Protected Planet Report 2014

Tracking progress towards global targets for protected areas

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WORLD COMMISSION ON PROTECTED AREAS

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The United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) is the specialist biodiversity assessment centre of the United Nations Environment Programme (UNEP), the world's foremost intergovernmental environmental organization. The Centre has been in operation for over 30 years, combining scientific research with practical policy advice.

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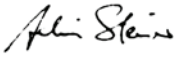
Foreword

In 2010, the signatories to the Convention on Biological Diversity agreed on a 10 year strategic plan to halt biodiversity loss and ensure the sustainable and equitable use of natural resources. This plan set out 20 biodiversity targets to be achieved by 2020 - the Aichi Biodiversity Targets. Protected areas are the building blocks of healthy land and seascapes and are central to the achievement of these global targets. Moreover, they have played an important role in achieving the Millennium Development Goals and are well placed to do the same for the future Sustainable Development Goals.

The Protected Planet Report series, launched in 2012, helps track international progress towards achieving Aichi Biodiversity Target 11 - a target for the global protected area network and for other related targets. One of the key messages of the 2012 Protected Planet Report was that a better understanding and more complete overview of each element of Target 11 would be helpful. The 2014 Protected Planet Report provides just such an overview by summarizing current knowledge and progress towards each element of the overall target.

Due to steady increases in coverage over the last number of years, protected areas now cover 15.4 per cent of the world's terrestrial area and 8.4 per cent of the marine areas under national jurisdiction. This increase reflects the importance that countries are placing upon the conservation of biodiversity and the ecosystem services they provide. However, Aichi Biodiversity Target 11 will not be met solely by measuring the geographical coverage of protected areas. The target contains a number of qualitative elements including effectiveness, equitability, connectivity and ecological representation, each of which need to be better understood and addressed before we can say that this particular target has been attained.

The launch of this report at the IUCN World Parks Congress 2014 in Sydney is a call to action for protected areas governments and civil society that urgent efforts are required to achieve Aichi Biodiversity Target 11 by 2020. Together, as a society, we need to work towards ensuring that protected areas are prioritized as critical tools, not only to support biodiversity, but for the benefit of all life on this planet.



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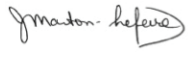

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Executive Summary

A GLOBAL TARGET FOR PROTECTED AREAS

In 2010, the 192 State Parties to the Convention on Biological Diversity (CBD) adopted a Strategic Plan to halt biodiversity loss and ensure the sustainable and equitable use of natural resources. The plan includes the 20 Aichi Biodiversity Targets, most of which are to be achieved by 2020. Aichi Biodiversity Target 11 reads: *By 2020, at least 17 per cent of terrestrial and inland water areas 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 landscape and seascape.* This target sets out a series of equally important and necessary elements that a global protected area network should deliver.

AIM OF PROTECTED PLANET REPORT 2014

The Protected Planet Report 2014 follows the recommendation of the Protected Planet Report 2012 to provide a more complete overview of each of these elements of Aichi Biodiversity Target 11. Chapters summarise current knowledge and progress towards achieving each element of the target, and provide further guidance for implementation, based on data from the World Database on Protected Areas (WDPA), a review of published literature, and expert review.

KEY MESSAGES

There has been notable progress in achieving some elements of Target 11, but others either have not been met, or not enough information is available to assess their status (Chapter 10). Key results and messages from this review are:

- **Global protected area coverage (Chapter 2):** About 209,000 protected areas (PAs) cover 15.4% of the planet's terrestrial and inland water areas, and 3.4 % of the oceans. 8.4% of all marine areas within national jurisdiction (0-200 nautical miles) are covered protected areas while only 0.25% of marine areas beyond national jurisdiction are protected. In total, 2.2 million square kilometres of land and inland water areas and 2.2 million square kilometres of marine area within national jurisdiction will need to be designated as protected areas to cover 17% of the land and 10% of the marine and coastal areas.
- **Coverage of biodiversity and ecosystem services (Chapter 3 and 6):** Protected areas do not sufficiently cover areas of particular importance for biodiversity (only 22-23% are completely covered by PAs), and many terrestrial and marine ecoregions are still poorly represented. Targeted expansion of protected area networks is needed to include these key areas on the land, and especially the seas. More than 17% of the land and 10% of the sea will need to be protected to meet this element of the target.
- **Effective management (Chapter 4):** There is good evidence that effectively managed PAs conserve biodiversity and habitats, on land and sea. However, by 2013, only 29% of the area of nationally designated PAs had been assessed for Protected Area Management Effectiveness (PAME). Furthermore, only a few studies have specifically assessed biodiversity outcomes from well-managed PAs, and despite some best practice examples, results on how management inputs relate to conservation delivery are still equivocal. More management effectiveness assessments and more focus on measuring biodiversity and social outcomes is needed to address this element of this target.

- **Equitable management (Chapter 5):** There is no global indicator for measuring equity in PAs. Governance types can provide information on enabling conditions for equity but not on equity itself. Although the full suite of governance types that promote governance diversity and quality are being increasingly recognised, this aspect of PAs remains highly unmeasured and under-reported. In 2014, half the area of PAs for which a governance type is reported are governed by governments and only 11% by other governance arrangements. There are few published assessments of governance quality.
- **Well-connected (Chapter 7):** Available evidence for the outcomes of corridors indicates they have a positive conservation benefit. Despite a growing number of large connectivity conservation projects around the world in recent years, there is still no agreed standardised method to measure connectivity at a global level, and we have little knowledge of the level of connectivity between conservation areas across the wider landscapes and seascapes.
- **Other effective area-based conservation measures (Chapter 8)**: There are many site-based conservation measures that contribute towards biodiversity conservation. The definition and value of "other effective area-based conservation measures" need to be clarified so that the contribution of these areas to Aichi Biodiversity Target 11 can be understood.
- **Protected areas in the wider landscape and seascape (Chapter 9):** PAs will not work as isolated elements in human-dominated landscapes; they need to be considered and integrated into all sectors of society, especially development plans. In 2014, 92% of Parties to the Convention on Biological Diversity had developed National Biodiversity Strategies and Action Plans (NBSAPs). However, the level of integration of PAs into national planning has not yet been assessed globally.
- **Finally, the numerous benefits that PAs deliver for people and nature need to be recognised** as part of the proven and cost-effective natural solution they offer for addressing many global threats, including water security, food security, climate change mitigation, disaster risk reduction and combating desertification.

Quick guide to this report

Chapter	Relevant element of Aichi Biodiversity Target 11
1	Background
2	"... 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas..."
3	"...especially areas of particular importance for biodiversity and ecosystem services..."
4	"...effectively managed..."
5	"...equitably managed..."
6	"...ecologically representative..."
7	"...well connected systems..."
8	"...other effective area-based conservation measures..."
9	"...integrated into the wider landscape and seascape."
10	Conclusions and key messages

Acknowledgements

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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Office for the Environment FOEN

Swiss Federal Office for the Environment

The mission of the Federal Office for the Environment (FOEN) is to ensure the sustainable use of natural resources, including soil, water, air and forests. It is responsible for minimising natural hazards, reducing risks to the environment and human health from excessive pollution, conserving biodiversity and representing Switzerland in international environmental policy arenas.
www.bafu.admin.ch

IUCN World Commission on Protected Areas (WCPA)

IUCN WCPA is the world's premier network of protected area expertise. It is administered by IUCN's Programme on Protected Areas and has over 1,400 members, spanning 140 countries. IUCN WCPA works by helping governments and others plan protected areas and integrate them into all sectors; by providing strategic advice to policy makers; by strengthening capacity and investment in protected areas; and by convening the diverse constituency of protected area stakeholders to address challenging issues. For more than 50 years, IUCN and WCPA have been at the forefront of global action on protected areas.
www.iucn.org/wcpa

IUCN

IUCN helps the world find pragmatic solutions to our most pressing environment and development challenges. IUCN works on biodiversity, climate change, energy, human livelihoods and greening the world economy by supporting scientific research, managing field projects all over the world, and bringing governments, NGOs, the UN and companies together to develop policy, laws and best practice. IUCN is the world's oldest and largest global environmental organization, with more than 1,200 government and NGO members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 45 offices and hundreds of partners in public, NGO and private sectors around the world.
www.iucn.org

Convention on Biological Diversity

The Convention on Biological Diversity (CBD), which entered into force in December 1993, is an international treaty for the conservation of biodiversity, the sustainable use of the components of biodiversity and the equitable sharing of the benefits derived from the use of genetic resources. The tenth meeting of the Conference of the Parties to the CBD, held in 2010, adopted a revised and updated Strategic Plan for Biodiversity for 2011-2020, comprising five strategic goals and 20 Aichi Biodiversity Targets. The Plan is the overarching framework on biodiversity, not only for the biodiversity-related conventions, but for the entire United Nations system.
www.cbd.int

BIOPAMA

The Biodiversity and Protected Areas Management (BIOPAMA) programme aims to address threats to biodiversity in African, Caribbean and Pacific (ACP) countries, while reducing poverty in communities in and around protected areas. It is financially supported by resources from the intra-ACP envelope of the European Commission's (EC) 10th European Development Fund (EDF). BIOPAMA combines improvements in data availability with capacity development to strengthen protected area management. It has two main components: one concerning protected areas, jointly implemented by the International Union for Conservation of Nature (IUCN) and the EC's Joint Research Centre (JRC), and another dealing with access and benefit sharing (ABS), implemented by the Multi-Donor ABS Capacity Development Initiative managed by Deutsche Gesellschaftfür Internationale Zusammenarbeit (GIZ) GmbH.
www.biopama.org

European Environment Agency

European Environment Agency (EEA)

The European Environment Agency (EEA) is an agency of the European Union. The task of the EEA is to provide sound, independent information on the environment. The EEA is a major information source for those involved in developing, adopting, implementing, and evaluating environmental policy, and also the general public. Currently, the EEA has 33 member countries.
www.eea.europa.eu

proteus

Proteus Partnership

The Proteus Partnership is a collaboration between extractives industry companies and UNEP-WCMC to support the development, improvement and dissemination of global information on biodiversity.

1. Introduction

For centuries, protected areas of many kinds have played a fundamental role within the world's landscapes and seascapes. They are essential for the conservation of species and ecosystems, and also provide benefits for people. They safeguard nature and deliver a range of ecosystem services that include basic provisioning services such as water, timber and food, as well as cultural and spiritual services. As the building blocks of any healthy landscape, protected areas are not isolated entities. Rather, their ability to deliver positive outcomes is affected by their surroundings, and they can only work if they are governed and managed as part of the wider landscape, integrated into development strategies and considered across all sectors of society.

In a dramatically changing world, faced with many development challenges, protected areas of different sizes, shapes, management and governance systems will become even more important in the future. They play, and will continue to play, a key role in conserving nature and helping people and nature address global environmental challenges, including adapting to and mitigating impacts of climate change[1].

1.1. PROTECTED AREAS AND THE CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

The importance of protected areas was recognised by national governments in Article 8 of the Convention on Biological Diversity (CBD) and through the Programme of Work on Protected Areas (PoWPA), which was adopted in 2004 and sets out 16 goals and a number of targets[2]. The Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets were adopted in 2010 in Nagoya, Japan, at the 10th Conference of the Parties to the CBD[3]. These are widely recognised as a comprehensive framework for all of the biodiversity-related conventions and the entire United Nations system. This framework explicitly includes protected areas as one of 20 targets to be achieved by 2020. Aichi Biodiversity Target 11 reads:

By 2020, at least 17 per cent of terrestrial and inland water areas 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 landscape and seascape.

Protected areas also make important contributions to many of the other Aichi Targets. For example, Targets 5 (reduce habitat loss and fragmentation) and 12 (reduce species extinctions) are closely connected to protected areas and unlikely to be achieved without them. At the same time, progress on other Aichi Targets will in turn reduce pressures on protected areas. For example, Targets 7 (promote sustainable agriculture), 8 (reduce pollution) and 9 (control invasive species) all deal with important threats to protected areas.

The importance of protected areas for sustainable development and the conservation of Earth's natural heritage is also widely recognised in other international agreements and programmes, including the United Nations (UN) Millennium Development Goals[4], the World Heritage Convention, the Ramsar Convention, the UNESCO Man and Biosphere Programme and UN Reducing Emissions from Deforestation and Forest Degradation (REDD) programmes[5].

1.2. THE PROTECTED PLANET REPORT 2014

The Protected Planet Report 2012 summarised progress towards global targets for protected areas, mainly focusing on CBD Aichi Biodiversity Target 11[6]. This 2014 Protected Planet Report focuses on the different elements of Target 11, with chapters summarising current knowledge and progress towards achieving each element, and providing guidance for implementation. Information presented is based on new analyses from the World Database on Protected Areas (Box 1.1) and the most recent published literature on protected areas, and is supported by expert review. The report is aimed mainly at policy and decision makers and provides an easily digestible, but authoritative, global overview of key information, successes, and challenges related to protected areas. This report, together with the 2014 UN List of Protected Areas[7], provides the most comprehensive picture of the status and trends of the global protected area network.

Box 1.1 The World Database on Protected Areas and Protected Planet

Most indicators and analyses in this report are based on the World Database on Protected Areas (WDPA) August 2014 release[10]. The WDPA, a joint effort between IUCN and UNEP, is the only globally authoritative database on marine and terrestrial protected areas of the world. It is compiled and managed by UNEP-WCMC in collaboration with IUCN. Some key facts about the WDPA:

- Data in the WDPA are compiled directly from governments, NGOs, and other authoritative sources.
- Currently, the WDPA stores data only on those protected areas that meet the IUCN definition of protected areas (see Section 1.3.).
- All protected areas in the WDPA must comply with the WDPA data standards, which make data interoperable, consistent and ready to be used in analyses and indicators[11].
- The WDPA is updated regularly and is made available online through Protected Planet (www.protectedplanet.net), from where it can be downloaded, visualised and explored.

The WDPA has undergone a major update in 2014, based on the response to a notification[12] from the CBD Executive Secretary to all Parties in January 2014. The WDPA August 2014 release contains over 209,000 designated protected areas from more than 193 countries and territories.

1.3. DEFINING AND CLASSIFYING THE WORLD'S PROTECTED AREAS

For the purposes of this report, the IUCN definition of a protected area, which is compatible with the CBD definition of a protected area[8], is used. This definition underpins the World Database on Protected Areas: ***A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values[9]***.

Protected areas vary widely, by size, management objectives and governance types. The IUCN Protected Area Management Categories help classify protected areas based on their primary management objectives[13], while the IUCN Governance Types classify protected areas according to who holds authority, responsibility and accountability for them. Both IUCN and the CBD recognise four broad protected area governance types and 11 sub-types[14]. The relationship between management categories and governance types is shown in Table 1.1. The WDPA stores both management categories and governance types as reported by the data provider. Currently, about 65% of protected areas in the WDPA have an IUCN Management Category, and 88% have a governance type.

The IUCN and CBD definitions of a protected area may not capture other areas that might have a positive contribution to conservation. The existence of these areas is recognized by the Target 11 element "...other effective area-based conservation measures". These are sites for which the primary purpose is not "...to achieve the long-term conservation of nature", although it may be a secondary objective. In any case, many of these sites might have conservation value. There is as yet no agreed methodology to identify these areas, and there is no global database that compiles records of all such sites. This report takes into consideration this need and explores the topic further in Chapter 8.

Table 1.1 *IUCN's Protected Areas Management Categories and Governance Types Source: Borrini-Feyerabend et al. 2013*

Governance types / Protected area categories	A. Governance by government			B. Shared governance			C. Private governance			D. Governance by indigenous peoples and local communities	
	Federal or national ministry or agency in charge	Sub-national ministry or agency in charge	Government-delegated management (e.g., to an NGO)	Transboundary management	Collaborative management (various forms of pluralist influence)	Joint management (pluralist management board)	Declared and run by individual land-owner	...by non-profit organizations (e.g., NGOs, universities, co-operatives)	...by for-profit organizations (e.g., individual or corporate landowners)	Indigenous peoples' conserved areas and territories – established and run by indigenous peoples	Community conserved areas – declared and run by local communities
I a. Strict Nature Reserve											
Ib. Wilderness Area											
II. National Park											
III. Natural Monument											
IV. Habitat/ Species Management											
V. Protected Landscape/ Seascape											
VI. Managed Resource Protected Area											

1.4. THE ROLE OF PROTECTED AREAS IN THE 21ST CENTURY: TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS

Over the past decades, protected areas have been at the centre of biodiversity conservation strategies, and the protected area model has adapted to global changes (Box 1.2). Protected area coverage has been used as one of the indicators to track progress towards the Millennium Development Goals[15], and protected areas are a central strategy of the CBD to achieve the three goals of the Convention[16].

The Millennium Development Goals are to be met by 2015, and the United Nations is now working towards the Sustainable Development Goals (SDGs), which will provide the basis for countries to revise their development plans. Here, protected areas can play an important role that includes, in addition to preventing biodiversity loss, the maintenance of food security and water supplies, strengthening climate resilience, and improving human health and well-being[17]. In this context, protected areas are being considered in the proposed SDGs, and data compiled in this report and future editions will be important for monitoring some of the proposed targets under each goal.

Box 1.2 Where to now for protected areas?

Over the past decades, there has been a marked shift in the global approach to protected area establishment and management. In the lead-up to the IUCN World Parks Congress 2014 (Sydney, November 2014), the six most important changes that are influencing the conservation effectiveness and social acceptance of protected areas in the world are[18]:

- **A new protected area definition with more emphasis on nature conservation.** The IUCN definition of protected areas has evolved to focus on "nature conservation" instead of "biological diversity", in recognition of the broader cultural and spiritual concerns of many stakeholders.
- **A plurality of management and governance,** acknowledging the importance and growth of other types of governance, such as privately protected areas, indigenous and community conserved areas, and shared governance.
- **Acknowledgement of the wider protected area benefits beyond conservation,** as protected areas are providing wider benefits to society that often go beyond their boundaries (e.g. drinking water, disaster risk reduction, carbon storage).
- **Greater social safeguards for protected areas,** establishing requirements for equitable sharing of costs and benefits from protected areas and ensuring full and effective participation from all stakeholders involved, especially indigenous and local communities.
- **Evidence that protected areas are effective conservation tools,** building from recent studies that show that protected areas work, while also recognising that more research is needed to understand under which conditions protected areas fail or succeed in protecting their values.
- **New emphasis on larger protected areas, transboundary protected areas, connectivity and landscape approaches,** accounting for the increase of large connectivity conservation initiatives around the world.

Source: Dudley *et al.* 2014

2. Global Protected Area Coverage

Through Aichi Biodiversity Target 11, countries committed to increase global coverage of protected areas to at least 17% of terrestrial areas and 10% of coastal and marine areas by 2020. This chapter assesses global progress towards this coverage goal, by analysing protected areas stored in the August 2014 version of the World Database on Protected Areas (Box 2.1). However, Aichi Biodiversity Target 11 will not be met unless other elements of the target are also fulfilled, including that protected areas meet goals for being representative of areas important for biodiversity and other quality measures (Chapters 3 and 6), being effectively and equitably managed (Chapters 4 and 5) and functioning as well-connected systems integrated into the wider landscape and seascape (Chapters 7 and 9).

