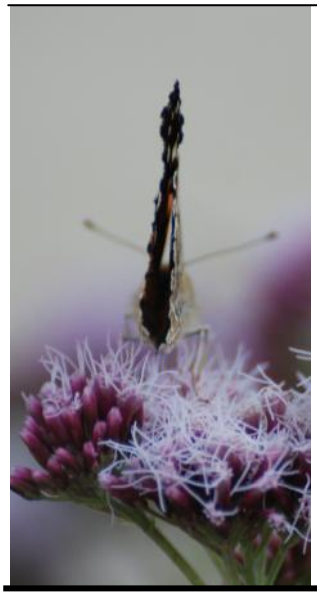

MEETING AICHI TARGET 11: WHAT DOES SUCCESS LOOK LIKE FOR PROTECTED AREA SYSTEMS?

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ABSTRACT

The Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020 was adopted at the 10th Conference of the Parties in Nagoya, Japan. The plan outlines 20 Aichi Targets to achieve global biodiversity conservation. A fundamental global approach to biodiversity conservation is the use of protected areas. Arguably all 20 Aichi Targets have implications for the establishment and management of protected areas, but only Target 11 addresses them directly. This paper carries out a clause by clause analysis of Target 11 and makes recommendations to countries on interpreting each clause in order to best achieve biodiversity conservation using protected areas. Despite containing only 61 words, Target 11 is surprisingly dense. It applies to both marine and terrestrial ecosystems, and sets goals for spatial planning (representiveness, ecological connectivity and areas of importance for biodiversity); protected areas management (including management effectiveness and social equity); and criteria about what counts toward being a protected area under Target 11. We argue for a holistic interpretation of Target 11 as a way for the global community to use protected areas to change the current unacceptable trends in global biodiversity loss.

INTRODUCTION

Biological diversity underpins ecosystem functioning and the provision of ecosystem services essential for human survival and well-being. It provides food security, clean air and water; it contributes to local livelihoods, human health, and economic development, and thus is essential for the achievement of the Millennium Development Goals, including poverty reduction. Accordingly the 10th Conference of the Parties (COP) to the Convention on Biological Diversity (CBD), in Nagoya, Japan, adopted the Strategic Plan for Biodiversity 2011-2020.

This Plan is comprised of a shared vision, a mission, strategic goals and 20 ambitious, yet achievable, targets, collectively known as the Aichi Targets (www.cbd.int/sp/targets/). At first reading, the Targets are straightforward and require little policy elaboration. Closer examination however reveals that they are complex parts of a whole, and require considerable interpretation if countries are to be able to move ahead in a consistent and fair manner and achieve the Targets.

Arguably all 20 Aichi Targets have implications for the establishment and management of protected areas, but only Target 11 addresses them directly. Protected areas are a tried and tested approach to nature conservation. For centuries they have been created and managed by local communities, indigenous peoples, governments and private organizations. They remain one of the most diverse and adaptable management and institutional tools for achieving conservation. Their effectiveness can be measured, evaluated and enhanced. In addition to conserving nature, protected areas are critical for a range of other benefits, including providing ecological services, reducing the impacts of disasters such as flooding, and storing carbon (Dudley et al., 2010, World Bank, 2010).

Aichi Target 11, which falls under Goal C of the Strategic Plan for Biodiversity, '*Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity*' reads: "*By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal*

Galápagos Islands World Heritage Site © Sue Stolton

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."

The target addresses multiple facets of protected areas including increased coverage, connectivity, management, governance and equity. In this paper, we review Aichi Target 11 in order to suggest concrete policy guidance for governments and others attempting to implement the CBD's revised programme. We provide a clause by clause analysis of Target 11, suggesting the most appropriate interpretation based on an integration of 1) wider policy issues relating to the world's protected area system; 2) biological requirements for the persistence of species and ecosystems within protected areas systems; 3) a close understanding of the intent of the Target as drafted at the COP 10. After the discussion of each clause we provide a recommendation to parties of the CBD for interpretation and measurement of that clause.

The modifying clauses of Target 11 fall into three groupings. The first and largest grouping is essentially spatial, and includes the questions of how much area should be protected, the interpretation of ecological representiveness, where protected area should be placed, and how well they are connected and integrated by the surrounding landscape. The second group of modifying clauses focuses on how protected areas should be managed, including management effectiveness and questions of social equity. The third type of modifying clause is explicitly about what counts toward being a protected area under Target 11, which explicitly refers to 'protected areas and *other effective means*'.

