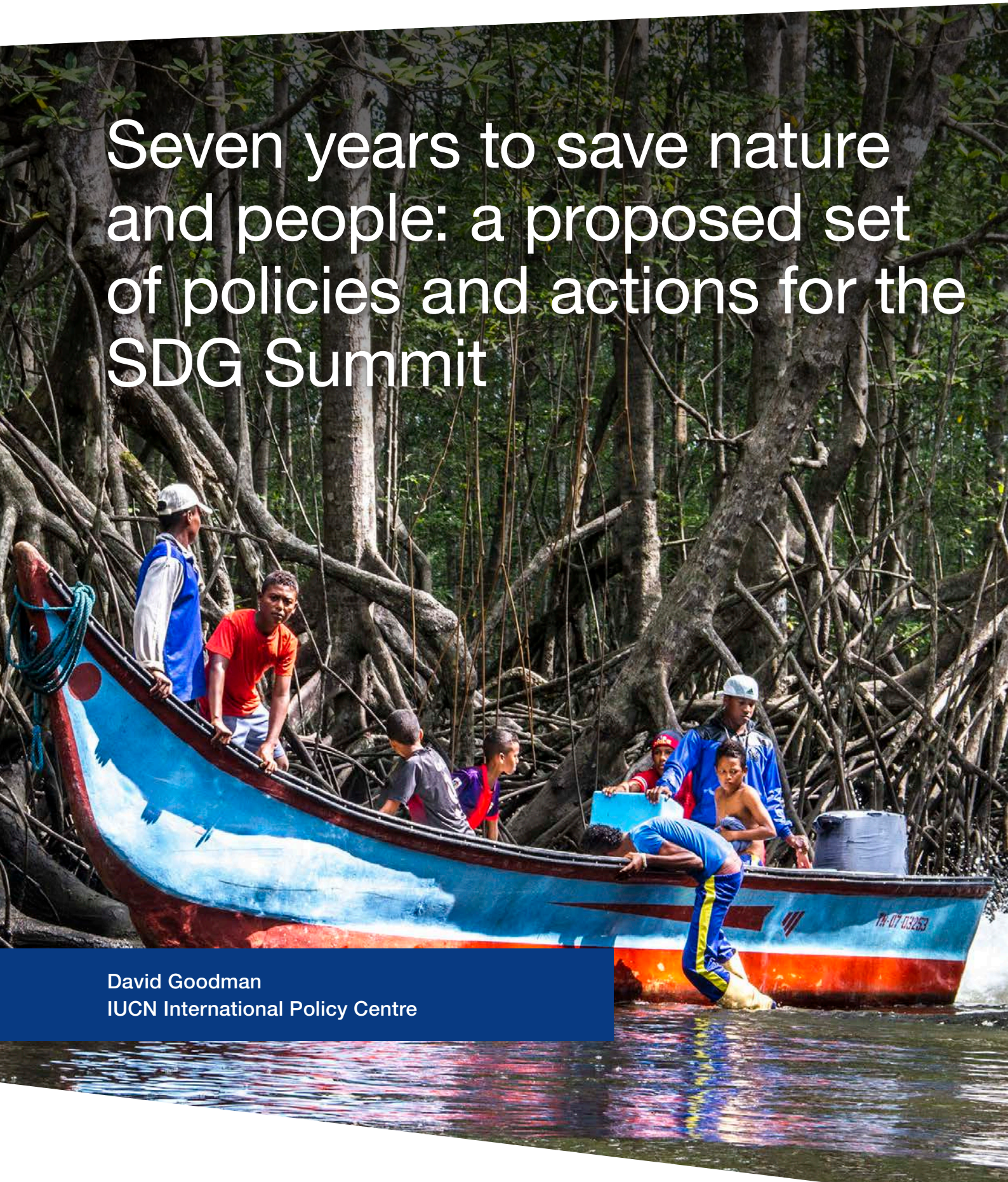
Seven years to save nature and people: a proposed set of policies and actions for the SDG Summit



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List of acronyms

BCAF	Blue Carbon Accelerator Fund
BNCFF	Blue Natural Capital Financing Facility
CAP	Common Agricultural Policy
CBD	United Nations Convention on Biological Diversity
CEESP	Commission on Environmental, Economic and Social Policy
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of the Parties
CPIC	Coalition for Private Investment in Conservation
EU	European Union
GBF	Kunming-Montreal Global Biodiversity Framework
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
GPA	Gender Plan of Action
$GtCO_2e$	Gigatonne of carbon dioxide equivalent
IBAT	Integrated Biodiversity Assessment Tool
IMF	International Monetary Fund
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPLCs	Indigenous peoples and local communities
ISA	International Seabed Authority
KBA	Key Biodiversity Area
LMICs	Low- and middle-income countries
NbS	Nature-based Solutions
NBSAP	National Biodiversity Strategies and Action Plan
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
OECMs	Other effective area-based conservation measures
RBO	River Basin Organisation
SDG	Sustainable Development Goal
SIDS	Small Island Developing States
SSC	Species Survival Commission
STAR	Species Threat Abatement and Recovery metric
tCO_2e	tonne of carbon dioxide equivalent
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WTO	World Trade Organization

Forest fire in Saskatchewan, Canada
Photo: Landon Parenteau/Unsplash

Executive summary

We have reached the midpoint of the implementation of the 2030 Agenda for Sustainable Development and, taking stock of the progress achieved so far, it is sobering to realise that we are deeply off-track to reach the Sustainable Development Goals (SDGs).

