distribution: the allocation of benefits and costs across the set of actors, and, how the costs/burdens experienced by some actors are mitigated.

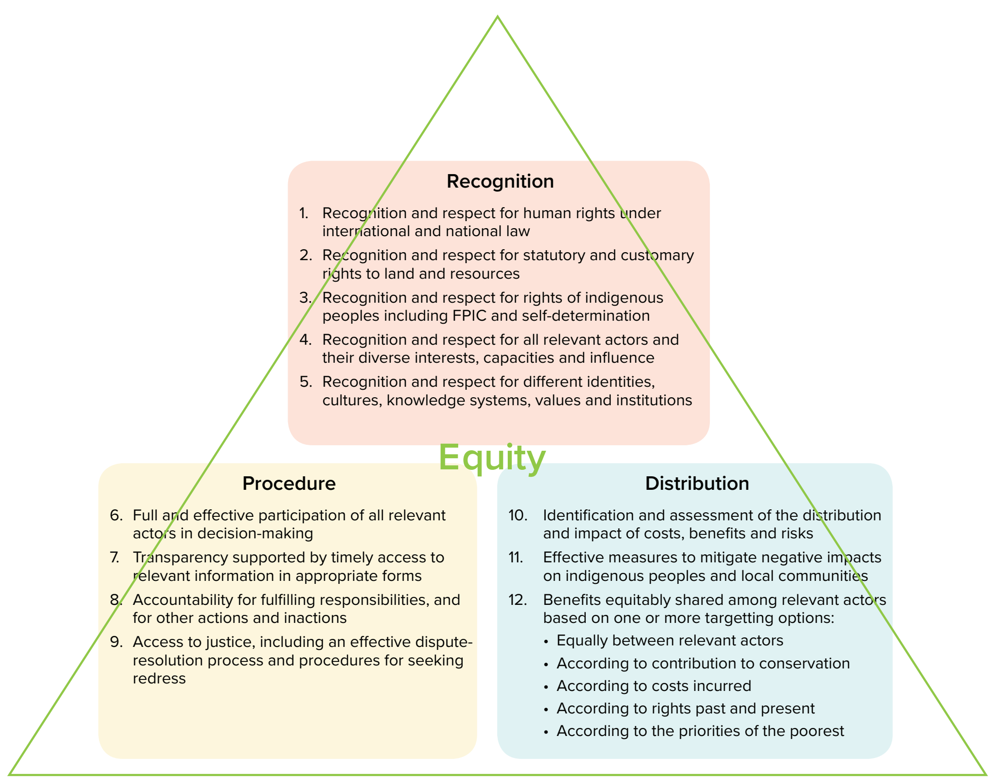
While the understanding of what constitutes equity in PAs and OECMs is progressing, assessment methodologies are still limited, making the monitoring and assessment of this element of Target 11 difficult to quantify. Recently, Zafra-Calvo et al. (2019) developed a set of 10 equity indicators based on these 3 dimensions and conducted the first global assessment of equitable governance across 255 PAs worldwide. This small-scale study found that around 50% of respondents had major challenges relating to effective participation in decision-making, transparent procedures, access to justice in conflicting situations, and the recognition of the rights and diversity of local people. The International Institute for Environment and Development (IIED) have developed several assessment tools for equity and governance in PAs and OECMs: the Site-level Assessment of Governance and Equity (SAGE) methodology, Social Assessment for Protected and Conserved Areas (SAPA) and Governance Assessment for Protected and Conserved areas (GAPA). In 2019, the SAGE methodology was field-tested in eight countries and further rounds of testing are underway (IIED, 2020). The development of these methodologies will provide greater insight into the effectiveness and equitable governance of PAs and OECMs. Whilst these methodologies are currently limited in scale, they offer potential for how equity can be assessed in the future.

Ensuring that sites have effective and equitable governance can secure both social and biodiversity outcomes. A meta-analysis of 171 studies on social equity and PAs, found that sites with positive socioeconomic benefits are also more likely to report positive conservation outcomes (Oldekop et al., 2015), meaning a greater focus on equity can be important for biodiversity. This can also be seen by the success of lands worldwide which are managed by IPLCs (Tauli Corpuz, 2016).

23 "Protected areas should also be established and managed in close collaboration with, and through equitable processes that recognize and respect the rights of indigenous and local communities, and vulnerable populations. These communities should be fully engaged in governing and managing protected areas according to their rights, knowledge, capacities and institutions, should equitably share in the benefits arising from protected areas and should not bear inequitable costs" (CBD Secretariat, 2010).

Therefore, improving the equity of area-based conservation approaches through recognition, fair access and participation, and the distribution of costs and benefits, will be essential for the post-2020 targets (WWF, 2019). To strengthen implementation for equity, stronger links could be made between existing principles and post-2020 framework (WWF, 2019). For example, the protection of human rights and recognition of the rights of Indigenous Peoples is already well-established in the UN Declaration on the Rights of Indigenous Peoples (2007), Principle 3 of the 1992 Rio Declaration on Environment and Development ensures guaranteed equity, including fair and equitable benefit sharing and intergenerational equity and finally the respect and promotion of gender equity and equality, and women's rights is long established in the 1979 Convention on the Elimination of All Forms of Discrimination against Women. This could reinforce existing principles in relation to PAs and OECMs. Greater focus on equitable governance in the post-2020 biodiversity targets will ensure conservation is fair and just and will support improved biodiversity benefits. Furthermore, as outlined previously, improvements for biodiversity and society will have additional co-benefits for the mitigation of climate change, disaster risk reduction and food and water security.

