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1. Introduction

The Co-chairs of the Open-ended Working Group on the Post-2020 Global Biodiversity Framework and the Secretariat of the Convention on Biological Diversity (CBD), with the generous financial support by the Government of Norway and the National Geographic Society, are convening a thematic workshop on area-based conservation measures to inform the post-2020 global biodiversity framework in the Greater Montreal area, La Prairie, 1-3 December 2019.

The thematic workshop is intended to facilitate an initial dialogue involving experts nominated by Parties and other stakeholders in order to, *inter alia*, develop suggestions on potential goals, targets, sub-targets, as well as indicators and monitoring tools, for area-based conservation measures for the post-2020 global biodiversity framework, which will be adopted at the fifteenth meeting of the Conference of the Parties (COP 15) to the CBD in Kunming, China, in 2020. The outputs from this workshop will be submitted to the OEWG Co-chairs and the second meeting of the Open-ended Working Group for consideration.

2. Brief Explanations on ABCMs

2.1 What is meant by Area-Based Conservation Measures (ABCMs)

Achieving the 2050 Vision[1] will require, among other things, a broad range of area-based conservation measures, covering gradients of human modification and protection levels.[2] These include protected areas (PAs) and other effective area-based conservation measures (OECMs) as spelled out in Aichi Biodiversity Target 11. They could also include Ecological Corridors/Areas of Connectivity Conservation,[3] High Conservation Value Areas (as protected or conserved in some commodity certification schemes), and various governance arrangements for such area-based conservation measures, including territories and areas conserved by indigenous peoples and local communities (ICCAs). Bold and ambitious conservation targets will likely help to stimulate expansion of area-based conservation measures, and effort will be needed to further enhance the effectiveness of such measures. These could be placed within the context of calls for broader global retention targets aimed at achieving multiple goals of nature conservation as well as those for sustainable use, mitigating and adapting to climate change and supporting the improvement of human well-being, as part of the global biodiversity agenda.[4]

2.2 What is the relation between ABCMs, the Post-2020 Global Biodiversity Framework and the 2050 Vision?

The world is facing a global biodiversity crisis. Extinction rates are estimated to be 100-1,000 times the pre-human or background extinction levels, and future rates could be 10,000 times higher[5]. The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services global assessment of biodiversity and ecosystem[6] reports that 75 per cent of the Earth's land surface is significantly altered, 66

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[1] By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.

[2] Dudley et al. (2018). The essential role of other effective area-based conservation measures in achieving big bold conservation targets. *Global ecology and conservation*, 15, e00424.

[3] Guidelines are still under development, but a proposed definition is: "a clearly defined geographical space, not recognised as a protected area or other effective conservation measure (OECM), that is governed and managed over the long-term to conserve or restore effective ecological connectivity, with associated ecosystem services and cultural and spiritual values" (Hilty et al 2019).

[4] Maron et al. (2018). Bold nature retention targets are essential for the global environment agenda. *Nature ecology & evolution*, 2(8), 1194.

[5] De Vos et al., (2015)Estimating the normal background rate of species extinction.. Conserv Biol. 2015 Apr; 29(2):452-62. doi: 10.1111/cobi.12380. Epub 2014 Aug 26.

[6] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz et al. (eds.). Bonn, Germany: IPBES secretariat.

per cent of the ocean area is experiencing increasing cumulative impacts, and over 85 per cent of wetlands (by area) have been converted. On average, population sizes of wild vertebrate species have declined precipitously over the last 50 years on land, in fresh water and in the sea, and around 25 per cent of species in assessed animal and plant groups are threatened.[7] The authors also indicate that the most significant direct drivers of biodiversity loss are habitat loss, fragmentation (changes in land and sea use) and over-exploitation. Other drivers, like climate change, invasive alien species, disease and pollution are also important.

Many of these drivers of biodiversity loss can be managed through area-based conservation measures, with protected areas and 'other effective area-based conservation measures' (CBD, 2018)) being the backbone of area-based conservation. However, area-based conservation measures may be less effective for addressing some drivers, including widespread pollution, disease and invasive species.

Hence, setting global priorities for area-based conservation measures is important.. The question of how much land, fresh water, marine and coastal areas to through all forms of ABCM, as appropriate, is central to a larger set of management decisions including site selection and the improvement of biodiversity conservation outcomes. In reviewing the question of how much area of land or sea to conserve, the primary consideration must focus on the overall purpose of having such a goal and the desired and expected outcomes. For example, a reasonable outcome is that the goal of ABCMs should ensure that key drivers of biodiversity loss on land, ocean, freshwater, marine and coastal areas are addressed, so that biodiversity loss can be halted, and eventually reversed. To ensure this occurs, a focus on the quality of these ABCM needs to be considered alongside the questions of where and how much to conserve.

The Sustainable Development Goals (SDGs) call for three kinds of transformative actions to meet human aspirations for development while maintain biodiversity: sustainable production, sustainable consumption and direct nature conservation. Area-based Conservation Measures address issues related to, inter alia, farming, grazing, natural resource extraction, and over exploitation of resources, as well as direct nature conservation.

3. Area Based Conservation Targets

Area based conservation targets should include targets for biodiversity conservation[8] and targets for nature's contributions to sustaining people (ecosystem services including carbon storage).

Too many conservation decisions are made based on ingrained prejudices, peer pressure, simply doing what people have done before, or are rooted in past way of thinking. In a rapidly changing and divided world, there is too much at stake to drift into a conservation policy without knowing exactly where we are going. When we talk about protected areas and other forms of area-based conservation, we need to clearly address four questions: *why*/*what* they are for; *where* they should be; *how much*; and *how* they should be managed to be effective.

There are contrasting views regarding what places should be the primary focus of area-based conservation measures. Conservation objectives may prioritise areas of high biodiversity, high irreplaceability, and/or large intact landscapes with a high degree of ecological integrity. They may focus on maintaining ecosystem services, ecosystem functions benefits to people including cultural and spiritual values. Objectives may also prioritise highly vulnerable areas under immense threat from human pressure, which could occur in high biodiversity areas or ecologically intact areas. Several reactive approaches

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[7] IPBES (2019): *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. S. Díaz, et al (eds.). IPBES secretariat, Bonn, Germany.

[8] Noss, R. F., & Cooperrider, A. (1994*). Saving nature's legacy: protecting and restoring biodiversity*. Island Press.

targeting vulnerable areas (e.g. biodiversity hotspots or crisis ecoregions) and proactive approaches targeting low vulnerability areas (e.g. high-biodiversity wilderness areas, frontier forests or last of the wild) have been proposed. All are important, but would necessitate different, or complementary, global coverage targets.

3.1 Scope and coverage

ABCM targets may include protected areas (PAs),other-effective area-based conservation measures (OECMs) as spelled out in Aichi Biodiversity Target 11, Ecological Corridors/Areas of Connectivity Conservation, High Conservation Value Areas (as protected or conserved in some commodity certification schemes), and various governance arrangements for such area-based conservation measures, including territories and areas conserved by indigenous peoples and local communities (ICCAs).

Estimates of recommended percentage coverage by area-based conservation in both terrestrial and marine realm ranged from 10% to 100%, depending on the taxa and landscapes/seascapes analysed. However, several criticisms of percentage-based/area-based targets have also been raised.

3.2 Focus on area, *per se*? or quality and outcomes?

Should area-based percentage targets focus on area alone (as in the 17%/10% elements of Aichi Target 11), or on improving the protection status of specific biodiversity features (as in the Global Strategy for Plant Conservation which calls for 75% of known threatened plant species to be conserved)?

In addition to expanding and effectively applying ABCM, improving conservation outcomes will also require "adaptive governance, strong societal engagement, effective and equitable benefit-sharing mechanisms, sustained funding, and monitoring and enforcement of rules".[9] There are arguments that there must be a focus on biodiversity conservation outcomes,[10] instead of just area covered (e.g. representation of species or ecosystems, biodiversity status, avoided threats). There could also be a focus on social outcomes and human well-being.

3.3 Aichi Biodiversity Target 11: challenges

Aichi Biodiversity Target 11 includes both quantitative and qualitative aspects (including effective and equitable management, representativeness, especially areas of particular importance for biodiversity and ecosystem services, connectivity, and integration into the wider landscape and seascape). A number of criticisms have been raised regarding percentage-based/area-based targets;[11] some of these include, *inter alia*:

(i) Targets set based on representation do not address species persistence (e.g. minimum reserve area, or minimum replicates needed to ensure persistence);

(ii) There is incomplete information on the distribution of most species;

(iii) The amount advocated may either be inadequate to meet biodiversity conservation objectives, or inefficient by conserving amounts far in excess of what is needed;

(iv) They may lead to 'perverse outcomes', such as the prioritisation of large protected areas in low opportunity cost areas that may not be particularly important for biodiversity;

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[9] IPBES (2019).

[10] For example: Visconti et al. (2019). Protected area targets post-2020. Science, 364(6437), 239-241.

[11] For example: Wiersma and Nudds (2006). Conservation targets for viable species assemblages in Canada: are percentage targets appropriate? Biodiversity & Conservation, 15(14), 4555-4567; Barnes et al. (2018). Prevent perverse outcomes from global protected area policy. *Nature ecology & evolution*, 2(5), 759; Maron et al (2018). Bold nature retention targets are essential for the global environment agenda. Nature ecology & evolution, 2 (8), 1194; Visconti et al. (2019). Protected area targets post-2020. *Science*, 364(6437), 239-241; among others.

(v)   they may imply that the "remainder of each ecosystem can be modified or destroyed";

(vi)   A strong focus on area-based conservation measures may detract from other actions required to address the full range of drivers of biodiversity loss;

(vii)   The Half-Earth proposal, in particular, is criticised for not addressing the root cause of the problem (e.g. overconsumption in the Global North), for potentially having negative consequences on people, and not addressing conservation in the human-dominated other half;[12]

(viii)   The world is heterogeneous (ecological and social conditions vary considerably), as such a 'one size fits all approach' (a single percentage-based target) is inappropriate (some areas will require far more protection than others).

4. Purpose, expected output and outcome from the thematic workshop

The thematic workshop is an expert meeting aiming at providing the Co-Chairs of the Open-ended Working Group on the Post-2020 Global Biodiversity Framework with concrete and constructive inputs for consideration in their future work on the post-2020 global biodiversity framework. The workshop does not constitute a negotiating process but will serve to seek areas of convergence.

The main purpose of the workshop is to develop concrete proposals to be considered in the further development of the post-2020 Global Biodiversity Framework. To the extent feasible and appropriate, these proposals will cover the different elements of the framework with particular focus on goals, targets, sub-, with possible indicators and baselines as well as monitoring approaches.

5. Some Considerations

✓ As reiterated in the Concept Note the workshop is not a negotiation meeting. All participants, collectively and in an iterative manner, will strive to unravel the issues and find ways and means to address them so that the OEWG Co-chairs will be able to present the best plausible text for facilitating meaningful discussions on SMART targets for post-2020 GBF.

✓ To develop ABCM targets for the Post-2020 GBF, we should consider, inter alia, the experiences gained, and lessons learned from the implementation of Aichi Targets, in particular Target 11, as well as recently developed concepts in this area.

✓ Another important consideration that warrants contemplation is how ABCMs will help us to attain the overall objective of the Post-2020 GBF to achieve the 2050 Vision (*biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people*). The elements of the 2050 Vision should be all integrated —action in one area will support outcomes in the others. So while approaching the elements of the 2050 Vision individually, we should not lose the sight of their intricate interrelationships and interactions.

a) *Agenda of the Workshop*

Taking cognizance of the Concept Note, the objective of the workshop and the agenda of the workshop has been designed.