Despite gains across many of the goals, the acute and lingering effects of the COVID-19 pandemic, the war in Ukraine, and the associated food, energy and debt crises, have halted or reversed progress in many areas. We are only on track to meet 12% of the targets, and none of the goals, by 2030.

The 2030 Agenda clearly recognises that the natural world, including its provision of goods and services to people, must be protected not only for its own intrinsic worth, but for the sake of human well-being. And as a corollary, biodiversity decline and environmental degradation represent systemic risks to a plethora of social and economic goals. Recent extreme climatic events have further highlighted the dependency of human life and well-being, as well as social and economic development, on a healthy environment.

As one of the leading organisations in nature conservation, and custodian of five SDG indicators, IUCN closely examines in this report the four 'nature-related' goals – SDGs 15, 6, 14 and 13 (taken in the order they are addressed in the Nature 2030 IUCN Programme). The purpose is to provide an account of their progress (or lack thereof), as well as a set of actions that can accelerate progress to meet the SDGs by 2030, supporting the United Nations (UN) Secretary-General's Rescue Plan for People and Planet.

Progress on the nature-related SDGs: what do the data say?

Biodiversity is in a state of severe decline, with deforestation, land degradation and species extinctions all moving in the wrong direction. Progress on extending protected area coverage to Key Biodiversity Areas (KBAs) has slowed to a crawl, while the deterioration of the Red List Index, which shows trends in overall extinction risk for species, is accelerating. These trends constitute major challenges to achieving SDG 15. More than 70% of the global land surface has been significantly altered by humans, and while protected areas are covering ever greater proportions of terrestrial and inland freshwater ecosystems, 80% of KBAs do not enjoy complete coverage. Species extinction rates are accelerating to levels unprecedented in human history, and the rate of introductions of invasive species is not slowing down despite almost every country having adopted invasive species legislation.

The latest data also show uneven progress across the SDG 6 targets, and none of them are on track to be met. Progress made on improving integrated water resources management and transboundary cooperation is insufficient, and freshwater ecosystems continue to decline at alarming rates. Indeed, these ecosystems – including wetlands, which have declined three times faster than forests over the past 50 years – cover less than 1% of the Earth's surface, yet they support over 10% of known species. Water use efficiency has increased since 2015, but this masks significant regional and sectoral variation, and unsustainable water use remains a key driver of ecosystem degradation and species loss, as well as a significant threat to human well-being.

The ocean is not faring much better, as none of the targets of SDG 14 that were to be met by 2020 were achieved. Marine ecosystems, and the services they provide, continue to be under threat from pollution, overfishing, resource extraction and the multistressor impacts of climate change. Plastic pollution constitutes over 80% of marine debris, and direct exploitation of fish and seafood is the primary driver of marine biodiversity loss. Meanwhile, the growth of marine protected area coverage of KBAs has decelerated, with overall coverage in the ocean remaining low: 8% overall, and only about 1.5% in areas

beyond national jurisdiction. Progress on SDG 14 is also jeopardised by increased ocean acidification, deoxygenation and marine heat waves, resulting from greater greenhouse gas (GHG) emissions, all of which threaten ecosystems and the communities who rely on them.

Taking urgent action to combat climate change and its impacts (SDG 13) has not yet resulted in the rapid, deep, and sustained reduction of global greenhouse gas emissions, threatening biodiversity, and reducing nature's ability to deliver mitigation and adaptation benefits to protect lives and livelihoods. The IUCN Red List estimates that more than 12,000 species are affected by climate change. Further, over 3 billion people live in areas that are highly vulnerable to climate change, and human mortality from extreme climate events was 15 times higher in these regions in the decade leading up to 2020. These trends threaten progress on all SDGs, including the goals addressing poverty eradication, food and water security, human health and our cultural heritage.

Actions to support the Rescue Plan for People and Planet: how do we meet the goals by 2030?

Having considered the state of these four Goals, it is clear that urgent action is needed to correct course. There are many actions that can be taken to support the three breakthroughs identified in the UN Secretary-General's Rescue Plan for People and Planet. IUCN proposes the following nine, and illustrates its contributions in these areas through a series of case studies. Further, while not specifically highlighting an action under the "Equipping governance and institutions" breakthrough, IUCN supports the focus on monitoring and data, and the importance of its adequate resourcing.

A. Prioritising policies and investments that have multiplier effects across the goals

Given the integrated and indivisible nature of the Goals, actions that specifically address a single Goal or a small subset contribute to the overarching Agenda, including the nature-related Goals. The following actions targeting the nature-related SDGs support key components of the Rescue Plan, as well as all of the other SDGs:

1. **Urgently safeguard highly threatened species**. Beyond simply addressing the threats to species, targeted conservation and recovery plans and actions are needed, and have proven effective at greatly reducing extinctions to threatened species.

2. **Ensure that the use of wild species is sustainable**. The use of wild species is important for human well-being, especially for poorer households and many Indigenous peoples and local communities (IPLCs). However, it is vital that use of wild species is sustainable, and that the appropriate policy and institutional frameworks are in place so that the incentives favour conservation and sustainable development, rather than over-exploitation.

3. **Safeguard areas of importance to biodiversity, covering at least 30% of global terrestrial, inland water, and marine and coastal ecosystems**. Protecting and conserving these areas is fundamental to conservation efforts, as they preserve functioning ecosystems, provide sufficient space for species and support critical ecological processes. The IUCN Green List Standard for effective area-based conservation can help recognise, validate and promote effective protection strategies for all areas of importance for biodiversity and ecosystem services.