**Figure 6. A framework of 12 equity principles. From: Franks et al., 2018b.**




### 3. Focus on quality, management, and conservation outcomes

As the coverage of PAs and OECMs has increased, global biodiversity continues to decline at an alarming rate, which has raised concerns over their effectiveness. For PAs and OECMs to deliver positive conservation outcomes, sites need to have effective management (Watson et al., 2014; Barnes et al., 2018; Hockings et al., 2019; Geldmann et al., 2021). Therefore, it is fundamental that greater focus is given to the importance of PA management effectiveness (PAME) in post-2020 area-based conservation targets, to ensure sites are reaching their full conservation potential. This should shift the focus away from achieving quantity targets towards ensuring there is quality protection and governance (Barnes, 2015; Barnes et al., 2018).

Current evidence suggests only limited progress towards achieving the 'effective management' element of Target 11 (e.g., UNEP-WCMC and IUCN, 2021a). Progress towards PA and OECM effectiveness targets is currently assessed based on the completion of management effectiveness assessments, which provide insight into how well sites are performing and are therefore essential for improving the conservation outcomes of a site through adaptive management, information sharing and more informed allocation of resources and funding (Hockings et al., 2006; Leverington et al., 2010; Coad et al., 2015). There are currently 69 management effectiveness methodologies recorded in the GD-PAME from 169 countries and as of 2020 only 11% of global PAs have been assessed, covering 18.29% of areas protected worldwide (UNEP-WCMC and IUCN, 2021a); although the results of such assessments are not publicly available.

There are many criticisms of existing methodologies for assessing PAME. Most of the methodologies tend to be based on qualitative data, making them subjective and susceptible to bias (Burgman, 2001; Carbut and Goodman, 2013; Martin et al., 2010; Coad et al., 2015). There is also evidence from multiple studies that improved management effectiveness scores may not relate to improved biodiversity outcomes (Nolte and Agrawal, 2013; Carranza et al., 2014; Eklund, 2019), as they tend to measure inputs and outputs (such as staff, equipment, and type of management) rather than biodiversity outcomes. Though other recent studies have shown that some individual components of management, like capacity and funding, are often linked to positive conservation outcomes in both terrestrial (Geldmann et al., 2018) and marine PAs (Gill et al., 2017). Consequently, greater focus has been given to the importance of new data sources for future assessments of management effectiveness assessments. Spatial data has been suggested (Nolte and Agrawal, 2013; Carranza et al., 2014; Henschel et al., 2014; Coad et al., 2015; Mace et al., 2018) given its potential for large-scale quantitative assessments of PA effectiveness. As an example, global spatial data on forest loss could be used as a metric of effectiveness (e.g. Nelson and Chomitz, 2011; see also chapter 2) as could changes in measures of human impact (e.g. Jones et al., 2018b). Comparing rates of forest loss inside of PAs and OECMs to rates of loss in matched sites outside could be used as a proxy for how effective a site is at reducing the threat of deforestation to biodiversity. However, care should be taken as different methodologies and definitions regarding how 'forested area' is defined may alter results, and site-level data may still be needed to avoid the problems of 'empty forest syndrome' (Redford, 1992). Going forward, data collected from remote sensing (e.g, on forest cover, etc.), combined with site-based biodiversity monitoring from field observations, along with data on management inputs and outputs, will be necessary to effectively monitor the conservation effectiveness of PAs and OECMs (Geldmann et al., 2021). This should be coupled with a global data infrastructure to easily aggregate results from national and site level data collection.

In the next decade, new approaches for assessing management effectiveness and conservation outcomes in PAs and OECMs should be adopted, which will allow for improvements in management quality. This is not only essential for ensuring sites deliver positive conservation outcomes, but also for securing nature's contributions to people. Greater quality of management will improve the benefits of biodiversity for local livelihoods and the range of co-benefits outlined in chapter 3. A focus on simply expanding the global PA and OECM network, without consideration for the quality of that expansion, is not sufficient to achieve the transformative change needed to combat the global biodiversity crisis. Instead, it is crucial that new PAs and OECMs are designed to be representative, well-connected and focused on areas importance for biodiversity, and that both new and existing sites must be equitably and effectively managed to be just, sustainable, and impactful. Post-2020, focus is needed on the development of tools and approaches to achieve and assess these targets. Only through this approach will the extensive range of benefits outlined in the previous chapter be implemented and realized.

## II. Scale up recognition of the contribution of Indigenous Peoples and local communities' territories, lands and waters and secure their tenure rights

Indigenous Peoples and Local Communities (IPLCs) are stewards of essential land and marine territories, including the biodiversity, carbon and essential ecosystem services present on those territories that provide a safety net for humanity. They are estimated to hold at least 32% (WWF et al., 2021) and as much as 65% of the world's land and inland water under customary systems, but recognition of their rights to that land have been recognized by governments for only a small fraction of those lands (Rights and Resources Initiative, 2015). IPLCs are under threat from industrial drivers of global biodiversity loss and climate change. Despite these threats, they show resilience, determination, and integrity, adapting and utilizing diverse strategies to secure their rights (ICCA Consortium, 2021). Further, the territories, lands and waters held by IPLCs are often more ecologically intact, with more than 90% of IPLCs lands in good or moderate ecological condition, comprising 42% of all global land in good ecological condition (WWF et al., 2021). Recent assessments also note their important contribution to the conservation of important areas for biodiversity and carbon storage (e.g., ICCA Consortium, 2021; see also maps in Chapter 2), yet over the past 10 years, less than 1 % of financial assistance for climate change issues supports tenure and Indigenous and local forest management (Rainforest Foundation Norway, 2021).