✓ For achieving the workshop objective, the first day is devoted to setting the stage, stock-taking, and lessons learned (e.g. what worked, what did not work, how they can be improved for

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[12] Büscher et al. (2017). Half-Earth or Whole Earth? Radical ideas for conservation, and their implications. *Oryx*, 51(3), 407-410.

inclusion in the Post-2020 GBF). Towards the end of first day, the workshop will hear case studies from five countries - one from each of the five UN regions. Countries will share their experiences and share the ground realities of what a target/targets, sub targets, actions, and indicators look like (kindly note the purpose is to provide some food for thought for deliberations in the workshop, not to be purported to be respective country positions, *per se*).

✓ The second day is devoted to obtaining constructive and specific inputs for the use of OEWG Co-chairs for consideration in their work on the draft the Post-2020 GBF.

✓ The third day is devoted to understanding the relationship between ABCMs and other elements of the 2050 Vision, any other issues that may have been missed from the first two days, and a discussion of baselines, indicators and monitoring for ABCMs in the Post-2020 GBF.

b) *Some key questions the workshop seeks to find answers for:*

✓ What worked well regarding the design, implementation and monitoring of Target 11?

✓ What did not work regarding the design, implementation and monitoring of Target 11?

✓ Were there specific opportunities or challenges faced in implementation, regarding specific elements of Target 11?

✓ How can these lessons be used to inform the development of the Post-2020 GBF?

✓ Are there critical concerns related to this thematic issue1 being reflected in the post-2020 framework?

✓ How should this thematic issue1 be treated in the post-2020 framework?

✓ Is this thematic issue relevant to all types of ABCMs?

✓ How could a goal, target, or sub-target be formulated to address important concerns regarding this thematic issue?

✓ What indicators are currently available for tracking progress on the thematic issues[13] discussed on Day 2?

✓ Are there any issues for which adequate indicators are not currently available?

✓ If there are no indicators currently available, can the related gaps be addressed in the near-term?

✓ What is the current baseline situation regarding these thematic issues?

✓ What could a monitoring framework for these thematic issues related to ABCMs look like in the post-2020 period?

✓ What is the relationship between area-based conservation measures and other potential elements for the post-2020 framework?

✓ How should these other elements be reflected in goals, targets, and sub-targets for ABCMs?

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[13] Potential scope of ABCM to be included in the post-2020 framework (e.g. PA, OECM, ICCA, etc.), considering also other relevant international instruments and processes, and including possible coverage (e.g. % terrestrial and % marine ecosystems with special spatial management regime); Representativeness, especially areas of importance for biodiversity and ecosystem services (areas important for priority conservation and for conservation overall in the long-term); Connectivity (enhancing a coherent well-connected network of areas important for biodiversity and ecosystem services) and the ecosystem approach; Effectiveness (including means to improve and strengthen conservation effectiveness); Equity and good governance, as well as benefit-sharing (including social impacts and ecosystem services); Land-and-sea-scape approaches to enhance conservation outcomes and sustainable use, including spatial planning.

6. Updated Status of Aichi Biodiversity Target 11

6.1. Target 11 Background

1.   The Strategic Plan for Biodiversity 2011-2020 was adopted in 2010 at the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity, in Nagoya, Japan, and subsequently accepted by all other global biodiversity-related conventions and noted with appreciation by the United Nations General Assembly (Resolution 65/161). Under Strategic Goal C, Target 11 states: *By 2020 at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes*.

2.   Given the indivisible nature of the Target, for successful achievement, progress is needed **on all of its elements**, not only the quantitative aspects (i.e. 17% terrestrial and 10% marine). There is a need for increased efforts to address the qualitative elements of Target 11, including: ecological representation, the coverage of areas important for biodiversity and ecosystem services, connectivity, effective and equitable management, and integration into the wider landscapes and seascapes.

3.   The mid-term assessment of progress towards the implementation of the Strategic Plan for Biodiversity 2011-2020, presented in the fourth *Global Biodiversity Outlook* (GBO-4)*,* showed at least some progress for all elements of Target 11. However, for all elements besides terrestrial protected area coverage, progress was occurring at an insufficient rate, and unless efforts were increased the Target would not be met by 2020.[14]

4.   To facilitate achievement of Target 11, the Secretariat developed a two-phase strategy, the details of which were presented to the twentieth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and to the first meeting of the Subsidiary Body on Implementation (SBI) as information documents (see UNEP/CBD/SBSTTA/20/INF/43 and UNEP/CBD/SBI/INF/41). In collaboration with partner organizations, the first phase (2015-2016) involved, *inter alia*, the organization of a series of six regional workshops to collect information on the status, gaps and opportunities for the elements of Target 11, as well as national priority actions (roadmaps) for implementation by 2020, as a country-driven process. The second phase (2017-2020) aims to facilitate decentralized implementation of national commitments, as called for in Decision XIII/2 paragraph 9(d), among other aims. Regional implementation support networks have been established in 10 of 12 sub-regions (see details in CBD/SBSTTA/22/INF/30) and Regional Action Plans are being developed to coordinate implementation over the next year. A Global Partnership on Aichi Target 11 was launched November 2018, on the margins of the fourteenth meeting of the Conference of the Parties (COP) to the Convention, in Sharm El-Sheikh, Egypt. Its main objective is facilitating accelerated and effective implementation of actions to further progress on Target 11. The Partnership aims to support regional implementation support networks, aligning ongoing activities with national priority actions to facilitate effective implementation.

5.   Recently, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published its first Global Assessment on Biodiversity and Ecosystem Services. It concluded that significant declines in biodiversity were occurring at all levels, from genes and species to ecosystems.[15] The authors also called attention to the declining trends for 14 of the 18 categories of nature's contributions to people (NCP) that were analysed. The report noted that Nature could be conserved, restored and used sustainably while simultaneously meeting other global societal goals, though urgent and concerted efforts fostering transformative change would be needed. It did also note that there were some

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[14] Secretariat of the Convention on Biological Diversity (2014), *Global Biodiversity Outlook 4*, Montreal, Canada: Secretariat of the Convention on Biological Diversity.

[15] Díaz et al (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.*

successes in preventing the extinction of some species, through conservation actions including protected areas, and efforts to manage unsustainable use and address illegal taking and trade of species. In its review of progress on the Aichi Targets, the assessment noted that the quantitative elements of Target 11 were among the few that showed good progress (i.e. "substantial positive trends at a global scale relating to most aspects of the element"). However, progress on the qualitative elements of Target 11 was deemed only 'moderate'.

6.   This document provides an update on the status of the elements of Target 11 as the 2020 end date for the Strategic Plan approaches, and discussions around a post-2020 Global Biodiversity Framework continue. The following sections present the status of both quantitative and qualitative elements of Target 11 (**Section II**), describe additional opportunities for enhancing progress over the next year (**Section III**), and ends with general conclusions (**Section IV**).

6.2 Current status of Aichi Target 11

7.   Target 11 refers to both protected areas and other effective area-based conservation as means of conserving biodiversity *in situ*. A definition of other effective area-based conservation measures (OECMs) was recently adopted at the 14th meeting of Parties to the Convention, while the same decision welcomed the scientific and technical advice on OECMs (see Decision 14/8, Annex III). As the definition was only recently adopted, there is limited information on the global extent of OECMs or the impact they could have for elements of Target 11. As such, analysis presented herein is based primarily on protected areas reported in the World Database on Protected Areas (WDPA). It is likely that the status of several elements of Target 11 will improve substantially as reporting on OECMs advances.

A. Quantitative Elements

(i) Terrestrial coverage

8.   As of June 2019, terrestrial protected area coverage has reached 15.0%.[16] This represents an increase of almost 2 million km^2 from the start of the current Strategic Plan 2011-2020, when global coverage was 13.6% (Fig. 1). More than 25,000 sites have been designated since 2011 (~23,000 terrestrial, the remainder coastal and marine),[17] in addition to the large number of sites designated prior to 2011 which have subsequently been reported to the World Database on Protected Areas (WDPA).[18]

9.   For terrestrial protected areas, recent growth at the global level has been slow (Fig. 1), though many individual countries have still made significant progress. For example, in Russia, between 2011 and 2019 the total extent of terrestrial protected areas increased by almost 172,000 km^2.[19] Both Canada and Australia increased coverage by over 100,000 km^2 between April 2016 and June 2019. Brazil, Mexico and Tanzania all made significant increases, each adding over 40,000 km^2 over the same 3-year period. Luxembourg and Martinique both added terrestrial protected areas covering more than 30% of their land area, while Haiti and Qatar both saw more than five-fold increases in terrestrial coverage.[20]

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[16] UNEP-WCMC (2019a), Global statistics from the World Database on Protected Areas (WDPA), June 2019. Cambridge, UK: UNEP- WCMC.

[17] UNEP-WCMC & IUCN (2019a), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], July, 2019, Cambridge, UK: UNEP-WCMC & IUCN. Available at: www.protectedplanet.net.

[18] UNEP-WCMC & IUCN (2019b), The lag effect in the World Database on Protected Areas, https://www.protectedplanet.net/c/the-lag-effect-in-the-world-database-on-protected-areas

[19] Stishov & Dudley (2018), *Protected areas of the Russian Federation and their categories*. Moscow: World Wide Fund for Nature (WWF) [In Russian]
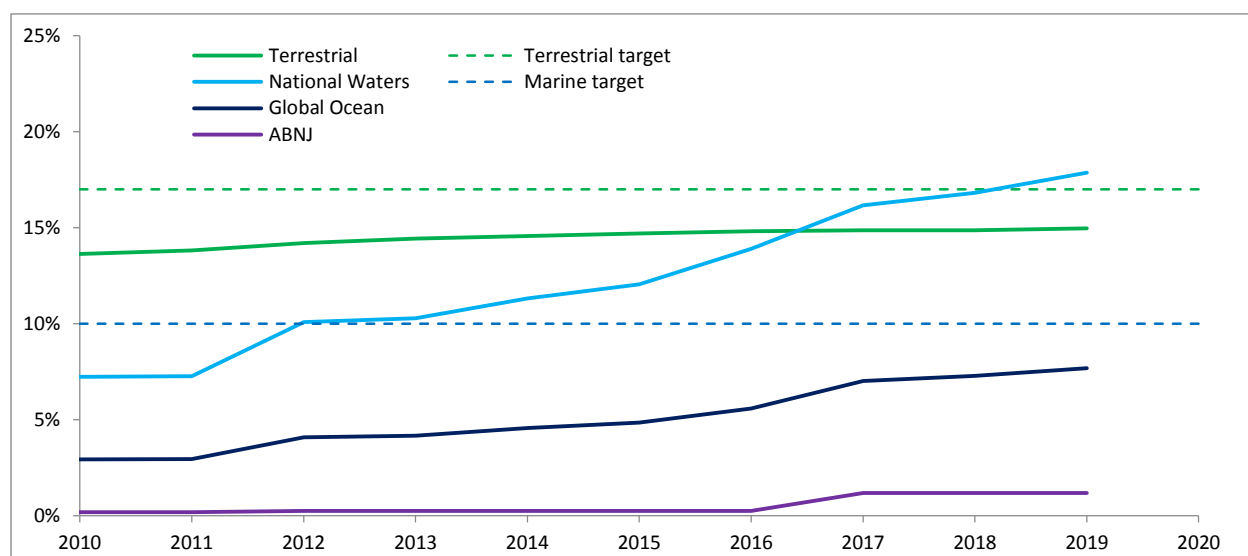
[20] UNEP-WCMC (2019a).

Figure 1. Growth in global protected area coverage over the time period of the Strategic Plan for Biodiversity 2011-2020. Data for the years 2010 to 2018 based on information in the July 2018 WDPA release; data for 2019 from the June 2019 WDPA release. Analyses performed by UNEP-WCMC.