Table 2.1 Summary: Global Protected Area Coverage. All analyses were completed following the protocol described in Box 2.1

Relevant elements of Target 11	Indicators used	Status by 2014
"By 2020 at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas"	Percentage of terrestrial and inland water areas protected	15.4% of the world's terrestrial and inland water areas are covered by protected areas.
	Percentage of marine and coastal areas protected	3.4% of the global ocean area, 8.4% of all marine areas within national jurisdiction, and 10.9% of all coastal waters are covered by protected areas. Only 0.25% of marine areas beyond national jurisdiction are within protected areas.

Box 2.1 Measuring protected area coverage

Protected area coverage was calculated using all the protected areas contained in the August 2014 version of the World Database on Protected Areas (WDPA). The WDPA has undergone a major update in 2014, based on the overwhelmingly positive response to a notification[19] sent by the CBD Executive Secretary to Parties in January 2014, asking them to submit an update of their protected area data to UNEP-WCMC to compile the UN List of Protected Areas. In August 2014, 124 countries had submitted data and 15 were in the process of submitting[20].

The analysis included 197,368 terrestrial and 12,076 marine protected areas, which together total more than 209,000 sites. These are all sites designated at a national level (e.g. national parks), under regional agreements (e.g. Natura 2000 network) and under international conventions and agreements (e.g. natural World Heritage sites). The UNESCO Man and Biosphere Reserves were not included in the calculations, as many of their buffer areas do not meet the IUCN protected area definition. Proposed protected areas and protected areas recorded as points without a reported area were also excluded. In addition, all overlaps between different designation types were removed from the calculations to avoid double counting.

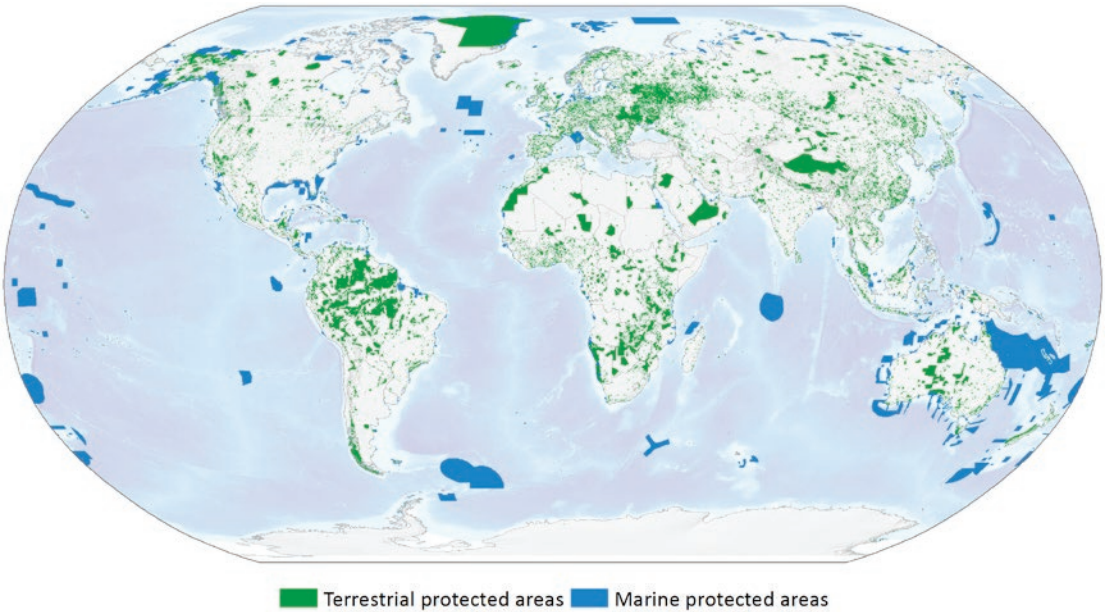


Figure 2.1 *Spatial distribution of the world's protected areas. Source: UNEP-WCMC 2014b*

2.1. TERRESTRIAL PROTECTED AREAS

Terrestrial protected area coverage has increased by about 1 million square kilometres since 2010, and 126,000 square kilometres since 2012. In total, 20.6 million square kilometres (15.4%) of terrestrial and inland water areas are now covered by protected areas (see Figure 2.2). To cover the 17% of terrestrial and inland waters, as proposed in Aichi Biodiversity Target 11, 2.2 million additional square kilometres of protected areas would be needed.

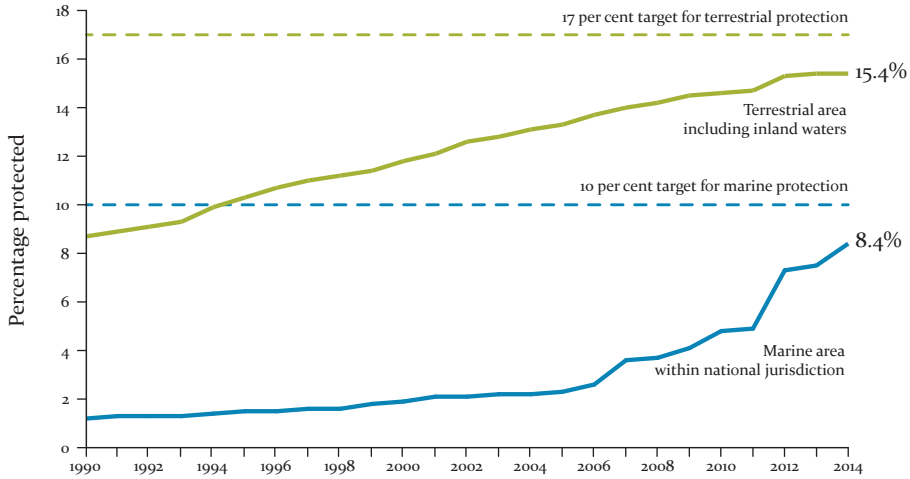


Figure 2.2 *Percentage of all terrestrial and marine areas (0-200 nautical miles) covered by protected areas, 1990 – 2014. The year totals are extracted from the protected area status year reported to the WDPA. Protected areas with no reported status year are included in the 1990 baseline. Figures for earlier years are higher than reported in the 2012 report because: 1) they now include protected areas designated at a national level and under international conventions and agreements and 2) there was a substantial increase in the data held in the WDPA, which also included older sites.*

Overall, Central America and South America are the two regions with the highest percentage of terrestrial and inland water areas protected (28.2% and 25% respectively) (see Figure 2.3). In these two regions, most of the countries have more than a quarter and even up to half of their total area under some kind of protection (Figure 2.4). These are also the only two regions that have at least 17% of the area covered by protected areas, although all regions are above 10%. At the national level, half of all countries have 17% or more of their terrestrial and inland water areas covered by protected areas. Many countries have made important effort to improve their protected area networks. See Kazakhstan's progress, for example (Box 2.2).

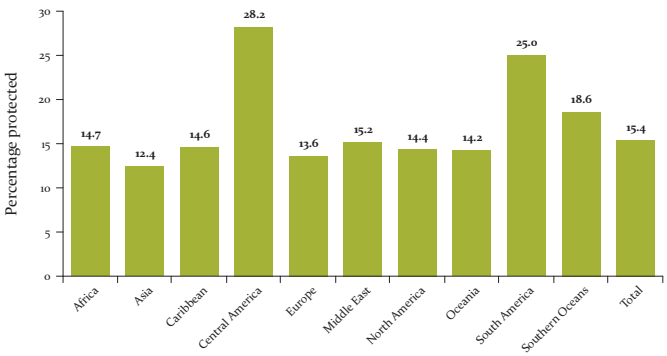


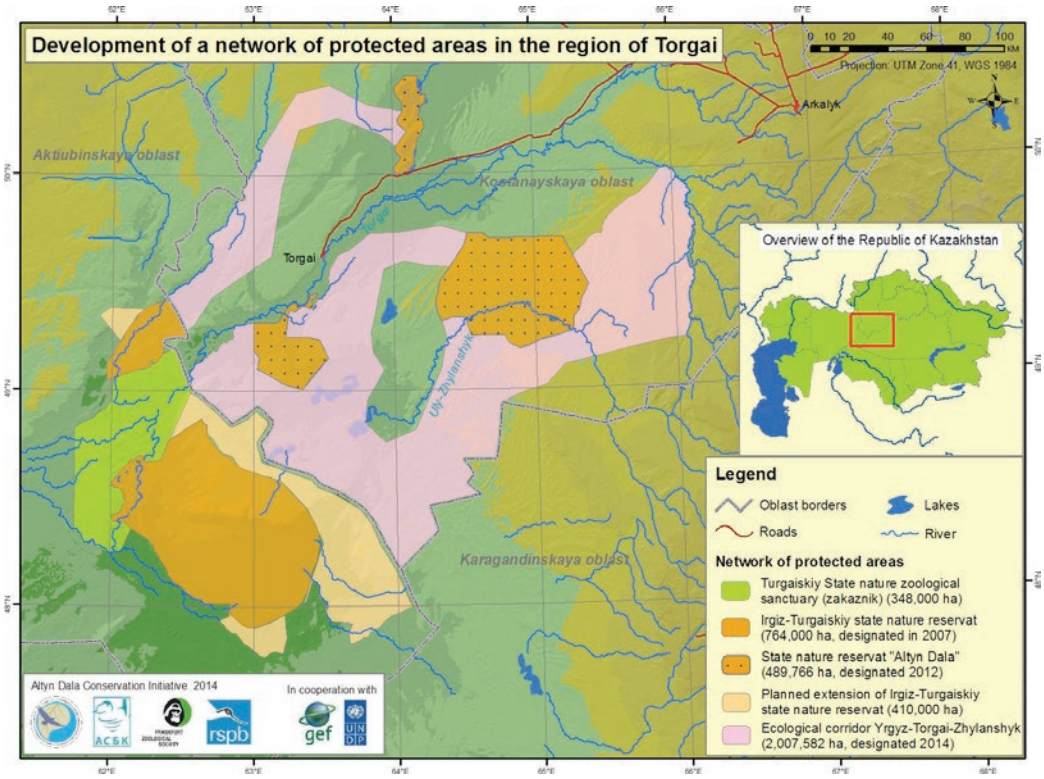
Figure 2.3 *Percentage of terrestrial and inland water areas covered by protected areas for each CBD region. Source: Adapted from Deguignet et al. 2014.*

Inland waters and protected areas

Terrestrial protected areas, as defined by the target, also include inland waters. Freshwater biodiversity and freshwater features such as rivers and lakes are often underrepresented in protected area networks, and are typically used to define protected area boundaries instead[21]. Despite efforts to conserve wetlands through the Ramsar convention, between 64-71% of wetlands of the world have been lost since 1900[22]. Currently, only 20.7% of the world's lakes and wetlands are covered by protected areas (see CBD Biome Inland Waters, page 16).

Box 2.2 Altyn Dala Conservation Initiative

Working within a 56-million-hectare area defined by the historic range of a single saiga antelope (*Saigatatarica*) population in central Kazakhstan, the Altyn Dala Conservation Initiative (Altyn Dala, or "Golden Steppe") is a long-term initiative of the Government of Kazakhstan, the Association for Conservation of Biodiversity of Kazakhstan, the Frankfurt Zoological Society and the Royal Society for the Protection of Birds (RSPB). Established in 2006, this NGO-government partnership is investing in identifying, designating and managing protected areas to conserve biodiversity across Kazakhstan's steppe, wetlands, semi-deserts and deserts.



Protection of ecosystems: Altyn Dala has secured 3.67 million hectares of new or extended state protected areas. Recognising that long-distance migrations and flyways need viable corridors, Kazakhstan's legislation was amended, with support from UNDP, to include ecological corridors as a new category of protected area. Legal reform was followed by the creation in June 2014 of Kazakhstan's first corridor, the Yrgyz-Torgai-Zhylanshyk Ecological Corridor, covering just over 2 million hectares.

Restoring lost diversity: Extensive field research combining aerial and ground surveys enabled teams to employ satellite telemetry with more than 60 Critically Endangered saiga antelopes (*Saiga tatarica*). Interpreting and providing telemetry data in real time to government mobile anti-poaching patrols has resulted in high-profile arrests and prosecutions, providing an active deterrent. Effective protection and anti-poaching has enabled the saiga antelope population in this area to recover from less than 10,000 after the late 1990s catastrophic collapse to more than 200,000 within a decade.

Investing in people: Intrinsic to Altyn Dala's approach is building both national understanding and capacity for conservation, to guarantee effective long-term stewardship. Altyn Dala is also exploring novel income streams, through the piloting of business initiatives compatible with biodiversity, from nature-based tourism to sustainable hunting. Outreach campaigns involving schools and local communities are well-established and linked to nature clubs in universities, inspiring and training Kazakhstan's next generation of conservation professionals.

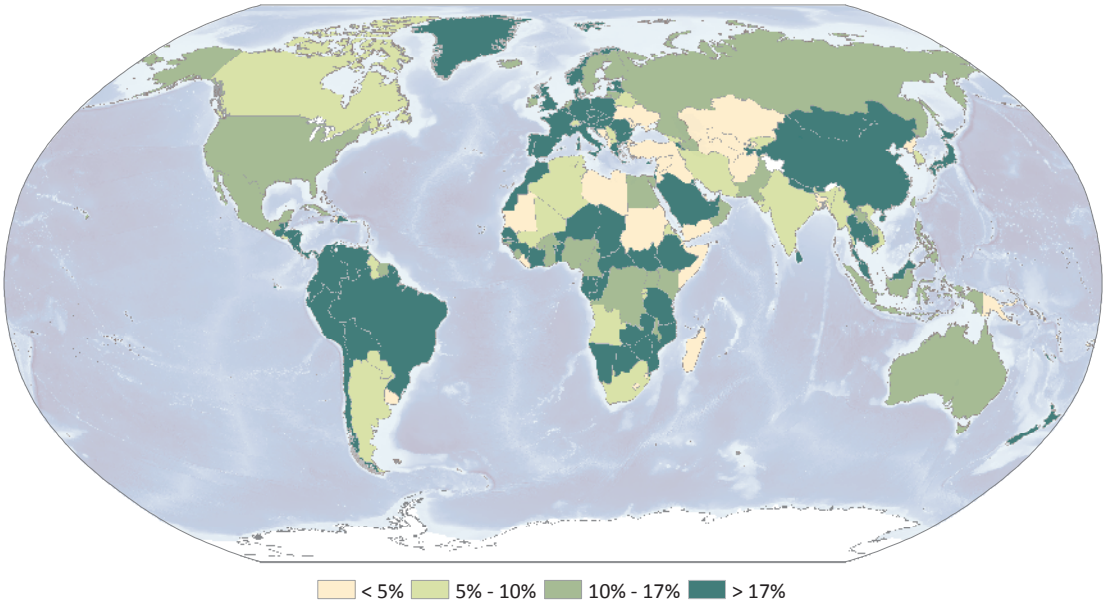


Figure 2.4 *Percentage of terrestrial and inland water areas covered by protected areas, by country and territory. Source: UNEP-WCMC 2014b*

2.2. MARINE PROTECTED AREAS

Overall, marine protected areas cover 3.4% (just over 12 million km²) of the world's ocean, which is some way below the marine target of 10%, despite considerable increases in marine protected area establishment in recent years.

Within the overall target, however, progress is evident. Coverage in coastal waters (0-12 nautical miles) is 10.9%, and is 8.4 % in areas within national jurisdiction (0–200 nautical miles). Nevertheless, only 0.25% of seas Areas Beyond National Jurisdiction (ABNJ) are covered by marine protected areas, demonstrating a significant gap in conservation efforts and highlighting the urgent need to find ways to overcome the challenges inherent in establishing such marine protected areas where national governance systems do not exist. To meet the 10% target in areas within national jurisdiction, a further 2.2 million square kilometres of marine areas will need to be designated as marine protected areas. In addition, 21.5 million square kilometres in ABNJ would need to be protected for the target of 10% to be attained.

Recent increases in marine protected area coverage are mainly due to the establishment of very large marine protected areas in waters around Australia, New Caledonia and Britain's South Georgia and the South Sandwich Islands. In 2014, New Caledonia designated all of its Economic Exclusion Zones (12-200 nautical miles) as a marine protected area, encompassing an area of just under 1.3 million square kilometres, the largest protected area in the world. If all marine protected areas from these three countries were removed from the global marine statistics, the coverage figure would be halved to only 1.8 % of the global ocean area and 4.4 % of jurisdictional waters covered by protected areas.

While this growth is important, the marine protected area coverage in most regions is still very low (Figure 2.5), and few countries outside of the Eastern Pacific in Oceania (described above) have reached the target of 10% of marine areas protected. At the national level, most countries reported protected area coverage between 1% and 5% (Figure 2.6.).

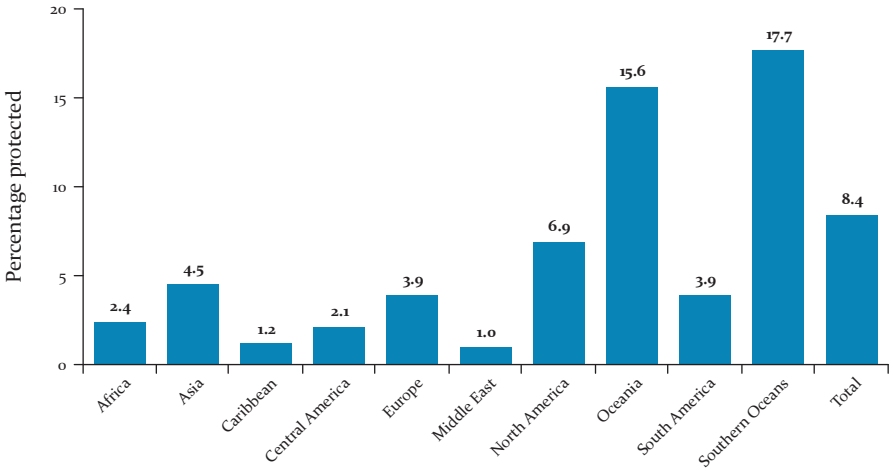


Figure 2.5 *Percentage of the marine areas within national jurisdiction (0-200 nautical miles) covered by protected areas for each CBD region. Source: Adapted from Deguignet et al. 2014*

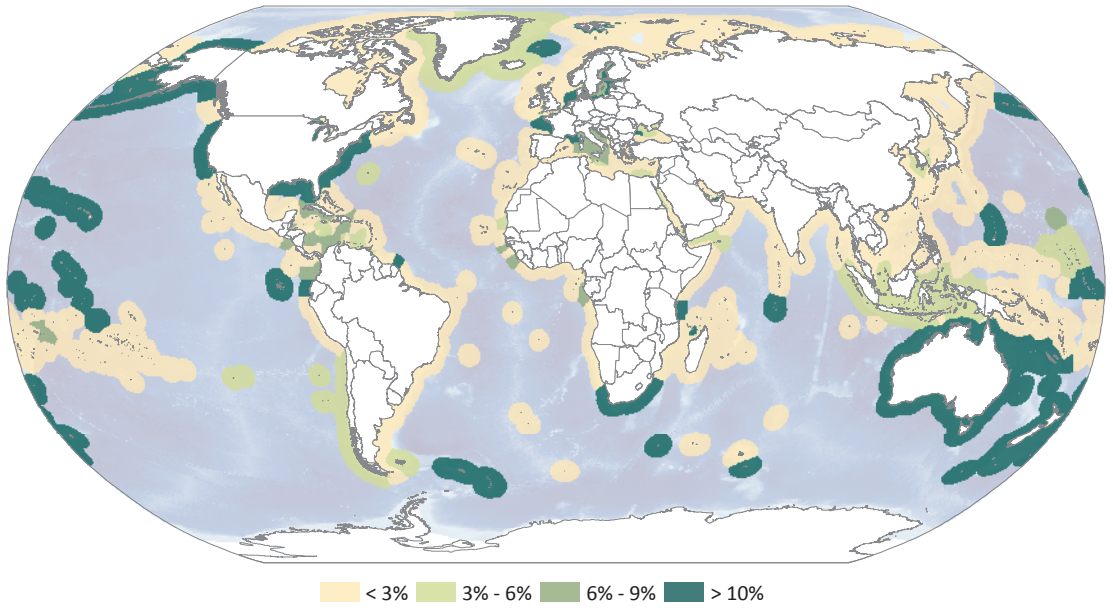


Figure 2.6 *Percentage of the marine areas within national jurisdiction (0-200 nautical miles) covered by protected areas. Source*: *Thomas et al. 2014*

2.3. PROTECTED AREAS RECOGNISED UNDER INTERNATIONAL CONVENTIONS

There are 2,363 protected areas recognised under international conventions in the World Database on Protected Areas. These include 228 natural and mixed World Heritage natural sites and 2,135 Ramsar sites. Although most of these sites already overlap with existing national sites, international designations can strengthen the conservation of a site, raising awareness of its value. Both Ramsar sites and natural and mixed World Heritage sites have increased in area in recent years (Figure 2.7).