IPLCs currently manage many existing PAs but also a significant area outside of formal protection. OECMs, in particular, may be an important means to recognize and support IPLCs lands and territories and their contribution to conservation, but full recognition of rights is essential if these areas are to contribute to national and international targets (Jonas et al., 2021). If full recognition of IPLCs rights is withheld, OECMs risk reinforcing existing power structures in conservation that have resulted in negative outcomes for IPLCs and PAs. When considering the potential to formally recognize IPLCs rights over their lands and territories, and the potential for those territories to count towards global biodiversity and PA targets, it has been acknowledged that 13% of the IPLCs lands and territories identified overlap with non-IPLCs PAs, and the remaining 87% are outside non-IPLCs PAs and governed by states or other entities (WWF et al., 2021). The post-2020 Global Biodiversity Framework hinges on IPLCs territories, lands and waters being fully recognized and acknowledges the need for "the full and effective participation of indigenous peoples and local communities in the implementation" of the framework (CBD, 2021).





Rights-based approaches to conservation and the recognition of IPLCs rights have increased in recent years[24]. Although PAs have many benefits for biodiversity and people, there have also been human rights violations against indigenous peoples including "the expropriation of land, forced displacement, denial of self-governance, lack of access to livelihoods and loss of culture and spiritual sites, non-recognition of their own authorities and denial of access to justice and reparation, including restitution and compensation" which is why it is essential now to prioritize a human rights-based approach to PA, OECMs and conservation (Tauli Corpuz, 2016). COP decision 14/8, provides voluntary guidance on several aspects of Aichi Biodiversity Target 11 where progress has been more difficult to assess, including guidance on effective and diverse governance models, noting that for IPLCs-governed sites, steps should only be taken "with their free, prior and informed consent, consistent with national policies, regulations and circumstances, and applicable international obligations, and based on respect for their rights, knowledge and institutions" (CBD, 2018). There is a critical opportunity in the post-2020 GBF to increase reference to IPLCs in Target 3, which is likely to exacerbate impacts on communities, and the opportunity to expand recognition of equity and human rights. "Human rights and equity are therefore urgent and critical areas for improvement in the zero draft of the post-2020 framework, with recognition of Indigenous Peoples' and Local Communities' collective lands and territories as a clear and effective way forward" (RRI, 2020c).

The recent Territories of Life: 2021 Report also notes action to support IPLCs in securing their territories, lands and waters is a current missing link in global commitments and national-level implementation, emphasizing "the rights to self-determination, governance systems, cultures and ways of life, and rights to access information, access justice and participate in relevant decision-making processes" (ICCA Consortium. 2021). Further, there is a growing consensus that IPLCs land tenure rights need to be appropriately recognized through legal or other means, aiming for recognition in the post-2020 Global Biodiversity Framework. Securing customary land tenure rights, which prioritizes a human rights-based approach to securing lands, territories and resources, indigenous governance and management and favorable conservation outcomes can be viewed as complementary but distinct from PAs and even OECMs, often referred to as "conservation with indigenous peoples" or "indigenous-led conservation," which have as a starting point conservation, over human rights objectives. This approach empowers IPLCs to enter into equitable partnerships with governments, conservation and development actors on the bases of respect, equality and reciprocity to deliver multiple benefits, and is reflected in the Report of the Third Global Thematic Dialogue for Indigenous Peoples and Local Communities on the Post-2020 Global Biodiversity Framework[25].

Ensuring that relevant knowledge and practices of IPLCs with their free, prior, and informed consent, guides decision-making for effective biodiversity management draft Target 20 and that the equitable and effective participation of IPLCs in decision-making related to biodiversity, while respecting their rights over lands, territories and resources will further help to improve socio-economic and political inequality among countries and social groups, both within PAs and beyond. Recognition of rights and legal tenure can result in transformative change for human rights as well as support biodiversity conservation, climate change, and sustainable development.

24 For example, COP decision 14/8 references 'rights' 30 times, compared to just two times in the Program of Work on Protected Areas in 2004.

25 https://www.cbd.int/doc/c/650d/85b5/37ee4eacd96c22c92ae714b6/post2020-ws-2021-01-02-en.pdf.

### III. Embed PAs and OECMs into national policies and decision-making frameworks

Recognizing the multiple benefits that PAs and OECMs deliver across sectors and international conventions, hinges upon the opportunity to thoroughly embed PAs and OECMs into national policies and decision-making frameworks, as well as relevant sectoral plans and strategies. The integration of PAs is described as a two-fold process: "The first involves linking protected areas within a broader network of protected and managed lands and waters to maintain ecological processes, functions and services. The second involves incorporating protected area design and management into a broader framework of national and regional land-use plans and natural resource laws and policies to maximize benefits from, and mitigate threats to, biodiversity" (Ervin et al., 2010).

Mainstreaming biodiversity conservation and area-based conservation strategies like PAs and OECMs supports simultaneous achievement of positive biodiversity, climate, and sustainable development outcomes. Petersen and Huntley, explain the objective of mainstreaming biodiversity is "to internalize the goals of biodiversity conservation and the sustainable use of biological resources into economic sectors and development models, policies and programmes, and therefore into all human behavior. (Petersen and Huntley, 2005). Principles for effective biodiversity mainstreaming approaches are presented below that highlight the critical importance of biodiversity for social and economic well-being (Figure 7). In 2018, the Conference of the Parties to the CBD established a long-term strategic approach to mainstreaming, and Parties and other stakeholders have already begun to make progress in mainstreaming biodiversity.