(ii) Marine coverage

10.   As of June 2019, marine protected area coverage for the global ocean has reached 7.6% (coverage is 17.6% for national waters and 1.2% for areas beyond national jurisdiction [ABNJ]). This represents a significant—almost three-fold—increase from the coverage of 2.9% in 2011, at the start of the current Strategic Plan (7.3% for national waters and 0.2% ABNJ).[21] For marine areas under national jurisdiction, the 10% global target has already been surpassed (Fig. 1).

11.   Much of this growth in marine protected area coverage has come from the recent designation of very large marine protected areas, for example in Cook Islands (~2 million km^2 in 2017), Antarctica's Ross Sea (1.5 million km^2 in 2017), France's Southern and Antarctic Lands (~1 million km^2 in 2017), Pitcairn (0.8 million km^2 in 2016), and Easter Island (570,000 km^2 in 2018). In total, there are 14 marine protected areas larger than a half million square kilometres, and all but one was designated or expanded in the last ten years. These sites together account for more than half of the ocean area protected. There is some concern that recent designations have poor ecological representation[22] and have only minimally addressed stoppable threats.[23] Issues pertaining to the qualitative elements of Target 11 will be addressed in the underlined next section.

(iii) Protected area commitments

12.   Commitments addressing expanded protected area cover have been made by Parties to the Convention through various fora, including National Biodiversity Strategies and Action Plans (NBSAPs), national priority actions identified through a series of regional capacity-building workshops, the 2017 UN Oceans Conference, and various regional initiatives (e.g. the Micronesia Challenge). If completed as proposed by 2020, and avoiding double counting of actions from different sources, these would increase global protected area coverage of terrestrial areas by over 4 million km^2 and would increase coverage of the global ocean by over 11 million km^2. This would bring terrestrial protected area coverage to more than 18% and marine coverage to 11% of the global ocean (Fig. 2), surpassing both quantitative targets.

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[21] UNEP-WCMC (2019a).

[22] Jantke et al. (2018). Poor ecological representation by an expensive reserve system: Evaluating 35 years of marine protected area expansion. *Conservation Letters*, *11*(6), e12584.

[23] Kuempel et al. (2019). Quantifying biases in marine-protected-area placement relative to abatable threats. *Conservation Biology*.

However, further efforts will still be needed to ensure that the qualitative elements of Target 11 are being addressed.

13. To date, 64 Parties have provided NBSAPs with quantitative targets for marine protected area coverage, of which 46 have a target date of 2020 or earlier. Of these 46 Parties, 11 have reached or surpassed their national coverage targets as of June 2019, as per data in the WDPA. Of the 18 NBSAPs with post-2020 end-dates for marine protected area targets, one Party has already surpassed their national coverage target. For terrestrial protected areas, NBSAPs from 82 Parties have specific quantitative targets, of which 61 have a target date of 2020 or earlier; of these, 18 Parties have already reached their national coverage target, with data reported in the WDPA. Of the 21 NBSAPs with post-2020 target dates for terrestrial protected areas, three Parties have already surpassed their national coverage target.
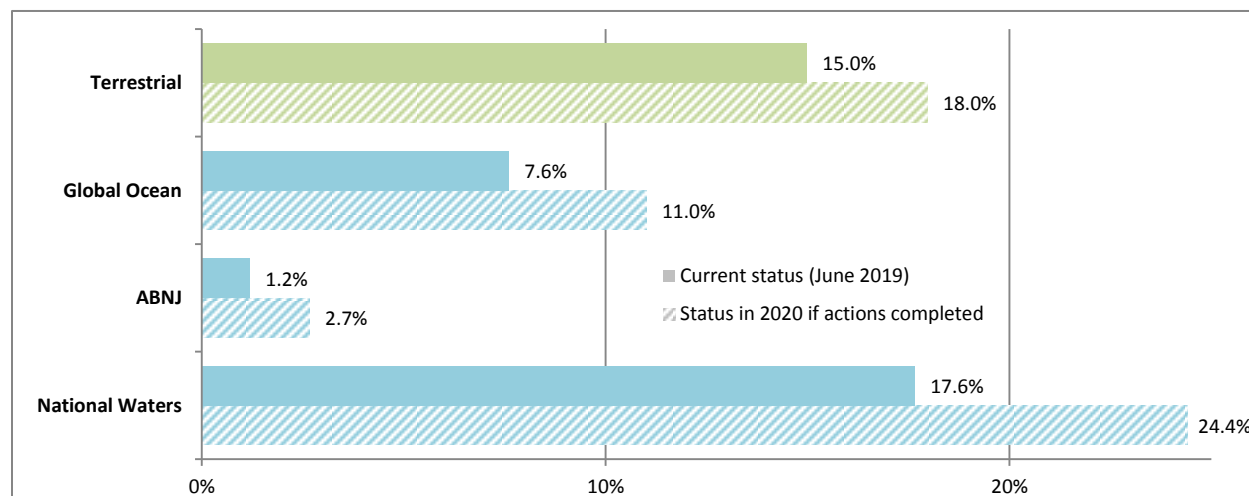

Figure 2. Increase in global protected area coverage if national commitments are completed as proposed by 2020.

B. Qualitative Elements

14. Though it is likely that both terrestrial and marine quantitative targets will be met globally by 2020, there is a need for increased efforts to address the qualitative elements of Target 11. As noted above, for successful achievement, progress is needed ***on all elements*** of Target 11.

(i) Ecological representation

15. Protected area coverage of broad-scale biogeographic units (like ecoregions) is often used to assess the ecological representation element of Target 11.[24] Globally, ecoregions have been defined and mapped for both terrestrial and marine areas. These include 823 terrestrial ecoregions (excluding Antarctica),[25] 232 marine ecoregions covering shallow coastal waters (<200m in depth) and 37 pelagic provinces.[26] As reported in the Digital Observatory for Protected Areas (DOPA) of the Joint Research Centre of the European Commission (EC-JRC)[27] using data from the WDPA for January 2019, protected

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[24] E.g. UNEP-WCMC, IUCN and NGS (2018). *Protected Planet Report 2018.* Cambridge UK; Gland, Switzerland; and Washington, D.C., USA: UNEP-WCMC, IUCN and NGS.

[25] Olson et al. (2001), Terrestrial Ecoregions of the World: A New Map of Life on Earth: a new global map of terrestrial ecoregions provides an innovative tool for conserving biodiversity, *BioScience*, *51*, 933–938. In 2017, there was an update to the terrestrial ecoregion map, which now includes 828 non-Antarctic ecoregions; see: Dinerstein et al. (2017), An ecoregion-based approach to protecting half the terrestrial realm. *BioScience*, *67*(6), 534-545.

[26] Spalding et al. (2007), Marine ecoregions of the world: a bioregionalization of coastal and shelf areas, *BioScience*, *57*(7), 573-583; Spalding et al. (2012), Pelagic provinces of the world: a biogeographic classification of the world's surface pelagic waters, *Ocean & Coastal Management*, *60*, 19-30.

[27] European Commission – Joint Research Centre (EC-JRC) (2019), The Digital Observatory for Protected Areas (DOPA), http://dopa.jrc.ec.europa.eu/ (see section on maps and datasets).

area coverage was at least 17% for 344 out of 823 terrestrial ecoregions, while 102 had less than 2% coverage (Fig. 3). Twenty-one terrestrial ecoregions have no reported protected areas, for example Eritrean coastal desert, Hindu Kush alpine meadow and Carolines tropical moist forests. For marine ecological representation, 109 out of 232 marine ecoregions, and 4 out of 37 pelagic provinces have reached 10% coverage, while 66 marine ecoregions and 13 pelagic provinces have less than 2% cover (Fig. 3). Eight marine ecoregions and four pelagic provinces have no protected areas, including Central Somali Coast, Weddell Sea, Southeastern Madagascar, and others. For larger biogeographic units, just over half of the 62 marine provinces, and eight of 12 marine realms have reached at least 10% coverage; four out of 14 terrestrial biomes have reached 17%. All marine realms and all terrestrial biomes have at least 2% cover, while five of the 62 marine provinces have less than 2% cover.
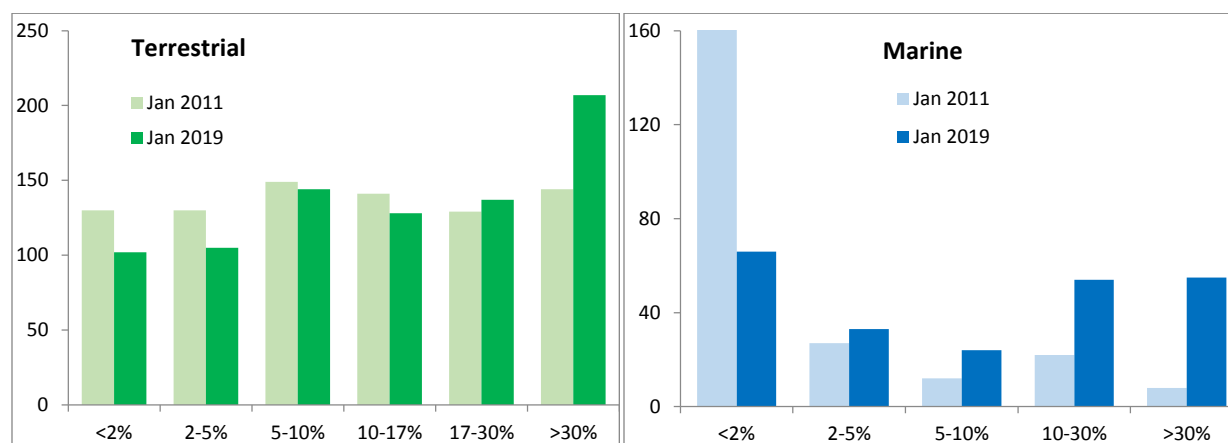

Figure 3. Protected area coverage of terrestrial and marine ecoregions in January 2011 and January 2019; showing the number of ecoregions at varying levels of protection.[28]

16.   Mean target achievement (MTA)[29] represents the average degree of conservation target achievement across biodiversity features. For assessing ecological representation under Target 11, it would represent the degree to which targets are being achieved within ecoregions, where a score of 100% would indicate that all ecoregions have met a specific benchmark (whether the 17% or 10% targets for global coverage from the language of Target 11, the 10% target for ecoregions from the previous Strategic Plan [Decision VII/30], or considering at least partial coverage—at least 2%—for all ecoregions). Table 1 presents MTA for terrestrial ecoregions, marine ecoregions, and pelagic provinces, as of January 2019 for a range of possible conservation targets. MTA ranges from 65% to 92% for terrestrial ecoregions, and from 62% to 82% for marine ecoregions, depending on the target applied. Ecological representation has improved for both terrestrial and marine areas since 2011, though the increased coverage is most noticeable for marine ecoregions (Fig. 3; Table 1). This follows the significant increase in MPA cover over the same period (Fig. 1).

17.   It is important to note that coverage of ecoregions is a useful indicator to assess ecological representation at the global level, but at a national level they may be too coarse to apply, requiring proper alignment to national systems of biogeographic classification. Many countries, when reporting on the status of ecological representation within their protected area networks have provided information on the finer-scale designations in use nationally. For example, a recent assessment in Russia found that 153 of 159 geographical provinces, and 115 of 117 biome types were represented in the existing protected area network. [30]

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[28] Data from EC-JRC (2019).

[29] Jantke et al. (2018), Metrics for evaluating representation target achievement in protected area networks, *Diversity and Distributions, 25*(2), 170-175.

[30] Stishov & Dudley (2018).

Table 1. Global status of ecological representation based on different conservation targets.

