

GLOBAL LAND OUTLOOK WORKING PAPER

PROTECTED AREAS

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CONTENTS

Summary	4
Some definitions	4
Why protected areas	9
Protected areas and landscape approaches	9
Threats to protected areas	9
Conclusion	10
References	11

SUMMARY

Protected areas (PA) are critical tools in maintaining biodiversity and, if well managed, are proven to be effective for both conservation and maintaining the ecosystem services on which human livelihoods and welfare depend. The modern protected area system was developed largely during the latter part of the twentieth and in the twenty-first century, and can be maintained under a range of management and governance types. In addition to their benefits to biodiversity conservation, protected areas have several unique features that make them particularly suitable for the delivery of a wide range of ecosystem services, including food and water security, physical and mental health benefits, disaster risk reduction, mitigating and adapting to climate change, cultural values and tourism. Protected areas function most effectively if integrated with other land uses in a coordinated and coherent manner. Despite their rapid expansion, protected areas still face numerous threats and the future of many remains uncertain. Including them into the mainstream development agenda remains a critical goal for the coming decade.

BOX 1.

PROTECTED AREAS – BOTH AN ANCIENT AND A MODERN CONCEPT

Protected areas have existed for millennia, although early examples were usually established for utilitarian or recreational purposes rather than to consciously protect nature for its intrinsic value. Examples include indigenous communities guarding sacred sites,⁸ “tapu” areas for communal resource use in the Pacific,⁹ hima in the Arabian Peninsula to maintain grazing and ecosystem services,¹⁰ and hunting grounds set aside to benefit the ruling classes.¹¹ Areas of natural or semi-natural habitats have also long been protected by certain faith groups, and these sacred natural sites often had high conservation values.¹² The modern protected areas movement emerged toward the end of the nineteenth century with the designation of places like Yellowstone National Park in the United States, the Blue Mountains National Park in Australia, and Kaziranga National Park in India. The protected areas movement gathered pace after 1945 with the designation of national parks in Europe, predominantly in cultural landscapes. It further accelerated following the signing of the Convention on Biological Diversity at the Earth Summit in 1992 and the agreement of CBD targets for protection in its Programme of Work on Protected Areas in 2004 along with so-called Aichi targets, agreed in Nagoya Japan at the Conference of Parties in 2010.

Table 1. Protected area coverage of the 12 terrestrial biomes

Terrestrial biome	Percentage in protected area
Flooded grasslands and savannahs	30.9
Montane grasslands and shrublands	26.8
Tropical and subtropical moist broadleaf forests	23.7
Temperate coniferous forests	16.8
Mediterranean forests, woodlands and scrub	15.9
Tropical and subtropical grasslands, savannahs and woodlands	14.7
Deserts and xeric shrublands	12.1
Temperate broadleaves and mixed forests	12.0
Tropical and subtropical coniferous forests	11.7
Boreal forests/taiga	10.4
Tropical and subtropical dry broadleaf forests	9.6
Temperate grasslands, savannahs and shrublands	4.5

Protected areas – national parks, nature reserves, wilderness areas – are the parts of the world established with the specific purpose of providing dedicated space for nature conservation (especially protection of threatened species¹ and habitats²), maintain a range of ecosystem services,³ provide havens for threatened human cultures⁴ and supply a range of recreational,⁵ cultural and spiritual opportunities.⁶

The growth of the modern protected area system (there are some historical equivalents, see Box 1), took place almost entirely in the late twentieth and twenty-first centuries, and represents one of the largest and fastest changes in conscious land management in human history. Today state-run national parks, indigenous and community reserves, and privately protected areas have become a global movement, conserving almost fifteen per cent of the land⁷ – an area greater than South and Central America combined (see Table 1).

Some definitions

Protected areas share a common global language in definition¹⁵ governance¹⁶ and effectiveness.¹⁷ According to the International Union for Conservation of Nature (IUCN), 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 IUCN definition is further clarified by a series of complementary principles, including “*for IUCN, only those*

BOX 2.