CLAUSE 1: 'AT LEAST 17 PER CENT OF TERRESTRIAL AND INLAND WATER, AND 10 PER CENT OF COASTAL AND MARINE AREAS'

The World Database on Protected Areas (WDPA) tracks the coverage of the world's protected areas. Since 1950, there has been a sustained growth in protected areas with currently over 160,000 recognized protected areas conserving 13 per cent of terrestrial areas and 1.6 per cent of marine ecosystems (Bertzky et al., 2012).

Although 1.6 per cent of the global ocean area is protected, marine protection is concentrated in the near-coastal areas (0-12 nautical miles), where 7.2 per cent of the total area is protected. If we consider the total marine area under national jurisdiction, here defined as stretching from the shoreline out to the outer limit of the 200 nautical mile Exclusive Economic Zone, this figure decreases to 4 per cent (Bertzky et al., 2012).

While the global protected area network continues to grow, it should be acknowledged that some existing protected areas have been reduced in size, had their status altered, or ceased to exist (degazetted). A recent pilot study of this phenomenon (Mascia & Pailler, 2011), also known as protected area downgrading, downsizing, and degazettement (PADDD), found at least 89 historic instances of PADDD in 27 countries since 1900, and that PADDD is a current policy issue in at least a dozen countries. Such downgrading, downsizing or degazettement is generally to allow greater access for exploitation of natural resources.

So even with the simplest interpretation of Target 11, the world is currently below the overall target of conserving 17 per cent of terrestrial ecosystems and 10 per cent of marine ecosystems. Adding the other spatial elements mentioned in Target 11 of 'representativeness', 'connectedness', and 'areas of significance for biodiversity' adds additional complexity in achieving the coverage goals.

It must be kept in mind that Target 11 calls for 'at least' 17 per cent of lands and inland waters, and 10 per cent of coastal waters and that these are interim targets, designed to be achieved by 2020. There is nothing in these percentages, or Target 11 itself, that speaks to the more essential question of what level of protected areas would be required to achieve broader conservation goals. The real policy question is what amount of protection is necessary and sufficient to ensure that biodiversity is conserved, ecosystems have integrity, and provide necessary services for people. So, the scientific question is still outstanding as to what should be the ultimate percentage of protected area on land, freshwater and marine areas, since the Target 11 numbers were negotiated in an international convention and not developed through peer reviewed science.

RECOMMENDATION ON PERCENTAGE COVERAGE OF TARGETS

The percentage targets for global coverage should not be interpreted simply on the basis of a given percentage of protected areas in each country. The objective of Target 11 requires that protected area planning include additional spatial considerations of representativeness, connectedness, and areas of importance to biodiversity and ecosystem services (see discussion of other Clauses below).

Parties to the CBD should be aware that the percentage goals in Target 11 are negotiated, interim targets on a global scale, and are not scientifically defined endpoints.

CLAUSE 2: 'ECOLOGICALLY REPRESENTATIVE'

Target 11 requires the global protected area network to be ecologically representative without providing guidance on how 'representativeness' is to be determined. From an ecological perspective, it is reasonable to consider what is the most appropriate scale to assess representativeness: ecoregion, biome or realm.

In a significant global effort, Olson et al. (2001) defined a global set of ecoregions, on land, freshwater and in coastal marine areas. A total of 1055 ecoregions have been defined globally, 823 of which are terrestrial (which includes fresh water), and 232 are coastal marine. Deep sea marine ecoregions have not been defined. Terrestrial ecoregions are large areas with characteristic combinations of habitats, species, soils and landforms (Olson et al., 2001). At present only one-third of the 823 terrestrial ecoregions would meet the Aichi target of conserving 17 per cent (Bertzky et al., 2012). More alarmingly, 10 per cent of terrestrial ecoregions still have less than 1 per cent of their area protected, indicating significant gaps in the protection of large areas with distinctive biodiversity. Coastal marine ecoregions are large areas with characteristic combinations of species that are clearly distinct from adjacent areas (Spalding et al., 2007). By 2010, only 30 of the 232 coastal marine ecoregions met the 10 per cent protection target, while 137 (59 per cent) had less than 1 per cent of their area protected (Bertzky et al., 2012). Although some 13 per cent of marine ecoregions now meet the 10 per cent target, it will take considerable effort to reach required levels of representativeness of protection by 2020.

Coastal dune systems at Ynyshir Nature Reserve, Wales © Nigel Dudley

Ecoregions reflect the distributions of fauna and flora across the entire planet, and they in turn are nested within more coarse classifications of biogeographic realms and biomes (Dasmann, 1973, 1974; Udvardy, 1975). Biomes are defined as the world's major ecological communities (e.g. temperate grasslands, savannah and shrublands), classified according to the predominant vegetation and climate. Biogeographic realms are the large continental geographies of the world with

generalized climate patterns (e.g. Afrotropic). Only the Neotropic Realm has 17 per cent or more of its area protected (Bertzky et al., 2012). For biomes, the highest levels of protection are found in montane grasslands and shrublands, all exceeding 17 per cent. The lowest levels are in boreal forests, Mediterranean ecosystems and temperate grasslands and shrublands, which are all below 10 per cent.