**Figure 7. The 10 key principles for the effective mainstreaming of biodiversity conservation. From: Petersen and Huntley, 2005**

Effective mainstreaming requires:

1. Awareness and political will from the highest levels, provided support for implementation
2. Strong leadership, dialogue, and cooperation at all levels
3. Mutual supportiveness and respect between biodiversity and development priorities
4. A strong focus on economic sectors, supported by cross-sectoral appraoches, securing sector-based biodiversity conservation
5. Analysis and understanding of the changing motivtations and opportunities of each sector, including the effects on globalization
6. Identificationa and prioritization of entry points and the development of sector-specific tools and interventions (such as international codes of conduct or standards)
7. Awareness within sectors of the relevance of biodiversity conservation and the capactiy needed for implementation
8. A coherent set of economic and regulatory tools and incentives that promote and reward integrationa and added value, while discouraging inappropriate behavior
9. Sustained behaviorial change within individuals, institutions, and society, and in both public and private domain
10. Measurable behavioral outcomes and biodiversity impacts.





Biodiversity mainstreaming can involve enabling environments at various scales across local, national, sub-national, and global levels and stakeholders with appropriate data and knowledge: "this may include development policy, legislation, land-use planning, finance, taxation, economic incentives, international trade, capacity building, research, and technology [...] Strong and detailed science-based biophysical and socio-economic data and knowledge at appropriate spatial scales have underpinned successful mainstreaming interventions" (Huntley and Redford, 2014). Further, this process of embedding PAs and OECMs into national sectors and associated policies, plans and programs, requires the participation, recognition, and contribution of multiple stakeholder groups, including capturing different areas of knowledge, research, methods, tools and approaches and pursuing mutually beneficial interests and outcomes.

Embedding biodiversity conservation, including area-based conservation, into sectoral and national biodiversity, development and climate policies, is aligned with the idea of "integration", which is noted in Article 6(b) of the Convention on Biological Diversity which urges Parties to "integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes, and policies" (CBD, 1992). As area-based conservation becomes institutionalized into national legislation, policies, plans, research and programs, PAs and OECMs will become an important approach for the sustainable operation and success of these sectors. Examples of existing efforts to embed PAs and OECMs includes the Convention on Biological Diversity, via through National Biodiversity Strategy and Action Plans; within National Development Plans and sectoral plans such as water and agricultural plans and policies; and in recent years to the Paris Agreement through Nationally Determined Contributions for climate action.

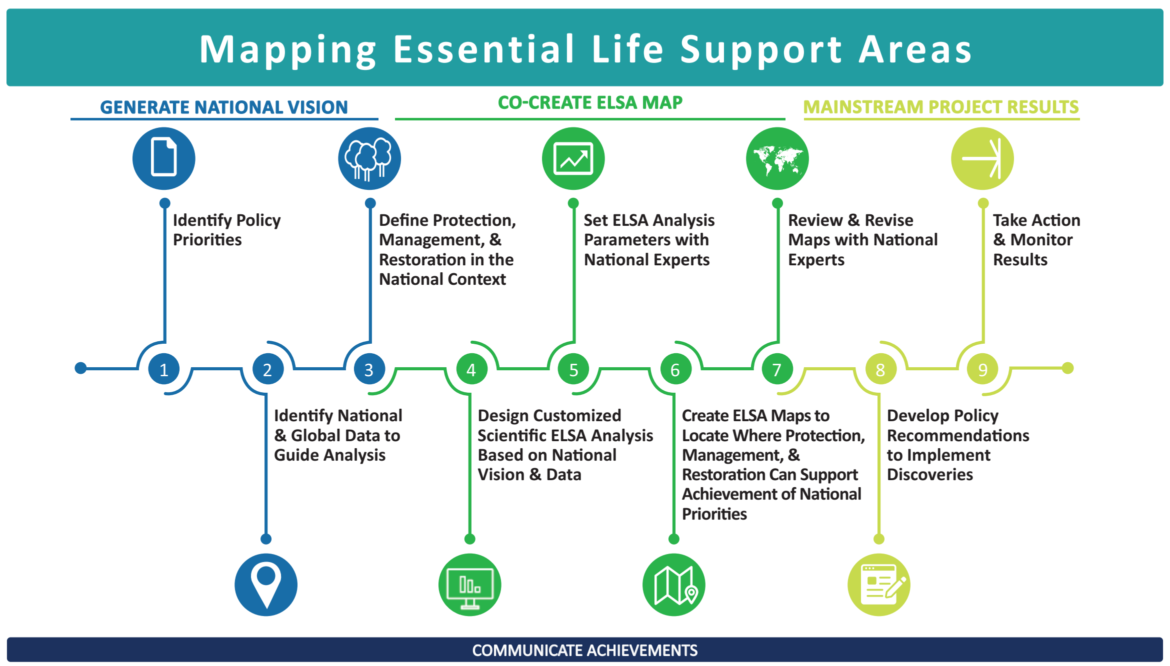
The project "Mapping Nature for People and the Planet" presented below aims to use spatial mapping, including Systematic Conservation Planning (SCP), to determine Essential Life Support Areas in countries – areas where actions of protection, restoration and sustainable management of nature can help achieve multiple national goals. ELSA maps are co-created with key national and global stakeholders and can inform policy-making toward biodiversity conservation, climate action and sustainable development.