AICHI BIODIVERSITY TARGETS

The tenth meeting of the CBD’s Conference of the Parties in Nagoya, Japan in 2010, adopted a Strategic Plan for Biodiversity,¹³ including the 20 Aichi Biodiversity Targets, which run until 2020. The two most relevant in the context of protected areas are:

- Target 11: By 2020, at least seventeen per cent of terrestrial and inland water, and ten per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes
- Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained¹⁴

Aichi target 11 has contributed to a substantial increase in protected area coverage – including in MPAs in recent years.

Table 2. IUCN protected area categories

No.	Name	Description
Ia	Strict nature reserve	Strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values
Ib	Wilderness area	Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed to preserve their natural condition
II	National park	Large natural or near natural areas set aside to protect large-scale ecological processes, along with the species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities
III	Natural monument or feature	Areas set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove
IV	Habitat/species management area	Areas that aim to protect particular species or habitats and where management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement
V	Protected landscape or seascape	An area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value; and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values
VI	Protected areas with sustainable use of natural resources	Areas which conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in its natural state. A part of the area is under sustainable natural resource management with low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area

areas where the main objective is conserving nature can be considered protected areas; this can include many areas with other goals as well, at the same level, but in the case of conflict, nature conservation will be the priority.”¹⁸ This principle recognises that many protected areas will have a range of management priorities – cultural, spiritual, tourist-related and so on – but that for a place to be recognised by IUCN as a protected area and included in the World Database on Protected Areas and the UN List of Protected Areas, nature conservation has to take precedence. The definition is expanded by inclusion of six management categories summarized in Table 2.¹⁹

This means that within the overall definition, protected areas can vary dramatically from very strictly managed “off-limits” areas where human visitation is banned or closely controlled – for example, offshore islands that support important breeding colonies of seabirds – to living landscapes where people lead their everyday lives but where there is an overall emphasis on nature conservation – for example, European nature parks. The management categories can be applied within a range of governance types, depending on who holds authority and responsibility for the protected area. IUCN defines four governance types, outlined in Table 3.²⁰

Table 3. IUCN Protected area governance types

No.	Name	Description
A	Governance by government	<ul style="list-style-type: none"> Federal or national ministry/agency in charge Sub-national ministry/agency in charge Government-delegated management (for example, to NGO)
B	Shared governance	<ul style="list-style-type: none"> Collaborative management (various degrees of influence) Joint management (pluralist management board) Transboundary management (various levels over frontiers)
C	Private governance	<ul style="list-style-type: none"> By individual owner By non-profit organisations (NGOs, universities, cooperatives) By for-profit organizations (individuals or corporate)
D	Governance by indigenous peoples and local communities	<ul style="list-style-type: none"> Indigenous peoples’ conserved areas and territories Community conserved areas – declared and run by local communities

A protected area in any management category can utilize any of the described types of governance. Most protected areas around the world are owned and managed by governments, but there are a growing number of privately protected areas and in some regions also an astonishing growth in self-declared indigenous protected areas, with indigenous peoples committing some or all of their traditional lands to conservation. Another growing phenomenon is that of shared governance, when two or more groups or institutions liaise to manage a site. Sometimes cooperation crosses national borders, as in transboundary protected areas, which are important to maintaining large habitats, protecting wide-ranging species as well as the range of migratory species.

Protected areas and land security

From the perspective of the *Global Land Outlook*, protected areas are considered as management tools, applicable for a range of different services.

Biodiversity: Protected areas are primarily used for nature conservation or the conservation of biological diversity and are the cornerstone of most national biodiversity strategies. Land degradation and desertification are currently gaining speed in many parts of the world.²¹ Research shows that if protected areas are adequately funded and effectively managed,²² they prevent loss of natural vegetation cover and ecosystem degradation (see box) and provide habitats where rare and endangered species of plants and animals can thrive.

BOX 3.