4. **Invest in soil and land health to support a sustainable food system**. Adopting regenerative approaches that prioritise soil and land health can transform the agricultural sector into one of the leading threats to biodiversity and human well-being into an approach that addresses multiple SDGs relating to poverty, water quality, food security and climate change.

5. **Protect, restore, and promote healthy freshwater systems and habitats**. We must target better connectivity, quality, pollution control, and system integrity, while taking decisions around water

governance and investment that consider multiple values of nature, including Indigenous knowledge and cultural values. The integration of conservation priorities for freshwater biodiversity into national and international water management practices will be essential.

6. **Implement Nature-based Solutions for climate and disaster risk reduction**. When designed with ambition and for longevity, Nature-based Solutions (NbS) can have immediate and cost-effective benefits for both mitigation, adaptation, and disaster risk reduction. The IUCN Global Standard for Nature-based Solutions can help to design, execute and evaluate NbS with coherence and integrity.

7. **Ensure gender equality as a human right**. Biodiversity loss, environmental degradation, and climate change tend to disproportionately affect women and girls. Their full and equitable participation in social and economic life is essential to nature conservation and sustainable development, and gender-inclusive approaches often have significant multiplier effects.

B. Securing a surge in SDG financing and an enabling global environment for developing countries

IUCN proposes two additional actions:

8. **Scale up and repurpose finance for biodiversity and climate**. Urgently addressing the biodiversity financing gap is critical to accelerating progress on the SDGs. This will require a range of responses both public and private, from subsidy reforms to blended approaches to innovative mechanisms such as debt-for-nature swaps.

9. **Make trade and the circular economy work against pollution and for nature**. Trade policies can positively impact conservation and sustainable development. These should address imported deforestation and extinction risk, sustainable supply chains, subsidy reform and circular economy approaches.

C. Equipping governance and institutions for sustainable and inclusive transformation

Finally, IUCN strongly supports the Secretary-General's calls for improved data, including to support enhanced SDG monitoring. As a standard-setter in the areas of conservation and sustainable development, generating data through widely-used knowledge products and metrics, IUCN already participates in the monitoring framework of the SDGs, serving as custodian for five indicators. However, its data, standards, knowledge products and derived metrics can complement the measurement of other targets, and support well-designed conservation interventions in pursuit of the SDGs more broadly. Critically, and as indicated in the Rescue Plan, data collection and processing efforts must be supported by adequate resourcing in order to ensure that relevant data are up to date, comprehensive and accurate. In addition to monitoring progress, these tools and standards can support collaboration, planning and a range of actions to advance the sustainable development agenda.

Importantly, all of these actions can support progress towards, and benefit from measures in support of, other multilateral environmental agreements. As such, ensuring that the Global Stocktake under the Paris Agreement enhances the collective ambition for climate action, implementing the Kunming-Montreal Global Biodiversity Framework (GBF) without delay, and supporting the ratification and rapid entry into force of the High Seas Treaty will be paramount in our efforts to accelerate progress on the SDGs.

The SDG Summit is the moment for the international community to come together and make concrete commitments to implement the Sustainable Development Goals. We have seven years left. Given the scope and urgency of achieving the SDGs, all actors should have their voices heard. There is a role for everyone – all sectors of society – to contribute to the accelerated implementation of the 2030 Agenda and its SDGs, to put us on a path to societal well-being, and to living in harmony with nature.

Adélie Penguins (*Pygoscelis adeliae*), Antarctic Peninsula
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1 Introduction

Marking the halfway point to 2030 since the Sustainable Development Goals (SDGs) were adopted, we are significantly off track. Despite gains across many of the goals, the acute and lingering effects of the COVID-19 pandemic, the war in Ukraine, and the associated food, energy and debt crises, have halted or reversed progress in many areas. Across the board, progress on the SDGs is insufficient, and in many cases, deteriorating altogether. We are only on track to meet 12% of the targets, and none of the goals, by 2030 (UNGA, 2023).

Sustainable development crucially hinges on nature, and in particular on its biological diversity. The role of nature as a fundamental precondition to our economic and social development is becoming a more standard feature of the mainstream discourse. Indeed, the narrative that nature conservation is peripheral, or even at odds with our development pursuits, continues to give way to the realisation that nature and development are inextricably linked. Nature is among our dearest assets, providing us with our basic needs, regulating essential planetary and human processes, and serving as a sink for our waste.

The 2030 Agenda for Sustainable Development and its 17 Goals clearly recognise that the natural world, including its provision of goods and services to people, must be protected not only for its own intrinsic worth, but for the sake of human well-being (see Annex I). As a corollary, biodiversity decline and environmental degradation represent systemic risks to a plethora of social and economic goals.

Nature underpins our economies, with recent estimates that more than half of global GDP, or over US$ 40 trillion, is dependent on nature and the services that it provides (Retsa et al., 2020; WEF, 2020). Just this year, building on studies conducted by the Dutch and French central banks, the European Central Bank found that 72% of companies are highly dependent on at least one ecosystem service, and 75% of all bank loans to companies in the euro area are granted to such companies, making nature-related risks highly material in the region (Elderson, 2023).

Warming of only 1°C has exposed tens of millions of people to temperature and humidity extremes that increase heat stress. These figures are projected to increase dramatically as we approach 1.5°C, 2°C, or more, pointing to disproportionate impacts on poor and vulnerable populations (Lenton et al., 2023; Rockström et al., 2023). This is clearly a major threat to the core commitment of the SDGs: to leave no one behind.