### Emerging lessons from ELSA: Creating a "Map of Hope"

The project "Mapping Nature for People and Planet" brings together world-class scientists and policy experts to harness Earth Observations to deliver on national priorities, with a focus on biodiversity conservation, climate action and sustainable development. The project supports countries to locate and safeguard a country's Essential Life Support Areas (ELSAs) – locations where nature-based actions such as protection, restoration and sustainable management of nature, can protect and sustain key biodiversity and provide humans with critical ecosystem services, such as carbon storage, food, fresh water, and disaster risk reduction. Nature-based actions refer to land and inland water management that address the biodiversity crisis, climate crisis, and promote sustainable development.

To identify where nature-based actions supporting a country's policy priorities should take place, the ELSA process provides a standardized methodology: (1) identify national priority policy commitments; (2) collect national and global data that support the mapping of these priority commitments; (3) produce an ELSA action map, or 'map of hope', showcasing where actions to protect, restore or manage nature will support the country in achieving its commitments; (4) translate the results to inform national decision making, implementation, and reporting. This methodology is composed of nine steps. In each country, national stakeholders work together to execute the nine steps of the ELSA process (Figure 8). The use of updated, high-resolution spatial data is essential for the future of biodiversity and climate action and to achieve the new post-2020 goals and targets. However, the ability of countries to access and use this data is currently often limited. The theory of change of this project is therefore that map-based, credible, high-quality information, combined with a direct relationship and capacity building at the national level, will drive national and global change.

**Figure 8. The ELSA Process, from:**




The ELSA process supports countries to:

- Identify relevant national data to create on biodiversity and ecosystem services, climate change and sustainable development, to support the country achieve its national commitments;
- Apply rigorous scientific methodology (SCP) to identify ELSAs;
- Translate the ELSA map results into actions with guidance on policy implementation; and
- Use Earth Observations to monitor and report on progress towards achieving the 2030 Agenda and other key international commitments.



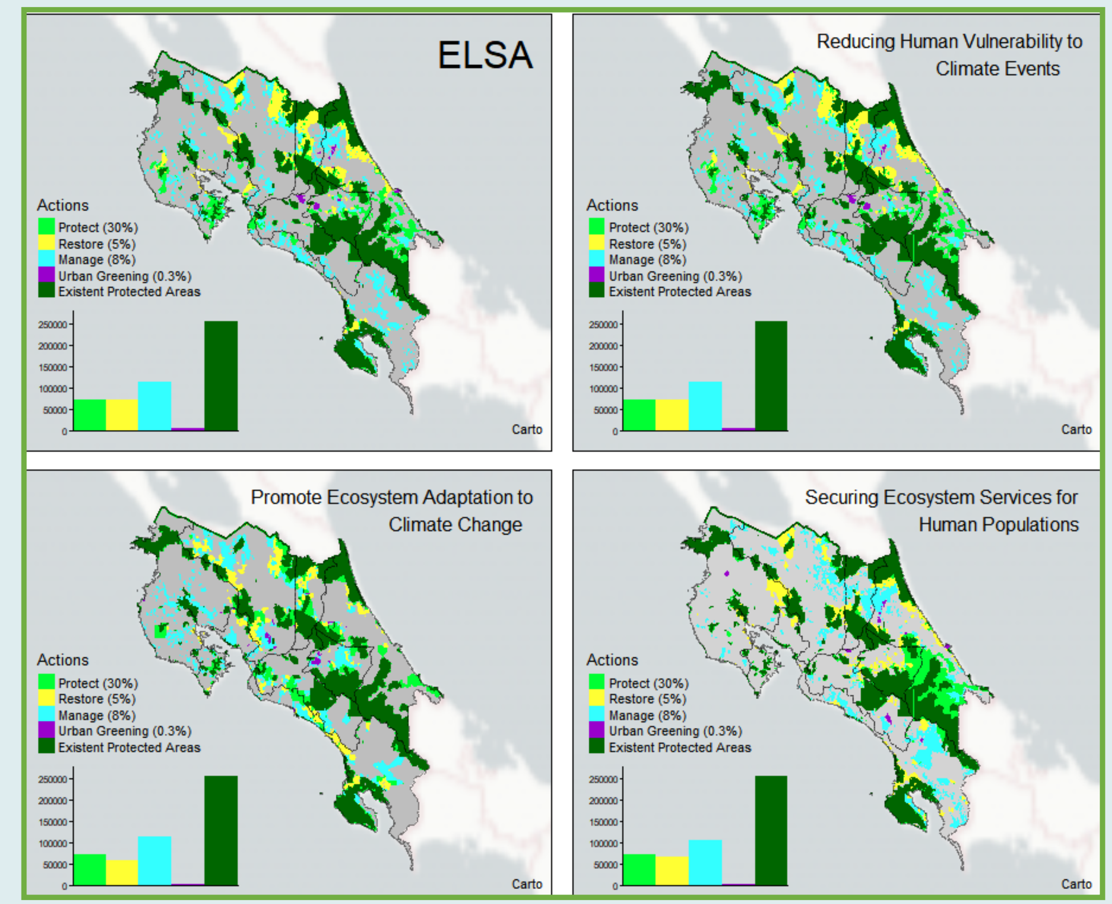


Case Example

### EMERGING LESSONS FROM ELSA: CREATING A "MAP OF HOPE" IN COSTA RICA

Costa Rica and the other pilot countries in the ELSA process have been selected based on their commitment to the evidence-based management of natural resources and the availability of spatial data on biodiversity within the country. Costa Rica has demonstrated a willingness to pilot and refine the use of these tools to map natural resources, biodiversity, and ecosystems and to build the capacity of policymakers to improve the management of natural resources. Recently, Costa Rica developed its third iteration of ELSA maps, this time focusing on climate adaptation. The ELSA process identified areas and actions to cope with climate impacts across four categories; protect, restore, manage and urban greening. This last category has been included by request of the national authorities, as the country is trying to foster an Urban-Environment agenda. Key actions and policies are attributed to each category, following which the mapping process is undertaken to identify key actions and areas for progress.