EVIDENCE FOR PROTECTED AREAS EFFECTIVENESS

Researchers have gradually built a picture of the strengths and weaknesses of protected areas,²³ showing that establishing protected areas helps maintain vegetation cover and species more effectively than most other land management approaches.²⁴ A study on threats facing 92 protected areas in 22 tropical countries concluded that most protected areas are successful in protecting ecosystems, specifically by stopping land clearance, preventing illegal logging, hunting, fire and livestock-grazing.²⁵ A global meta-study assessed management effectiveness evaluations from over 2300 protected areas and found that 86 per cent met their own criteria for good management.²⁶ Research compared multiple protected area management types across four tropical areas and assessed natural vegetation changes, confirming that forest cover in PAs is often “strikingly higher” than surrounding areas.²⁷ A global review by the World Bank found that tropical protected areas, especially those conserved by indigenous peoples, tend to lose less forest than other management systems.²⁸ Such outcomes of establishing PAs have gained higher visibility as a result of discussions on carbon sequestration in terrestrial vegetation.²⁹

Protected areas provide essential components of any biodiversity conservation strategy by:

- Ensuring that substantial areas of native ecosystems remain intact and in healthy condition (in some regions protected areas contain the only remaining native vegetation)
- Providing protection for those species that are particularly at risk due to their sensitivity to disturbance or high market value, which encourage over-harvesting or
- Protecting species that are vulnerable due to their scarcity, either because they have small geographical ranges (endemic species) or because they have declined due to human disturbance, hunting, collection or habitat destruction

Evidence is mounting for the critical role of protected areas in species conservation. A global study found that protected areas contain significantly higher diversity of species and higher species populations than the rest of the landscape.³⁰ There is good evidence that some species would probably already be extinct without targeted conservation intervention within protected areas.^{31, 32, 33} Overall, protected areas contain significantly higher diversity of species and higher species populations than the rest of the landscape. However, despite a huge increase in the number of protected areas, many important areas for conservation remain unprotected. The CBD's global coverage target³⁴ of at least seventeen per cent of terrestrial and inland water areas by 2020 has been achieved or surpassed in 44 per cent of countries,³⁵ although not at a global level. However, there is still much left to do to ensure that protected areas are ecologically representative and effectively managed. To date, only 43 per cent of the global ecoregions have reached the Aichi coverage target of seventeen per cent of land in protected areas, and six per cent of eco-regions still have less than one per cent of their area protected. Many of the most species-rich habitats, including lowland tropical rainforests, are poorly represented in PA networks, while in other areas land conversion and degradation continue to spread.

Governments have often found it politically and economically easier to protect areas with little economic value – like deserts, high mountains and tundra – than grasslands, forests and wetlands that have potential for commercial use including agriculture.

Ecosystem services: More significantly for a study looking at overall land values, protected areas help maintain many of the ecosystem services that are essential to human well-being and livelihoods. Ecosystem services are defined and categorized in several ways. For example, the Millennium Ecosystem Assessment (MEA) suggests a simple typology to summarize various services from natural capital, dividing them into *supporting, provisioning, regulating* and *cultural services*.³⁶ Ecosystems services can be provided by any natural or semi-natural ecosystem, but in places where land use has been largely transformed,

these benefits are reduced or lost. A decade ago, the MEA estimated that some 60 per cent of the world's ecosystems are being degraded or used unsustainably,³⁷ and the situation has further deteriorated since.

The MEA, The Economics of Ecosystems and Biodiversity (TEEB) programme and, more recently, the Natural Capital Coalition, have all helped to increase understanding and highlight the benefits humans derive from nature. There are countless ecosystem services associated with thousands of species and ecological interactions. Some are only known to a small group of people who recognize their value, such as the medicinal qualities of a particular plant. As our societies become more homogenous, much of this traditional ecological knowledge is being lost. Other ecosystem values are much more widely recognized, such as provision of adequate water supply or the role that natural functioning ecosystems play in storing and sequestering carbon, thereby slowing the rate of climate change.³⁸ For example, it has been estimated that protected areas sequester 0.5 Pg C annually – about a fifth of the carbon sequestered by all land ecosystems.³⁹

Because they protect functioning natural ecosystems, protected areas maintain ecosystem services and contribute to help to provide water security,⁴⁰ food security and protection against climate-related disasters, along with a host of cultural, spiritual and recreational values. Some of the key land-based ecosystem services maintained by establishing protected areas are:

- Food security
- Water security
- Climate change mitigation and adaption
- Disaster risk reduction
- Physical and mental health
- Cultural values
- Tourism, in particular eco-tourism

Table 4 provides some detailed examples of ecosystem services derived from protected areas.