Biological diversity, however measured, is best associated with an ecoregion classification, rather than biomes or realms (Olson et al., 2001). Biomes and realms are classification systems that reflect large scale patterns of climate and geography, but do not reflect species level diversity. Ecoregions cover relatively large areas of land or water, and contain characteristic, geographically distinct assemblages of natural communities and species. The biodiversity of flora, fauna and ecosystems that characterise an ecoregion tends to be distinct from that of other ecoregions. The 1055 terrestrial and coastal marine global ecoregions are well defined, cover all land, freshwater and coastal marine ecosystems and are at a scale relevant to countries and a scale relevant to conservation and representativeness. Because the system is nested, the use of ecoregions will also allow reporting to be done at the biome or realm level if so required.

RECOMMENDATION ON REPRESENTATIVENESS

Countries should use terrestrial, freshwater and marine ecoregions as the basis for determining the spatial element of representiveness in Target 11. The strongest scientific interpretation would be to read the clause as protect "*17 per cent of each terrestrial ecoregion and 10 per cent of each coastal marine ecoregion as protected areas by 2020*."

CLAUSE 3: 'ESPECIALLY AREAS OF PARTICULAR IMPORTANCE FOR BIODIVERSITY AND ECOSYSTEM SERVICES'

In addition to representativeness, Target 11 commits countries to establish protected areas in areas that are of 'particular importance for biodiversity and ecosystem services.' There have been various efforts to identify those areas, based on different scales, taxa and criteria. The most well-established examples are Important Bird Areas (BirdLife International, 2004) and Alliance for Zero Extinction sites (Ricketts et al., 2005). But important biodiversity areas have also been identified for freshwater biodiversity, plants and non-bird vertebrates, such as Important Plant Areas (www.plantlife.org.uk/wild_plants/important_plant_areas/) and Prime Butterfly Areas. While the conservation importance of many of these areas has long been known, global datasets that would allow global reporting have only recently become available for Important Bird Areas and Alliance for Zero Extinction sites. Datasets for other types of terrestrial sites and marine areas (Ecologically and Biologically Significant Areas) are still being developed.

A recent analysis of levels of protection for known sites of particular significance for species conservation showed that, as of 2008, only 22 per cent of the world's 588 Alliance for Zero Extinction sites was fully protected (in terms of protected area coverage), while 51 per cent remained entirely unprotected (Butchart et al., 2012). Each of these sites is critical for the survival of one or more highly threatened species. Similarly, only 28 per cent of the world's 10,993 Important Bird Areas were completely covered by existing protected areas in 2008, while 49 per cent were not protected at all. These sites are important for the conservation of the world's birds but also have other ecological values.

There is a pressing need for a global system to identify areas of particular importance for biodiversity as part of sound conservation planning. The IUCN World Commission of Protected Areas (WCPA) and Species Survival Commission (SSC) have established a joint Task Force on Biodiversity and Protected Areas (www.iucn.org/about/union/commissions/wcpa/wcpa_what/wcpa_science/biodiversity_and_protected_areas/) which is leading an initiative to consolidate a global approach for all taxa and sites to identify areas of significance for the persistence of biological diversity.

Biodiversity should be considered at the ecosystem, species and genetic level. Virtually all of the global efforts have been focused on species. The ecosystem level has also been considered in most approaches, either explicitly or implicitly by considering ecosystems as part of delineating areas for species conservation. Genetic considerations are included in some species-based approaches, although it is fair to say that there are still significant gaps in considerations of genetic diversity.

Identification of sites of particular importance for ecosystem services poses a different challenge and one that has not been well addressed by the conservation community. Ecosystem services are a subset of ecological processes that are viewed as benefits that people obtain from ecosystems. These include provisioning services such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational,

A mangrove restoration project undertaken by the local community association at Joal-Faljouth National Park in Senegal
© Colleen Corrigan

aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling (Millennium Ecosystem Assessment, 2005). The links between biodiversity and ecological processes remain an area of active research. It is increasingly clear that the conservation of biological diversity is necessary to preserve ecological services (see Cardinale et al., 2012). At the current time there is no agreed methodology for identifying areas that are of particular importance for providing ecosystem services, because ecosystem services are user-defined and site-specific. Nonetheless, it is possible to identify areas that are *likely* to be important for ecosystem services including wetlands, montane grasslands, and cloud forest ecosystems as provisioners of clean water; coastal mangroves as nursery grounds for valuable sea life and diminishing the impact of storms; areas of natural vegetation that are providing soil stabilisation in erosion-prone areas and some forests, peat lands and grasslands as significant carbon stores and sinks (Ten Brink, 2011).