Likewise with human security, nature and armed conflict have a variety of interlinkages, deeply affecting human security. These connections are complex and bi-directional. On the one hand, nature degradation and natural resource scarcity, especially of agricultural lands, are strongly associated with the increased risk of conflict over the past 30 years. On the other, the impacts of armed conflicts on nature are overwhelmingly negative, including the killing of species, degradation of ecosystems and oppression of environmental defenders (IUCN, 2021a). This is compounded by the fact that species, and especially threatened species, are more likely than expected, based on their spatial extent, to co-occur with armed conflict events.[1]

Finally, nature provides many non-material contributions to people, such as spiritual inspiration

1 However, it should be noted that the opposite trend occurs within the territories of protected areas and Key Biodiversity Areas, though not necessarily within the surrounding (approximately 10–25 km) areas. Various explanations may account for these clustering phenomena (IUCN, 2021a).

and cultural significance (IPBES, 2019; Verschuuren et al., 2021). In many cultures, humanity is considered to be fundamentally a part of nature, and nature is inherently sacred. Indeed, the recent IPBES Values Assessment highlighted that nature is valued in many different ways across varying worldviews, going far beyond instrumental market-based approaches, and that many of these have been underutilised in policy making (IPBES, 2022a).

Taken together, the SDGs are fundamentally integrated, indivisible and interlinked, and nature plays an essential role in supporting the attainment of many of the other goals. Nearly half of the global population depends on natural resources directly for their livelihoods (SDG 1), while many vulnerable communities rely on biodiversity for their very subsistence (SDG 2). Producing more food for a growing population necessitates freshwater for irrigation (SDG 6), which in turn depends on healthy and thriving ecosystems (SDGs 14 and 15), many of which are threatened by climate change (SDG 13). Undertaking effective conservation of these ecosystems, and the species they contain, requires strong institutions and governance (SDG 16), as well as cooperation and partnerships at all levels (SDG 17). These connections led the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) to conclude that "current negative trends in biodiversity and ecosystems will undermine progress towards 80 per cent (35 out of 44) of the assessed targets of Goals related to poverty, hunger, health, water, cities, climate, oceans and land" (IPBES, 2019, p. xix).[2]

The COVID-19 pandemic threw the interconnectedness of the goals into stark relief, as we saw that our unsustainable relationship with the natural world, characterised by habitat destruction from land-use change and illegal wildlife trade, among others, creates the conditions that enable zoonotic disease risk, a major threat to human health and well-being (SDG 3).

In light of this, this report takes stock of progress of the four SDGs directly related to nature – 6, 13, 14 and 15 – and then offers a series of actions aimed at getting us back on track, effectively putting us on a path towards living in harmony with nature. Notably, these goals also map directly onto the Nature 2030 IUCN Programme (IUCN, 2021b), which for the first time set out a decadal timeline to align with the 2030 Agenda, as well as the Kunming-Montreal Global Biodiversity Framework (GBF). Thereupon, IUCN demonstrates its institutional commitment to contribute towards these societal goals through its various workstreams, a priority established by its more than 1,400 Members (IUCN, Members Assembly, 2016a).

The IUCN Programme has a fifth pillar: people. Reflecting people's central place within the 2030 Agenda, as reflected in the Agenda's preamble – people, planet, prosperity, peace and partnerships – this report seeks to highlight progress on the nature-related goals as they affect and are affected by people. Special attention is given to Indigenous people, critical stewards of nature, who must fully and effectively participate in the implementations of the SDGs. Likewise, women and girls, whose equality is a fundamental prerequisite for sustainable development, must be empowered and included to achieve our environmental, social and economic goals.

In section 2, the report reviews key trends in the data for each of the goals – noting where we are improving, as well as where progress has stalled or reversed – by looking specifically at the targets and indicators, with a focus on those for which IUCN acts as the custodian agency.[3] It complements these with additional data, much of which is sourced from IUCN, that is directly relevant to the attainment of the goal in question, as well as data which underscores the profound impact of our progress (or lack thereof) on the ecosystem realm in question.[4] In some cases, data that speak to a target in one Goal are disaggregated and presented

2 The goals specifically addressed by this statement include SDGs 1, 2, 3, 6, 11, 13, 14 and 15. Several others have clear linkages to nature, but were not assessed because their focus or wording makes their relationship to nature unclear.

3 IUCN is the custodian of five indicators for SDGs 14 and 15, which draw on its knowledge products and conservation tools. The indicators are: **14.5.1** Coverage of protected areas in relation to marine areas; **15.1.2** Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type; **15.4.1** Coverage by protected areas of important sites for mountain biodiversity; **15.5.1** Red List Index; and **15.8.1** Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species.

4 In addition to the three realms reviewed in this report – terrestrial, freshwater and marine – which track the SDGs and the Nature 2030 Programme, the IUCN Global Ecosystem Typology 2.0 also includes the subterranean and atmospheric realms in its top-level division of the biosphere (Keith et al., 2020).

to address the targets in other Goals, thereby underscoring the highly interconnected nature of the SDGs.