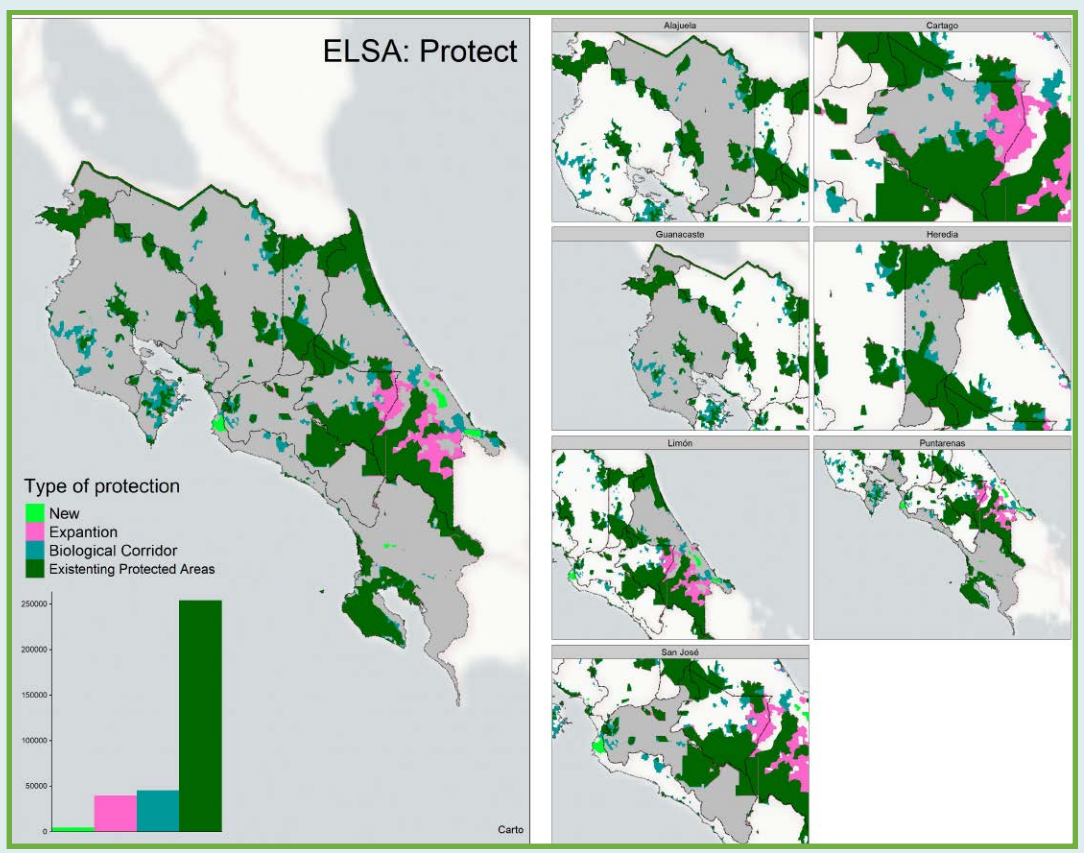
**Figure 9 ELSA Adaptation map for Costa Rica.**




Three sub-actions were identified under the ELSA category 'restore'. The first was the restoration of forests where 1,927.75 km² of forested land was identified for restoration through ELSA mapping, primarily within the Isthmian-Atlantic moist forest ecoregion. For coastal and wetlands restoration, 1,302.19 km² of land was identified, 48.62 km² of which was specifically for mangrove restoration. The restore category also focused on riparian ecosystems. These areas are 1 km buffers around streams of 6th order or greater. The total area identified for restoration was 3,028.31 km², and again, most of this fell within Isthmian-Atlantic moist forests.

The ELSA category 'protect' identified areas that could be classified into new PAs, biological corridors, or be expanded from existing PAs. Areas overlapping with existing PAs, and therefore identified as sites for expansion, covered 1055.68 km². 2158.63 km², overlapped with Costa Rica's existing biological corridors, and were therefore classified for connectivity expansion. Finally, mapping identified 525.88 km² of land for expanding PA coverage. The maps created under 'protect' and 'restore' (Figure2 10 and 11) highlight essential areas for the protection of biodiversity. These areas allow for informed expansion of area-based conservation that would optimize connectivity and representatively for effective biodiversity outcomes and other co-benefits.

**Figure 10 ELSA areas for protection in Costa Rica**




Under 'manage', analysis was used to identify 4856.31 km² of forest for sustainable management, 817.43 km² of land for sustainable coastal management, and 5333 km² of land for sustainable agriculture. Analysis was also undertaken into actions for disaster risk reduction (DRR). The first related to the mitigation of the effect of climate change, where the 10% priority ELSAs were mapped, of which half already fell within existing PAs. The ELSA mapping actions suggested 394.24 km² of new PAs, 175.31 km² for ecosystem