Well-managed protected areas can provide some services to people without impacting the primary nature conservation value of the protected area. This is either because the benefits are a side-effect of conservation, such as clean water, soil stabilisation and coastal protection, or because natural resources within a protected area are abundant enough to allow spillover and sustainable off-take, as can be the case with fish in marine protected areas (Dudley et al., 2011). It is likely that protected areas of sufficient size and location can reduce the vulnerability of local human communities to the impacts of climate change, including shortages of food, potable water and traditional medicines or increases of certain disease vectors (Dudley et al., 2010, World Bank, 2010).

However it is clear that merely identifying areas and proclaiming them as of importance will not result in their effective conservation. Linking them to a country's conservation priorities and global commitments is a vital step towards such effective conservation. Target 11 offers

RECOMMENDATION ON SITES OF PARTICULAR IMPORTANCE

While global databases and standards are still under development to determine sites of particular biodiversity significance and ecosystem services, there are already some well-developed data sets, especially for species conservation. Countries should use the best available data on sites of biodiversity significance and ecosystem services, and incorporate them into their planning for identifying new protected areas or expanding existing ones. When additional information is available, it should be reviewed for potential incorporation into the protected areas system.

Boreal forests in Canada © Sue Stolton

countries an opportunity to review their understanding of areas of biodiversity significance and ensure that they are well-managed.

CLAUSE 4: 'WELL CONNECTED SYSTEMS OF PROTECTED AREAS AND INTEGRATED INTO THE WIDER LANDSCAPE AND SEASCAPES'

Many protected area systems are composed of individual protected areas that are too small and not effectively ecologically connected to conserve biodiversity over the long term. When protected areas exist as islands in a fragmented landscape, their species populations have very low rates of emigration and immigration and higher probabilities of local extinctions (Diamond, 1975; Newmark, 1995). These known shortcomings were addressed in Aichi Target 11, when countries committed to developing '*well connected systems of protected areas*'.

In the last 40 years, major advances in the understanding and application of ecological theory have been applied to protected areas' design and management. It is increasingly accepted that protected areas must be part of connected networks, with conservation cores and effective connectivity (Lindenmayer & Fischer, 2006; Worboys et al., 2010) in order to maintain genetic diversity, viable populations, and adaptive animal behaviour. The term 'connectivity conservation' is widely used to capture this emerging scientific consensus. Building on this consensus the IUCN World Commission on Protected Areas (IUCN WCPA) has stated that the maintenance and restoration of ecosystem integrity requires landscape-scale conservation. This can be achieved through systems of core protected areas that are functionally linked and buffered in ways that maintain ecosystem processes and allow species to survive and move, thus ensuring that populations are viable and that ecosystems are able to adapt to land transformation and climate change.

Any global understanding of connectivity between protected areas must rely on the existence of structural connectivity that incorporates the following principles:

- Connectivity results when two or more protected areas are functionally connected, so that there is a gain in the potential habitat and potential movement of individual animals between protected areas. Connectivity thus results in increased population viability, including gene flow between sub-populations and a greater area of target ecosystems.
- Connectivity is a function of distance between protected areas so that the closer two units are to each other the greater the possibility of connection.
- In addition to separation distance, connectivity is a function of the difficulty or resistance in moving across that distance, termed 'ecological resistance'.
- Achieving ecological connectivity requires informed working with owners, rights-holders and managers of lands between protected areas to ensure that land management practices are compatible with the species moving across those lands.

An initial index of connectivity between terrestrial protected areas was calculated and mapped in the upcoming *Protected Planet Report* (Bertzky et al., 2012). The large protected areas and intactness of several geographical regions stand out. For example, on land, the Amazon Basin, Alaska, sections of boreal Canada, Western United States, Australia and Europe are well protected and well connected. Europe has focused on ecological networks as a means to preserve biodiversity, with 42 Ecological Network initiatives across Europe (Boitani et al., 2007).

Connectivity is a major conservation challenge for the world's nations with 40 per cent of the world's ecoregions having only relatively low or fair levels of protected area connectivity. Thirty-five per cent of the ecoregions have very low connectivity or no protected areas, indicating areas of the planet where significant conservation is required (Bertzky et al., 2012). Coastal marine ecoregions require different approaches to calculating connectivity and have not yet been assessed.