Realm and Year	At least partial coverage (>2%)		10% coverage (per COP Decision VII/30)		17% coverage (Target 11 global terrestrial cover)	
	# meeting target	MTA	# meeting target	MTA	# meeting target	MTA
Terrestrial ecoregions						
2011	693 (84%)	89.9%	414 (50%)	70.6%	273 (33%)	58.3%
2019	721 (88%)	92.2%	472 (57%)	75.7%	344 (42%)	64.7%
Marine ecoregions						
2011	69 (30%)	44.3%	30 (13%)	23.2%		
2019	166 (72%)	82.4%	109 (47%)	62.1%		
Pelagic provinces						
2014[31]	16 (43%)	50.0%	2 (5%)	19.7%		
2019	24 (65%)	73.0%	4 (11%)	40.6%		

18.   Another approach to assessing ecological representation could involve the assessment of species' representation within protected areas.[32] For example, in 2015 less than 10% of migratory birds were adequately covered across all stages of their annual cycle.[33] In Russia, all vertebrate species inhabiting the country (excluding occasional visitors) are represented within existing protected areas, and 97% are found in federal-level protected areas.[34] A complementary indicator for assessing the 'ecologically representative' element of Target 11 is the PARC-representativeness index, developed by CSIRO, and collaborators (GEO BON, GBIF, Map of Life). It operates at finer resolution than ecoregion-based assessments, and is based on modelling the relationships between spatial turnover in biodiversity composition (for plants, vertebrates and invertebrates) and fine-scaled environmental variation in temperature, evaporation, water deficit and other variables. The most recent global results, with a value approaching 0.1, indicate that a large proportion of the world's relatively unique environments, and their associated biotas, have less than 10% of their extent included in protected areas.[35]

(ii) Areas important for biodiversity

19.   Protected area coverage of Key Biodiversity Areas (KBAs) provides one proxy for assessing the conservation of areas important for biodiversity. KBAs are "sites that contribute significantly to the global persistence of biodiversity", with globally agreed criteria for their identification provided in the IUCN's Global Standard.[36] As of December 2018, out of 14,103 terrestrial KBAs, 2,731 (19%) were fully covered by reported protected areas, while 4,792 (34%) had no coverage (Fig. 4a). Out of 3,990 marine KBAs, 945 (24%) were fully covered, while 1,456 (36%) had no coverage (Fig. 4a). Mean percent coverage of terrestrial KBAs is 46.1%; for marine KBAs mean coverage is 45.7%. There has been modest increase in the average coverage of KBAs since 2010, with mean percent coverage for terrestrial KBAs

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[31] The map of pelagic provinces was only developed in 2012, so coverage from 2011 is currently unavailable.

[32] E.g. Xu et al. (2018). Low ecological representation in the protected area network of China. *Ecology and evolution*, *8*(12), 6290-6298; Butchart, et al. (2015). Shortfalls and solutions for meeting national and global conservation area targets. *Conservation Letters*, *8*(5), 329-337.

[33] Runge et al. (2015). Protected areas and global conservation of migratory birds. *Science*, *350*(6265), 1255-1258

[34] Stishov & Dudley (2018).

[35] CSIRO (Commonwealth Scientific and Industrial Research Organisation) (2018). Protected Area Representativeness Index (PARC-Representativeness), https://www.bipindicators.net/indicators/protected-area-representativeness-index-parc-representativeness

[36] IUCN (2016) *A Global Standard for the Identification of Key Biodiversity Areas*, v. 1.0. Gland, Switzerland: IUCN.

increasing from 45.8 to 46.1%, and coverage for marine KBAs increasing from 41.1 to 45.7% (Fig. 4b).[37] It is expected that recognition and reporting of OECMs would further increase this figure. For example, a recent study of KBAs in 10 countries shows that almost 80% of the 740 unprotected KBAs assessed were at least partly covered by one or more OECMs, and over half were completely covered.[38]
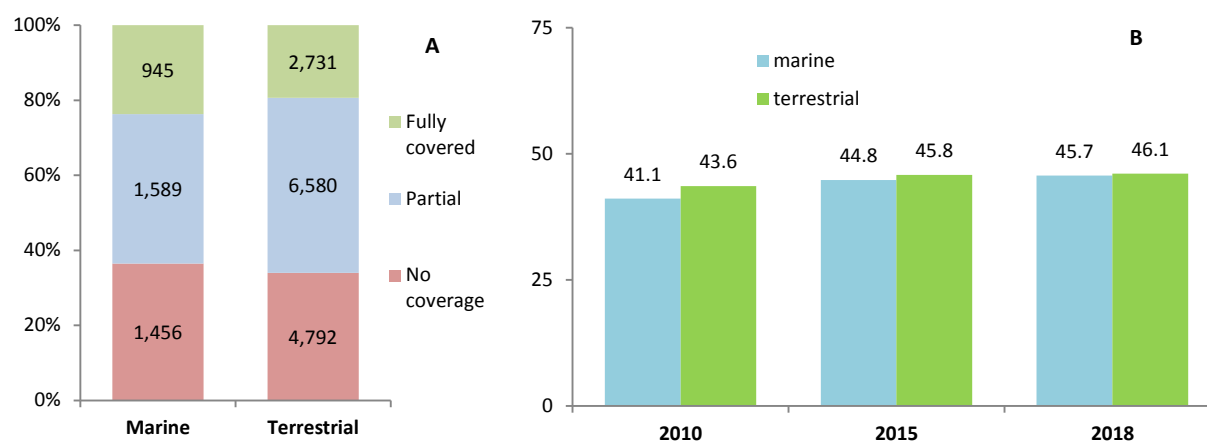

Figure 4. Proportion of KBAs fully, partially, and not covered by protected areas (A); and change in mean percentage area of each KBA covered by protected areas from 2010 to 2018 (B). Both are based on the spatial overlap between polygons from the World database on KBAs and the WDPA (December 2018 release), as reported in the 2019 SDG report (analysed by UNEP-WCMC in collaboration with BirdLife International and IUCN).

20.   Areas of importance for biodiversity could also include more than just identified KBAs, which are currently both geographically and taxonomically incomplete. Protected area coverage for other important biodiversity sites could be explored. For example, the coverage of species richness hotspots, other hotspot measures, centres of endemism, centres of origin, intact forest landscapes or other measures if intact wilderness. Remaining wilderness areas, based on measures of human impact, cover less than 25% of non-Antarctic land, and only 13% of the ocean.[39] In 2017, marine protected areas covered only 5% of remaining marine wilderness.[40] For reporting on the final status of Target 11 in 2020, it could be useful to explore a range of measures for the coverage of areas important for biodiversity.

(iii) Areas important for ecosystem services

21.   Protected areas are important for conserving the ecosystems providing essential services, as described in the first Global Assessment on Biodiversity and Ecosystem Services, recently released from the IPBES. For example, a majority of the world's population lives downstream of protected areas, which provide important supplies of freshwater.[41]

22.   There is currently no single indicator identified for assessing protected area coverage of areas important for ecosystem services at the global level. However, maps and methodologies have been developed for the assessment of many ecosystem services.[42] Additionally, several national studies of the coverage of areas important for ecosystem services have been completed; for example in China, where the

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[37] UNEP-WCMC, in collaboration with BirdLife International and IUCN, Indicator 14.5.1 and Indicator 15.1.2 from SDG Report 2019: Statistical Annex: Global and regional data for Sustainable Development Goal indicators.

[38] Donald et al. (2019). The prevalence, characteristics and effectiveness of Aichi Target 11′s "other effective area-based conservation measures" (OECMs) in Key Biodiversity Areas. *Conservation Letters*, e12659.

[39] Watson et al. (2018). Protect the last of the wild, *Nature* 563, 27-30.

[40] Jones et al. (2018). The location and protection status of Earth's diminishing marine wilderness. *Current Biology*, *28*(15), 2506-2512.

[41] Harrison et al. (2016). Protected areas and freshwater provisioning: a global assessment of freshwater provision, threats and management strategies to support human water security. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *26*, 103-120.

[42] Burkhard & Maes (eds.) (2017), *Mapping Ecosystem Services*. Sofia: Pensoft Publishers.

coverage of four key regulating services by nature reserves was only 10.2–12.5%.[43] Work is needed to identify which areas would be considered as 'important for ecosystem services', then protected area coverage of these areas can be assessed. One approach could include the identification of ecosystem service hotspots.[44] As an example, researchers in Myanmar found that protected areas covered 17%, 14% and 5% of three ecosystem service hotspots (for inland flood risk reduction, sediment retention, and dry-season base flow, respectively).[45] Maps of various ecosystem services could also be overlaid to identify areas important for multiple ecosystem services. Attention should be paid to potential trade-offs between biodiversity and certain ecosystem services, as well as between different ecosystem services. It is likely that many OECMs are supporting the conservation of ecosystem services, as well as biodiversity. For example, almost one-third of the OECMs overlapping with KBAs had 'preserving ecosystem services' listed as their primary management objective.[46]Attention also needs to be paid to potential trade-offs between biodiversity and certain ecosystem services, as well as between different ecosystem services.

23.   Protected areas can also play an important role in ecosystem-based approaches to climate change adaptation and contribute to mitigation by storing and sequestering carbon. A 2016 study in Czech Republic[47] found higher levels of both biodiversity and net carbon storage within protected areas compared to other non-protected areas. Globally, as of May 2019, over 18% of the total terrestrial carbon stock is covered by reported protected areas.[48]

(iv) Connectivity

24.   Protected area connectivity can be assessed using the ProtConn indicator. It applies network analysis to determine the amount of reachable habitat in protected area networks, based on the spatial arrangement, size and coverage of protected areas.[49] As of June 2018, adequately connected protected areas covered 7.7% of the terrestrial realm.[50] This represents a modest increase from 2010, when global coverage was 6.5%.[51] However, this almost 20% increase in connectivity is significantly higher than the 10.5% relative increase in protected area coverage over the same period.[52] Currently, 30% of countries (Fig. 5) and 27% of terrestrial ecoregions are covered by 'well-connected' protected area networks based on this indicator (i.e. had ProtConn values >17%), demonstrating there is still some shortfall in ensuring connectivity of terrestrial protected areas.[53] Over the 2010 to 2018 period, 56% of countries showed an increase in connectivity, as measured by ProtConn, while 16% showed declines in connectivity; the remainder (28%) saw no significant change.[54] Additionally, the proportion of protected area connectivity depending on transboundary connections has almost doubled over this period (2010 to 2018). This

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[43] Xu et al. (2017). Strengthening protected areas for biodiversity and ecosystem services in China. *Proceedings of the National Academy of Sciences*, *114*(7), 1601-1606.

[44] For example, hotspots could be defined as the 20% or 25% of sites with the highest value for a specific service.

[45] Mandle et al. (2017). Assessing ecosystem service provision under climate change to support conservation and development planning in Myanmar. *PloS one*, *12*(9), e0184951.

[46] Donald, P. F., et al. (2019).

[47] Vačkář, D. et al. (2016). Human transformation of ecosystems: Comparing protected and unprotected areas with natural baselines. *Ecological Indicators*, 66:321–328.

[48] Joint Research Centre of the European Commission (2019), The Digital Observatory for Protected Areas (DOPA) Explorer 4 [On-line], September, 2019, Ispra, Italy. Available at: http://dopa-explorer.jrc.ec.europa.eu.

[49] Saura et al. (2017). Protected areas in the world's ecoregions: How well connected are they? *Ecological Indicators*, *76*, 144–158; Saura et al. (2018). Protected area connectivity: Shortfalls in global targets and country-level priorities. *Biological Conservation*, *219*, 53–67.

[50] Calculated as the area-weighted average of the ProtConn value for all countries (Saura et al., 2018).

[51] Saura et al. (2019). Global trends in protected area connectivity from 2010 to 2018. *Biological conservation*, *238*.

[52] Saura et al. (2019).

[53] EC-JRC (2019).