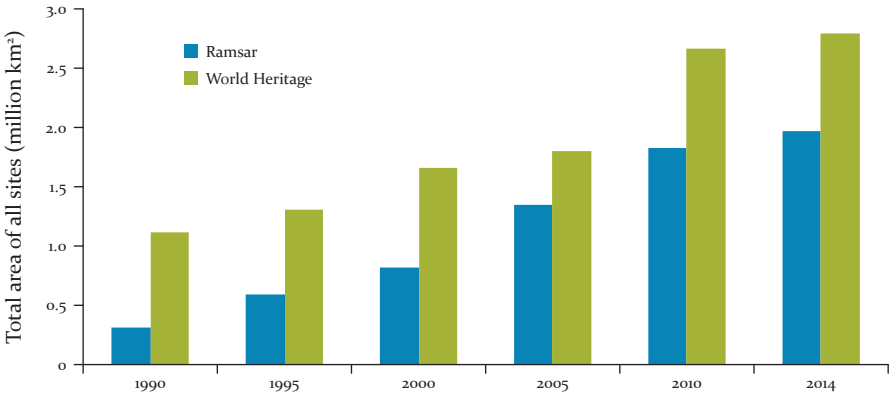


Figure 2.7 *Growth in the total area of Ramsar and natural World Heritage sites between 1990 and 2014. Source: UNEP-WCMC 2014b.*

2.4. GLOBAL TRENDS IN MANAGEMENT OBJECTIVES FOR PROTECTED AREAS

The IUCN Protected Area Management Categories, which classify protected areas according to their management objectives, represent a global standard recommended by the CBD[23] and used by many countries around the world[24]. Countries are encouraged (but not obliged) to use the management categories, allowing the WDPA to provide a global clasification of protected areas based on their management objectives. It is important to note that these management categories concern the stated objectives of the protected areas, and do not provide any information on the effectiveness of their management. Effective management of protected areas is discussed in detail in Chapter 4.

In 2014, no IUCN Management Category had been assigned to 36% of the area covered by protected areas. For those protected areas for which a category has been assigned, 50% fall within categories I-IV, with 26.6% in National Parks (II) and 13.4% in Habitat/Species Management areas (IV). Nevertheless, Category VI has been steadily increasing over the past 14 years and is still the largest in terms of area. Almost 40% of the area of protected areas is being managed for sustainable use of resources (Figure 2.8).

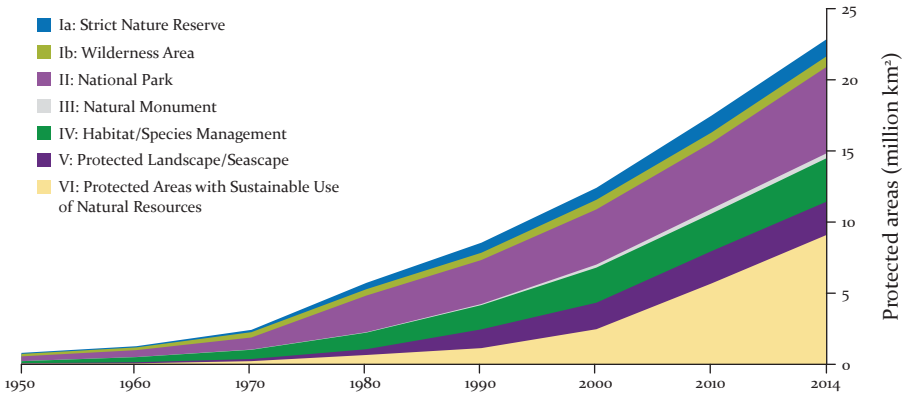


Figure 2.8. *Total extent, by area, of marine and terrestrial protected areas in the WDPA in each of the six IUCN Management Categories between 1950-2014. The years refer to the status year reported to the WDPA. Areas for which IUCN Management Categories were Not Reported are not included. There are some overlaps between different IUCN Management Categories, hence total area does not equal total global protected area. Source: UNEP-WCMC 2014b.*

In terms of sites, 65% of terrestrial and 50% of marine protected areas in the WDPA had an IUCN Management Category assigned (Figure 2.8). Overall, 66% of all protected areas in the WDPA have an IUCN Management Category. Most terrestrial protected areas fall under Categories III to V, most frequently IV (Habitat/species Management areas). For marine habitats, Category IV is the most frequent, followed by Ia and VI.

Box 2.3. Privately protected areas*

A privately protected area (PPA), as defined by IUCN, is a protected area under private governance by individuals and groups of individuals; non-governmental organisations; corporations, including commercial companies and corporations set up by private owners to manage several PPAs; for-profit owners; research entities (universities, field stations); or religious entities. Not all private conservation initiatives are PPAs. Motivation for the establishment of a PPA varies from a desire to protect threatened species to a commercial interest in ecotourism.

Although the global coverage of PPAs is currently unknown, research published by IUCN identifies thousands of sites that may meet the IUCN definition, and thus should be recorded as PPAs. They are common in both the Americas and in Western and Northern Europe. Australia has a growing PPA movement, and some countries in East and Southern Africa have well-developed PPA systems. Conversely, Central and Eastern European countries have few, if any privately protected areas. In Asia, they are just starting to recognise their potential. Most Central and West African countries have yet to develop PPAs. Although PPAs tend to be relatively small, they often protect and restore habitat that is underrepresented in national protected areas systems and focus on the conservation of specific highly threatened species. PPAs may thus have a disproportionately important contribution to make to conservation.

PPAs have unique advantages as conservation tools. Site purchase or lease can be the fastest conservation response to rapid changes in land or water use, and can be effective when establishment of state-run protected areas is resisted for social, political, or economic reasons. PPAs get millions of stakeholders involved in conservation through support for NGOs that manage the areas, and employ innovative funding mechanisms. While there have been social concerns about how land was acquired, and whether it has involved 'land grabbing' from poor communities, IUCN addresses this unequivocally by stressing that protected areas should not be used as an excuse for dispossessing people of their land.

As PPAs seem likely to continue expanding, ensuring the recognition and effective, long-term management of such sites will be increasingly important in meeting Aichi targets. UNEP-WCMC invites governments and PPA representatives to record PPAs in the WDPA.

*__Source__: Stolton *et al.* 2014

2.5. CHANGES IN PROTECTED AREAS OVER TIME

Protected area boundaries, designations and status may change over time for a number of reasons. For example, protected area type may be changed from one category to another, and legal protection may even be removed (degazettement). Such events have been summarised in a database called PADDD - protected areas downgraded, downsized, or degazetted[25]. In a study on PADDD events across Africa, Latin America, Southeast Asia and the Caribbean, 4.1% of the total protected area extent had experienced some form of PADDD between 1962 and 2009[26]. In another study in Brazil, 93 PADDD events were identified between 1981 and 2012, with an increase in frequency in 2008 related primarily to generation and transmission of electricity in Amazonia[27].

Although PADDD is a real threat to protected areas around the world, protected areas may also be upgraded or expanded, and new sites can be added to a national protected areas system. Measuring both sides of this dynamic is essential to understanding issues surrounding protected areas and to implementing effective policies to improve the ability of protected area networks to deliver their objectives in the long term.

2.6. CONCLUSIONS AND FUTURE DIRECTION

- There has been significant growth of protected areas in the past decades. In 2014, 15.4% of the terrestrial and inland water areas and 8.4% of the marine area within national jurisdiction (0-200 nautical miles) were covered by protected areas. However, coverage is not evenly distributed, and there are strong regional differences.
- Although the terrestrial target of 17% is within reach, not much progress has been recorded since 2012, aside from notable isolated cases. Inland waters are still poorly covered by protected areas (only one-fifth of wetlands are covered by protected areas), despite the important contribution of wetlands of international importance designated under the Ramsar Convention.
- There has been notable growth of protected areas in the past decades. Still, only 3.41% of the global oceans are protected, and most marine protected areas are located within coastal waters (<12 nautical miles offshore). Half of this area is located in the Eastern Pacific, where several large marine protected areas have been designated since 2012. The challenge now is to manage such large areas effectively and expand protection in other regions.
- IUCN Management Categories II to IV account for 50% of the area of protected areas for which a category has been reported. Almost 40% are classified as Category VI. The use of IUCN Management Categories by all countries to classify protected areas is encouraged to improve the quality of future analyses and provide a clearer picture of the management objectives of the world's protected areas.
- Despite an increase in protected area coverage, some protected areas are being downgraded, downsized, or degazetted (PADDD). Understanding these dynamics is important for addressing gaps and issues in the implementation of effective biodiversity policies.
- In total, 2.2 million square kilometres of terrestrial and inland water areas and 2.2 million square kilometres of marine areas within national jurisdiction will need to be designated as protected areas in order to cover 17% of the land and 10% of the marine and coastal areas. However, just expanding protected areas will not be enough to achieve Aichi Biodiversity Target 11 or to halt the loss of habitats and species within and outside protected areas. Protected areas need to be located in the right places and meet a number of requirements, as noted in the text of Aichi Biodiversity Target 11. These requirements are analysed in the following chapters.

CBD BIOME: INLAND WATERS

WHAT ARE THEY?

Inland waters are terrestrial ecosystems with an aquatic element. They may be freshwater, saline or brackish, and as such they are associated with a wide range of habitats and species. Inland waters occur within most biomes and ecoregions, including lakes, rivers, ponds, streams, bogs, marshes and swamps, and can be natural or man-made.

WHY ARE THEY IMPORTANT?

Inland water is essential not only for freshwater-dwelling species, but also for terrestrial species that depend on it to survive. Many fish and most amphibians breed in inland water ecosystems. Inland waters provide important ecosystem services to humans, including freshwater and food.

Protected area coverage of lakes and wetland types in 2014.*

Lakes and wetland types*	Total area (km²)	Protected area (km²)	Protected area (%)
Lake	2,309,875	369,629	16.0
Reservoir	249,282	39,520	15.9
River	327,489	64,640	19.7
Freshwater Marsh, Floodplain	2,535,893	484,834	19.1
Swamp Forest, Flooded Forest	1,170,464	392,892	33.6
Coastal Wetland	660,772	209,375	31.7
Pan, Brackish/Saline Wetland	435,696	105,340	24.2
Bog, Fen, Mire	691,527	88,385	12.8
Intermittent Wetland/Lake	655,385	117,092	17.9
Total	9,036,383	1,871,707	20.7

* Lakes and wetlands types according to the Global Lakes and Wetlands Database from Lehner and Döll 2004. Protected areas data from IUCN and UNEP-WCMC 2014.

HOW MUCH IS UNDER PROTECTED AREAS?

Currently, 20.7% of the major inland water types is covered by protected areas. Swamp forests and flooded forests (33.6%) and coastal wetlands (31.7%) are well covered, while bogs, fens and mires (12.8%) are well below 17%. This coverage analysis does not consider the importance of upstream and downstream protection for the health of many inland water ecosystems.

3. Areas of Importance for Biodiversity and Ecosystem Services

Aichi Biodiversity Target 11 emphasises that protected areas should be located in the most important places for biodiversity and ecosystem services. Historically, however, this has not always been the case. Governments often favour the protection of places of low productivity or low economic interest[28], or those that are particularly valuable for recreation and tourism. Identifying areas of high biodiversity importance is only one of many steps in determining what should be protected. Decisions depend on multiple, sometimes competing, factors, including agreed location and size of area to be protected, availability of the land for protection, assessment of trade-offs and opportunity costs[29], and other economic, social and political considerations. The level and type of protection afforded to the area also has to be considered, e.g. whether a protected area designation is the best option, or whether other forms of conservation would be more appropriate.

This chapter reviews global progress in protecting areas of importance for biodiversity and ecosystem services.

Table 3.1. *Summary: Areas of Importance for Biodiversity and Ecosystem Services.*

Relevant elements of Target 11	Indicators used	Current status and trends
"...especially areas of particular importance for biodiversity..."	Protected Area coverage of Important Bird and Biodiversity Areas (IBAs)	22% of IBAs completely covered; on average, 45% of the area of each site is covered[30].
	Protected Area coverage of Alliance for Zero Extinction sites (AZEs)	23% of AZEs completely covered, on average, 35 % of the area of each site is covered[31].
"...and ecosystem services..."	No global indicators available.	Some areas important for ecosystem services have been mapped at a global level, but there is no global indicator that measures protected area coverage of these.

3.1. AREAS OF IMPORTANCE FOR BIODIVERSITY

Key Biodiversity Areas

Key Biodiversity Areas (KBAs) are sites of international significance for the global persistence of biodiversity. They are identified using standardised criteria and thresholds. The KBA initiative builds off the approach developed by BirdLife International over the last 35 years to identify a global network of 12,000 Important Bird and Biodiversity Areas (IBAs). KBAs extend this approach to other taxonomic groups. In addition to IBAs, the only other global KBA network includes the 588 Alliance for Zero Extinction sites (AZEs). Each AZE site holds at least 95% of the global population of at least one Critically Endangered or Endangered species, as listed on the IUCN Red List[32]. KBAs are important sites for biodiversity, and although they may inform priorities, they are not equivalent to biodiversity conservation priorities, which, to be determined, require additional information and assessment of costs and opportunities[33]. One way of setting priorities is to use Systematic Conservation Planning techniques (see Box 3.1).

Many IBAs and other KBAs are already designated as protected areas, while the remainder can be considered "areas of particular importance for biodiversity" in the language of Aichi Target 11. Some KBAs, such as IBAs in the marine environment, have also played a significant role in the description of Ecologically and Biologically Significant Marine areas (EBSAs) through the CBD (Box 3.2).

Box 3.1. Systematic conservation planning

Some countries have identified priority areas for protection by using the principles and tools of Systematic Conservation Planning (SCP), a target-based approach that uses spatial prioritization techniques to define conservation priority areas within landscapes and seascapes[34].

The SCP approach allows for the assessment of trade-offs and opportunity costs for expanding protected area networks. It has been used to identify marine protected areas in Madagascar[35], the Solomon Islands[36] and Indonesia[37], and, most notably, for the South African National Biodiversity Assessment[38]. A recent review of how spatial biodiversity analyses can support the implementation of Aichi Target 11 found that, during the period 2010-2012, a total of 705 scientific articles directly relevant to spatial conservation decision making were published, 207 of which included information potentially relevant for spatial conservation resource allocation[39].

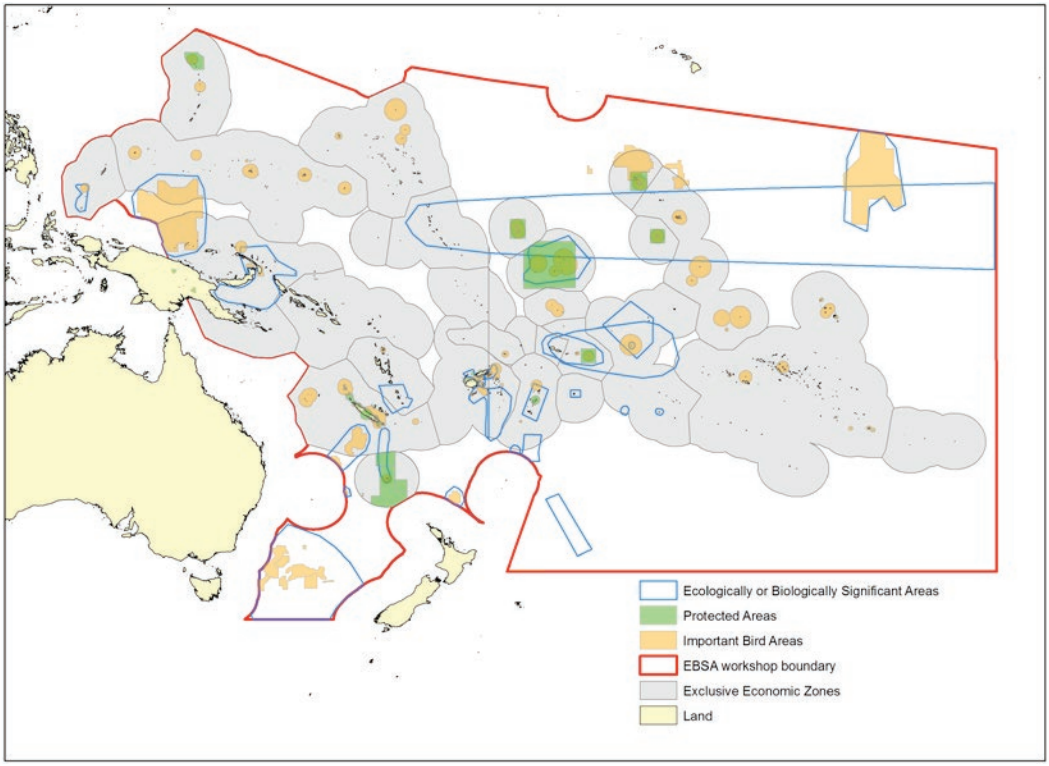
SCP is recognised as a comprehensive and scientifically sound method to identify gaps in protected area networks and priorities for expansion, although data is lacking on how many national protected area networks have benefited from such systems.

Freshwater KBAs, which include important freshwater river and lake sub-catchments[40], have been identified for continental Africa[41], the Western Ghats[42], Indo-Burma[43] and the Eastern Himalayas[44]. Important Plant Areas have been identified by PlantLife International in 66 countries (Box 3.3), and important sites for multiple taxonomic groups have been identified in the Philippines[45], Caribbean[46], IndoBurma[47] and a number of other countries and sub-regions. A global consultation to consolidate and harmonise these and other KBA approaches into one global standard has been completed and is being tested[48]. A global standard on KBAs would avoid confusion among policy makers and provide a standardised methodology to identify KBAs for all taxonomic groups and across terrestrial, marine and freshwater biomes.