Some ecosystem values can be expressed in economic terms that provide powerful arguments in favour of protection. On the other hand, spiritual values, cultural heritage and appreciation of the beauty of a particular site do not fit easily into conventional economic analysis – personal interpretations of the land which differ between individuals but can be of prime importance in establishing and maintaining protected sites.

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Table 4. Examples of ecosystem services from dryland protected areas

Typology	Details	Examples
Food security: Protecting crop wild relatives <i>(Provisioning service)</i>	Much of the genetic material used in crop breeding comes from closely related crop wild relatives (CWR) and traditional crop varieties (landraces). ⁴¹ Global estimates of their value vary from hundreds of millions to tens of billions of US dollars a year ⁴²	In Kyrgyzstan, the Sary-Chelek State Nature Reserve was established in part to protect semi-arid walnut and juniper forests, as well as high mountain pastures. Many domesticated apple varieties originated here and the remaining wild relatives may offer potential for developing scab-resistant species ⁴³
Food security: Promoting sustainable grazing regimes	Many PAs allow controlled human use and maintain traditional farming and livestock practices. Sustainable livestock grazing can conserve vegetation diversity and associated wildlife, as well as providing secure livelihoods	In Hövsgöl National Park in northern Mongolia, herders have changed to rotational grazing and improved range management to counter widespread erosion, helping protect Mongolia's water resources, biodiversity, and natural ecosystems ⁴⁴
Food security: Providing emergency food supplies	Protected areas that maintain natural vegetation can help support communities by providing emergency sources of fodder and wild food in case of drought or crop failure	In Djibouti, the Day Forest has been made a protected area, with regeneration projects initiated to prevent further loss. This rare remnant of remaining forest has important grazing value for local pastoralists ⁴⁵
Food security: Providing access to protein from fish	Coastal and wetland communities are largely dependent on fishing as the main source of protein, as are many communities living alongside river systems. Amazon fisheries were valued at US\$389 million per year in 2003. ⁴⁶ Aquatic protected areas are proven ways of maintaining healthy fish stocks that can help restock adjacent fishing grounds	A review of 112 independent studies in 80 different marine protected areas found that fish population densities were 91 per cent higher, biomass was 192 per cent higher, and average organism size and diversity were 20–30 per cent higher in MPAs, usually after as little as one to three years – these increases were found even in small reserves (Halpern, 2003). ⁴⁷ Spillover from reserves boosts catches for neighbouring fishing communities while protection prevents long-term decline of the fish resources
Water security: Maintaining quantity and quality of water sources Restoring and enhancing water supplies	Protected watersheds provide water for downstream agriculture, domestic and industrial use. They usually supply cleaner, less contaminated water, thus helping protect human health. Some protection strategies can also increase total water availability.	Cities like New York ⁴⁸ and Melbourne ⁴⁹ have found that it is more cost-effective to protect and restore forests as suppliers of clean water rather than to invest in new purification plants. The cloud forests and mountain peatlands (paramos) in protected areas provide high-quality water to the cities of Quito and Tegucigalpa. ⁵⁰ One-third (33 out of 105) of the world's largest cities receive a significant proportion of their drinking water directly from protected areas. ⁵¹
Mitigating and adapting to climate change: increasing carbon storage to mitigate climate change	Healthy forests, grasslands, wetlands and soil hold carbon stocks and sequester atmospheric carbon, playing a key role in climate change mitigation: for example, wetlands (including peatlands) hold approximately 33 per cent of the planet's carbon. ⁵² Moreover, all the ecosystem services discussed here also help communities adapt to climate change	Globally, protected areas are estimated to hold 312 Gt of carbon or at least 15% of terrestrial carbon storage. ⁵³ Over 2.2 billion t C is locked up in Mexico's federal and state protected areas. Even at a very conservative price, this service is worth at least USD34 billion ⁵⁴
Disaster risk reduction: natural vegetation protecting shorelines, steep slopes and drylands	Natural ecosystems can help mitigate the impacts of extreme weather events. The worst disasters often occur in places where natural defences have been degraded or destroyed. ⁵⁵ Forests protect against floods, avalanches, typhoons and hurricanes, desertification, droughts and landslides; wetlands can mitigate flooding; and coral reefs and mangroves help to protect against storm surges, tsunamis and flooding ^{56, 57}	In Dana Reserve, Jordan, degradation has been partially reversed by working with local farmers and herders to reduce stocking densities of goats by 50 per cent and providing alternative livelihood options through ecotourism and craft development. The Whangamarino Ramsar site in New Zealand has a significant role in flood control, saving an estimated USD4 million in averted damage in one year of severe flooding