Section 3 proposes a set of actions, based on recent international policy decisions and our knowledge of what kinds of interventions work, that support key components of the UN Secretary-General's Rescue Plan for People and Planet (UNGA, 2023). There is strong evidence that conservation efforts have had positive impacts where measures are effective and sustained. What is often lacking is the political will, as well as the means of implementation to undertake these interventions at speed and scale. Noting the recent progress made in the international policy front for action on nature, including the adoption of the GBF by Parties to the UN Convention on Biological Diversity (CBD) in December 2022, the report proposes nine areas for action, describing their rationale and potential. These are, in turn, complemented by concrete examples of interventions from around the world, each of which contain elements that could be transformative in our collective efforts to correct course and achieve the SDGs, and many of which exhibit the power and centrality of collaboration and partnerships.

Finally, the SDG Summit in September 2023 must mark a turning point, with concrete commitments to action across a range of priority areas. There is a role for everyone – all sectors of society – to contribute to the accelerated implementation of the 2030 Agenda, and to put us on a path towards societal well-being, and ultimately to living in harmony with nature. This report can be read as part of IUCN's contribution to accelerate the implementation of the Sustainable Development Goals.

Greenhouse gas (GHGs) emissions are rising to levels unseen during the modern era, the world's forests continue to decline, and over one-fourth of the more than 140,000 species assessed by the IUCN Red List of Threatened Species™ – including 13% of birds, 27% of mammals and 41% of amphibians – are threatened with extinction.[5] Indeed, biodiversity across all realms – terrestrial, freshwater and marine – is declining at rates unseen in human history, estimated to be 1,000 times higher than the background rate (Pimm et al., 2014). Viewed through an accounting lens, the value of our natural capital stock declined by 40% between 1992 and 2014, with the rates in developing countries up to five times higher than among Organisation for Economic Co-operation and Development (OECD) members (Dasgupta, 2021; Managi & Kumar, 2018).

These trends are driven by pressures from human activities. There is little doubt that we are deeply offtrack to achieve the four nature-related SDGs. Although these trends can (and must) be reversed, species extinctions are irreversible. With every additional one-tenth of 1°C of global warming, there will be additional losses. Further, there is ample evidence that the adverse effects of climate change will adversely affect the most vulnerable, most of whom are least responsible for historical emissions. On the whole, our myopic and troubled relationship with the natural world is already negatively impacting our economies and the health and well-being of many communities around the world. It represents an existential risk to the prosperity of future generations.

The following sections take each of the four goals in turn, covering a subset of the targets within each for which IUCN is well positioned to offer its views (see Annex II for the full suite of targets and indicators for the four Goals). They follow the order in which they are elaborated in the Nature 2030 IUCN Programme – land, water, ocean, climate – rather than in numerical order.

5 Species assessed as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) are referred to as "threatened" species. However, reporting such proportions is complicated. For more information, please see: https://www.iucnredlist.org/resources/summary-statistics.

2 Progress on the nature-related SDGs: what do the data say?

2.1 SDG 15 – Land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

On land, biodiversity is in a state of severe decline, with deforestation, land degradation and species extinctions all moving in the wrong direction. These trends constitute major challenges to achieving SDG 15, and are driven by the fact that more than 70% of global land surface has been significantly altered by humans (UNCCD, 2022).

Protected areas and Key Biodiversity Areas

Over 15% of the Earth's land surface is covered by protected areas – and the international community aims to safeguard KBAs adding up to double this area by 2030, with the adoption of the GBF and its Target 3[6] (Figure 1). Further, the overall outlook for natural World Heritage sites – which make up less than 1% of the Earth's surface, yet harbour over 20% of mapped global species richness – is not improving (Osipova et al., 2020; UNESCO & IUCN, 2023). Beyond SDG 15, this compromises progress on SDG Target 11.4 on protecting the world's cultural and natural heritage.

Around the world, biodiversity and its drivers of loss are distributed unevenly, so it is essential to understand how well this coverage aligns with areas that are especially important for biodiversity. Indeed, just under half of KBAs[7] are protected, with growth slowing in recent years. Put another way, more than 80% of KBAs do not enjoy complete protected area coverage. Further, this coverage is very uneven across different regions.[8] For instance, Northern America and Europe have a higher proportion of important sites for terrestrial biodiversity covered by protected areas – and thereby greater progress on SDG Targets 15.1 and 15.4 – while Central and Southern Asia, Western Asia and Northern Africa, and Oceania present much lower coverage across terrestrial and mountain ecosystems (Figure 2 and Figure 3). Further, many KBAs are at risk of adverse human impacts in the pursuit of other SDGs. For example, a recent analysis using the Integrated Biodiversity Assessment Tool (IBAT) found that more than 1,200 mines lie within KBAs, of which 29% were for minerals to support the low-carbon energy transition (Whieldon et al., 2022).