[54] Saura et al. (2019).

highlights the importance of transnational collaboration for ensuring the management of PA connectivity in many parts of the world.[55]

25. To date, there is no global assessment of connectivity for marine protected areas, though it is possible that the ProtConn indicator could be applied in the marine realm, possibly incorporating the effects of ocean circulation.[56]
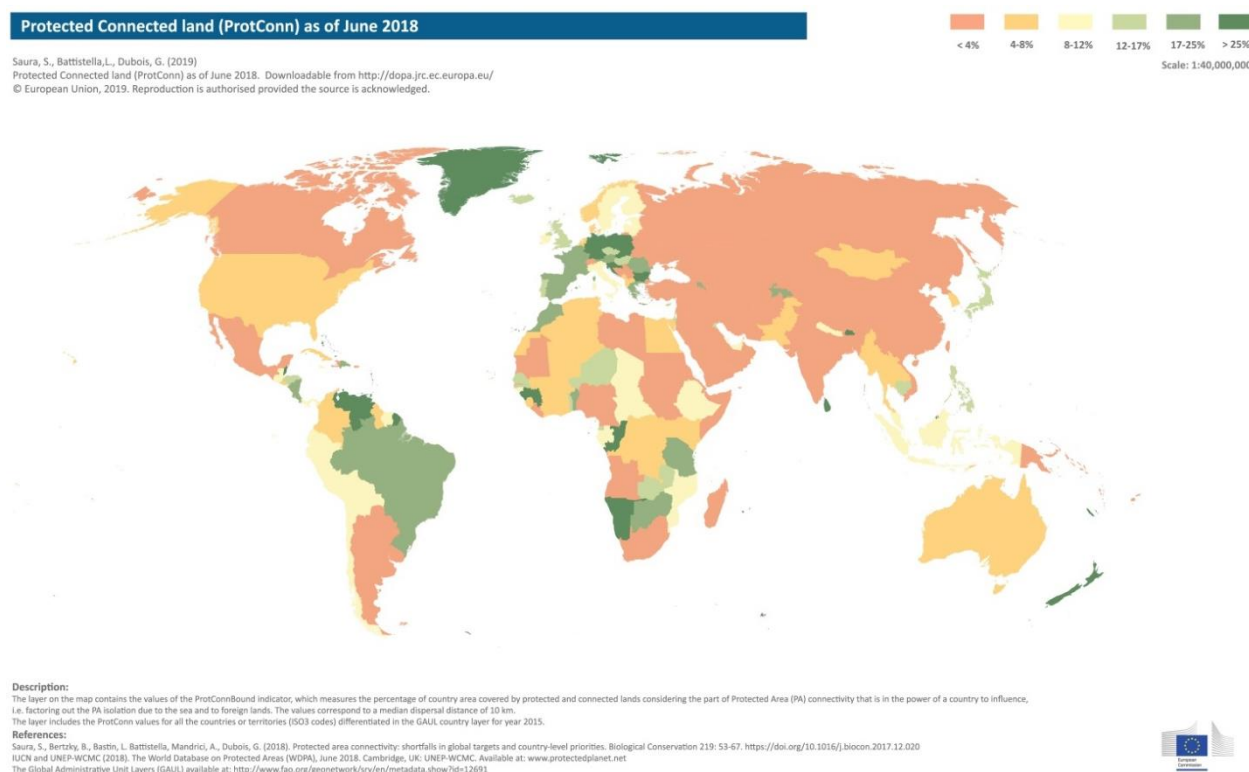

Figure 5. Percent coverage of protected-connected lands, at the national-level.[57]

26. A complementary indicator of protected area connectivity is the Protected Area Connectedness Index, developed by CSIRO, which accounts for the connectivity between protected areas, but also includes areas containing primary vegetation in the surrounding non-protected landscape. By including the impacts of surrounding natural vegetation, it also gives some indication of integration of protected areas with the wider landscape.[58] The most recent assessment—for the year 2019—shows an indicator value just above 0.5 (Fig. 6).[59] This indicates that, on average, connectivity is halfway between a scenario where a protected area is surrounded by a continuous 500 km radius of unprotected human-modified habitat, and one where it is surrounded by a stretch of protected areas and/or primary vegetation. There was very little change in global connectivity as measured by the PARC-Connectedness Index between 2005 and 2019 (Fig. 6a). However, this masks some of the changes occurring nationally (Fig. 6b). Over

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[55] Vasilijević et al. (2015). *Transboundary Conservation: A Systematic and Integrated Approach.* IUCN, Gland, Switzerland.

[56] Melià et al. (2016). Looking for hotspots of marine metacommunity connectivity: a methodological framework. *Scientific Reports*, *6*, 23705.

[57] EC-JRC (2019), DOPA, http://dopa.jrc.ec.europa.eu/ (see section on maps and datasets).

[58] Ervin et al. (2010), *Making Protected Areas Relevant: A guide to integrating protected areas into wider landscapes, seascapes and sectoral plans and strategies.* CBD Technical Series No. 44. Montreal, Canada: Convention on Biological Diversity.

[59] CSIRO (2019), Protected Area Connectedness Index (PARC-Connectedness), https://www.bipindicators.net/indicators/protected-area-connectedness-index-parc-connectedness

this time period, most countries saw at least some increase in connectivity, and 83 countries saw a relative increase of at least 5%. Concurrently, 43 saw a decrease in connectivity. As the PARC-Connectedness Index measures the average connectedness of protected areas, and not total coverage, decreases in connectivity could result from the addition of small poorly-connected protected areas. Decreases could also result from the loss of primary vegetation in surrounding non-protected areas.
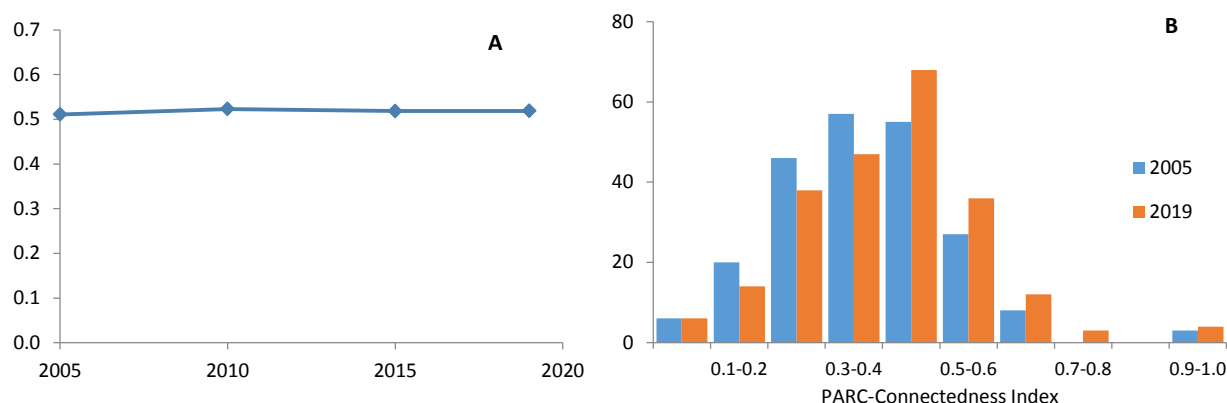

Figure 6. Change in PARC-Connectedness Index, globally (A) and change in the number of countries at varying levels of connectivity (B), between 2005 and 2019.[60]

(v) Effectively managed

27. In 2010, per COP Decision X/31, Parties were invited to implement management effectiveness evaluations in at least 60% of their total protected areas. In 2016, the COP encouraged Parties to expand, institutionalize, and undertake more systematic assessments of management effectiveness within their protected areas system, as well as to update and share the relevant information on management effectiveness in the global database on protected area management effectiveness (GD-PAME). By June 2019, as per information reported in the GD-PAME, only one-in-five countries have evaluated management effectiveness for at least 60% of terrestrial protected areas.[61] Only 15% of countries have evaluated management effectiveness for at least 60% of their total marine protected areas. Currently, 33 CBD Parties have no completed assessments reported in the GD-PAME, and the majority have less than 30% of their protected area network assessed (Fig. 7).

28. To date, reporting of progress on the 'effectively managed' element of Target 11 has focused on the completion of management effectiveness evaluations (measured against the 60% target). However, simply reporting on the completion of evaluations is not adequate. Results of these management effectiveness evaluations need to be examined to determine whether sites are reporting sound management. One difficulty arises from the fact that over 60 different assessment methodologies are in use, according to data reported in the GD-PAME. Future targets relating to protected area management effectiveness should require that some benchmark of quality is being met. For example, a 2010 study[62] applied a benchmark of two-thirds indicating "effective" management across a suite of indicators, and based on the sample of protected areas included at the time (~6,000 sites[63]) less than one-quarter were deemed to have 'sound management'. Without this information on the adequacy of aspects of management, it will not be possible to properly assess progress for this element of Target 11.

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[60] CSIRO (2019).

[61] UNEP-WCMC (2019b), Global statistics from the Global Database on Protected Areas Management Effectiveness (GD-PAME), June 2019, Cambridge, UK: UNEP- WCMC.

[62] Leverington et al. (2010), *Management effectiveness evaluation in protected areas – a global study*. Second edition. Brisbane, Australia: The University of Queensland

[63] This accounts for only 6% of the >100,000 sites in the WDPA at the time (Leverington et al., 2010).

29.   Recent studies have shown that staff and budget capacity are some of the aspects of management most related to conservation outcomes, in both terrestrial[64] and marine protected areas.[65] Yet, out of the protected areas represented in the GD-PAME with assessments that address budget and staff adequacy (over 2,000 sites), less than 25% reported that they had adequate resources with respect to staffing and budget.[66] Similarly, for marine protected areas, most of the 433 marine protected areas in a recent review reported inadequate budgets (65%) and inadequate or below optimum staff capacity (91%).[67] There is a need for more information on conservation outcomes in protected areas, and a better understanding of their relation to specific management inputs[68]; aspects which should receive greater focus in a post-2020 biodiversity framework. There is also a need for a simple set of indicators that can be used to properly report on management effectiveness.[69]
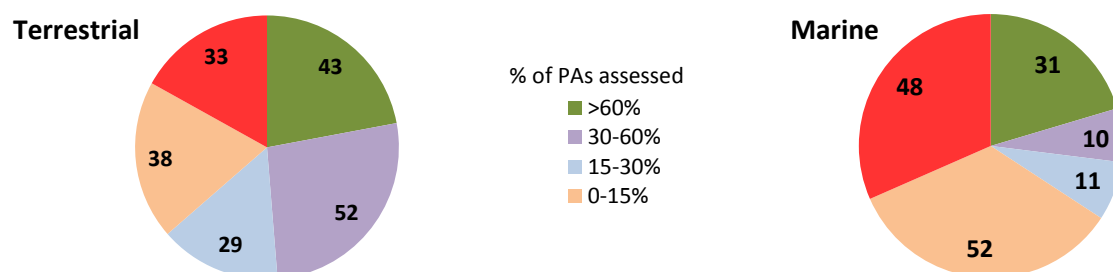

Figure 7. Number of CBD Parties with completed PAME evaluations, as of June 2019 per the GD-PAME.[70]

        (vi) Equitably managed

30.   Target 11 also calls for protected areas to be 'equitably managed'. Equity, which is one element of good governance,[71] is generally described with respect to three dimensions: recognition, procedure and distribution.[72] Enhancing the diversity, quality, effectiveness and equity of protected area governance is important for the achievement of Target 11. Given the lack of comprehensive global assessments of governance and equity in protected areas, to date, reporting on this element has focused on governance diversity. In general, four broad governance types are described: governance by governments; governance by private individuals or organizations; governance by indigenous peoples and/or local communities (IPLC); and shared governance (e.g. between IPLC and Governments or between private individuals and Governments). In 2018, sites reported in the WDPA were primarily governed by governments (>80%), with less than 4% under shared or IPLC governance.[73]

31.   Voluntary guidance on this element has been developed (see COP Decision 14/8, Annex II), and provides a range of suggested steps that could be implemented to enable and support effective and equitable governance models for protected and conserved areas. Principles of good governance have been identified, and used to develop the Governance Assessment for Protected and Conserved Areas

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[64] Geldmann et al. (2018), A global analysis of management capacity and ecological outcomes in terrestrial protected areas, *Conservation Letters*, *11*, e12434.