Typology	Details	Examples
Physical and mental health: protecting sources of local medicines and pharmaceuticals	Much of modern medicine is derived directly from or replicated synthetically from natural sources. Locally collected traditional medicines are also a major resource for primary health care needs in Asia, Latin America and Africa, ⁵⁹ with more species of medicinal plants harvested than any other natural product. ⁶⁰ Natural medicines have a market value estimated at over USD50 billion annually. ⁶¹ Wild species also provide raw material for pharmaceutical development, ⁶² and some companies pay for the right to collect plants in protected areas or other high biodiversity regions	More than 340 medicinal plants are recognized in Bale Mountains National Park (BMNP) in Ethiopia and 95 per cent of households around BMNP use medicinal plants to treat common ailments and for pre- and post-natal care. An assessment of the importance of the country's protected area system estimated the value of medicinal plants in Bale Mountains to be USD869,792 a year. ⁶³
Physical and mental health: providing safe and pleasant places for people to exercise and relax	Spending time in natural surroundings is a critical factor in maintaining mental and physical health. In the USA, every dollar invested in physical activity is estimated to save USD3.2 in medical costs. ⁶⁴ Easy access to attractive public spaces encourages people to exercise and walk more. ⁶⁵ Natural environment also helps people recuperate from mental fatigue, illness and injury, and to cope with stress ⁶⁶	A growing number of countries encourage people to use nature reserves as places to exercise, promoting the green gym concept. In Scotland, health benefits of woodlands have been estimated at between USD17.6- 23.6 million per year (2006 prices) by helping to avoid premature deaths through increased exercise, reduced air pollution, savings in mental health costs and reduced absence from work. ⁶⁷
Cultural values: Protecting threatened human cultures in drylands and other important ecosystems	Many protected areas contain temporary or settled human communities, including many indigenous peoples groups, and provide secure homeland for otherwise threatened communities. Support for protected areas is often contingent on their social values; indigenous reserves in Amazon are some of best-protected in the world	In Australia, over 60 million hectares of self-declared Indigenous Protected Areas have been established, mainly in desert and semi-desert, to protect both traditional aboriginal culture and associated biodiversity
Cultural values: Securing sacred sites	Many faith groups are struggling to maintain sites that are important to their belief systems, including sacred natural grounds. Protected areas can help to ensure that such sites are not affected by development or changes in cultural values	In southern Madagascar, the Mahafaly and Tandroy communities are working with local authorities and the government to conserve the sacred forests of Sakoantovo (6,163ha) and Vohimasio (30,170ha), part of the dry spiny forests, also of exceptional biodiversity value. Responsibility for management has been transferred to the local communities. ⁶⁸
Tourism	Protected areas attract tourists, often creating much-needed employment and income opportunities in rural areas. Eco-tourism can provide solid economic arguments for the protection of iconic species, such as tigers or mountain gorillas. Global spending on ecotourism has been increasing by 20 per cent a year, about six times the industry-wide rate of growth ⁶⁹	Peruvian government reports that over 70 per cent of international tourists come to visit a protected area ⁷⁰ and in New Zealand, 75 per cent of tourists visit at least one national park. ⁷¹ In many other countries, such as Belize, Brazil, Costa Rica, Kenya, Madagascar, Mexico, South Africa, and Tanzania, nature represents the primary tourism attraction ^{72,73}

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do not fit easily into conventional economic analysis – personal interpretations of the land which differ between individuals but can be of prime importance in establishing and maintaining protected sites.