Box 3.2. Using Important Bird and Biodiversity Areas to inform the description of EBSAs

Ben Lascelles*

In 2008, the ninth Conference of the Parties (COP9) to the Convention on Biological Diversity (CBD) approved a set of seven scientific criteria for identifying "Ecologically or Biologically Significant marine Areas (EBSAs) in need of protection in open ocean waters and deep-sea habitats" (CBD Decision IX/20, Annex I). At COP10 (2010), Parties also decided that the CBD Secretariat should coordinate and convene expert workshops to contribute to the description of EBSAs and establish a repository mechanism for scientific and technical information and experience related to the application of the scientific criteria on the identification of such areas. Since 2011, seven workshops have been held, covering approximately 68% of the global ocean. The workshops have brought together experts from Parties and scientific organisations to assess a wide range of data and agree on sites meeting the EBSA criteria. To date, more than 200 EBSAs have been described. BirdLife International has been a key stakeholder in providing scientific information to the regional workshops. Seabird distribution data from at-sea surveys, satellite tracking devices attached to seabirds and habitat suitability models were compiled and analysed to define marine Important Bird and Biodiversity Areas (IBAs). So far, over 600 marine IBAs have been incorporated into the EBSAs described to date.



Examples of data inputs to the EBSA workshop for the South Pacific, showing existing Protected Areas, marine IBAs, jurisdictions and the resulting EBSAs described. Marine IBAs contributed to the description of 16 of the 28 agreed sites.

*BirdLife International

Protected area coverage of Key Biodiversity Areas

KBAs have been used to inform the expansion of national protected area networks in many countries[49], and have been particularly influential in the designation of Special Protected Areas under European Union legislation[50]. The Proportion of IBAs and AZEs covered by protected areas has been used as an indicator for tracking global progress towards the element of Aichi Biodiversity Target 11 relating to coverage of "areas of particular importance for biodiversity"[51], and these metrics are used by the CBD[52] and the United Nations[53].

In 2013, only 22% of IBAs and 23% of AZEs were completely covered by protected areas[54] (Figure 3.1). On average, only 45% of the area of each IBA and 35% of the area of each AZE is covered.

Protection of Key Biodiversity Areas seems to have slowed down in recent years, with little progress since 2010. However, formal designation as state-managed protected areas may not be appropriate for all unprotected KBAs; some may be better managed by local communities, or maintained through sustainable agriculture or other land-use practices (see Chapter 8).

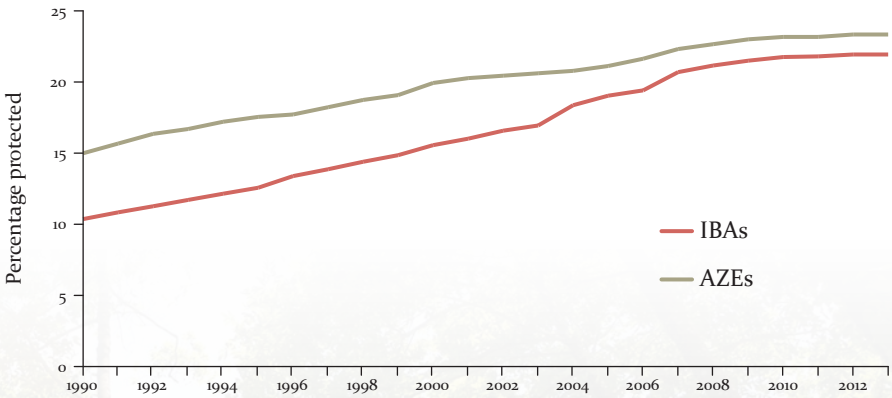


Figure 3.1 *Proportion of IBAs and AZEs completely covered by protected areas. Source: Butchart et al. in review*

3.2. AREAS OF IMPORTANCE FOR ECOSYSTEM SERVICES

Ecosystem services encompass the values, functions and benefits that come from nature[58], including regulating functions (e.g. climate regulation), provisioning functions (e.g. crop pollination), and cultural associations and values (e.g. sacred places). Ecosystems provide these through their composition and structure (e.g. freshwater, timber trees, fish). The ability of an ecosystem to provide such benefits to human society is a function of the extent (quantity) and condition (quality) of the ecosystem, as well as the productivity and accessibility to beneficiaries, either locally (e.g., firewood, bushmeat) or at wider scales[59] (e.g. water provision, climate stabilisation).

Box 3.3 Protected Areas and the Global Strategy for Plant Conservation

Suzanne Sharrock*

The Global Strategy for Plant Conservation (GSPC) is a programme of the CBD, initially adopted in 2002, that recognises the importance of plants and the need for greater focus on conserving plant diversity. It aims to "understand, conserve and use sustainably the world's immense wealth of plant diversity" at local, national, regional and global levels. The latest GSPC, which was adopted in 2012 (decision x/17), includes five objectives and 16 targets to be achieved by 2020.

The achievement of Aichi Target 11 would make a very strong contribution to achieving GSPC targets, especially those in objective II: "Plant diversity is urgently and effectively conserved". Similarly, activities focused on the GSPC will contribute to the achievement of Aichi Target 11. For example, Target 11 requires a focus on "areas of particular importance for biodiversity". GSPC Target 5 calls for at least 75% of the most important areas for plant diversity to be protected. Work towards this target therefore clearly contributes to efforts to identify "areas of particular importance for biodiversity". More than 66 countries have been active in identifying Important Plant Areas[55]. To date, information on the status of conservation of biodiversity within protected areas has largely focused on the conservation of amphibians, birds and mammals[56]. GSPC Target 5 provides an opportunity to gather data on the conservation of important plant diversity within protected areas at the national level. In response to Target 7 of the GSPC (at least 75% of known threatened plant species conserved *in situ*), the South African National Biodiversity Institute (SANBI) carried out a study that involved data gathering and validation using citizen scientists. The research concluded that 63% of South Africa's threatened plant species have at least one population occurring within a protected area. A conservation planning process was conducted between 2013 and 2014 on species that do not yet have any form of protection, to identify optimal sites to conserve. The results showed that only 27 properties need to be conserved to reach the target of 75% of threatened species conserved *in situ*. This information will inform updates for South Africa's Protected Area Expansion Strategy, and provide guidance to stewardship programmes that contract private and communal land into the protected area network, to ensure this target can be achieved by 2020[57].

* Botanical Gardens
Conservation International

Identifying areas of importance for ecosystem services

A number of studies have mapped important ecosystem values around the world[60]. These have tended to focus on aspects that can be measured remotely, such as carbon stocks, water resources, and net primary production. Generally, these studies show high ecosystem values for carbon in the tropical forest region (biomass carbon) and the northern terrestrial regions[61] (soil carbon). They also show high water provision value in the wet tropics, especially tropical mountain ranges, and the wetter temperate regions of the world. High carbon and water potential comes together with high biodiversity values in the tropical lowland and montane forest regions. It is important to note that, while these studies on the distribution of value provide information on the *potential* for ecosystems to provide this value, understanding the *actual* relationship between ecosystem functions and ecosystem value requires additional information on the distribution of people and the degree to which potential value is realised.

Few truly global assessments of ecosystem value or services covered by protected areas exist, due to the paucity of suitable global datasets. A study of the carbon stock within the global protected area estate found that protected areas within humid tropical forests contained 3.5% of global terrestrial carbon stocks[62]. Global hydrological models have been applied to estimate water provision within and outside protected areas[63]. The value of tourism within protected areas has also been assessed at global scales[64].

There are many more examples of ecosystem benefits assessed within and outside protected areas at more local scales, including assessments of timber, water, biodiversity, and soil fertility values[65]. Tools for local-scale assessment include modelling approaches such as InVest[66] and ARIES[67], and the Toolkit for Ecosystem Service Site-based Assessment (TESSA), which incorporates cost-effective and accessible methods for evaluating ecosystem services[68]. However, as there is no agreed method to date for systematically identifying sites of importance for ecosystem services worldwide, it is not yet possible to assess progress towards this element of Target 11.

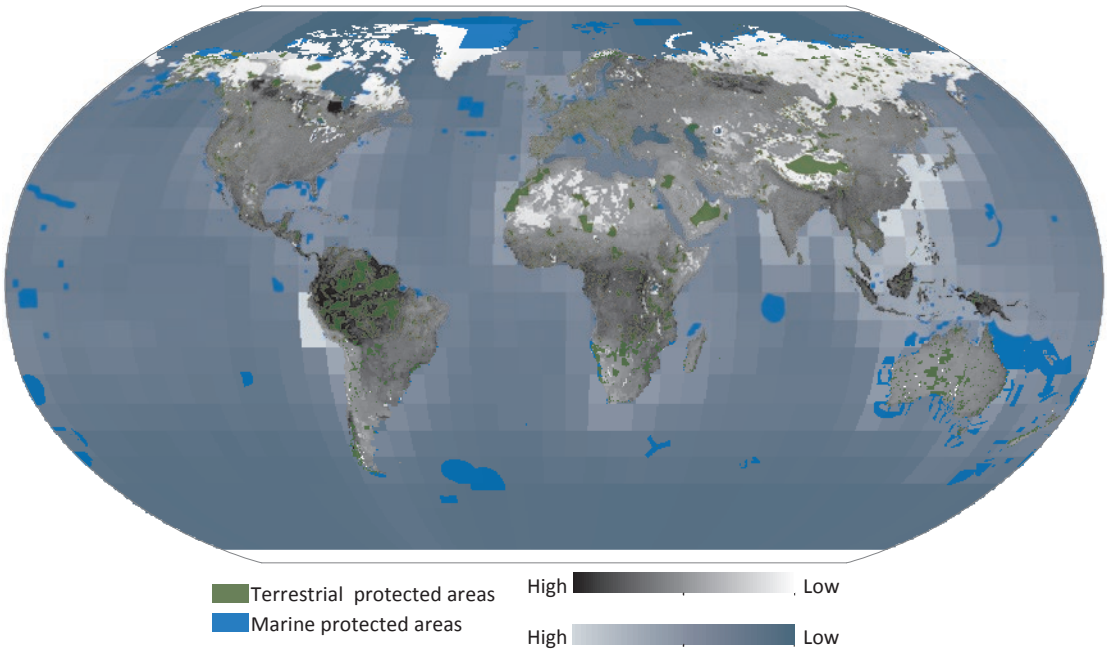


Figure 3.2. *Protected area overlap with a global composite map of ecosystem assets. Ecosystem assets have the capacity to generate ecosystem services. The key assets included in this map are global fresh water resources, soil quality for plant growth, terrestrial organic carbon, terrestrial biodiversity, marine biodiversity and marine fish stocks.*
Source: Ecosystem assets map from Dickson et al. 2014. Protected areas map from UNEP-WCMC 2014b

3.3. CONCLUSIONS AND FUTURE DIRECTION

- Existing global indicators show that areas of importance for biodiversity are not yet adequately protected. In 2013, 22% of Important Bird and Biodiversity Areas (IBAs) and 23% of Alliance for Zero Extinction sites were completely covered by protected areas, and on average less than half of each site was protected. Protected area coverage of KBAs has significantly slowed down in recent years.
- A global standard for the identification of KBAs, incorporating the IBA, AZE and other existing approaches, is now being finalised. Such a standard would avoid confusion among policy makers and provide a standardised methodology for identifying KBAs for all taxonomic groups and across terrestrial, freshwater, and marine biomes.
- Systematically identifying areas of importance for ecosystem services worldwide is a necessary precursor to assessing progress towards this element of Target 11. Studies available on the importance of protected areas for ecosystem services mainly assess carbon and water provision by protected areas. At more local scales, numerous studies provide information on the materials and other services that protected areas provide to surrounding communities and beyond.
- Determining which sites to gazette as protected areas requires not just information on the location and relative significance of areas of importance for biodiversity and ecosystem services, but also many other types of information, including land ownership, current land use, opportunity costs, implementation costs, etc. Systematic Conservation Planning (SCP) provides the tools and methods to support these types of decisions. Some countries have successfully implemented this methodology, but no global indicator that measures SCP implementation trends at a global level is currently available.

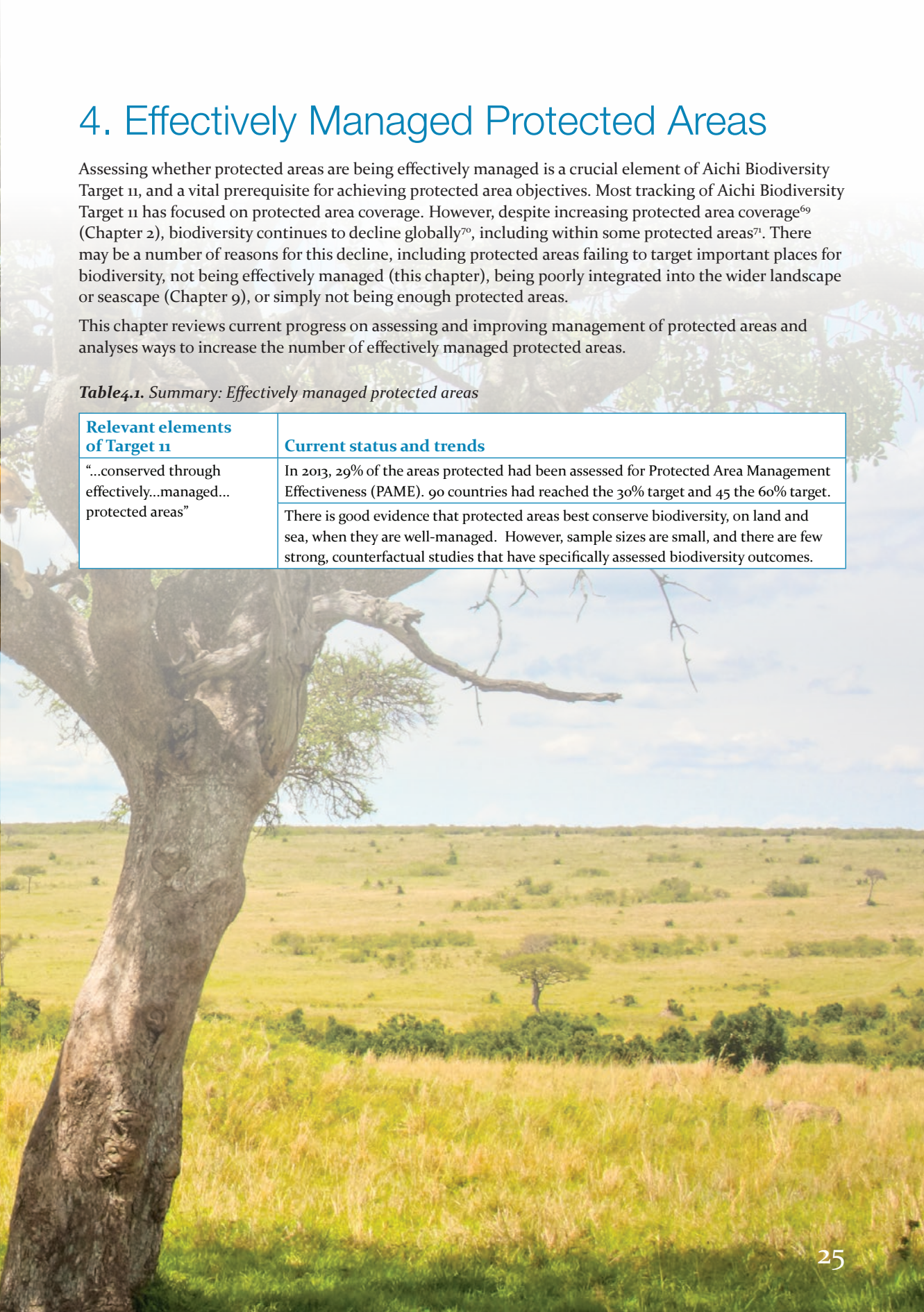
4. Effectively Managed Protected Areas

Assessing whether protected areas are being effectively managed is a crucial element of Aichi Biodiversity Target 11, and a vital prerequisite for achieving protected area objectives. Most tracking of Aichi Biodiversity Target 11 has focused on protected area coverage. However, despite increasing protected area coverage[69] (Chapter 2), biodiversity continues to decline globally[70], including within some protected areas[71]. There may be a number of reasons for this decline, including protected areas failing to target important places for biodiversity, not being effectively managed (this chapter), being poorly integrated into the wider landscape or seascape (Chapter 9), or simply not being enough protected areas.

This chapter reviews current progress on assessing and improving management of protected areas and analyses ways to increase the number of effectively managed protected areas.

Table4.1. *Summary: Effectively managed protected areas*

Relevant elements of Target 11	**Current status and trends**
"...conserved through effectively...managed... protected areas"	In 2013, 29% of the areas protected had been assessed for Protected Area Management Effectiveness (PAME). 90 countries had reached the 30% target and 45 the 60% target.
	There is good evidence that protected areas best conserve biodiversity, on land and sea, when they are well-managed. However, sample sizes are small, and there are few strong, counterfactual studies that have specifically assessed biodiversity outcomes.



4.1. ACHIEVING EFFECTIVELY MANAGED PROTECTED AREAS

The overall framework for Protected Area Management Effectiveness (PAME)[72] asks two questions (Figure 4.1): The first is whether protected areas are working in terms of their management actions, governance and financial mechanisms. The second is whether protected areas are maintaining their value and achieving their objectives, including delivering positive outcomes for biodiversity conservation (species populations, habitat cover and quality), for ecosystem service provision, or for human livelihoods. Existing PAME data collection tools gather data on both questions, although some tools are more focused on one question or the other. Both questions are important, however; the management success of a protected area depends on its ability to deliver conservation outcomes related to its objectives. Building from the PAME framework, a recent study assessed the status of the global network of natural and mixed World Heritage sites (Box 4.1).

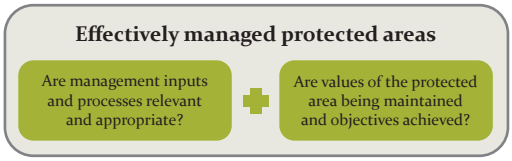
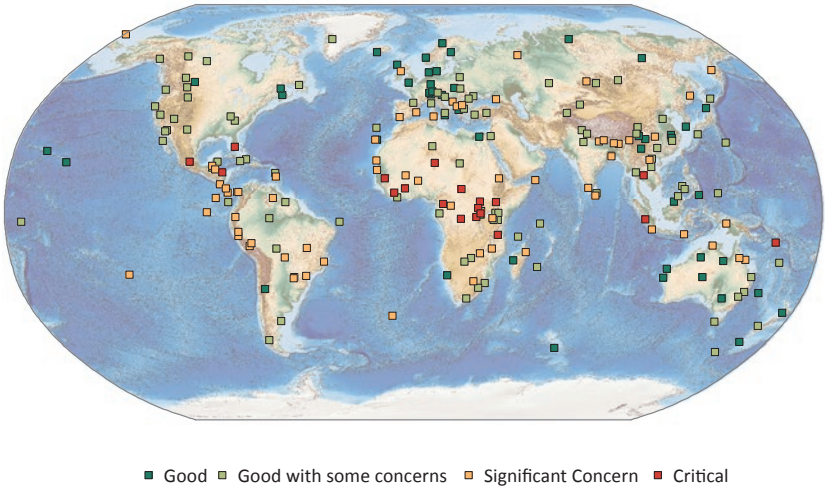


Figure 4.1 *Key elements for achieving effectively managed protected areas*

Box 4.1 A Brighter Outlook for World Heritage

Elena Osipova and Yichuan Shi*

Natural World Heritage sites represent about 0.1% of the total number of protected areas globally, yet they account for more than 8% of the combined surface covered. Backed by a unique intergovernmental convention, these world-renowned sites offer valuable insight into the successes and challenges at the frontline of conservation.