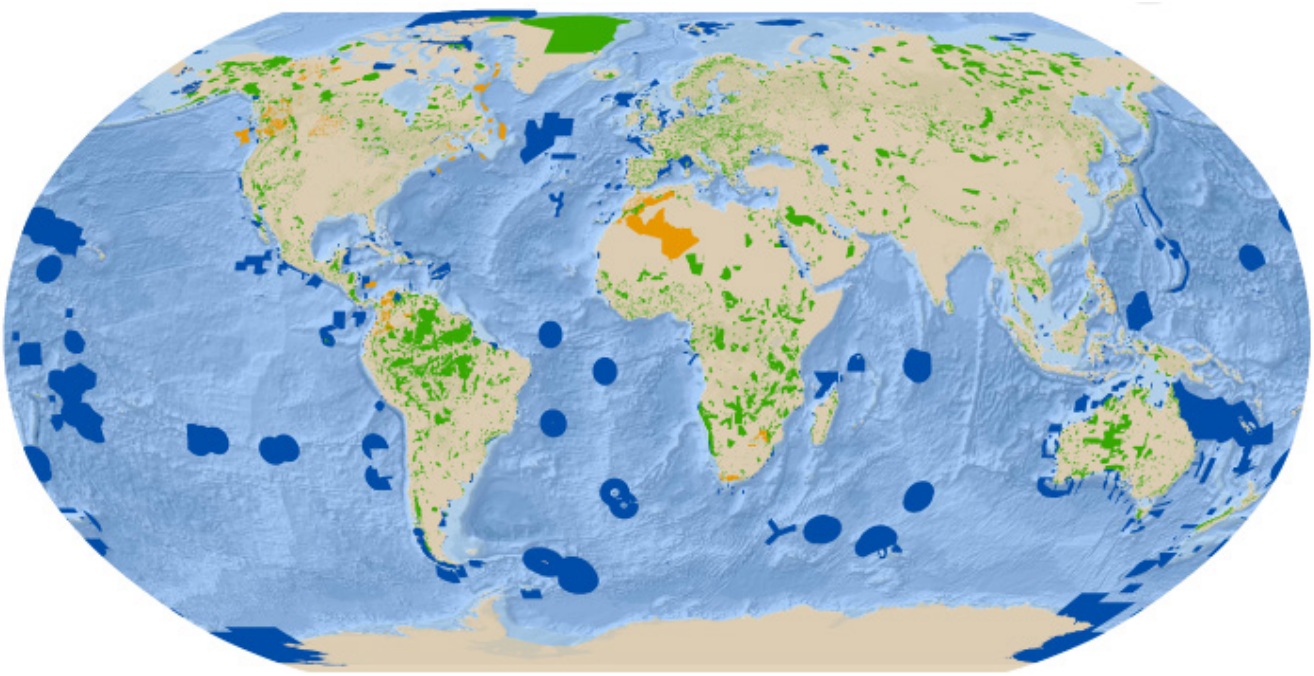
6 GBF Target 3: "Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories."

7 A site qualifies as a global KBA if it meets one or more of 11 criteria, clustered into five higher level categories: threatened biodiversity, geographically restricted biodiversity, ecological integrity, biological processes and irreplaceability (IUCN, 2016). More than 16,000 KBAs have been identified to date (BirdLife International, 2023).

8 SDG indicator data presented in this report that is disaggregated by region follow the geographical regions used by the UN Statistics Division in its publications and databases. For more information, please see: https://unstats.un.org/unsd/methodology/m49.

Figure 1 **Protected areas and OECMs of the world (as of August 2023)**

Source: UNEP-WCMC & IUCN (2023)



Source: UNEP-WCMC and IUCN (2023). *Protected Planet: The World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM)* [On-line], August 2023, UK: UNEP-WCMC. Available at www.protectedplanet.net

UN environment programme WCMC

Terrestrial protected areas | Marine and coastal protected areas | OECMs

IUCN WCPA

Figure 2 **SDG indicator 15.1.2 – Proportion of important sites for terrestrial biodiversity that are covered by protected areas, by region (2000–2022)** Sources: UNEP-WCMC & IUCN (2023); BirdLife International (2023)