Why protected areas?

The benefits summarised in Table 3 can be derived from many natural and semi-natural ecosystems and are not confined to protected areas only. However, protected area systems have some particular attributes which help maintain natural ecosystems and the services they provide:⁷⁴

- Have defined borders and areas, which can be used to measure ecosystem services
- Operate under legal or other effective frameworks, which provide a stable, long-term mechanism for managing ecosystems
- Are proven to work as an effective way of retaining natural ecosystems and ecosystem services, especially through protected area systems at the landscape/ seascape scale
- Have agreed governance structures that meet variable social and cultural requirements and have experience in implementing accessible, local approaches involving people in the management of the PA a legitimate and effective way
- Are based around a commitment to permanence and long-term management of ecosystems and natural resources
- Are supported by management plans, which can facilitate rapid responses to new information or conditions related to climate change
- Often have staff who can provide management expertise and capacity, including understanding of how to manage ecosystems to generate a range of ecosystem services
- Are backed by international conventions and commitments, such as the Convention on Biological Diversity, World Heritage, Ramsar, Man and the Biosphere and CITES, and regional agreements, such as Natura 2000 and ASEAN Heritage that provide policy frameworks, tools and political support
- Can draw on existing funding mechanisms, including government budgetary appropriations and funding from international donors
- Are backed up by networks of experts ready to provide advice and assistance, including particularly the IUCN World Commission on Protected Areas and conservation NGOs
- Have organized and populated data sources to set baselines and facilitate monitoring, such as the IUCN management categories, governance types, Green List and the World Database on Protected Areas

In most countries well-developed systems of protected areas already exist. Recognizing the wider ecosystem service values of such sites and enhancing the benefits they provide may require changes in management or funding, as well as building collaborations with new

partners. Such changes should be carefully planned, however, so that they do not inadvertently undermine the primary PA objective of maintaining biological diversity.

Protected areas and landscape approaches

It is now widely recognized that protected areas can play a vital role in sustainable development policies and long-term land stewardship and management – a role that stretches far beyond the traditional view of PAs as tools intended solely for nature conservation. However, protected areas need to be considered in the context of the wider landscape. Few, if any, protected areas are large enough to support their constituent biodiversity on their own – no protected area is isolated in the ecological sense, and all will be exchanging resources, energy and genetic material with surrounding ecosystems. Protected areas should be considered as part of a mosaic of different land uses with careful spatial planning that ensures connectivity between areas of high value for biodiversity and ecosystem services. Maintaining biological corridors and so-called “stepping stones” (wetland sites where migratory bird species can rest and feed during their long journeys) are two such approaches for promoting ecological connectivity.

Protected areas are important tools for land management, but are insufficient on their own to protect the full range of biodiversity and ecosystem services. There are many other areas that are maintained in a more or less natural state and can contribute to conservation: territories of indigenous people, community-controlled natural grasslands used for low-level grazing, urban watershed protection areas, coastal protection areas, military training areas and steep slopes unsuitable for agriculture or forestry. Recently, there have been attempts to define and describe such areas, the so-called *other effective area-based conservation measures* (OECMs)⁷⁵ recognized by the CBD in 2010,⁷⁶ and these will likely play an increasingly important role in overall conservation planning. Additionally, more intensively managed sites, such as farmland or commercial forestry, may also support some important or threatened native species if broader values are considered in conservation approaches. In other places, degradation and loss have already reached an advanced stage, requiring substantial restoration efforts.