Connectivity conservation represents a new dimension in social relations associated with conservation (Worboys et al., 2010). Connectivity by definition means that there will be multiple stakeholders and rights holders with different views and interests who need to be brought into one type of governance system for a shared vision and equitable distribution of costs and benefits. To achieve

this, responsible agencies need to develop multi-centric governance structures that are able to deliver level-specific (local, regional, national, international) outcomes. To be successful, connectivity organisations need to pursue just distributions of benefits and costs and have well-defined upward and downward accountabilities (Worboys et al., 2010).

The IUCN Theme on Indigenous Peoples, Local Communities, Equity and Protected Areas (TILCEPA) has emphasised how Indigenous Peoples' and Community Conserved Territories and Areas (ICCAs) create opportunities for improved biological and ecological connectivity in landscapes and seascapes. While protected areas are the cornerstones for any national conservation strategy, they need to be integrated into the broader landscape through land management practices and planning at different scales. ICCAs provide one opportunity to harmonise the goals of valuing cultural diversity and sustaining biological diversity.

RECOMMENDATION ON CONNECTEDNESS

Countries need to move into the next phase of protected area and conservation planning by incorporating connectivity between protected areas at both regional and national scales, including transboundary conservation areas. This will require development of sufficiently large ecological cores, whenever possible and necessary, establishing new protected areas to serve as conservation cores, and also ensuring appropriate management of the working landscapes between protected areas to ensure functional connectivity.

Connectivity conservation requires new skills and approaches to bring in stakeholders and rights holders into new and equitable governance structures, founded in diverse tenure systems, where shared values and rules may need to be developed as the process of connectivity evolves.

CLAUSE 5: 'EFFECTIVELY AND EQUITABLY MANAGED'

How well protected areas maintain biodiversity and deliver ecosystem services depends, amongst other things, on how effectively they are managed, how they are integrated with surrounding development contexts and whether they are supported by local communities. The Target 11 wording to include 'effective and equitable management' of protected areas is based on an understanding that a large percentage of the world's protected areas were 'paper parks', or protected areas with very weak management (Hockings et al., 2006). In many of the world's protected areas, the key stakeholders include local communities and indigenous peoples, who may hold valuable traditional ecological knowledge and rely on the protected area for resources and a range of ecological services. Effective and equitable management means that protected areas management includes the need and rights of stakeholders as a fundamental part of management.

Effective management needs to be based on the conservation targets for a given area, and be able to adapt to changing circumstances. Effective management may mean low levels of intervention, for example in large wilderness areas, or require intensive interventions to restore species and ecosystem processes. Effective management will usually involve a wide range of stakeholders, including government agencies, non-government organizations, private entities, indigenous peoples and local communities. One way or another, implementing effective management for a protected area is fundamental for effective conservation.

IUCN has developed a system of protected area management categories that helps classify protected areas based on their primary management objectives and recognizes the importance of all categories for biodiversity conservation (Dudley, 2008). The system is based on a gradient of management and governance regimes from strictly protected areas (category I) with very limited access by human communities to protected landscapes which can include human settlements and cultural management (category V and VI). The system also recognises a range of governance and management authorities, from government agencies to NGOs and indigenous peoples and co-management arrangements. The categories have long been used by the United Nations and governments for protected area planning and reporting. IUCN has also developed a management effectiveness framework for protected areas which allow a detailed evaluation and tracking of how effectively a protected area is managed (Hockings et al., 2006).

The need for effectively and equitably managed protected areas is highlighted in the CBD's Programme of Work on Protected Areas (PoWPA) first agreed in 2004. Goal 1.4 of the PoWPA calls for all terrestrial protected areas to have effective management by 2010 and marine areas by 2012, and stresses the importance of adequate management plans to guide effective management. Goal 4.2 called on CBD Parties to assess at least 30 per cent of their protected areas by 2010; this target was revised upwards to 60 per cent of protected areas by 2015 by

Carrying out an assessment of management effectiveness in Serengeti National Park © Nigel Dudley

COP10 decision X31. A wide range of assessment systems already exist, designed for different situations and at varying levels of detail; most follow the broad framework on management effectiveness assessment laid out by IUCN WCPA (Hockings et al., 2006).

The PoWPA also calls on parties to promote equity and benefit-sharing (Goal 2.1) and to enhance and secure involvement of indigenous and local communities and other relevant stakeholders (Goal 2.2). Because the aim of management is usually effectiveness (of conservation measures), equity is customarily associated with the equally important issue of governance. Management typically focuses on the processes internal to the protected area (the 'what'), and governance (the 'who' and 'how') provides the platform for different interested parties to come together to find a shared vision, work with the costs and benefits issues, and locate the protected area within the greater socio-cultural and economic context.