[65] Gill et al. (2017), Capacity shortfalls hinder the performance of marine protected areas globally, *Nature*, *543* (7647)

[66] Coad et al. (2019), Widespread shortfalls in protected area resourcing undermine efforts to conserve biodiversity. *Frontiers in Ecology and the Environment*.

[67] Gill et al. (2017).

[68] Geldmann et al. (2018).

[69] Coad et al. (2019).

[70] UNEP-WCMC (2019b).

[71] Franks, P et al. (2018) *Understanding and assessing equity in protected area conservation: a matter of governance, rights, social impacts and human wellbeing*. IIED Issue Paper. IIED, London.

[72] Schreckenberg et al. (2016) Unpacking equity for protected area conservation, *Parks*, *22*(2), 11–26.

[73] UNEP-WCMC, IUCN and NGS (2019). *Protected Planet Live Report 2019*. UNEP-WCMC, IUCN and NGS: Cambridge UK; Gland, Switzerland; and Washington, D.C., USA

methodology.[74] The methodology has been piloted in several sites, and its application could be scaled-up over the next 18 months. Additionally, a set of 10 indicators, based on the three dimensions of equity have been proposed,[75] and the first global assessment of equitable management in protected areas was recently published, concluding that there are still significant challenges remaining.[76] The aspect of social equity, where protected areas showed the greatest contribution based on this survey of stakeholders in over 200 protected areas, was benefit sharing, where ~80% of respondents said that protected areas had at least a weak contribution (Fig. 8). The aspects of social equity which was scored the lowest by survey respondents—where a majority perceived that protected areas did not contribute—were: effective participation in decision-making; statutory and customary rights (i.e. recognition of the rights and diversity of local people); access to justice; and transparency (Fig. 8).[77]
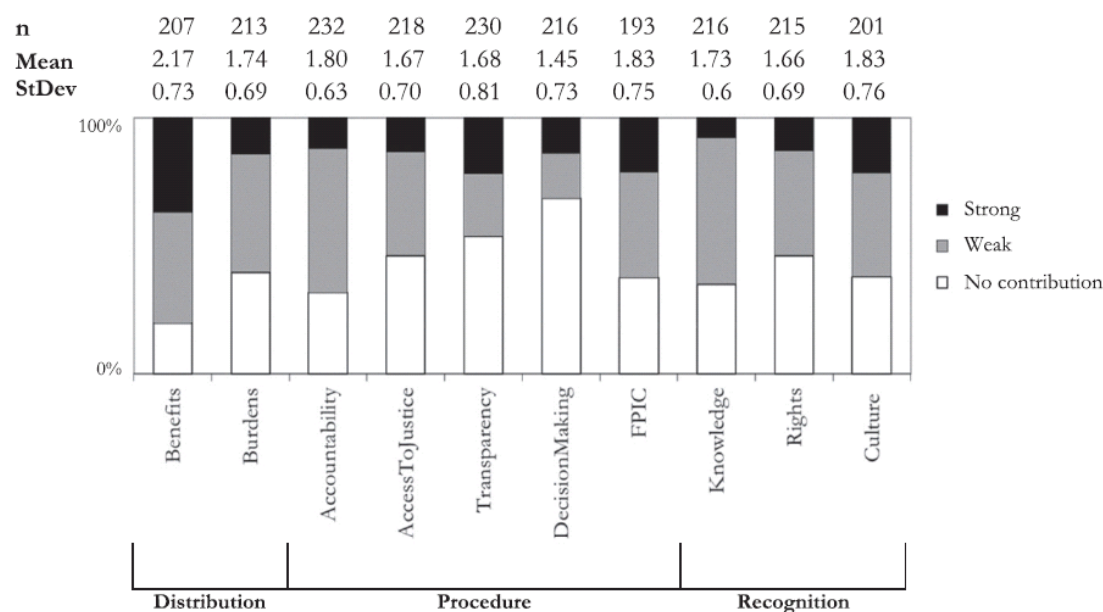

n	207	213	232	218	230	216	193	216	215	201
Mean	2.17	1.74	1.80	1.67	1.68	1.45	1.83	1.73	1.66	1.83
StDev	0.73	0.69	0.63	0.70	0.81	0.73	0.75	0.6	0.69	0.76

Figure 8. Reproduced from Zafra-Calvo et al 2019: "Mean and standard deviation of responses to the 10 criteria across the three dimensions of social equity (n = 122). Social equity criteria were scored according to the responses to the questionnaire with a minimum value of 1 (the establishment or management of the PA is perceived as not contributing to achieving a given social equity criteria), 2 (the establishment or management of the PA is perceived as having a weak contribution toward achieving a given social equity criteria), to 3 (the establishment or management of the PA is perceived as having a strong contribution toward achieving a given social equity criteria). Columns present the distributions of the frequency of the responses as the percentage of the occurrences of each score (no contribution, weak, strong)."

32.   In <u>Decision XIII/2</u>, the COP invited Parties to use the IUCN Green List of Protected and Conserved Areas as a voluntary standard to promote and encourage protected area management effectiveness. The IUCN Green List is a voluntary global standard, with the goal of increasing "the number of Protected and Conserved Areas (PAs) that are effectively and equitably managed and deliver conservation outcomes,"[78] and currently contains 46 areas in 14 countries.[79] It could provide one benchmark for effective and equitable management, with contributions to successful conservation

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[74] Franks & Booker (2018), *Governance Assessment for Protected and Conserved Areas (GAPA): Early experience of a multi-stakeholder methodology for enhancing equity and effectiveness*. London: IIED.

[75] Zafra-Calvo et al. (2017), Towards an indicator system to assess equitable management in protected areas, *Biological Conservation*, *211*, 134–141.

[76] Zafra-Calvo et al. (2019), Progress toward Equitably Managed Protected Areas in Aichi Target 11: A Global Survey. *BioScience*, 69(3), 191-197.

[77] Zafra-Calvo et al. (2019).

[78] IUCN and World Commission on Protected Areas (WCPA) (2017). *IUCN Green List of Protected and Conserved Areas: Standard,* Version 1.1. Gland, Switzerland: IUCN.

[79] https://www.iucn.org/theme/protected-areas/our-work/iucn-green-list-protected-and-conserved-areas

outcomes. The four components of the Green List Standard (Good Governance, Sound Design and Planning, Effective Management, and Successful Outcomes) are underpinned by 17 criteria.[80] Existing approaches for management effectiveness,[81] governance,[82] and social assessment[83] in protected and conserved areas could be used to compile information to address these 17 criteria. This would allow for better estimates of progress in the quality of protected areas.

(vii) Integration

33.   Protected area integration involves linking sites within wider networks of protected, conserved and managed lands/waters, but also incorporating protected area design and management into a broader framework of land-use plans, other relevant laws and policies, and related sectoral plans, strategies and programmes.[84] This will ensure the maintenance of ecological processes and functions, and help to maximize benefits from, and mitigate threats to, biodiversity.[85] Based on the responses of 59 developing Parties, the most important sectors for integration with protected area systems were agriculture, forestry, water resources, and mining and energy; other sectors were selected by less than a third of respondents.[86] As noted in a 2016 study of National Biodiversity Strategies and Action Plans (NBSAPs), very few countries have identified specific strategies within their NBSAPs to integrate protected and conserved areas into the wider landscapes and seascapes.[87] Although not explicit in the Target's language, integration of biodiversity within and across sectors is also vital, and was included in PoWPA, as well as guidance on Target 11.[88] Contradictory policy objectives across different sectors could jeopardise biodiversity conservation and limit the efficacy of protected areas.

34.   Voluntary guidance on this element has been developed (see COP Decision 14/8, Annex I), and offers a range of suggested steps for the integration of protected areas into wider landscapes and seascapes as well as important sectors. However, there is still a lack of indicators and global assessments available for this element of Target 11. One means to assess this could be to look ecological spill-over, examining "leakage" and "blockage" effects of protected areas on non-target, neighbouring areas. A recent study,[89] focusing largely on tropical and subtropical forests found that out of 2,575 protected areas that effectively limited deforestation,[90] 860 had negligible spill-over, and 304 (12%) displayed 'leakage'—where deforestation was simply displaced to the surrounding area, showing limited integration with the wider landscape. 'Blockage', where deforestation was also reduced in areas surrounding the protected area, was recorded in 1,411 (55%) sites. Another study noted that across Europe, land cover changes were more frequent in areas immediately surrounding protected areas (1-km buffer) than in all non-protected areas; both unprotected areas and those immediately surrounding protected areas showed

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[80] IUCN & WCPA (2017).

[81] Hockings et al. (2006). *Evaluating effectiveness: a framework for assessing the management of protected areas*, 2nd edition. Gland, Switzerland and Cambridge, UK: IUCN.

[82] Franks & Booker (2018).

[83] Franks et al (2018) *Social Assessment for Protected and Conserved Areas (SAPA). Methodology manual for SAPA facilitators.* Second edition. IIED, London.

[84] Ervin et al. (2010).

[85] Ervin et al. (2010).

[86] Gannon et al. (2017). Status and prospects for achieving Aichi Biodiversity Target 11: implications of national commitments and priority actions. *Parks*, 23(2).

[87] UNDP (2016), National Biodiversity Strategies and Action Plans: Natural Catalysts for Accelerating Action on Sustainable Development Goals. Interim Report. United Nations Development Programme. December 2016. New York, United States of America: UNDP, https://www.cbd.int/doc/nbsap/NBSAPs-catalysts-SDGs.pdf.

[88] https://www.cbd.int/sp/targets/rationale/target-11/

[89] Fuller et al. (2019), First, do no harm: A systematic review of deforestation spillovers from protected areas, *Global Ecology and Conservation*, e00591.

[90] Another 823 protected areas (~24%) did not restrict deforestation (Fuller et al 2019).

more land cover change than inside protected areas.[91] This land cover change was driven primarily by afforestation and deforestation, and to a lesser degree from urbanisation and agriculture.

35.   Marine spatial planning "is an area-based management framework that addresses multiple management objectives" and represents a "framework to provide a means for improving decision-making as it relates to the use of marine resources and space."[92] It represents an important means for ensuring the integration of marine protected areas with the wider seascape, and with relevant sectors, and coordinating the distribution of human impacts in the ocean. Globally, marine spatial planning is under development in more than 66 countries.[93]

6.3 Opportunities for further progress

36.   Commitments made by Parties to the Convention, as noted above (Fig. 2), will have significant impacts for global protected area coverage if implemented as proposed by 2020. Further opportunities exist through the completion of Global Environment Facility (GEF-5 and GEF-6) projects, the recognition and reporting of territories and areas conserved by indigenous peoples and local communities (ICCAs), and especially through better recording of data and recognition of OECMs. These additions will improve ecological representation and may also have benefits for connectivity and the coverage of areas important for biodiversity, as well as other elements of the Target. However, to assess the impacts for these elements, spatial information on these areas is needed. Work is underway to collect some of this information and assess the impact on these elements of Target 11, as discussed in the following sections.

37.   Additionally, properly updating information in the WDPA to better reflect conditions on the ground, which may be higher than presently recorded, will improve our knowledge of the global status of protected area coverage. Information on protected area coverage from Sixth National Reports submitted by June 2019 has been analysed and includes information submitted by 90 Parties. Of these, for terrestrial areas, 26 report values lower than the WDPA, 32 report values higher than the WDPA, 17 report values that are similar, and the remaining 15 either did not report specific figures for terrestrial protected area coverage or the description was unclear. For marine areas: 11 report values lower than the WDPA, 26 report values higher than the WDPA, 10 report values that are similar, 3 provided information that was unclear, 17 did not provide marine coverage, and the remaining 23 National Reports are from landlocked countries. This mean that the remaining gaps for global protected area coverage[94] are lower than currently assessed based on coverage in the WDPA. Based on this preliminary analysis, global coverage could be at least 16% for terrestrial areas and almost 8% for the global ocean. Work is ongoing to facilitate updating records in the WDPA to better reflect the situation on the ground, or to clarify some of the discrepancy.