Considering landscape-scale benefits means paying more attention to the combined value of many sites, and to the condition of the overall mosaic of land management. The ideal mixture of protected areas, OECMs, managed areas and restoration sites will change with location, ecosystem type and existing land uses. However, the principle of aiming for a ***balanced mixture of protection, management and restoration providing biodiversity, ecological, economic and social benefits and preventing the detrimental change*** remains the same.

Threats to protected areas

Although the last decade has seen a considerable increase in the number and area of protected areas, not all of these

are secure or effectively protected and managed. They can be threatened by changes in government policy that reduce or eliminate the status of the protected area itself; by poor management that fails to maximise the area's potential benefits; and/or by illegal actions, such as encroachment, exploitation or poaching, that destroy the protected area.

At the same time that the number of protected areas around the world has been increasing, there has been a counter-movement, when some governments have overtly or covertly stepped back from existing protected area commitments and allowed protected areas to be degraded or even destroyed. This tendency increased after the 2008 economic crisis that forced some governments to prioritise development over conservation and social values. This phenomenon has been labelled Protected Area Downgrading, Downsizing and Degazettement (PADDD)⁷⁷ and has been observed in numerous countries.⁷⁸ For example, PADDD has been recorded in several places in the Amazon;⁷⁹ the most recent analysis of PADDD in Brazil since 1900 identified 48 enacted PADDD events, which affected 88,341km² of the Brazilian Amazon.⁸⁰ A PADDD-Tracker website records and publicises examples of PADDD.⁸¹ PADDD does not refer to degradation from illegal use, poaching or as a result of distant pollution or climate change that can take place at the same time. Rather, PADDD focuses explicitly on cases where the authorities that govern the protected area – predominantly state governments – consciously renege on previous commitments. Since the whole objective of establishing a protected area is to safeguard it in perpetuity, the PADDD phenomenon is particularly troubling.

Many protected areas lack the management resources that ensure effectiveness,⁸² or do not have sufficient trained staff that can deal with the complex management issues. Delivering effective management is critical to maintaining biodiversity and ecosystem services. Over the last two decades, several steps have been taken to improve the management of PAs, including the development of several protected area management effectiveness (PAME) tools⁸³ and global database of PAME results,⁸⁴ as well many individual PAME exercises conducted in protected areas worldwide, but there is still a long way to go.⁸⁵

Furthermore, although the protected area estate is growing, individual protected areas are increasingly becoming isolated habitats.⁸⁶ Hard boundaries increase the risk of species loss,⁸⁷ habitat degradation,⁸⁸ human-wildlife conflicts and crop damage.⁸⁹

Threats increase dramatically if people living in or near protected areas are not aware of their designation and objectives and do not have the full appreciation of the values derived from PAs. However, if local populations support the protected areas and are willing to get involved, the chances that the PA can deliver its full range of goods and services is dramatically increased. Resentment is likely if people feel they have been dispossessed of land or resources, particularly if this is done without adequate

discussion or compensation. Increasing recognition of the social costs and benefits of protected areas has led to much stronger emphasis on broader consultation with all involved parties and more participatory approaches to management, Free Prior and Informed Consent and Indigenous Protected Areas approaches, as well as shared management and private/community conservation efforts.

Conclusions

Establishment and management of protected areas is a key tool for land management, and therefore of prime relevance to the Global Land Outlook and more generally to the implementation of UNCCD.⁹⁰ The rapid expansion of PAs has been one of conservation's rare success stories, but success remains fragile, sometimes challenged by short-term development considerations. There are active ongoing discussions on how much of the world should become a protected area, with a growing number of conservation biologists suggesting that half the world should remain in near-natural state.⁹¹ Whether this should all be in formally protected areas, or through a mosaic of different but more sustainable land uses, including PAs and OECMs, is a subject of intense debate. New challenges, such as climate change, will require even greater emphasis on a broad spectrum of land management options to maintain connectivity and biodiversity as species distribution changes. Maintaining effective protected area systems within overall sustainable land policies will require bringing more stakeholders into the conservation and development debate to ensure that countries are able to include protection of natural areas into their overall sustainable land management objectives.

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