Over the past 10 years, just over half of the listed natural sites have been monitored through the mechanism of the World Heritage Convention. The new IUCN World Heritage Outlook provides for the first time an assessment of all natural World Heritage sites. It looks at the potential for each site to maintain Outstanding Universal Value over time, based on three elements: the state and trend of values, threats, and protection and management. This assessment gives an indication of whether a site's Conservation Outlook is "good", "good with some concerns", of "significant concern", or "critical".

The results of this first of its kind global analysis show that 63% of all natural World Heritage sites have a positive outlook (either "good" or "good with some concerns") if existing management efforts and political support are sustained, whereas in 37 % of the sites, a lot more effort is needed to ensure preservation of their values over time.

The goal of the IUCN World Heritage Outlook is to improve the conservation of natural World Heritage sites and strengthen the World Heritage Convention. It aims to recognise well-managed sites, identify the most pressing conservation issues and promote action to achieve a good Conservation Outlook across all sites. All Conservation Outlook Assessments are available online at www.worldheritageoutlook.iucn.org.

*IUCN World Heritage Programme

Progress in protected areas management effectiveness targets

Aichi Biodiversity Target 11 recognises the importance of effective management of protected areas as an essential step towards achieving global conservation goals. The CBD Programme of Work on Protected Areas (PoWPA) specifically calls for countries to assess management effectiveness of protected areas in its Goal 4.2. In addition, countries agreed in 2010 to: "...expand and institutionalize management effectiveness assessments to work towards assessing 60 per cent of the total area of protected areas by 2015 using various national and regional tools and report the results into the global database on management effectiveness maintained by the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP-WCMC)"[73].

A 2013 assessment of progress towards meeting the global targets for management effectiveness concluded that 29% of the area of protected areas had been assessed for PAME. Within these, 90 countries had reached the 30% target and 45 the 60% target[74] (Figure 4.2). There were still 52 countries for which no assessments had been recorded. Previous analyses have also shown that, where protected area management effectiveness has been assessed at a global level, only 24% of sites were soundly managed, 36% had basic management in place, 27% had major deficiencies, and 13% were deficient in terms of management[75]. However, these analyses usually have relatively small sample sizes compared to the total number of protected areas. More PAME assessments need to be conducted around the world to get a clearer picture of how protected areas are being managed.

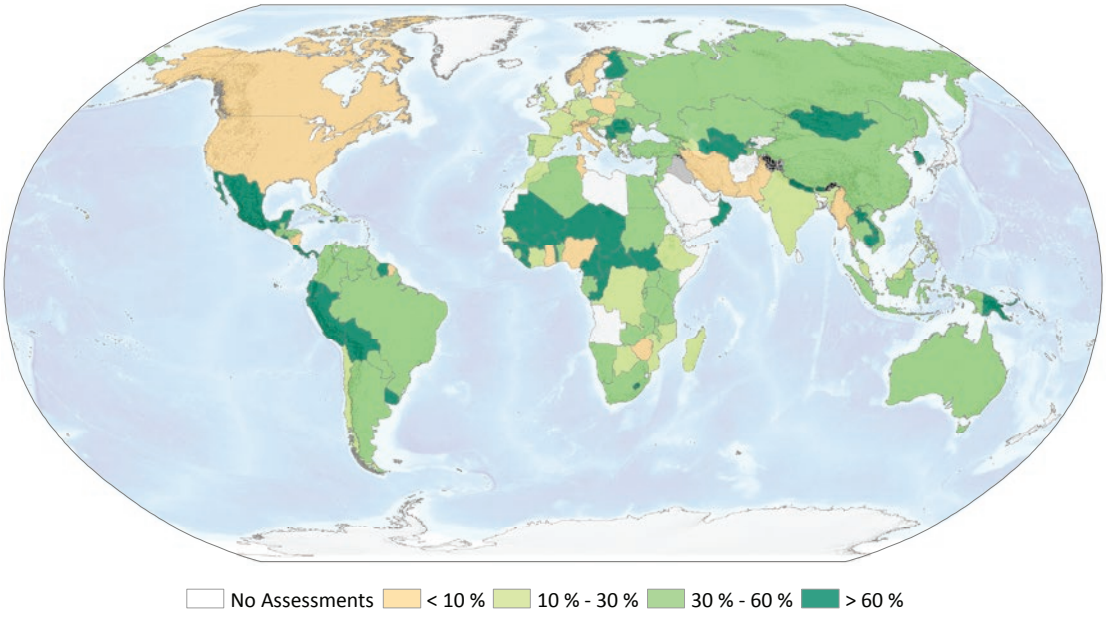


Figure 4.2 *National Progress towards the CBD 30% and 60% targets for PAME assessments. Progress was measured by calculating the percentage of the total areas of the nationally designated sites that had been assessed. Source: Coad et al. 2013*

Box 4.2. The CBD LifeWeb Initiative

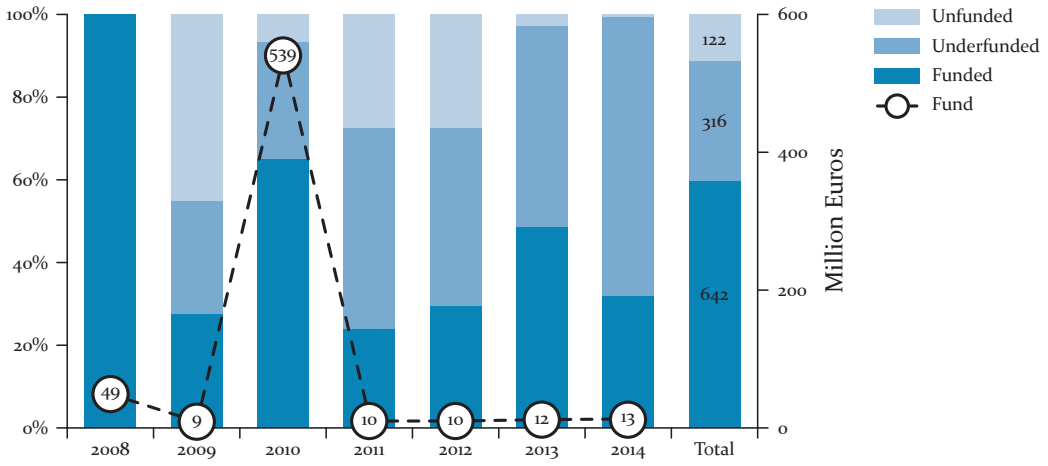
Resource mobilisation and financial sustainability are critical elements for the establishment and effective management of protected areas. The Convention on Biological Diversity (CBD) has developed the LifeWeb Initiative for CBD Parties to showcase their biodiversity conservation needs in protected areas.

What is it?

The CBD LifeWeb Initiative is not a fund. It facilitates financing for area-based conservation projects supporting the Strategic Plan for Biodiversity 2011-2020, by providing support for countries to articulate their financial and technical needs and profiling those needs online and at donor roundtables. The initiative adds value to development cooperation partners and other donors by (i) providing a user-friendly clearinghouse of financial priorities, (ii) facilitating funding matches, (iii) helping leverage counterpart funding, and (iv) recognising support provided. For more information see: http://lifeweb.cbd.int/

How much is facilitated?

To date, the CBD LifeWeb Initiative has facilitated 84 conservation projects out of 125 projects from 84 countries, totalling about 642 million Euros ($823 million) with 58% of matching funds since 2008. 40% of the projects have been fully funded, and 28% have been partially funded. It would require 448 million Euros ($574 million) to fill the funding gap for unfunded and partially funded LifeWeb projects.



LifeWeb-facilitated funds (million Euros)between 2008-2014. Source: CBD Secretariat 2014

Are protected areas delivering biodiversity outcomes?

In recent years, there has been an increasing focus on determining whether or not protected areas are delivering positive outcomes for biodiversity. Although the majority of studies of outcomes have not included detailed analysis of protected area management effectiveness, this is starting to happen.

Studies using remote sensing data and focusing on forest loss have suggested that, while some forest has been lost inside protected areas, the rates of loss would likely have been twice as high in the absence of protection[76].

The evidence that terrestrial protected areas are effective at maintaining species populations is less clear, but on balance, studies show a positive effect on species abundance and species richness[77]. In addition, use of the Living Planet Index (LPI) database has shown that in terrestrial protected areas, the LPI declined by 18%, less than half the rate of decline of the terrestrial LPI across all terrestrial areas globally[78].

One of the most comprehensive studies of protected area effectiveness looked at data from the last 20-30 years in 60 tropical protected areas[79]. More than half of the areas studied exhibited a decline in biodiversity. Habitat disruption, hunting and forest product exploitation were the strongest contributors to declining protected area health. Notably, those protected areas where on-the-ground protection efforts increased over the past 20-30 years had more biodiversity success than those whose protection had declined. This relationship held strongly across all three of the world's major tropical regions.

Despite existing evidence suggesting that protected areas are delivering conservation outcomes, the number of studies showing that a well-managed protected area delivers greater conservation outcomes than a poorly managed one remains low. Two studies from South America did not find a correlation between management quality – measured with tools such as the Management Effectiveness Tracking Tool (METT) or Rapid Assessment and Prioritization of Protected Areas Management (RAPPAM) – and conservation outcomes in terms of reduced habitat loss[80]. However, a recent study of persistence of lion populations in West Africa, which used the METT tool, did find a positive relationship[81].

In the marine environment, the evidence for protected area benefits is more definitive. A global meta-analysis of 124 temperate and tropical marine protected areas in 29 countries identified dramatic increases in biomass (+446%) and densities (+166%) of organisms inside protected areas. There were also moderate increases of individual size (+28%) and species richness (+21%) inside protected areas[82]. When protected areas are managed as no-take areas, they have been shown to have higher biomass and species richness than non-protected areas, although the effect of partly protected areas was less clear[83]. A recent global study of 87 marine protected areas found no-take policies to be important for protected area effectiveness and showed that better enforcement, as well as age, size and isolation, contributed positively to their effectiveness[84].

4.2. CONCLUSIONS AND FUTURE DIRECTION

- Protected Area Management Effectiveness includes assessments of management inputs, processes and biodiversity outcomes, as well as social outcomes. Clearly all are required for a full understanding of how effective protected areas are.
- In 2013, only 45 countries had assessed the management effectiveness for 60% of more of the total area of their marine and terrestrial protected areas. Reaching the goal for assessing effective management of numerous protected areas is a serious challenge. Where the quality of management has been assessed, the majority of protected areas had either only basic management or major deficiencies, while only 24% had sound management. For the oceans, reaching the targets set for protected area management effectiveness seems far out of reach. Lack of effective management remains one of the single largest problems facing the current global protected area system.
- There is good evidence that protected areas achieve biodiversity conservation outcomes on land and sea. The strongest evidence is for marine protected areas and for forest conservation on land. There is weaker evidence of a correlation between protected area management inputs and the degree that conservation outcomes are achieved, but this remains an area of active research effort.

5. Equitably Managed Protected Areas

Over the years, there has been an increasingly strong push to integrate the concept of social equity throughout the field of conservation, including within the global protected area network. It is widely recognised that the question of equity needs to be addressed in the planning and implementation of policies and projects that both have conservation goals and affect human populations.

Table 5.1. Summary: Equitably Managed Protected Areas

Relevant elements of Target 11	Indicators used	Current status and trends
"...equitably managed... protected areas"	No indicators available.	None yet available. Although governance types can provide information on enabling conditions for equity, they cannot provide information on equity itself. Governance type remains an under-reported field in the WDPA, with 32.3% of the total area under no reported governance type.

5.1. CONSIDERING EQUITY IN PROTECTED AREAS

While the concept of equity has many different aspects, and the context in which it is framed should be determined on a case-by-case basis, certain key considerations should be factored into all processes related to equity: (i) *distributive equity* reflects the distribution of costs, benefits and risks; (ii) *procedural equity* focuses on involvement in decision making; and (iii) *contextual equity* addresses pre-existing conditions that limit or facilitate people's access to decision-making procedures, resources and, thereby, benefits[85].

The need to include such principles in the governance of the global protected area network has repeatedly been highlighted in the international arena. In 2003, the 5th IUCN World Parks Congress recommended that protected areas should be "geared towards poverty alleviation and improving the living standard of the communities around and within them." IUCN recommends that any protected area meeting its definition should have a "clear, effective and equitable governance system", and considers equity to be an essential feature of "good governance"[86]. The Convention on Biological Diversity has repeatedly called for mechanisms ensuring the "equitable sharing of both costs and benefits arising from the establishment and management of protected areas" throughout multiple COP Decisions[87], outlining actions the Parties can take to achieve such goals. This need is also an integral component of Aichi Target 11.

This shift in emphasis seeks to address the fact that, historically, protected areas have been geared towards global and national conservation objectives, focusing on biodiversity, natural resources and ecosystem services, while neglecting issues of equity[88]. A vigorous debate exists in the scientific literature on whether protected areas, once established, impose significant costs on or provide benefits to local people. The literature is somewhat equivocal on this, and the balance of evidence suggests that protected areas can impose costs[89], but can also provide benefits[90]. These benefits seem to be more likely under community-managed regimes, but even in community-managed protected areas, there may be only small local benefits, at least initially, as resources take time to improve and sustainable extraction regimes take time to develop[91].

5.2. HOW IS EQUITY REFLECTED IN THE WORLD DATABASE ON PROTECTED AREAS?

The WDPA does not store information on the contextual or distributive equity of protected areas; however, it includes a "governance type" field, based on IUCN Governance Types[92], which can provide some indication of where enabling conditions for procedural equity may exist. Importantly, however, it cannot provide information on equity itself, which is dependent not only on governance type but also on governance quality.

In 2014, WDPA data providers had assigned a governance type to 88% of protected areas submitted to the WDPA (Figure 5.1.). Currently, 82% of protected areas in the WDPA are governed by either national or sub-national agencies, 5% have private governance, 1% shared governance, 1% governed by indigenous peoples and local communities, and for 12% no governance type has been reported.

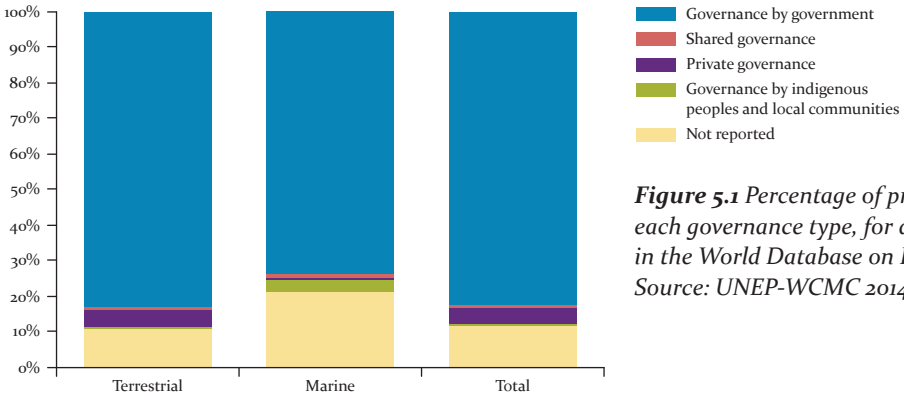


Figure 5.1 *Percentage of protected areas by each governance type, for all protected areas in the World Database on Protected Areas. Source: UNEP-WCMC 2014b*

Assessing the extent of a protected area under a specific governance type is a complex task, as the same protected area might be governed by several groups, sharing resources and responsibilities. Acknowledging these overlaps, an assessment of square kilometres of protected areas under different governance types confirms that most (56.8%) of the terrestrial protected areas are managed by governments, although for 32.3% of the area, the governance regime is still not reported (Figure 5.2.). Over the past decades, there has been a marked shift in the governance types reported to the WDPA, from the government-governed and -managed protected areas, to areas governed by either local communities, Indigenous Peoples or private entities (including non-profit and for-profit organizations), or under shared governance arrangements. Information on these other governance types, unlike governance by government, remains heavily under-reported; currently 10.9% of the extent of protected areas in the WDPA is under these types of governance, compared to only 2.43% in 1990 .

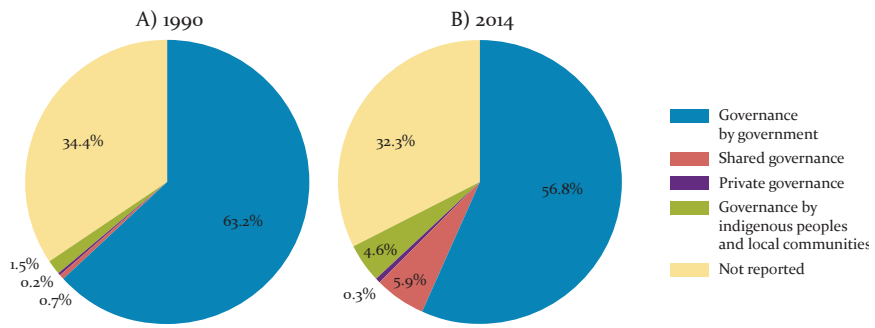


Figure 5.2 *Percentage of area covered by governance types for all protected areas in the World Database on Protected Areas (WDPA) in 1990 (A) and 2014 (B). Source: UNEP-WCMC 2014b*

Almost 5% of the area of protected areas reported in the WDPA are governed by indigenous peoples and local communities. Community conservation is not a new concept, but the increased reporting of these governance types to the WDPA reflects a wider shift towards recognition of the value of such approaches by those who provide the data. The important role of these protected areas in biodiversity conservation and measuring their distribution and extent is recognised through the establishment of the ICCA registry (Box 5.1), but much more effort needs to be made to acknowledge and better understand the contribution being made by Indigenous Peoples and local communities in areas and territories for which they are responsible.

Box 5.1 Recognising and recording ICCAs

The role of Indigenous Peoples' and Community Conserved territories and Areas (ICCAs) in conservation was brought to widespread attention at the 5th IUCN World Parks Congress held in Durban in 2003 (WPC). The Durban Accord urged a "commitment to recognize, strengthen, protect and support community conserved areas" and the WPC developed specific recommendations on ICCAs and on governance of PAs as means to "strengthen the management and expand the coverage of the world's protected areas, to address gaps in national protected area systems, to promote connectivity at landscape and seascape level, to enhance public support for protected areas, and to strengthen the relationship between people and the land, freshwater and the sea".

An ICCA Consortium has been formed to take this work forward (http://www.iccaconsortium.org), and an ICCA registry has been developed (http://www.iccaregistry.org) to provide a platform from which communities can document the work of their ICCAs. This is an area that is gathering momentum, and the WDPA is expanding to better reflect the contributions of these governance types.