A.   Opportunities from GEF-5 and GEF-6 protected area projects

38.   There are 115 approved projects from the fifth and sixth replenishment of the Global Environment Facility (GEF-5/6) with clear plans for increasing protected area coverage—through either the creation of new sites, or expansion of existing sites. However, five of these projects did not include the area to be added, and four projects did not state whether the project would cover terrestrial or marine areas. Overall, completion of these projects before 2020 would add over 300,000 km^2 in terrestrial protected areas (0.22% globally), and over 500,000 km^2 in marine protected areas (0.36% of national waters; 0.14% of the global ocean), accounting for areas that are already reported in the WDPA.

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[91] Hellwig et al. (2019). Climatic and socioeconomic effects on land cover changes across Europe: Does protected area designation matter? *PloS one*, *14*(7), e0219374

[92] Secretariat of the Convention on Biological Diversity and the Scientific and Technical Advisory Panel —GEF (2012). *Marine Spatial Planning in the Context of the Convention on Biological Diversity: A study carried out in response to CBD COP 10 decision X/29*, Montreal, Technical Series No. 68, 44 pages.

[93] Santos et al. (2019). Chapter 30: Marine spatial planning, In *World Seas: An Environmental Evaluation* (p. 571-592). Academic Press.

[94] Gaps remaining at the global level: 2.0% for terrestrial areas, and 2.4% for the global ocean (target is already surpassed for marine areas under national jurisdiction).

39.   Of these GEF projects, UNDP is the implementing agency for 81 projects in 53 countries. For these projects, UNDP is working with project coordinators to obtain spatial data for the protected areas, and identify which will be completed by 2020. With this information, they are analysing and mapping the impact that these committed protected areas will have on ecological representation, on the coverage of KBAs, and on areas important for carbon storage (both above ground biomass, and soil organic carbon), as one example of areas important for ecosystem services.[95] Full results are expected in November 2019, but some preliminary analysis is currently available (see examples in Box 1).

Box 1: GEF example

In Uruguay there is one GEF-5 project (GEF ID 4841), that will add 1,100 km^2 in terrestrial protected area coverage, as well as strengthening the effectiveness of the Uruguay's protected area system by including a landscape approach to their management. This commitment will increase protection for KBAs in Uruguay as well as improve the protected area network's ecological representation and coverage of important areas of carbon storage. Of the five ecoregions found in Uruguay, two will have increased protection following successful completion of this project (Fig. 9); both of these ecoregions currently fall below 17% coverage globally. Of the twenty-two KBAs located in Uruguay, eight will have increased protection (Fig. 9), of which five currently have no protected area coverage, and three are only partially covered (i.e. between 2% and 98%).
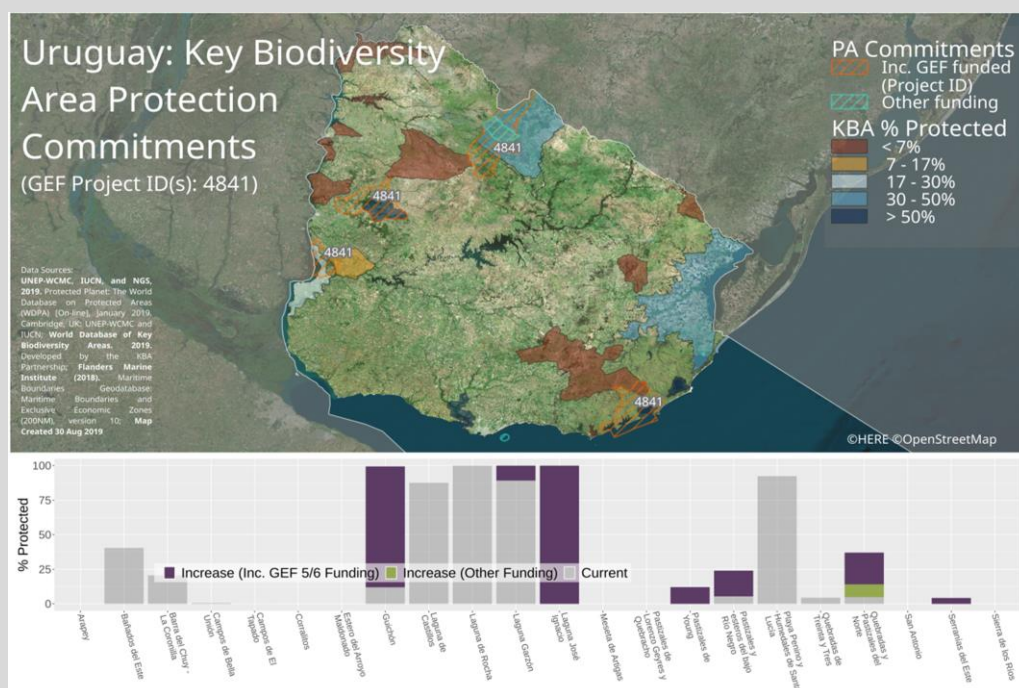
In Viet Nam there are two approved GEF projects, which together will add 650 km^2 to the terrestrial protected area system. These commitments will help improve coverage of terrestrial ecoregions and KBAs. Of the 14 ecoregions in Viet Nam, five will have increased protection due to GEF 5/6 funding, of which three currently fall below 17% coverage globally. Out of the 110 total KBAs found in Viet Nam, 25 will have increased protection, of which 16 currently have no protected area coverage, and nine are only partially covered (i.e. between 2% and 98%). There will also an increase in the coverage of important areas for carbon storage, in both above ground biomass and soil organic carbon.

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40.   While these 115 projects address the quantitative aspect of Target 11 by increasing the coverage of protected areas, there are over 300 approved GEF-5/6 biodiversity projects that address one or more qualitative element of Target 11. While all qualitative elements are addressed in at least 100 projects, the

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[95] There areas have been defined as the areas representing the top quartile (25%) of carbon values nationally

elements addressed most often (in over 200 projects) are: effective management, integration, more equitable governance, and areas important for biodiversity.

B. Opportunities from ICCAs

41.   Land that is managed by or under the tenure rights of indigenous peoples covers almost 40 million km^2 globally (28% of all non-Antarctic terrestrial area), and accounts for more than one-third of remaining areas of low human impact (based on Human Footprint data).[96] Some of these areas may be considered as territories and areas conserved by indigenous peoples and local communities (ICCAs), and through their contribution to conservation could support progress on Target 11. The overall contribution of ICCAs to biodiversity conservation has yet to be assessed globally. The Programme of Work on Protected Areas and successive decisions of the COP (e.g. Decisions IX/18 and X/31) have accorded recognition to ICCAs, though they are currently underreported in the WDPA.[97] Some ICCAs may be considered as OECMs,[98] though others may be reported as protected areas, as in the many indigenous protected areas reported in Brazil or Australia. In other cases, the governing authority may not want the site recognised as either. Reporting on ICCAs for the purposes of Target 11 requires the employment of necessary safeguards relating to the rights of IPLCs, including free, prior, and informed consent.

42.   The Global Support Initiative for Indigenous Peoples and Community-Conserved Territories and Areas (ICCA-GSI) aims to "improve the recognition and overall effectiveness for biodiversity conservation, sustainable livelihoods and resilience to climate change effects of territories and areas conserved by indigenous peoples and local communities" and is currently being implemented in 26 countries.[99] To date, very few ICCA-GSI sites are recorded in the WDPA and/or the ICCA Registry. However, progress with the ICCA-GSI is significant in many countries, and data is currently being reported for over a 100 ICCAs. For example, the ICCA-GSI projects in Columbia[100] reported 13,800 km^2 under community conservation and self-recognised as ICCAs.

C. Opportunities from Other Effective Area-based conservation measures (OECMs)

43.   OECMs may contribute to all elements of Target 11, *inter alia*, through the conservation of important ecosystems, habitats and wildlife corridors, retaining and connecting fragmented ecosystems, and contributing to ecologically representative and well-connected conservation systems, integrated within wider landscapes and seascapes. As noted above, the status of many elements of Target 11 is expected to improve significantly as reporting on OECMs advances, though there is no clear indication of potential global coverage at this time. Work will be needed to develop an understanding of OECMs within different national contexts.

44.   Recognising and reporting on OECMs will result in substantial improvements in global coverage, with implications for other elements of Target 11. It will also provide better understanding of the range of available approaches providing effective *in situ* conservation of biodiversity. This will help to better recognise *de facto* conservation occurring outside formally designated protected areas, being carried out by a diverse set of actors.

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[96] Garnett et al. (2018). A spatial overview of the global importance of Indigenous lands for conservation. *Nature Sustainability*, *1*(7), 369–374.

[97] Bingham et al (2019). Sixty years of tracking conservation progress using the World Database on Protected Areas. *Nature ecology & evolution*, 1.

[98] Jonas et al. (2017). Will 'Other Effective Area-Based Conservation Measures' Increase Recognition and Support for ICCAs?. *Parks*, *23*(2), 63-78.

[99] Argentina, Belize, Benin, Brazil, Colombia, Ecuador, Georgia, Guatemala, Indonesia, Iran, Jordan, Kenya, Kyrgyzstan, Madagascar, Malaysia, Maldives, Morocco, Namibia, Paraguay, Peru, Philippines, Senegal, Suriname, Tanzania, Viet Nam and Zambia.

[100] UNDP Ecosystems & Biodiversity (2019), Women, Culture, and Territory: Safeguarding biodiversity by protecting ancestral culture in Colombia, https://undp-biodiversity.exposure.co/women-culture-and-territory.

45.   Case studies of areas potentially meeting the definition for OECM have been described in a number of countries,[101] and in some countries OECMs are making a significant contribution to progress on Target 11. For example, in Canada there has been a five-fold increase in marine coverage since 2015, and a large portion of this has come from the designation of marine OECMs.[102] In Russia, an analysis of existing coverage was recently carried out;[103] determining that the total area with biodiversity conservation regimes, either protected areas according national legislation or other sites in compliance with IUCN criteria, cover 25% of terrestrial and 3.4% of marine areas. The sites that meet the IUCN criteria but are not nationally designated could be considered as OECMs, and cover 13.5% of land areas and 1% of Russia's national waters.

6.4 Conclusion

46.   There is just one year remaining until 2020 and the close of the current Strategic Plan for Biodiversity and the Aichi Biodiversity Targets. Progress is clear for several elements of Target 11, most notably with respect to the coverage of marine areas (Fig. 1). Following the completion of national commitments and other opportunities discussed above, especially the recognition and recording of OECMs, it is likely that at least some elements of Target 11 will be met or exceeded by 2020. For those elements which may not be achieved by 2020, sustained capacity-building mechanisms through the Global Partnership should ensure continued progress.

47.   For other elements of the Target (e.g. management effectiveness, equity, and integration into wider landscapes and seascapes), there is limited availability of data at the global level to provide an adequate assessment of progress. The aim over the next year should be to improve reporting on these elements. For example, scaling up assessments of governance and equity in protected areas, and assessing the results of management effectiveness evaluations. These elements, and other relating to the quality of protected and conserved areas, should be considered for more attention in the post-2020 period.

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[101] See examples in *Parks* Journal 24, Special Issue on OECMs (June 2018), https://parksjournal.com/list-of-papers/; as well as the collation of case studies submitted to the IUCN-WCPA Task Force on OECMs, https://www.iucn.org/commissions/world-commission-protected-areas/our-work/oecms/oecm-reports

[102] Environment and Climate Change Canada (2018), Canada's conserved areas, https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/conserved-areas.html

[103] Stishov & Dudley (2018).