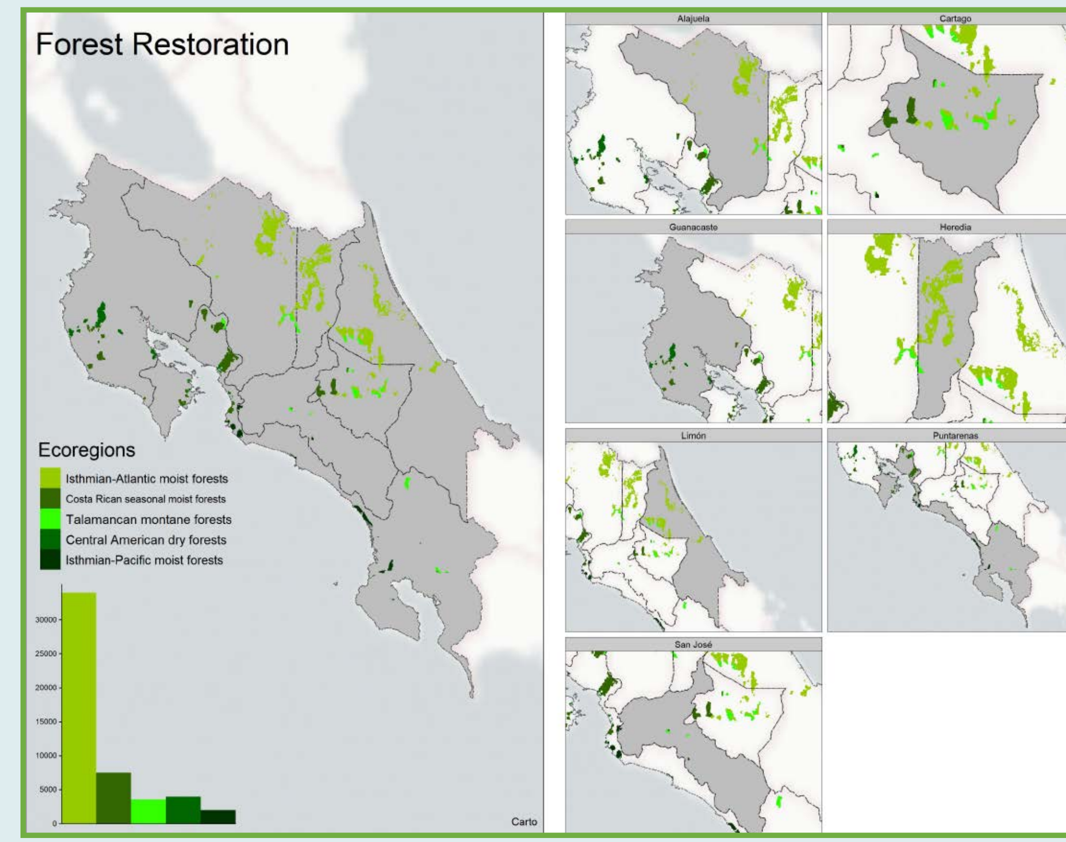






restoration, 542.06 km² for sustainable management and 0.19 km² for urban greening. The second action of focus was the reduction of marine and freshwater flood risk. Here, ELSA mapping was used to identify the 10% quantile of watershed with the highest potential to reduce flooding. The total area identified was 3202.87 km², of which 920.18 km² was already protected by existing PAs. Both of these DRR actions were also mapped for the 25% quantile. This analysis is extremely useful in mainstreaming efforts to tackle both the impacts of climate change and biodiversity loss together, ensuring that area-based conservation efforts deliver benefits not just for biodiversity, but also for DRR and climate change mitigation. The "Mapping Nature for People and Planet" project in Costa Rica is therefore a leading example of how high-resolution data can be used for critical insights into policy-making and PA planning.

**Figure 11: ELSA areas for forest restoration in Costa Rica**




## Barriers and required support: Feedback from matrix, surveys and consultation

In response to the question "What are the primary barriers you have identified for accessing data related to elements of Aichi Biodiversity Target 11?" 43 countries replied with 68 key points. Of these responses, 16 (23.5%) of Parties state that a lack of resources and/or insufficient funding was a primary barrier. Specifics noted that a lack of resources and funding causes barriers relating to the completion of scientific studies, data collection, sustaining or ensuring effective site management and the compensation measures for private owners of the land included in PAs. The most common barrier mentioned within country feedback was related to data, with 23 (33.8%) relating to this issue.

Six of these issues with data noted issues due to a lack of compatibility or harmonization in the data used, from varied data collection techniques or due to a lack of unified, common data collection or data management protocols, resulting in different data formats nationally than requested by the WDPA or CBD. One of these highlighted that there is currently a lack of clarity on the official layers on ecoregions and KBAs, with different countries and international organizations using different versions, and suggested that defining these will allow for more coherent calculation on representativeness and KBAs for reporting progress. Six noted barriers as data availability and accessibility, for example limited open access information and issues with the accessibility of data on dashboards and indicator platforms. Two countries noted issues relating to compiling data from multiple sources, with one country acknowledging that data is often spread across multiple agencies. Other barriers relating to data include a lack of national data on various elements, the absence of a data bank for PAs, difficulties in updating data, and difficulties using the global databases.

Many countries (18, 26.5%) reported a lack of capacity or resources as a primary barrier. This is often related to a lack of knowledge or technical capacity for data collection, data mapping and GIS and for methodologies applied for the calculation of some indicators. Five of these related to a lack of knowledge or guidance for the classification and defining of OECMs, with countries not yet having any frameworks established. Similarly, one country noted a lack of capacity for adopting formal standards for the definition of PAs. Other barriers reported by countries include issues with communication, coordination and cooperation between various sectors, for example, between stakeholders (e.g. PA managers) and authorities within institutions and between law and government agencies. Two countries noted that the global COVID-19 pandemic had created many issues hindering the completion of projects and the collection and reporting of data. The political sensitivity of some data was also noted in relation to governance and management effectiveness.