A number of ongoing projects are aiming at better capturing the extent and impacts of community-governed and -managed protected areas. This work has shown that considerable networks of community wildlife and community forest areas exist in South America[93], Namibia[94], Tanzania[95], Kenya[96] and elsewhere. Furthermore, there is also a movement towards shared governance and joint or cooperative management of protected areas by the state and communities. There are 1,492 protected areas in the WDPA that have a governance type of either collaborative governance or joint governance. While it is not possible to infer exactly how many of these include an element of community governance, 47 have clear references to community involvement in the "Designation" or "Management Authority" fields[97].

5.3. CONCLUSIONS AND FUTURE DIRECTION

- Protected areas around the world may be becoming more diverse and equitable as a result of significant efforts that are being made to recognise all governance arrangements, and to balance the distribution of conservation costs and benefits in many countries. However, these efforts may not always succeed, and the tangible impacts at the local level range from seriously negative to significantly positive.
- In the absence of information on governance quality, governance type cannot be used to assess levels of equity, although it can be used to indicate where enabling conditions for equity may exist.
- Although 88% of protected areas in the WDPA have a governance type assigned, these areas account for only 67.7% of the land covered by all protected areas in the database. Over half of protected areas are governed by governments, though proportions of shared and private governance, and governance by local communities and indigenous peoples, seem to be increasing.
- In order to better assess such trends, the existing data on governance types in the WDPA should be improved to increase the number of available indicators of equity in the protected area network. In addition, socio-economic data gathered during protected area management effectiveness assessments, such as the METT or RAPPAM, or from more dedicated Social Assessment of Protected Areas processes, could shed more light on this question.
- Overall, there remains a need to incorporate the dimensions of equity in the establishment and management of protected areas worldwide, in order to facilitate a greater balance between the costs and benefits to local populations, while continuing to protect the world's biodiversity.

CBD BIOME: FORESTS

WHAT ARE THEY?

Forest ecosystems are highly variable, ranging from tropical and temperate broadleaf rainforests to boreal needle leaf forests, and include natural forests and forest plantations. In short forests are defined as land areas of more than 0.5 hectares with a tree canopy cover of more than 10%.

WHY ARE THEY IMPORTANT?

Forests are home to more than half of the world's terrestrial species. They also provide a wide range of ecosystem services, providing water, timber and fibre, and acting as a carbon sink that mitigates the impact of climate change and helps people to adapt to it.

Protected area coverage of forests (>10% tree cover) within terrestrial realms in 2014.*

Realm*	Natural forest area (km²)**	Forest in protected areas (km²)	Forest in protected areas (%)
Australasia	1,787,015	395,644	22.1
Afrotropic	6,818,852	1,198,400	17.6
Indo-Malayan	2,568,626	457,534	17.8
Nearctic	7,314,463	748,839	10.2
Neotropical	8,754,932	3,466,784	39.6
Oceanian	5,836	781	13.4
Palearctic	11,827,242	1,580,800	13.4
Total	39,076,966	7,848,782	20.1

*Realm boundaries according to Olson et al. 2001.

**As per the updated global forest map created by Schmitt et al. 2009.Protected areas data from IUCN and UNEP 2014.

HOW MUCH IS UNDER PROTECTED AREAS?

Currently, 20.1% of the world's natural forests are covered by protected areas. Protection levels are high in the Neotropics (39.6%) but well below 17% in the Nearctic (10.2%), Palearctic and Oceania (13.4% each).

6. Ecologically Representative Protected Areas

Biodiversity is not evenly distributed around the world. Instead, it occurs in distinct large-scale patterns of ecosystems and species communities that reflect different environmental conditions and histories. Through the study of these patterns, known as biogeography, a number of ecoregions, covering the whole world, have been defined[98]. Ecoregions are large areas that have distinct biodiversity values.

To conserve the full range of these biodiversity values, protected area networks must provide adequate coverage of all ecoregions. Aichi Biodiversity Target 11 recognises this need by calling for protected areas coverage that is "ecologically representative". In practice, at a global level, this is usually assessed based on ecoregional representation in protected area networks[99]. This chapter assesses how close the current global protected area coverage is to the 17% target for terrestrial ecoregions and 10% target for marine ecoregions, as well as how species distributions are covered by protected areas.

Table 6.1 *Summary: Ecologically representative protected areas*

Relevant elements of Target 11	Indicators used	Status by 2014
"...ecologically representative... protected areas"	Percentage of terrestrial and marine ecoregions, and pelagic provinces covered by protected areas.	43% of terrestrial ecoregions have at least 17% of their extent covered by protected areas. 34% of marine ecoregions (coastal waters up to 200 m depth) and 5% of pelagic provinces (high seas surface waters) have at least 10% of their extent covered by protected areas. Fewer than half of a set of 25,000 species assessed by the IUCN Red List of Threatened Species have a sufficient proportion of their distributions covered by protected areas.

6.1. TERRESTRIAL ECOREGIONS, BIOMES AND REALMS

The global protected area network is not yet ecologically representative, as it does not adequately cover all the terrestrial ecoregions, biomes, and realms of the world (Table 6.2.). Globally, there are 14 terrestrial biomes and eight biogeographic realms that together contain 827 ecoregions[100].

The Neotropics is the only realm with at least 17% of its area within protected areas, while the Oceania and Indo-Malayan realms are below 10%. In terms of biomes, temperate grasslands (4.5%) and tropical and subtropical dry broadleaf forests (9.6%) remain poorly covered by protected areas. Only 43% of the terrestrial ecoregions meet the 17% target set for land, although this varies greatly at a regional level (Figure 6.1.).

Table 6.2 Protected area coverage of the 14 terrestrial biomes.

Terrestrial biome name	Total protected area (%)	Terrestrial biome name	Total protected area (%)
Flooded grasslands and savannas	30.9	Tropical and subtropical grasslands, savannas and shrublands	14.7
Mangroves	28.1	Deserts and xeric shrublands	12.1
Montane grasslands and shrublands	26.8	Temperate broadleaf and mixed forests	12.0
Tropical and subtropical moist broadleaf forests	23.7	Tropical and subtropical coniferous forests	11.7
Tundra (excluding four Antarctic ecoregions)	21.8	Boreal forests/taiga	10.4
Temperate coniferous forests	16.8	Tropical and subtropical dry broadleaf forests	9.6
Mediterranean forests, woodlands, and scrub	15.9	Temperate grasslands, savannas and shrublands	4.5

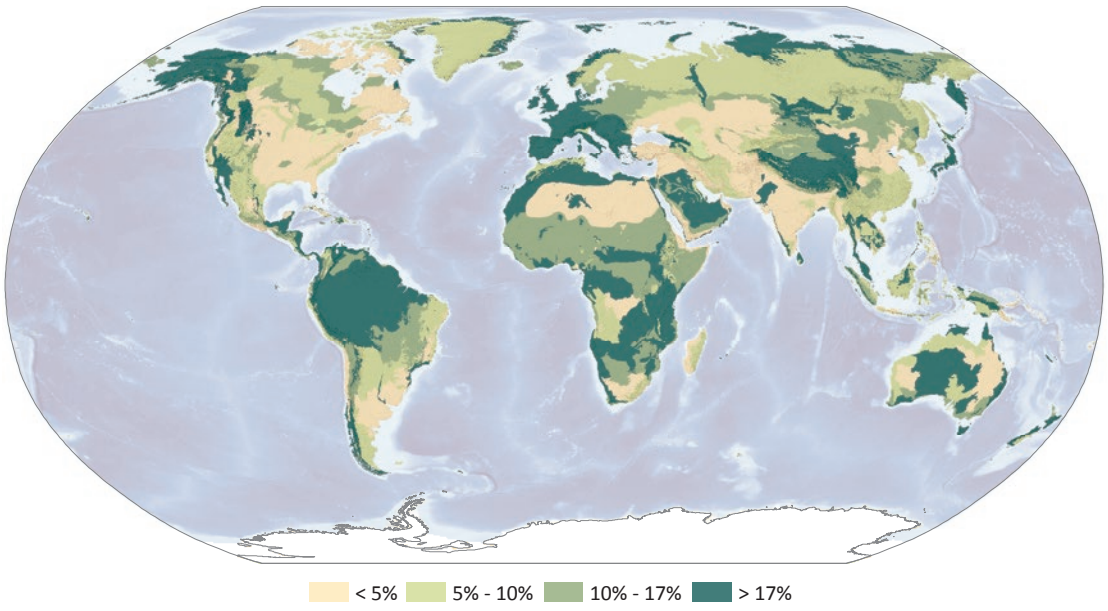


Figure 6.1 *– Protected area coverage in percentage for the 823 terrestrial ecoregions of the world (not including polar regions). Ecoregions according to Olson et al. 2001*

6.2. MARINE ECOREGIONS, PROVINCES, REALMS AND PELAGIC PROVINCES

Despite rapid progress in marine protected area (MPA) coverage, the global marine protected area network does not yet cover representative examples of the diversity of habitats found in coastal or pelagic waters . Marine habitats in waters shallower than 200m have been grouped into 232 marine ecoregions within 62 marine provinces and 12 marine realms.[101] Beyond 200m depth, pelagic provinces provide a comprehensive biogeographic classification of the surface watersthat cover 66% of the earth's surface[102].

At present, 50% of marine realms and 39% of marine provinces (shallower than 200m depth) meet the 10% target (Table 6.3). Of the realms, the Southern Ocean, Temperate South America, Western Indo Pacific and Temperate Southern Africa are all below 5% marine protected area coverage. The Eastern Indo Pacific (21%) and Temperate Australasia (19%) realms are the best covered, because of the number of large MPAs in these areas (see Chapter 2). Only 34% of the 232 marine ecoregions[103] meet the 10% target (Figure 6.2).

Table 6.3. Protected area coverage of marine realms, provinces, ecoregions and pelagic provinces.

Scheme	No. of units meeting 10% target	No. of units not meeting 10% target	Percentage of units meeting 10% target
Marine realms (n=12)	6	6	50%
Marine provinces (n=62)	24	38	39%
Marine ecoregions (n=232)	78	154	34%
Pelagic provinces (n=37)	2	35	5%

Currently, ecological representativity of pelagic provinces is very low in the global system of marine protected areas, with only two (5%) of the 37 pelagic provinces (the Leeuwin Current and Southwest Pacific) exceeding 10% (Figure 6.3).

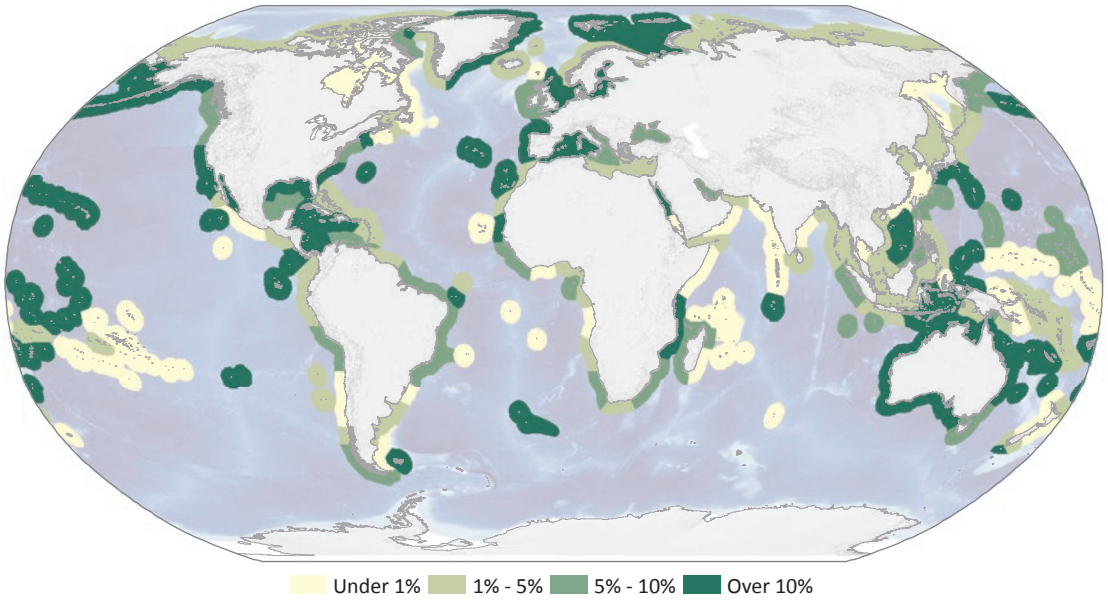


Figure 6.2 Protected area coverage in percentage for the 232 marine ecoregions of the world. Ecoregions according to Spalding et al. 2007

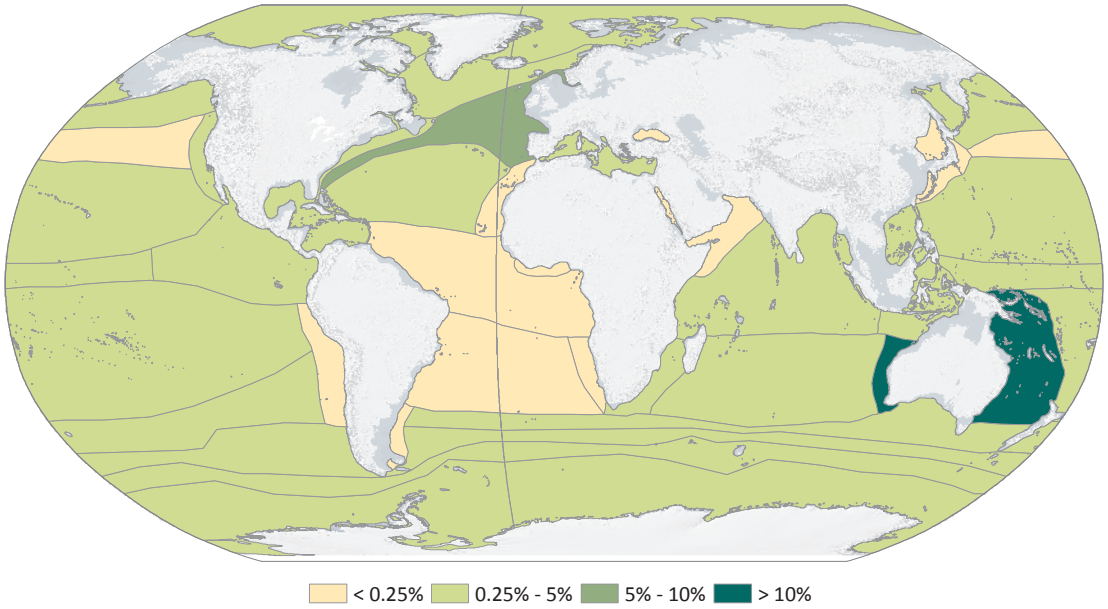


Figure 6.3. *Protected area coverage in percentage for the 37 pelagic provinces (surface waters of the high seas) of the world. Pelagic provinces according to Spalding et al. 2012*

6.3. COVERAGE OF SPECIES BY PROTECTED AREAS

Recent studies have assessed the coverage of species by the global protected area network, comparing the proportion of each species' distribution covered by protected areas with a target level of coverage based on each species' range size[104]. Results indicate that, overall, species ranges are insufficiently covered by protected areas, and that more than 17% of the land and 10% of the sea might need to be covered by protected areas to achieve adequate representation. For example, of the approximately 25,000 species of mammals, birds, amphibians, marine bony fishes, cartilaginous fishes, warm water reef-building corals, seagrasses and mangroves assessed by the IUCN Red List of Threatened Species, fewer than half of the species in most of these groups had a sufficient proportion of their distributions covered by protected areas[105]. Only birds (56%) and corals (78%) had more than half of their species adequately covered by protected areas. Another study assessed protected area coverage of all globally threatened mammals, amphibians and birds (4,118 species) and found that 17% of these were not found in a single protected area, and 85% were not adequately covered[106]. However, because the study excluded protected areas without an IUCN Management Category, it did not include a large number of existing designated protected areas (see Section 2.4.).

6.4. CONCLUSIONS AND FUTURE DIRECTION

- The current global protected area network is not yet fully ecologically representative. It does not cover ecoregions and species adequately and, therefore, is not meeting this crucial element of Target 11. However, it is important to note that, although global ecoregions are a useful proxy to assess ecological representativeness globally, in most cases these will be too coarse to apply at a national level, requiring further refinement in the definition of national targets and measures.
- Recent studies show that the additional areas required to achieve a fully representative global protected area network is substantial, especially in light of competing land (and sea) uses. It may not be possible to include all known gaps in protected areas, and therefore alternative approaches for conservation (see Chapter 8) are also needed.

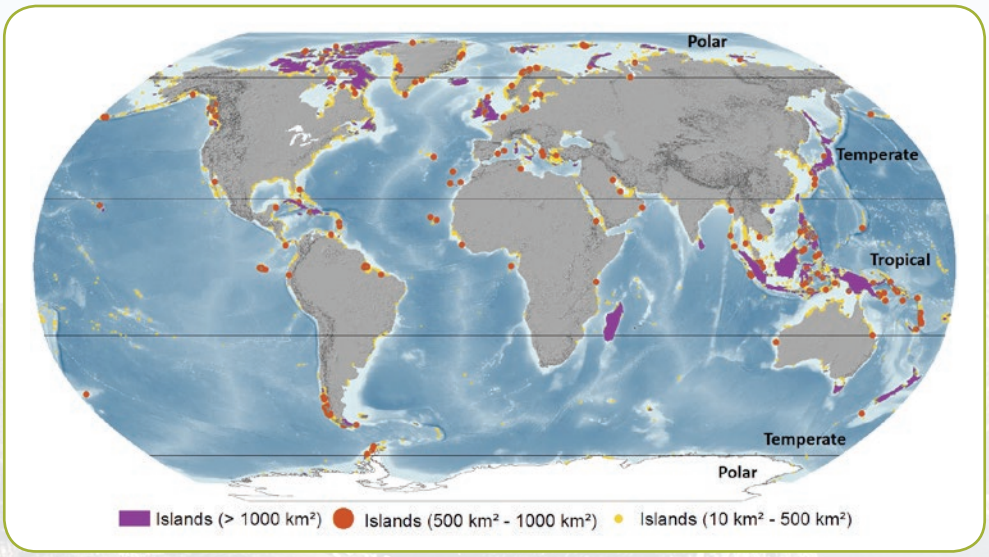
CBD BIOME: ISLANDS

WHAT ARE THEY?

Islands are land areas surrounded by water. They can be tiny and uninhabited, or vast and well populated. Overall, they are home to one tenth of the world's human population. New Guinea, Borneo, Madagascar and Sumatra are examples of large islands with exceptional biodiversity.

WHY ARE THEY IMPORTANT?

Generally speaking, islands are isolated and unique ecosystems, often harbouring large numbers of endemic species. Island ecosystems are highly vulnerable to invasive species and to the effects of climate change.



Global distribution of Islands. Islands under 10km² in size have been excluded. Source: UNEP-WCMC et al. 2012. Protected areas data from IUCN and UNEP-WCMC 2014.

HOW MUCH IS UNDER PROTECTED AREAS?

Currently, 16.7% of the world's island area is covered by protected areas. Temperate islands (22.9%) and polar islands (17.5%) meet the 17% target, but coverage of tropical islands (12.8%) – where most island biodiversity is found – is still well below 17%.