7. Types of Area-based Conservation Measures

Here we provide additional information on several types of ABCM, based on available literature.

7.1 ABCM in the Terrestrial Realm

Protected areas (per WDPA September 2019)	15.0%
National Commitments (as of July 2019)	3.3%
Privately Protected Areas (not likely in WDPA) from 16 countries (Stolton et al 2014)	0.1%
ICCAs (not likely in WDPA) from 37 countries (Kothari et al 2012)	0.2%-0.7%
Area that Indigenous Peoples manage or have tenure rights over, outside of reported PAs (per Garnett et al 2018)	5.6 % (assuming 1/4th of this area [22.3% of land area] is considered as ICCAs/OECMs)
Other ABCM: e.g. OECMs (*inter alia* military lands with secondary conservation objectives, watershed protection areas), ecological corridors, conservancies, buffer zones of some Biosphere Reserves, some high value conservation areas or fishery closures, etc.)	??
Total:	*24.2%*

A. OECMs

The definition of an OECM, as adopted in COP Decision 14/8, is: a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values

Potential examples could include:

✓ Some ICCAs or privately conserved areas, not recognised as PAs

✓ Watersheds or other water resource management areas that also result in the in-situ conservation of biodiversity

✓ Permanent or long-term fisheries closure areas designed to protect complete ecosystems for stock recruitment

✓ Sacred natural sites

✓ Military lands/waters, that achieve effective long-term conservation of biodiversity

There is currently no indication of the global extent of OECMs, but some examples include:

✓ 180,000 ha of former military land safeguarded for nature conservation (Germany)

✓ Sacred groves exist in 19 of 28 states in India, these 100,000–150,000 sites cover ~0.01% of the total geographic area of the country

B. Ecological Corridors

Draft definition: "An **Ecological Corridor** is a clearly defined geographical space, not recognized as a protected area or other effective area-based conservation measure (OECM), that is governed and

managed over the long-term to conserve or restore effective ecological connectivity, with associated ecosystem services and cultural and spiritual values". [104]

C. Conservancies

Conservancies cover large areas in many African countries, for example:

- ✓ Kenya (11% of country)
- ✓ South Africa (2.5% of country)
- ✓ Namibia (19.6% of country)

Some are not currently reported in WDPA.

D. Biosphere Reserves

Biosphere reserves are internationally recognized, under the UNESCO "Man and the Biosphere" (MAB) Programme. They are are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. These areas aim to reconcile biodiversity conservation with sustainable use. As of 2019, there are 701 biosphere reserves in 124 countries (including 21 transboundary sites).While the core areas of biosphere reserves often overlap with other protected areas, some biosphere reserve buffer zones could potentially qualify as OECMs.

E. Privately Protected Areas

Privately Protected Areas (PPAs) constitute an important and growing part of the conservation landscape worldwide and have enormous potential to contribute to global biodiversity and conservation agenda and goals in particular. A recent study by UNDP and International Land Conservation Network, Lincoln Institute of Land Policy provides an overview of the status of PPAs in 30 countries throughout Latin America, Asia, the Pacific and Sub-Saharan Africa and summarizes the legal, policy and institutional mechanisms used in these countries to establish and incentivize PPAs. Although some PPAs are reported officially to the World Database on Protected Areas, there is still need to encourage countries to promote and report on PPAs.

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[104] Hilty, J., Worboys, G., Keeley, A., Woodley, S., Lausche, B., Locke, H., Carr, M., Pulsford I., Pittock, J., White, W., Theobald, D., Levine, J., Reuling, M., Ament, R., and Tabor, G. (May 2019). (Draft) Guidance on safeguarding ecological corridors in the context of ecological networks for conservation. Gland, Switzerland: IUCN.

7.2 ABCM in the Marine realm

A. Locally Managed Marine Areas

Locally Managed Marine Areas (LMMA's) are protected *or conserved* areas that are largely or wholly managed by coastal communities and/or land-owning groups, with the support of government and partner representatives. The communities impose restrictions on areas such as 'no-take zones' and on certain equipment, practices, species or sizes of catches. These zones or restrictions allow resource and habitat recovery in over exploited areas, enabling a return to more sustainable harvest of marine resources for the community.

First recognized in Fiji, LMMA's are being replicated across coastal communities world-wide. More than 420 Indo-Pacific sites in the LMMA network involve around 600 villages and LMMAs cover more than 12,000 km2 in 15 Pacific Island States. LMMAs are now in Madagascar and Indian Ocean. The LMMA Network is a global initiative founded in 2000 to advance LMMA practices around the world. It consists of communities, dedicated practitioners and government officials all focused on community-based marine resource management projects, providing capacity building, awareness and monitoring support. The Network is about sharing ideas and experiences to improve the performance of LMMAs while empowering greater numbers of communities to manage their marine resources in a sustainable way.

MPAs and LMMAs both contribute substantially to social, economic and environmental benefits including through food security, livelihood security, poverty alleviation, disaster risk reduction and climate change mitigation and adaptation. LMMAs may provide a significant contribution to achieving Aichi Biodiversity Target 11 and several targets of SDG 14, but LMMAs are currently under-represented in the global protected area database that is used for assessing progress towards these tar-gets (i.e. the World Database on Protected Areas). Recent studies have recorded nearly 1,000 LMMAs in the Pacific Islands which could amount to 8% of island communities. Their coverage of inshore waters has not yet been estimated but these local management approaches have encouraged many islands to adopt these as national policy approaches to coastal fisheries management and conservation.

	Fiji	Papua New Guinea	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu	Totals
Marine Managed Areas (all records)	246	166	84	127	18	10	55	**745**
Marine Managed Areas "Active" (est.)	217	80	54	113	6	4	20	**518**
Locally managed marine areas	217	86	59	113	6	10	44	**558**
Community Conserved Areas	217	79	82	109	0	10	44	**564**
No-take Zones	222	94	82	115	9	3	44	**593**
MMA coverage, all records (Km^2)	10,880	3,764	209.1	1,381	10,009	75.6	89.4	**26,427**
LMMA coverage (Km^2)	10,816	59.4	119.5	941	92.9	75.6	58.1	**12,180**
No-take Zones (Km^2)	593.0	18.0	15.8	310.5	10.1	50.2	89.4	**1,107**

B. Marine OECMs

To date, there is no data for the global coverage of marine OECMs. However, some countries have already begun to consider marine OECMs within their own national conservation frameworks. One example of such a country is Canada. Fisheries management measures in Canadian waters that qualify as

other effective area-based conservation measures are considered as "marine refuges". These measures are designated to help protect important species and their habitats, including unique and significant aggregations of corals and sponges. Canada intends to keep these measures in place for the long-term, creating a lasting contribution to marine conservation. As of April 25, 2019, these marine OECMs cover 283,365 km^2 (4.93% of Canada's marine territory). Marine refuges make a significant contribution to the achievement of Canada's marine conservation targets (protecting 10% by 2020). In consultation with affected stakeholders, Canada's Department of Fisheries and Oceans (DFO) is also exploring additional opportunities to identify or establish new measures that have biodiversity conservation benefits, so that their contributions to the marine conservation targets can be recognized.[105]

C. Fisheries closures

Fisheries closures, which are "spatially discrete management measures that restrict certain gears or fleets for defined amounts of time to aid with the management of fish stocks,"[106] are another form of marine ABCM. Though they would likely not qualify as OECMs, they may still offer conservation value in addition to their role in maintaining fish stocks. Currently, seasonal and permanent or other gear-specific closures cover approximately 7.4% of the ocean (see figure below).[107]
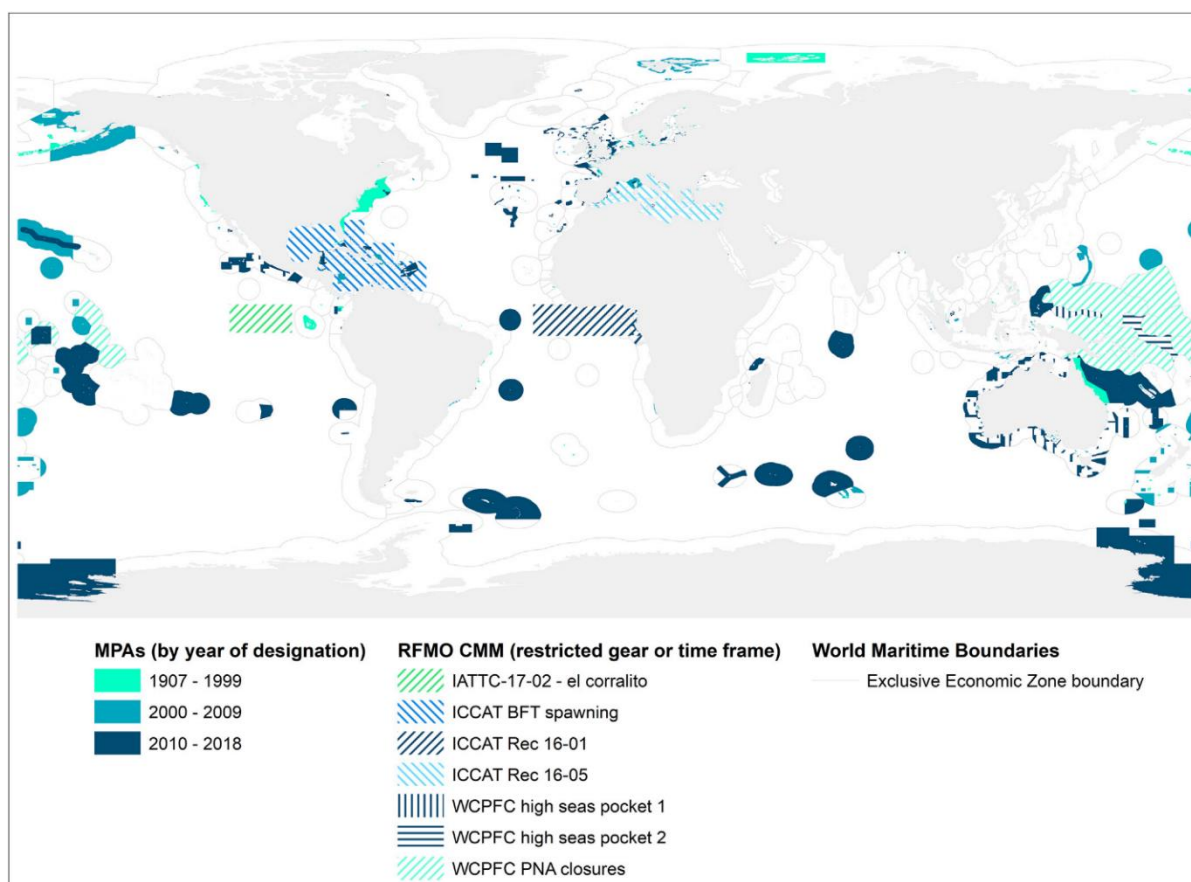

Fig. 1 (from Boerder et al., 2019). "Locations of MPAs and fishery closures around the world. Marine protected areas (MPAs, solid patterns) are color coded by year of establishment as reported by the World Database on Protected Areas in 2018 (www.protectedplanet.net). Active spatial Conservation and Management Measures (CMMs, hatched patterns) implemented by Regional Fisheries Management Organizations (RFMOs) are typically seasonal or gear specific closures. The temporary closure of the entire IATTC Convention Area in the Eastern Tropical Pacific (IATTC 17-02) is not included; it was classified as a fisheries management measure rather than a closure as it comprises the whole convention area. Marine protected areas shown here cover about 7.6%, and RFMO CMMs cover about 7.4% of total ocean area. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)