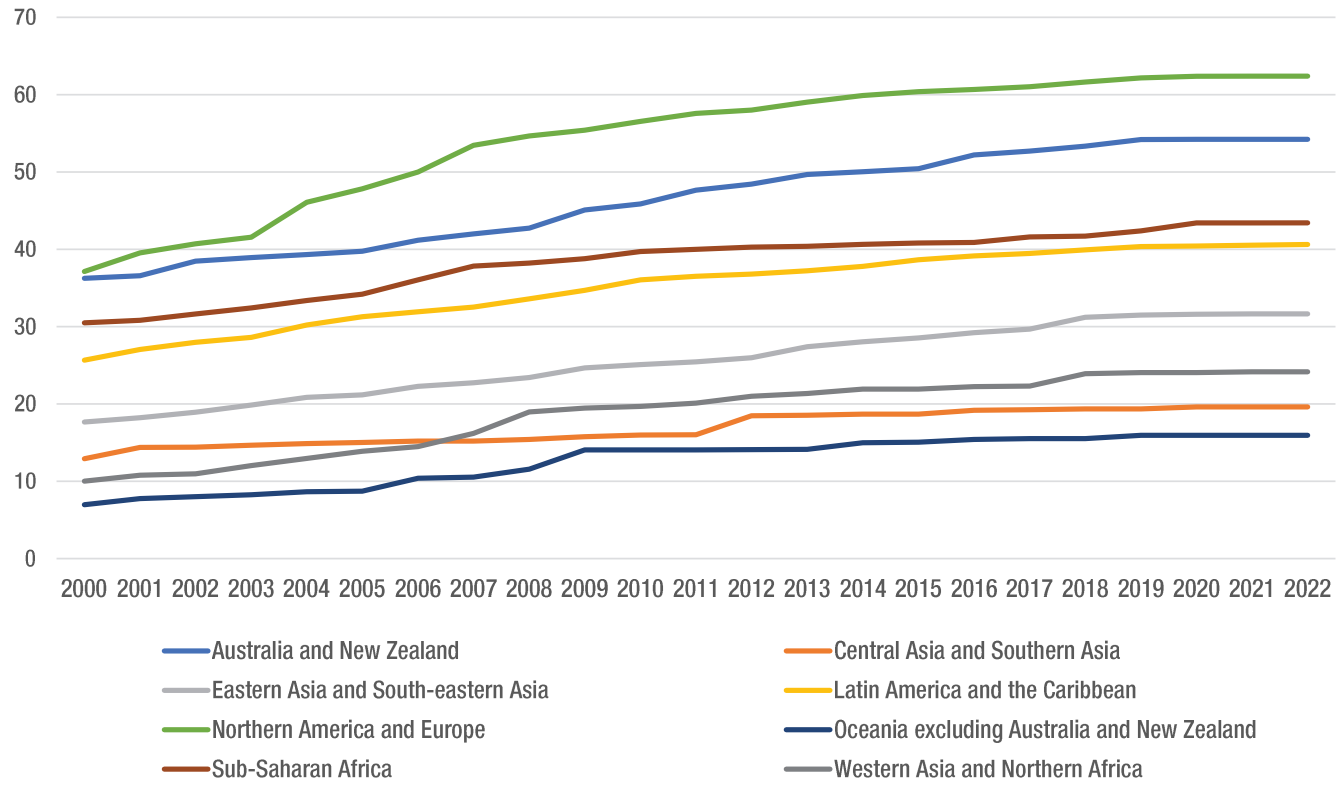


Figure 3 SDG indicator 15.4.1 – Coverage by protected areas of important sites for mountain biodiversity, by region (2000–2022) Sources: UNEP-WCMC & IUCN (2023); BirdLife International (2023).

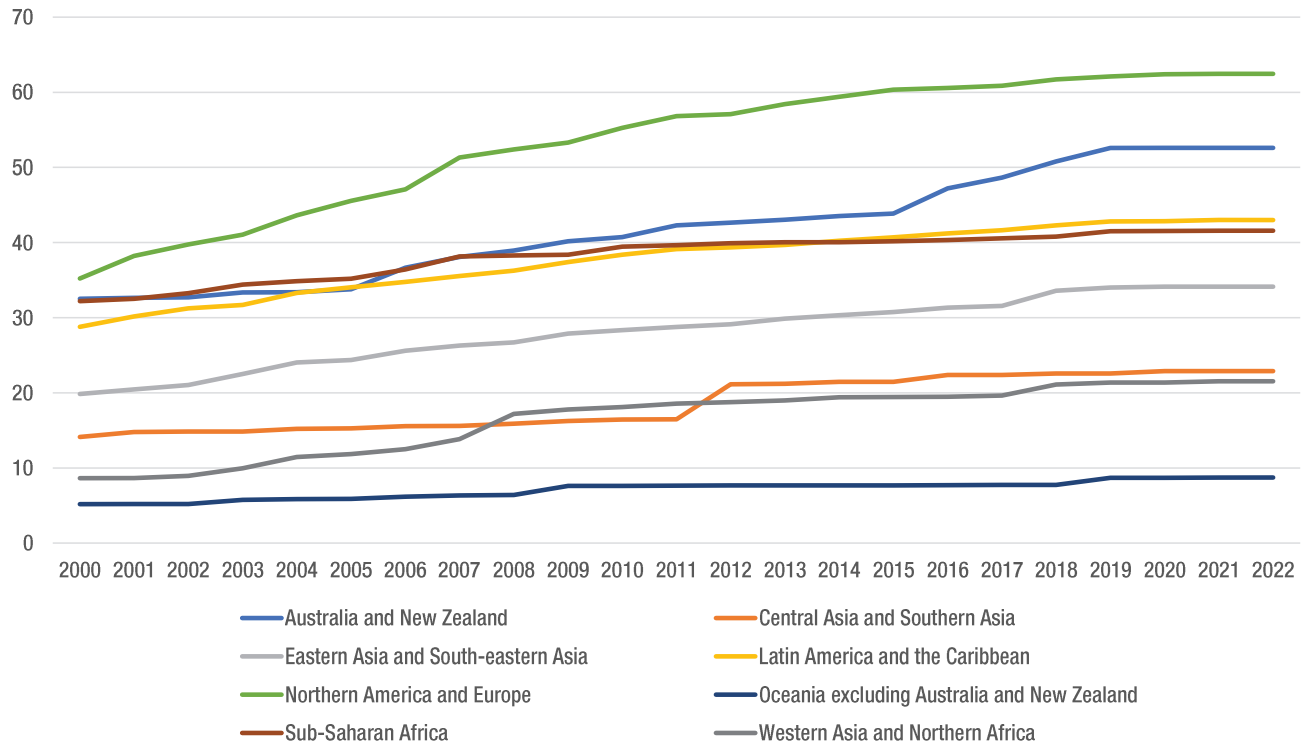
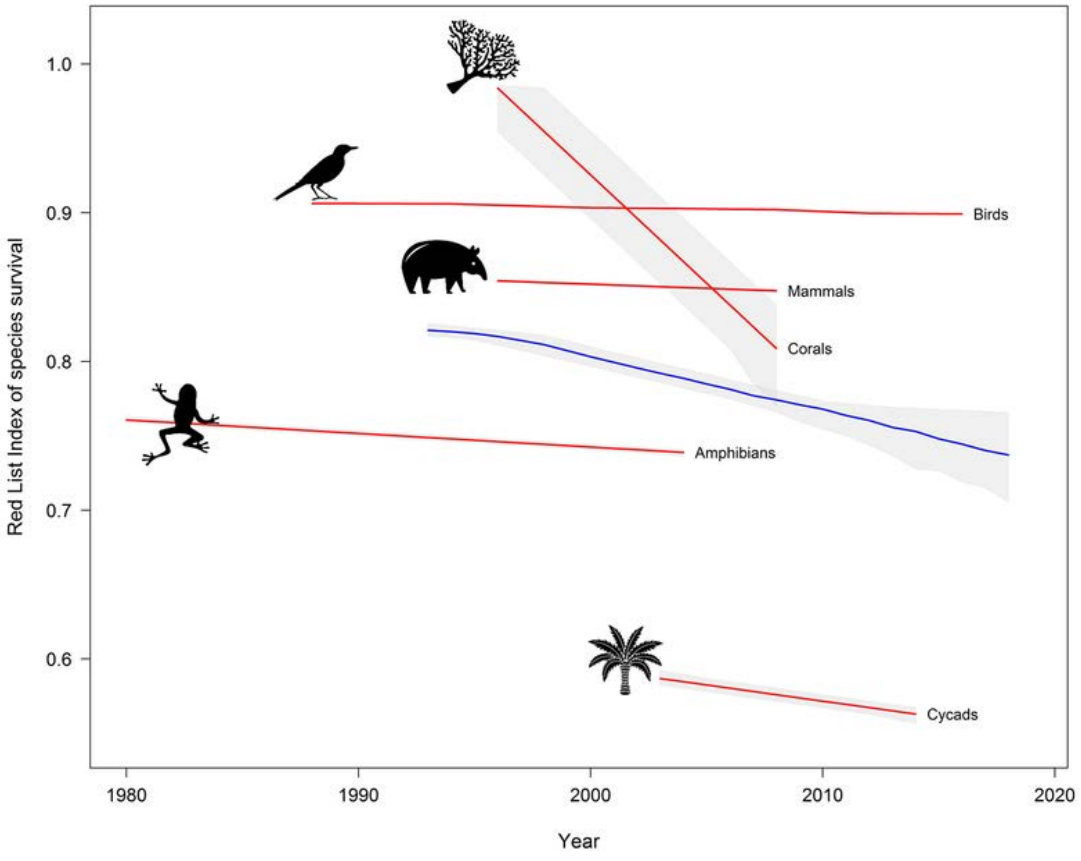