7. Well-Connected Systems of Protected Areas

As habitat becomes more fragmented in many regions around the world, protected areas become more isolated, leading to genetic isolation and species decline, as well as increased threats to ecosystem functions.

Table 7.1 Summary: Well-connected systems of protected areas

Relevant elements of Target 11	Indicators used (if applicable)	Current status and trends
"...well-connected systems of protected areas"	Not applicable.	No global indicators available. There is as yet no agreed standardised method to measure connectivity at a global level.

There is considerable evidence that well-connected systems of protected areas can maintain habitat and facilitate species movements across landscapes, allowing for genetic exchange between populations[107]. They can also act as buffers against severe environmental changes and extreme weather events, such as those caused by climate change[108] or those caused by natural events; for example, maintenance of mangroves can help reduce impacts from tsunamis[109]. Habitat connectivity can also maintain ecosystem functions, such as water flow and pollination, and help maintain ecosystem services[110]. These benefits can promote positive social impacts and also have a larger institutional dimension, in turn affecting protected areas management and success, and involving local stakeholders and policymakers.

This chapter assesses progress towards achieving a well-connected system of protected areas and provides relevant case studies. It also summarises the available evidence that connectivity between protected areas delivers conservation outcomes. As with the other elements of Aichi Biodiversity Target 11, well-connected protected areas systems need to be designed and managed in the context of the surrounding environment. The integration of protected areas into the wider landscape and seascape is discussed in Chapter 9.

7.1. PROGRESS IN CONNECTIVITY CONSERVATION

Connectivity is becoming an increasingly important conservation strategy, to re-establish and maintain linkages between protected areas, enhance ecological processes such as genetic flow, and maintain ecosystem functions such as water provision. Maintaining functional and structurally connected protected areas networks and corridors also requires working with multiple stakeholders in the surrounding landscape[111].

An analysis of 78 corridor experiments from 35 studies found that corridors increase movement between habitat patches by approximately 50%, compared to patches that are not connected by corridors[112]. Corridors were found to be more important for the movement of invertebrates, non-avian vertebrates and plants than for birds, and natural corridors showed more movement than manipulated corridors. Despite this evidence that corridors increase species movement in fragmented landscapes, there is less information on the actual feasibility of the implementation and the impacts of connectivity conservation measures *in situ*.

A number of recent attempts have been made to assess the connectivity of existing ecological networks. In Europe, the OSPAR Commission developed a series of tests to assess the ecological coherence of its network of Marine Protected Areas (MPAs). These tests are based around four central criteria that are considered important for maintenance of linkages: adequacy/viability, representativeness, replication and connectivity. The results show that more work has to be done to guarantee coherence, although there are positive signs of improvement towards this aim[113]. An EU-wide assessment of transboundary connectivity between Natura 2000 sites found that connectivity between protected areas varied significantly across the European Union[114] (Figure 7.1).

At the wider continental and global levels, some examples of connectivity measures have been developed in recent years. One example is a global map of hotspots of fragmentation and connectivity for all carnivore mammals, based on habitat suitability models for each species[115]. Although this study focused on connectivity between high-quality habitat patches and not specifically on protected areas, the approach provides an example of global-scale connectivity modelling that incorporates species-specific characteristics. Another analysis for mammals, based on habitat suitability models, used a more sophisticated metric of irreplaceability of existing protected areas and their vulnerability on the African continent[116]. A further study on potential linkages for jaguar (*Panthera onca*) populations in Brazilian biomes analysed several variables (human population size, dam reservoir size, number of dams, roads, railways and cities) to propose the establishment of protected area networks that would serve not only jaguars but other animals (jaguars, as large carnivores, are considered "umbrella species" that, when protected, also protect other important species in the food chain)[117]. These papers provide examples of the ways that global connectivity measures could be developed

Several other attempts have been made to measure connectivity between patches of natural habitat; however, the proposed methodology is often complicated and difficult to implement[118], and there are no agreed measures or indicators to monitor trends in connectivity at a global level. One of the key limitations of generalising connectivity measures is that data depends largely on the particular species, habitat, vegetation type or ecosystem considered. The challenge is that measuring connectivity change over time often requires high-quality data on land use, species distribution and habitat preferences, which is not always available. In recent years, there has been more consideration of marine connectivity, which needs to take into account very different elements of the seascape. Also, there has been an emphasis on large-scale areas (e.g. trans-country corridors), which are more related to large area management. For the Aichi Targets, the closest indicator that currently exists to measure connectivity at different scales is likely the "Forest Fragmentation Indicator" for Aichi Target 5[119].

Regardless of whether the connectivity initiative is small or large, on a terrestrial or marine environment, the social and political aspects, which involve local stakeholders and policymakers, should always be considered, at all stages of planning and implementation of the initiative[120].

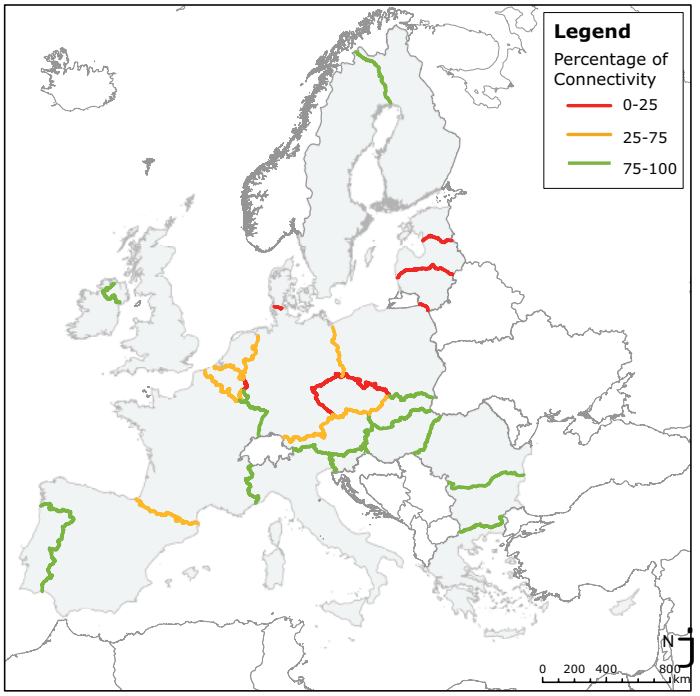


Figure 7.1 *Connectivity of Natura 2000 sites across country borders in the European Union.*
Source: Opermanis et al. 2012

7.2. CONCLUSIONS AND FUTURE DIRECTION

- Linkages between habitat patches have long been considered an important conservation strategy for maintaining species diversity, genetic flow, and ecosystem functions and services.
- Awareness of the importance of connectivity as a key tool for creating protected areas networks is increasing, but *in situ* working examples of such networks are still rare. Most work is still experimental and/or based on modelling.
- Support for implementing connectivity conservation initiatives is a necessary step towards conserving biodiversity in protected areas and maintaining ecosystem services provision to human populations.
- There is still a need for global, national, and regional relevant indicators to monitor progress on connectivity conservation that are efficient and uncomplicated to use. Currently, there is no indicator to measure the connectivity element in Aichi Target 11 in the Biodiversity Indicators Partnership (BIP) initiative[121].
- The connectivity of protected areas networks should be assessed at the global, national and regional levels. This assessment should also take into account the necessary synergies with stakeholders and policymakers from surrounding landscapes and seascapes. The establishment of a global database for connectivity conservation initiatives would provide a basis for these assessments at all levels and also make information readily available to all relevant parties.

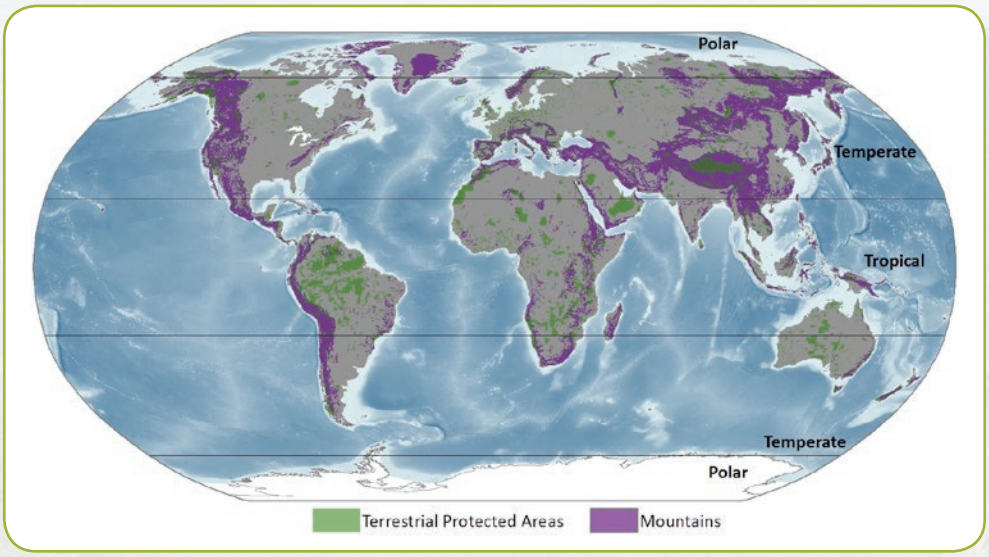
CBD BIOME: MOUNTAINS

WHAT ARE THEY?

Mountain ecosystems, defined through elevation, slope and local elevation range, cover around a quarter of the world's terrestrial surface, falling within all major climate zones and 12 of the world's 14 major ecosystem types. They are home to 22% of the global human population.

WHY ARE THEY IMPORTANT?

Mountain ecosystems' often have high levels of endemism, especially in the tropics. They also provide freshwater that supplies over half of the world's human population (CBD, 2014).



Global distribution of mountains and protected areas of the world. Source: UNEP-WCMC 2002. Protected areas data from IUCN and UNEP-WCMC 2014.

HOW MUCH IS UNDER PROTECTED AREAS?

Currently, 19.1% of the world's mountain area is covered by protected areas, and the 17% target is met in all major climate zones: polar (32.2%), tropical (19%) and temperate (17.9%). However, protection is still inadequate in many mountain ecoregions and important biodiversity areas such as Alliance for Zero Extinction sites.

8. Other Effective Area-Based Conservation Measures

Aichi Biodiversity Target 11 aspires to a global conservation system that is built not only from protected areas managed or governed by governments, but also from "other effective area-based conservation measures". This is clearly a broad term, and precisely how it should be interpreted is a matter of ongoing debate. This chapter will discuss the importance of assessing the distribution and extent of these largely undocumented conservation initiatives.

Table 8.1 *Summary: Other effective area-based conservation measures*

Relevant elements of Target 11	Indicators used (if applicable)	Current status and trends
"...other effective area-based conservation measures"	Not applicable	Currently poorly defined and largely undocumented. Work is underway to rectify this.

8.1. EXAMPLES OF "OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES"

Many conservation initiatives are not fully represented in the management and reporting of national systems of protected areas, even though they may meet the IUCN definition of a protected area[122]. For example, about 9,500 Privately Protected Areas are included in the WDPA, although clearly many more such areas could be included[123] (Box 2.3). Conversely, there are many other conservation initiatives, of all governance types, that clearly have demonstrable benefits for biodiversity, but which do not meet the IUCN protected area definition. For example, some indigenous peoples' or community conserved territories and areas may have primary management objectives other than conservation, such as the preservation of traditional cultures, but also have clear benefits for biodiversity that are maintained in the long term through the enforcement of customary law[124]. This type of management, where conservation is a consequence of other objectives, is sometimes called "ancillary conservation"[125]. Not all indigenous peoples' and community conserved territories and areas fall into this category; many conserve biodiversity as a primary objective and fit the IUCN definition of a protected area.

Other potential examples of "other effective area-based conservation measures" include Landscape Protection Areas in Germany, Areas of Outstanding Natural Beauty in England and other similar planning designations that allow multiple land uses but place restrictions on activities that are incompatible with the natural values they protect. Other areas that might also be included are private conservation initiatives that do not fit the definition of a protected area, or Sacred Natural Sites, which are managed primarily for their spiritual value but may have associated biodiversity benefits[126].

8.2. COVERAGE AND DISTRIBUTION

Due to the lack of a global definition and therefore comparable data, the coverage of "other" areas is unknown. In developing countries, for example, community reserves and ownership account for at least 22% of all forests, approximately three times the amount held by private individuals and firms[127]. In Mexico, more than 80% of commercially harvested forests are controlled by the people who live in and around them[128]. However, the extent of "other" areas, their distribution and the degree to which they complement the global system of protected areas are all uncertain, and until this information is available, complete progress towards Aichi Biodiversity Target 11 cannot be accurately determined.

8.3. CONCLUSIONS AND FUTURE DIRECTION

- The need to account for and measure the extent and nature of "other" areas remains an important gap in global conservation statistics. In response to this need, the WDPA will expand over the next few years to incorporate data on "other" sites, along with sites that fit the IUCN definition of a protected area but are not recognised, or which do not wish to be recognised, as part of national systems of protected areas. "Other" sites will be clearly distinguishable from protected areas in the database, enabling analyses of one or both types.
- A key challenge in recognising "other" sites is to acknowledge their value for conservation without overestimating the level of protection. Any definition must therefore include those sites that truly complement protected areas in conserving biodiversity in the long term, and exclude those that have no conservation value or no security of protection into the future (e.g. areas temporarily set aside for conservation before use for commercial forestry). Important work, including the development of a globally adopted definition, is ongoing.

9. Protected Areas in the Wider Landscape and Seascape

Protected areas provide a range of benefits to nature and people that reach far beyond their boundaries. Conversely, protected areas are subject to a number of pressures from their surrounding landscapes or seascapes that reduce their effectiveness and threaten their future. Integrating protected areas into the wider landscape and seascape requires: 1) identifying and recognising the wider benefits of protected areas, 2) understanding the pressures on protected areas and their underlying drivers and 3) minimising pressures by integrating protected areas into national and local planning. This chapter provides an overview of these three requirements and highlights examples of how they are being, or can be, met.

Table 9.1 Summary: Protected areas in the wider landscape and seascape

Relevant elements of Target 11	Indicators used (if applicable)	Current status and trends
"...integrated into the wider landscape and seascape."	Not applicable	No global indicators available. National Biodiversity Strategies and Action Plans (NBSAPs)s are being developed by 92% of CBD parties. However, the level of integration of protected areas into national planning has not been assessed at a global level.

9.1. BENEFITS OF PROTECTED AREAS

Although protected areas are primarily established to conserve biodiversity[129], they provide numerous benefits to human society, which have been summarised in detail in a number of reports and reviews. These benefits include revenue from recreation and tourism activities[130], mitigating and adapting to climate change[131], providing drinking water[132] and food supplies, poverty reduction, disaster mitigation, cultural and spiritual benefits, and human health[133].

Protected areas play a key role in climate change mitigation, as evidenced by the importance of protected tropical forests for reducing emissions from deforestation and forest degradation (REDD+)[134] and in climate adaptation planning[135]. One key response within ecosystem-based climate adaptation is the enhancement of protected area connectivity, to allow species movement between protected areas[136] (see Chapter 7). Another notable example is the important role that protected areas play in Disaster Risk Reduction (DRR), especially in Asia[137].

Important biological resources, such as biomass, biodiversity, food and fibre, and water supplies are found within protected areas. Some of these resources are available to the global community in the form of existence values (biodiversity), while other parts are important at a national or local level for water, timber, food etc., and still others have other diverse cultural and spiritual value[138].

9.2. PRESSURES ON PROTECTED AREAS FROM THE WIDER LANDSCAPE AND SEASCAPE

In many instances, protected areas are ineffective because of increasing and persistent pressures on their governance or management and the species and ecosystems they are designed to protect. For example, across all species in The IUCN Red List of Threatened Species, the greatest proportion of species are threatened by habitat loss and degradation due to agricultural conversion, urban expansion, invasive species, and water-related threats, such as flow modification from dams or water extraction[139]. In the developing world, most of these pressures arise from different kinds of human uses, whereas in the developed world, the main pressures come from tourism and recreational use and inappropriate management.

Pressures on protected areas have increased in the last decades, through climate change[140] (Box 9.1), invasive species[141] (already a problem on islands), oil and gas exploration and extraction[142], mining[143] and a rise in wildlife-related crime[144], which is a serious threat to biodiversity and protected areas in Africa and Asia[145].

A recent analysis of changes in human pressures (human population density, land transformation, and electrical power infrastructure) on terrestrial protected areas shows that from 1990 to 2010, pressures on protected areas classified as IUCN Management Category Ib (Wilderness Area) (see Table 1.1) decreased overall, whereas those on category Ia (Strict Nature Reserve), Category IV (Habitat/species Management) and the uncategorized protected areas in the WDPA increased[146]. Regionally, pressures on protected areas have increased the most in Asia and declined the most in North America.

9.3. INTEGRATING PROTECTED AREAS IN REGIONAL, NATIONAL, AND LOCAL SPATIAL PLANNING

Over the past decade, scientific analyses have produced a number of subnational-to-global-scale analyses of gaps in protected area networks, with the aim of informing global environmental policy through the CBD and the IUCN World Parks Congresses[147]. However, these studies focus on identifying gaps and not on how proposed networks should be implemented and integrated into national policies.

Box 9.1 Protected Areas and Climate Change

Many pressures from the surrounding landscape or seascape are affecting protected areas, and climate change is likely to exacerbate these pressures, sometimes leading to local extinctions or forcing species to move out of protected area boundaries. Climate change threatens biodiversity, ecosystem services and the local communities that depend upon the services provided by protected areas. By providing a practical solution to address climate change impacts, notably by reducing greenhouse gas emissions from deforestation and land degradation, protected areas can enhance the long-term resilience of ecosystems[148].

Protected areas are a cost-effective tool for ecosystem management[149]. Having defined boundaries and a governance and management structure already in place allows measurement of carbon storage and other ecosystem services through time. In this sense, one of the most important applications in the last years has been using protected areas to reduce the impacts of extreme climatic events, such as storms, floods, droughts and sea level rise[150]. Protected areas have already helped to reduce risks posed from natural hazards and longer-term climate change impacts[151]. This is highlighted in a recent analysis on the role of protected areas in disaster risk reduction in Asia[152].

To most effectively help society cope with climate change, protected areas need to be considered part of the wider landscape and seascape. Indeed, species distributions have been shown to shift under the effects of climate change[153], and projections of climate change impacts on protected areas have shown significant turnover in species at all sites, and reduced species representation across the network of sites[154]. Nevertheless, such studies have highlighted the fact that existing site networks will remain important under climate change, by continuing to protect the majority of species of conservation concern. In this context, maintaining and enhancing the connectivity of protected area networks in the wider landscape and seascape is critical for allowing species movement and hence conserving biodiversity in the long term[155].

Assessing which protected areas are most likely to be impacted by climate change and where the connectivity of the protected area network should be strengthened is key to making appropriate decisions. For example, the Protected Areas Resilient to Climate Change (PARCC) West Africa project has been developing new methods to assess the vulnerability of protected areas to climate change[156] and the connectivity of protected area networks[157]. These assessments are vital to designing protected area networks resilient to the effects of climate change, and hence able to contribute to enhancing climate adaptation and mitigation.