After the previous question, respondents were asked “What kinds of support would be most beneficial to address any barriers or challenges in accessing and updating data related to elements of Aichi Biodiversity Target 11 or future area-based conservation targets?”. For this question, 40 Parties made 56 key suggestions. The majority of responses (27) identified the need to build capacity at all levels. These responses predominantly focused on the need of capacity building, via staff training, infrastructure, and technical support, for data collection, management and reporting. Technical advise was suggested as beneficial for the use of databases generally and more specifically the UN Biodiversity Lab and the WDPA. Three responses specified the need for training and capacity building for the defining, identification and reporting of OECMs and three others related capacity building for support with governance and management effectiveness. Suggestions for capacity building involved the development of communication platforms and networking for the exchange of experiences, policies, best practices and data. These responses identify the essential need to strengthen capacity for the relevant institutions and actors, to improve biodiversity management and data collection and reporting.

Many responses relating to capacity building noted the need for financial support as necessary to address these barriers and challenges. A total of 14 replies identified this need of financial support. The need of funds was identified for staff training, data collection and data collection tools, the development of management plans, and the assessments of ecosystem services and for educational activities on the importance of biodiversity data. Parties’ suggestions for sources of this financial support included environmental funds, donors, or the establishment of sustainable financing mechanisms for PAs. Eight Parties suggest support for barriers relating to data. Suggestions included establishing internationally agreed methodologies and indicators, improving the availability of high-resolution satellite data and increased access to global data (such as the data used in the Country Dossiers). Five countries suggested the development of a national data collection and reporting platform or database similar to the WDPA where multiple actors can contribute. Other feedback included improvements in legal frameworks and legislation, particularly relating to PA management.

The long-term strategic framework for capacity-building and development to support nationally determined priorities for the implementation of the post-2020 global biodiversity framework set to be adopted at COP-15, and will hopefully address some of these needs and barriers.

## Looking forward: pathway to 2030

As the world envisions a nature-positive, net zero future, this report examines the potential for scaling up equitable, representative, and effective PAs and OECMs to contribute to that future. The multitude of benefits from PAs and OECMs can contribute to this vision for a nature-positive future, and accelerate implementation of the Rio Conventions and achievement of the Sustainable Development Goals.

PAs and OECMs, under a broad range of management categories and governance arrangements, will be an important tool for halting and reversing the continued loss of biodiversity and the increasing threat that this loss poses to human well-being. However, to do so, more attention will be needed on all aspects of the draft Target 3 (see CBD, 2021). Beyond scaling up the coverage of land and sea areas within PAs and OECMs, this will require a greater focus on the conservation of areas of importance for biodiversity and its contributions to people, on creating ecologically representative and well-connected networks that are integrated into the wider landscapes and seascapes, and on ensuring these sites and networks are effectively and equitably managed and governed, with improved monitoring of conservation outcomes. This will require further work to fill the taxonomic and geographic gaps that currently exist for identified key biodiversity areas. It will also require addressing the funding and capacity shortfalls that impact many PAs (Coad et al., 2019).

Increased financial support and capacity-building activities will be necessary to build on the successes of the Strategic Plan for Biodiversity 2011-2020 and to scale up the ambition needed to achieve the goals and targets of the post-2020 GBF and the 2030 Agenda for Sustainable Development. Currently, only ~0.002% of global GDP is invested in biodiversity conservation (Sumaila et al., 2017), with only a fraction of this going towards PAs. To ensure the effectiveness of the current global network of PAs and OECMs, and to scale this up to meet the needs of people and planet, as called for in the post-2020 GBF, will require much more investment. This is especially true as plans are collectively formed on how to implement a transformative recovery from the impacts of the COVID-19 pandemic and relaunch implementation efforts for the SDGs in this Decade of Action (2021-2030). Currently, out of US$667 billion in quantified green stimulus proposed by G20 countries and ten other nations (<5% of all COVID-related stimulus), only US$141 billion relates to improving biodiversity status or protecting ecosystems, while almost twice as much (US$262 billion) will lead to pollution or habitat destruction likely to negatively impact biodiversity (Vivid Economic, 2021).

To achieve the goals and targets of the post-2020 GBF, with the aim of full recovery by 2050, the expansion of PAs and OECMs that are equitably and effectively managed and governed will support the cessation of biodiversity loss and secure the diversity and resilience of species and ecosystems, while also providing critical co-benefits for climate change, disaster risk reduction, livelihoods, food and water security, and health. Investment in equitable and effective PAs and OECMs is an investment in a nature-positive future to achieve climate change mitigation and adaptation, biodiversity conservation, and sustainable development objectives.

As countries negotiate and adopt a new Global Biodiversity Framework (CBD, 2021), there is increasing pressure to ensure that this adequately responds to the pressing issues of our time, such as continuing biodiversity loss, impacts of climate change and growing socio-economic inequality and ensuring the rights of Indigenous Peoples and local communities over their land, territories and waters. The central importance of well planned, effective and equitable PAs and OECMs that address the critical elements of Aichi Biodiversity Target 11 is more important than ever. Effective and equitable PAs and OECMs underpin many of the necessary transitions that are fundamental to realigning people's relationship with nature and ensuring an effective move to sustainability (CBD Secretariat, 2020). With collective concerted effort and increased purpose in this Decade of Action on the SDGs, globally, collective action must implement the transformative changes necessary to achieve the CBD's 2050 Vision of living in harmony with nature.

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