The specific language of Target 11 which has pushed efficacy and equity into a single phrase relating to management may well be a quirk of multiparty text negotiations. We argue that effectiveness and equity are both different and essential elements of protected area management, and as such, should be treated separately.

The Protected Areas Management Effectiveness (PAME) study by the University of Queensland and the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) has shown that management cannot be effective without addressing governance and social policy issues. IUCN's 2010 workshop on PAME and Social Assessment of Protected Areas concluded that there is a significant correlation between good overall protected areas management effectiveness, effective public participation and social policy processes. Three of the top seven most significant correlated indicators for successfully managing protected areas are related to community participation and benefits (IUCN-TILCEPA, 2010)

Leverington et al's (2010) global study of management effectiveness, based on data from 4,151 assessments, found that only 24 per cent of sampled protected areas have sound management. Moreover 40 per cent of protected areas were found to have major deficiencies in management or be inadequately managed. The weakest aspects of management were the adequacy and reliability of funding, facilities and equipment, staff shortages, and the lack of appropriate benefit sharing programmes for local communities.

Management effectiveness assessments need to be repeated regularly so that changes can be tracked over time, and corrective measures implemented as needed. Only a limited number of such repeat assessments were available for the 2010 global study but they showed an encouraging trend: management effectiveness had

improved over time in 207 (76 per cent) of the 272 protected areas with repeat assessments.

The Aichi Target stresses 'effectively *and equitably* managed' (our emphasis). Most assessment systems to date have focused primarily on management effectiveness. IUCN has two ongoing projects that aim to address this imbalance: methodologies for assessing good governance in protected areas (Borrini-Feyerabend et al, in press) and Social Assessment of Protected Areas (Schreckenberg et al, 2010) to assess the social costs and benefits of protection. Consolidating, expanding, and improving the global protected area system will require much greater engagement of multiple partners, from communities to NGOs, government agencies and the private sector but will bring benefits for both biodiversity and social equity. Already there is good evidence that reserves established and managed by indigenous peoples within their territories are often better protected than other national protected areas as well as surrounding ecosystems (Nelson & Chomitz, 2011).

RECOMMENDATION ON 'EFFECTIVELY AND EQUITABLY MANAGED'

Countries should complete management effectiveness studies using the well-established procedures endorsed by IUCN for all their protected areas to strengthen management by 2020. Assessments should cover both the conservation and social outcomes of protected area management. Policies and procedures for the good governance of protected areas should be developed at both national and site level. Experiences of management and governance should be documented and reported through the CBD PoWPA mechanism, with attention to setting baselines and measuring progress with implementation. We endorse the existing commitment under the PoWPA that 60 per cent of protected areas will have conducted and implemented management effectiveness evaluations by 2020.

CLAUSE 6: 'AND OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES'

Conservationists agree that while protected areas are the cornerstones of biodiversity conservation they are not the only tools for maintaining species and ecosystems. Some alternatives are area-based, while others employ non area-based approaches, such as trade restrictions or harvest regulations. Furthermore, area-based management is not necessarily restricted to gazetted protected areas. Interpreting these wider approaches to what are often called 'other conservation areas' in the context of Target 11 raises the key question of identifying, classifying and acknowledging the role of areas that contribute significantly to biodiversity conservation, but which are not protected areas as defined by IUCN.

A precise interpretation of 'other conserved areas' is needed to avoid 'opening up' Target 11 to such a wide range of management approaches that it becomes meaningless. To interpret Target 11, we argue that 'other effective area-based conservation' should refer *only* to those sites that meet the intent of the IUCN definition of a protected area (see below), but are not currently listed on the World Database on Protected Areas (WDPA). Such areas include some private protected areas, company reserves and indigenous and community conserved areas. Many of these sites *could* eventually appear in the WDPA, if governments wished to open their reporting systems to non-government protected areas, and the mentioned groups would want to include their sites into this frame. Indeed some governments (e.g. Australia and South Africa) already recognise community-managed and indigenous reserves as formal protected areas. Some 'other conserved areas' are likely to remain outside of the WDPA but still meet the intention of being protected areas. For example, the custodians of some ICCAs and sacred natural sites may have good reasons for not wanting to appear on an international database, because it could draw increased attention to sites that retain value in part because of their isolation.

The IUCN definition for a protected area is as follows (Dudley, 2008): "*A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.*"

The key clause of the IUCN definition is that protected areas are for the long term conservation of nature. In this context nature always refers to biodiversity, at genetic, species and ecosystem level, and often also can refer to geodiversity, landform and broader natural values (Dudley, 2008). For our purposes 'nature', defined as biodiversity, comes first. The protected area definition used by the CBD, defined in Article 2 of the Convention, is similar in intent and scope and we treat both definitions as being essentially equivalent: "*The term 'protected area' is as a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives*".