Decisions of the Parties to the CBD require all countries to develop National Biodiversity Strategies and Action Plans (NBSAPs). Most NBSAPs should include a "gap analysis" that outlines how the country plans to develop its protected area networks and integrate them into national planning. NBSAPs should not only be about biodiversity plans but also about how biodiversity is integrated into other sectors. In 2014, 92% of the CBD Parties had developed an NBSAP, although only 23% had revised it at least once[158]. Of the 27 updated NBSAPs submitted to the CBD, 21 had developed national biodiversity indicators, although only eight clearly link these to the Aichi targets. How many of these specifically considered Aichi Biodiversity Target 11 was not assessed. There is at present no global study on the extent to which NBSAPs integrate protected areas into national planning[159].

Impacts on protected areas should be considered in all sectors of society, especially in development and agricultural expansion, and in general in any environmental and social impact assessment. This is already happening in private and financial sectors, where biodiversity safeguards, including protected areas safeguards, have been established through a number of standards and certification schemes to ensure sustainability of bank lending and production systems[160].

The inclusion of protected areas within the broader transboundary landscape has been promoted in Europe through the Birds and Habitats Directives of the European Union, which place legal obligations on the 28 nations that comprise the EU. The requirements of the EU Birds and Habitats Directives are then translated to national legislation, with the aim of designing an overall conservation plan at regional levels. National conservation planning that aims to integrate protected areas into the land-use planning system has been enshrined in law in some countries, for example, in South Africa through the National Environmental Management: Biodiversity Act, 2004[161].

9.4. CONCLUSIONS AND FUTURE DIRECTION

- Protected areas provide numerous benefits to the wider landscape and seascape. These benefits include income generation from tourism, mitigating and adapting to climate change, provision of drinking water and food supplies, poverty reduction, disaster mitigation, cultural and spiritual benefits, and human health.
- Pressures on protected areas influence their performance and benefits. Our understanding of these pressures and how they are changing is improving. Major pressures on protected areas include habitat loss and degradation due to agricultural and urban expansion, unsustainable exploitation of species, invasive species, climate change, and energy developments and mining.
- Protected areas should be integrated into national and local planning. There are already numerous mechanisms for doing so, ranging from scientific methods such as systematic conservation planning at landscape scales, to CBD-endorsed processes like NBSAPs and national-level planning such as the Biodiversity Act in South Africa.

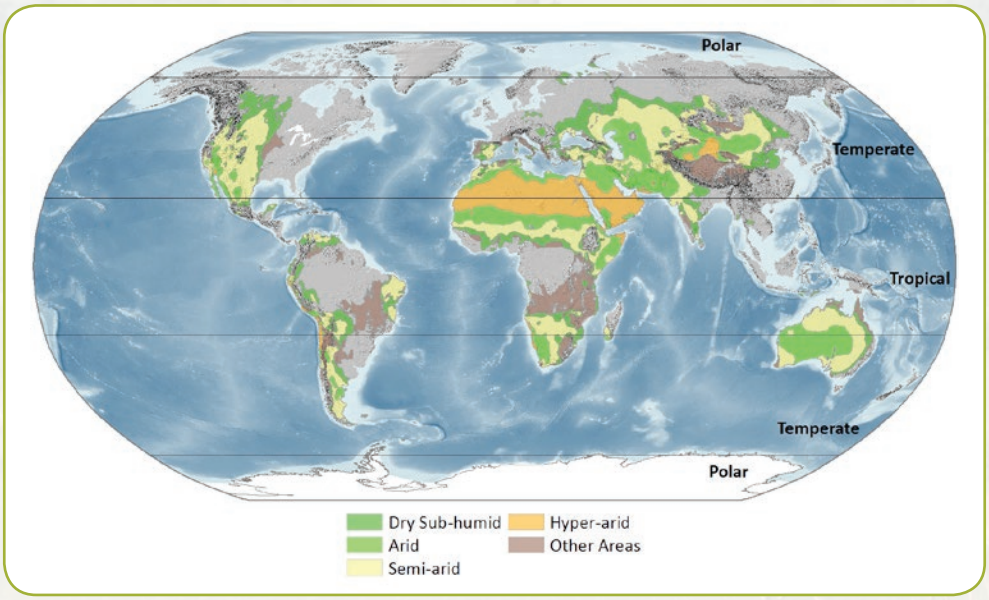
CBD BIOME: DRY AND SUB-HUMID LANDS

WHAT ARE THEY?

Dry and sub-humid lands cover around 47 % of the world's land surface and, according to the CBD definition, include deserts, drylands and Mediterranean-type, grassland and savannah ecosystems.

WHY ARE THEY IMPORTANT?

Dry and sub-humid lands are home to around two billion people. They support a great variety of biodiversity, which is often adapted to a seasonal or permanent shortage of water. These lands are also the original source of many of the world's food crops and livestock species.



Global distribution of dry and sub-humid lands. Source: UNEP-WCMC 2007

HOW MUCH IS UNDER PROTECTED AREAS?

Currently, 12.9% of this CBD biome is covered by protected areas. Protected area coverage remains well below 17% in semi-arid (10.5%), arid (11.1%), dry sub-humid (12.8%) and hyper-arid (13.5%) areas. Coverage is highest in the other areas, which include the Mediterranean-type, grassland and savannah ecosystems (20.4%).

10. Conclusions and Key Messages

This report has shown that since 2010, when Aichi Biodiversity Target 11 was agreed, there has been substantial expansion of protected areas (Chapter 2). However, to meet Target 11, protected areas must also be: located in important areas for biodiversity and ecosystem services and be ecologically representative (Chapters 3 and 6); effectively and equitably managed (Chapters 4 and 5); well-connected (Chapter 7); and integrated into the wider landscape and seascape (Chapter 9). Moreover, other effective ways for managing land for conservation should also be considered, alongside the current majority of protected areas that are state-managed (Chapter 8). This section summarises indicators presented throughout this report and discusses ways forward for implementation of Aichi Biodiversity Target 11.

10.1. PROGRESS TOWARDS IMPLEMENTING AICHI TARGET 11

Some elements of Aichi Biodiversity Target 11 have repeatable indicators to track implementation, while for other elements these are still lacking (Table 10.1). For example, there is little progress on indicators that measure equitable management and connectivity. Equity is essential to ensure a balanced, fair and sustainable approach to protected area management. Well-connected protected areas networks will aid movement of biodiversity across the landscape and make species and habitats more resilient to climate change. Unfortunately, there is currently no globally agreed definition for "other effective area-based conservation measures" and no global indicators that measure integration of protected areas in the wider landscape and seascape.

Table 10.1. *Summary of progress for each element of Aichi Biodiversity Target 11 presented in this report, based on global indicators available.*

Relevant element of target 11	Progress in 2014 at a global level
"... 17 % of terrestrial and inland water areas and 10 % of coastal and marine areas..."	Chapter 2: 15.4% of the world's terrestrial areas and inland water areas are covered by protected areas. 3.4 % of the global ocean area, 8.4% of all marine areas within national jurisdiction and 10.9 % of all coastal waters are covered by protected areas. Only 0.25 % of high seas are under protected areas.
"...especially areas of particular importance for biodiversity and ecosystem services..."	Chapter 3: 22% of IBAs are completely covered; on average, 45% of the area of each site is covered. 23% of AZEs are completely covered, on average, 35% of the area of each site is covered. However, these areas only consider a subset of important areas, and do not include plant diversity, for example. There are also no global indicators available yet that measure protected area coverage of areas of importance for ecosystems services.
"...effectively managed..."	Chapter 4: In 2013, 29% of the area of protected areas had been assessed for Protected Area Management Effectiveness (PAME). There is good evidence that protected areas best conserve biodiversity, in terrestrial and marine areas, when they are well-managed. However, sample sizes are small, and there are few strong, counterfactual studies that have specifically assessed biodiversity outcomes.
"...equitably managed..."	Chapter 5: No global indicators available. Although governance types can provide information on enabling conditions for equity, they cannot provide information on equity itself. Governance type remains an under-reported field in the WDPA, with 32.3% of the total area under no reported governance type.
"...ecologically representative..."	Chapter 6: 43% of terrestrial ecoregions have at least 17% of their extent covered by protected areas, and 34% of marine ecoregions and 5% of pelagic provinces have at least 10% of their extent covered by protected areas.
"...well-connected systems of protected areas..."	Chapter 7: No global indicators available. There is as yet no agreed standardised method to measure connectivity.
"...other effective area-based conservation measures..."	Chapter 8: No global indicators available. Recording and accounting for these areas is increasing, but current coverage of these is unknown.
"...integrated into the wider landscape and seascape."	Chapter 9: No global indicators available. NBSAPs are being developed by 92% of CBD parties. However, the level of integration of protected areas into national planning has not been assessed at a global level.

10.2. WHAT IS NEEDED TO MEET TARGET 11?

In recent years there have been a number of studies that have assessed what is needed to meet Aichi Biodiversity Target 11[162]. In the Protected Planet Report 2012, a number of priority actions were proposed to accelerate progress towards the achievement of Aichi Biodiversity Target 11 and also to improve the ability to track progress (Table 10.2). While some important progress on these priority actions has been reported in this current report, many challenges remain, and these actions are still a priority. Their implementation is fundamental to fully achieving Aichi Biodiversity Target 11.

Table 10.2. *Progress towards recommended priority actions suggested in the Protected Planet Report 2012*[163]*. Green: Good progress; Orange: Some progress, but not enough.*

Priority actions for tracking progress towards Aichi Biodiversity Target 11	2014 Status
1. Enhance national reporting to the datasets that are being used to track global progress towards Target 11.	
2. Support efforts to improve the data in the WDPA through expert review and completion of incomplete attributes, (e.g. management categories, governance types).	
3. Better integrate the WDPA with other relevant datasets and indicators(e.g. the IUCN Red List of Threatened Species, Key Biodiversity Areas, Living Planet Index).	
4. Support the identification of important sites for biodiversity and ecosystem services, including Alliance for Zero Extinction sites and other Key Biodiversity Areas.	
5. Support further development of existing global datasets and indicators to provide better information.	
6. Provide further guidance on what is meant by elements of Target 11, such as "other effective area-based conservation measures", "equitably managed" and "well-connected".	
7. Support the development of datasets and indicators on other elements of Target 11 relating to the management, governance, financing, connectivity and representativeness of protected areas.	
Priority actions for accelerating implementation of Aichi Biodiversity Target 11	**2014 Status**
1. Accelerate the targeted expansion of the global protected area network in terrestrial, inland water and marine areas.	
2. Improve understanding of the benefits of protected areas for conservation of biodiversity and ecosystem services.	
3. Expand management effectiveness assessments to include more protected areas, but also additional data on biodiversity outcomes, and social costs and benefits of protected areas	
4. Strengthen the involvement and capacity of local communities and other stakeholders in protected area establishment and management.	
5. Assess funding needs for implementation of Target 11 and the PoWPA goals and secure sustainable funding for protected area establishment and management.	
6. Improve the connectivity of protected areas and their integration into surrounding landscapes and seascapes.	

The world is making progress towards the terrestrial and marine coverage aspects of Aichi Biodiversity Target 11, and recent projections suggest that these will be achieved by 2020[164]. To do this, 2.2 million square kilometres of terrestrial and inland water area and 2.2 million square kilometres of marine area within national jurisdiction will need to be designated as protected areas. In addition, 21.5 million square kilometres in the high seas would need to be protected to reach 10% in areas beyond national jurisdiction. However, as this report demonstrates, the overall target will not be fully met if current coverage is not ecologically representative and does not cover enough important sites for biodiversity and ecosystem services along with other qualitative elements of Target 11.

Aichi Biodiversity Target 11 is a global target. Achieving the global target for most ecoregions will require some countries to designate more than 17% of their terrestrial and inland water area and more than 10% of their marine and coastal area[165]. Where to expand protected areas is a critical question in conservation, and much more complex than identifying important places. Some aspects of this complexity have been addressed recently in two global analyses of area needed and cost-efficient and effective options to meet the Aichi target[166]. The latter concludes that the global terrestrial protected area network would need to double in extent, to cover 28% of the terrestrial environment, in order to meet targets for national protected area coverage, and for coverage of important sites, ecoregions and species. Achieving this area set aside for conservation would require a greater emphasis on other effective area-based conservation measures (such as locally and community-managed areas, as discussed in Chapter 8).

Sustainable financing is essential if the global protected area network is to fulfil each element of Aichi Biodiversity Target 11. The financial investment required to meet some key aspects of Target 11 (establishing and effectively managing an expanded protected area network to cover important sites for all wildlife groups by 2020) was estimated in 2012 to be U.S. $76.1 billion per year, based on data for Important Bird and Biodiversity Areas and other Key Biodiversity Areas[167]. More importantly, effective implementation of Aichi Biodiversity Target 11 will need to consider the impacts of climate change on protected areas and biodiversity. Thus, protected areas expansion and design needs to account for climate change by building well-connected networks that can minimise the impacts of these changes. In addition, assessing the resilience of current protected area networks is essential.

10.3. KEY MESSAGES

Priority actions recommended in the Protected Planet Report 2012 remain highly relevant in 2014, and their implementation is fundamental to fully achieving Aichi Biodiversity Target 11. More importantly, the CBD Programme of Work on Protected Areas, governments and all sectors of civil society should consider these for implementing actions towards meeting Aichi Biodiversity Target 11 in 2020. Some key messages from this report are:

1. To cover 17% of the terrestrial and inland water areas and 10% of the marine and coastal areas within national jurisdiction (0-200 nautical miles), 2.2 million square kilometres of terrestrial and inland water areas and 2.2 million square kilometres of marine and coastal areas will need to be designated as protected areas. Governments and civil society need to increase their efforts to expand their global protected area networks to reach these goals.
2. This expansion needs to be targeted to increase ecological representativeness in the land and especially in the seas, and to areas of importance for biodiversity and ecosystem services. The mission of the Strategic Plan for Biodiversity 2011-2020 is to "take effective and urgent action to halt the loss of biodiversity..." Protecting and managing sites most likely to prevent extinctions and biodiversity decline could therefore be viewed as a high-priority action for governments and civil society. Key Biodiversity Areas, such as Alliance for Zero Extinction sites, are a good example of such sites, as they hold the last remaining populations of highly globally threatened species.
3. While identifying areas to protect is essential, where and how to expand remains a challenge, due to many competing uses of the land, opportunity costs, and social, economic and political issues, as well as the likely impacts from climate change. Recent studies reveal that, to meet these demands, we might need twice as much as the current area of protected areas of all different kinds, governance regimes, ownership and management arrangements. Alternative uses of the land that are beneficial for conservation will need to be considered to meet Aichi Biodiversity Target 11 objectives. Still, we have the tools to make those decisions, such a systematic conservation planning (SCP) techniques and tools, which have been used to assess targeted and cost-effective solutions for protected area expansion. The extent to which SCP is used to inform protected areas expansion needs to be assessed at a global level and the use of comprehensive planning techniques encouraged.

4. Reaching the goals set by 2015 for assessing the management of protected areas – assess management effectiveness of 60% of the area of the global protected area network – seems unlikely. Effective management of protected areas needs to be assessed by governments and conservation organisations. Resources directed to increase collection of these assessments into the PAME global database would improve our knowledge on how effectively protected areas are being managed. More importantly, clear links to biodiversity outcomes need to be established so we have a clear understanding of whether sites are being managed in a way that meets the overall conservation objective.

5. Protected areas help to reduce biodiversity loss, although much more research is needed to understand how, when and what produces the needed results. Nevertheless, loss rates are lower within protected areas when compared with similar areas not covered by protected areas. More research is needed to continue understanding these dynamics.

6. There is weak reporting and little available data on equitable management, both of which need to be strengthened to provide meaningful assessments of how equitable the protected areas estate and other kinds of conservation areas are. Recently published guidance from IUCN regarding the assessment and evaluation of governance types can be used to generate insights to inform about enabling conditions for governance quality and equity in protected areas.

7. Connectivity principles should be better incorporated into national spatial planning and climate change adaptation programmes, and institutional and legal frameworks to support connectivity initiatives should be strengthened. Although large-scale conservation projects have increased in past years, we still have little knowledge of the quality and trends of connectivity within landscapes and seascapes.

8. The definition and value of "other effective area-based conservation measures" needs to be determined and clarified. There are many areas managed and governed by private entities, indigenous peoples and local communities that do not meet the IUCN definition of protected areas but may still be beneficial for conservation. However, the extent and quality of these areas remains unacknowledged and generally unrecorded.

9. Protected areas deliver numerous benefits for people and nature and need to be recognised as a proven and cost-effective natural way to address many global threats – water provision, food security, climate change mitigation and adaptation, disaster risk reduction, risks to human health and well-being and desertification. This should be fully acknowledged by integrating protected areas into national planning and decision-making processes across all sectors. Taking measures to reduce pressure on protected areas in National Biodiversity Strategies and Action Plans (NBSAPs) and other policy planning tools is a first fundamental step in moving towards this integration.

10. Protected area coverage has been used as one of the indicators to track progress towards the Millennium Development Goals. Protected areas, as vital elements of the landscape and models of sustainable development, could play an important role in the establishment and monitoring of the Sustainable Development Goals (SGDs). When the SDGs are agreed, the contribution of protected areas to each goal should be assessed to inform indicator development.

Endnotes

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Acronyms and abbreviations

ACP:	African, Caribbean and Pacific Countries
AZE:	Alliance for Zero Extinction
BIOPAMA:	Biodiversity and Protected Areas Management
CBD:	Convention on Biological Diversity
COP:	Conference of the Parties
DRR:	Disaster Risk Reduction
EBSA:	Ecologically and Biologically Significant Marine Areas
EEA:	European Environment Agency
EEZ:	Economic Exclusion Zone
EU:	European Union
FOEN:	Federal Office for the Environment (Switzerland)
GSPC:	Global Strategy for Plant Conservation
IBA:	Important Bird Areas
ICCA:	Indigenous Peoples' and Community Conserved Territories and Areas
IUCN:	International Union for Conservation of Nature
KBA:	Key Biodiversity Areas
METT:	Management Effectiveness Tracking Tool
MPA:	Marine Protected Areas
NBSAPs:	National Biodiversity Strategies and Action Plans
NGO:	Non-governmental Organisation
PA:	Protected Area
PADDD:	Protected Area Downgrading, Downsizing and Degazettement
PAME :	Protected Area Management Effectiveness
PARCC:	Protected Areas Resilient to Climate Change
POWPA:	CBD Programme of Work on Protected Areas
PPA:	Privately Protected Area
RAPPAM:	Rapid Assessment and Prioritisation of Protected Areas Management
REDD:	Reducing Emissions from Deforestation and Forest Degradation
RSPB:	Royal Society for the Protection of Birds
SANBI:	South African National Biodiversity Institute
SCP:	Systematic Conservation Planning
SDG:	Sustainable Development Goals
TESSA:	Toolkit for Ecosystem Service Site-based Assessment
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
UNEP-WCMC:	United Nations Environment Programme – World Conservation Monitoring Centre
UNESCO:	United Nations Educational, Scientific and Cultural Organization
WCPA:	IUCN World Commission on Protected Areas
WDPA:	World Database on Protected Areas
WPC:	IUCN World Parks Congress

NOTES

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The Protected Planet Report 2014 reviews progress towards the achievement of international protected area targets through analysis of status and trends in global biodiversity protection. The resulting synthesis is a key source of information for decision makers and the conservation community.

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