There is no doubt that many production areas, and even urban areas, have important conservation benefits for biodiversity. However they do not meet the intent of being protected areas as defined by the IUCN and the

Community conservancies in Namibia are proving effective conservation approaches © Nigel Dudley

CBD. Whereas Target 11 was developed specifically for protected areas, we argue that areas meeting Target 11 as 'other effective means' should have clear nature conservation objectives, be clearly demarcated, and managed by a competent authority. By meeting these criteria, they meet the intent of being protected areas.

The 'other effective area-based conservation' language has in part been shaped by the acceptance of the State Parties to the CBD of new language brought into the PoPWA that recognises ICCAs. Though some ICCAs are formal protected areas under national legislative frameworks (for example Indigenous Protected Areas in Australia or the Namibian Community Conservancy system), others are unrecognised under current legislation. These areas include community stewardship of sites such as sacred forest groves, monastic conserved wild areas, and particular species that are protected under cultural taboo systems. For example, the Pacific Region has shown leadership in exploring how traditionally governed coastal, marine or reef territories can be integrated into a national strategic plan of Marine Protected Areas (Vierros et al., 2010). Other examples of sacred natural sites that fit 'other effective area based conservation measures' are Mount Athos and the Chaldiki Peninsula in Greece which is home to a series of remote Orthodox monastic communities who effectively conserve wilderness and biodiversity in this territory (on Sacred Natural Sites see Verschuuren et al., 2010).

There is increasing discussion about the need to identify and develop conservation criteria for a wider range of areas that contribute to conservation, including production landscapes and seascapes. These areas are critically important for wider conservation planning, connectivity and landscape approaches. Examples of such sites might be sustainably managed forests, watershed protection areas, production lands under conservation stewardship arrangements, military areas, and demilitarized zones, fishing reserves, organic farms and low intensity pastureland. Such lands will be increasingly important for ecosystem-based adaptation to climate change, especially ensuring ecological connectivity. We recognise the value of these places, but

RECOMMENDATION ON 'OTHER CONSERVED AREAS'

Countries, in meeting Target 11, should only consider 'other conserved areas' as those lands and waters that are either formal protected areas or that meet the intent of being protected areas. 'Other conserved areas' should meet the intent of the criteria for the agreed definition of protected areas in order to contribute to achieving Aichi Target 11. Specifically 'other conserved areas' should have biodiversity objectives, they should be managed by a competent authority for the long-term, assuring that conservation is the first priority.

Well managed production landscapes and seascapes have biodiversity value and are important for conservation and ecological connectivity, but do not fit under Target 11.

argue that they were not intended to meet the intention of Target 11.

MOVING FORWARD: PUTTING THE CLAUSES TOGETHER FOR EFFECTIVE CONSERVATION

The above discussion illustrates the complexity of Target 11. Protected area planning and management is a complex field requiring countries to consider spatial planning, ecological connectivity, and integration with surrounding landscapes, as well as effective management and a range of social issues around equity. Target 11 is remarkably dense in its construction and implication. It contains all the necessary elements for success, but countries need to consider all the elements as a whole to be successful. For many countries the pieces of this protected area puzzle are broken or do not exist. The pieces will have to be built or repaired in order to construct the whole.

Some countries have already protected 17 per cent or more of their land area but many ecoregions and habitats are still very poorly represented within the global protected area network. Ensuring representativeness will require much greater expansion of protected areas in some countries than in others in order to capture unique ecological regions. Indeed achieving Target 11 may well require full protection of all remaining natural habitats of certain poorly-represented types within some countries either through protected areas or other appropriate conservation action that ensures permanent protection, or through regional and transnational cooperation. Even these actions may be insufficient for some ecoregions where much habitat has been lost to agriculture or other land conversion and ensuring better representation will require a greater focus on restoration where this is possible (Keenleyside et al., 2012).

Ensuring representativity will not be achieved through equal contributions from all countries; it will require greater efforts from some countries than others. If those countries are going to have to substantially increase their protected area coverage and shoulder a greater burden to meet the global targets, then additional resources will be required. Meeting the Aichi Targets would seem to add extra weight to the need to ensure that innovative finance mechanisms are made available for protected area establishment and management. How to meet these challenges will be a matter of debate at COP11 in Hyderabad where financial resources will be discussed.

There are a range of international organizations and NGOs that are helping with the challenge of meeting Target 11. The CBD calls for the development of PoWPA Action Plans, as well as revised National Biodiversity Strategies and Action Plans (NBSAPs). PoWPA Action Plans should be integrated with revised NBSAPs, providing a mechanism where the pieces of Target 11 can be put together into a whole, with significant involvement from a range of stakeholders

Tracking progress towards the achievement of Target 11 is a critical first step. UNEP-WCMC, in partnership with the IUCN and others, is tracking progress, and will report findings in the first *Protected Planet Report* to be released at the IUCN World Conservation Congress in September 2012. Recognizing that ecological outcomes are the most vital measure of success, IUCN has sponsored a joint Task Force between the World Commission on Protected Areas and the Species Survival Commission to understand better how the world's protected area systems are conserving biodiversity, and to establish global criteria for areas of biodiversity significance. This involves bringing together various approaches developed to identify areas of importance for birds (BirdLife International's Important Bird Areas), plants (Plantlife International's Important Plant Areas), freshwater species, Alliance for Zero Extinction sites and Prime Butterfly Areas, amongst others. It also embraces an approach whereby IUCN, through its facilitation of the Global Ocean Biodiversity Initiative, is helping governments to identify marine areas of ecological or biological significance (EBSAs) beyond national jurisdiction, the most underrepresented realm.

IUCN is working through its expert networks to support the CBD and national governments to develop the institutional and individual capacity to manage the complexity of protected area system and site management. A flagship initiative is to develop capacity in Africa, the Caribbean and Pacific countries through BIOPAMA, an EU-funded intervention that will respond to priority information and capacity needs, to provide good practice guidance and to support implementation towards Target 11.

Finally we suggest that an initiative is required to develop criteria for lands and waters that contribute to biodiversity conservation but do not meet the full criteria as protected areas. Such lands will be increasingly important for ecosystem-based adaptation to climate change, ensuring ecological connectivity and providing ecosystem services.

We provide this clause by clause analysis of Target 11 as a precursor to a larger, more formal discussion of the Aichi Targets that will take place within countries and within the CBD. The success of the Aichi Targets depends on a

clear and careful understanding of their meaning in order to achieve successful implementation.

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RESUMEN

El Plan Estratégico para la Diversidad Biológica 2011-2020 fue adoptado en la 10ª Conferencia de las Partes en Nagoya, Japón. El plan establece 20 Metas de Aichi para lograr la conservación global de la biodiversidad. Un enfoque global fundamental para la conservación de la biodiversidad es la utilización de las áreas protegidas. Podría decirse que las 20 Metas de Aichi tienen implicaciones para el establecimiento y la gestión de áreas protegidas, pero solo la Meta 11 las aborda directamente. Este documento examina todas las cláusulas de la Meta 11 y hace recomendaciones a los países sobre la interpretación de cada una de ellas con vistas a lograr la conservación de la biodiversidad mediante la utilización de las áreas protegidas. Aunque solo contiene 61 palabras, la Meta 11 es sorprendentemente densa. Se aplica tanto a los ecosistemas marinos como terrestres, y establece metas para la planificación espacial (representatividad, conectividad ecológica y áreas de importancia para la biodiversidad); gestión de áreas protegidas (incluyendo eficacia de la gestión y equidad social); y criterios acerca de lo que para efectos de la Meta 11 cuenta para ser un área protegida. Abogamos por una interpretación holística de la Meta 11 como vía para que la comunidad internacional utilice las áreas protegidas para cambiar las actuales e inaceptables tendencias con respecto a la pérdida global de biodiversidad.

RÉSUMÉ

Le Plan stratégique pour la biodiversité 2011-2010 de la Convention sur la diversité biologique a été adopté à la 10ème réunion de la Conférence des Parties à Nagoya, au Japon. Il établit 20 Objectifs d'Aichi pour conserver mondialement la diversité biologique. À cet égard, l'utilisation des aires protégées constitue une approche fondamentale à l'échelle mondiale. De fait, les 20 Objectifs d'Aichi ont des conséquences pour la création et la gestion des aires protégées, mais seul l'Objectif 11 les

aborde directement. Ce document analyse donc l'Objectif 11 clause par clause, et fait des recommandations aux pays sur l'interprétation de chaque clause afin de conserver au mieux la diversité biologique en utilisant les aires protégées. Malgré ses 61 mots, l'Objectif 11 est, de façon assez surprenante, très dense. Il s'applique en effet aux écosystèmes terrestres et marins, et établit des objectifs pour la planification spatiale (représentativité, connectivité écologique et zones d'importance pour la biodiversité) ; la gestion des aires protégées (notamment l'efficacité de la gestion et l'équité sociale) ; et les critères de désignation d'une aire protégée dans le cadre de l'Objectif 11. Nous soutenons une interprétation globale de l'Objectif 11 dans l'optique que la communauté mondiale utilise les aires protégées pour lutter contre la dégradation actuelle inacceptable de la diversité biologique mondiale.