Figure 4 The Red List Index of species survival for mammals, birds, amphibians, reef-forming corals and cycads Source: IUCN (2022a).



Species extinction

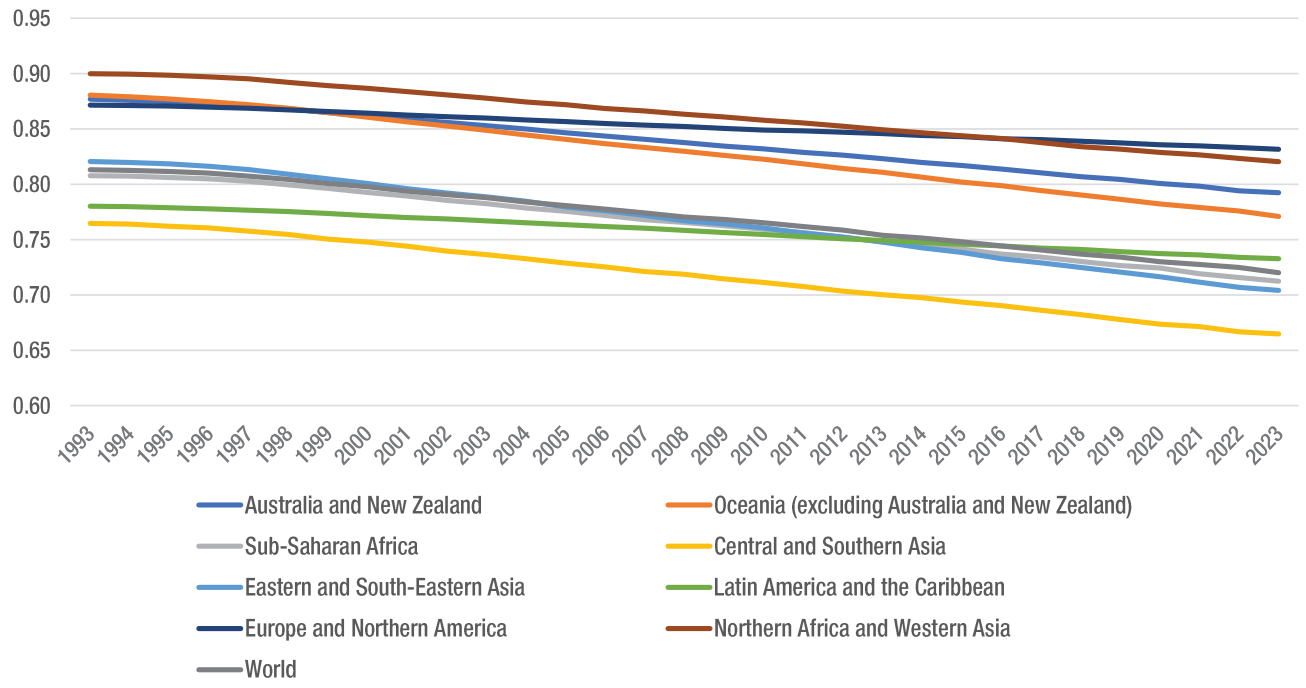
At the species level, extinction rates are accelerating to levels unprecedented in human history, according to the Red List Index, which shows overall extinction risk for species across five taxonomic groups.[9] This is deeply discouraging, as species extinction is irreversible. While there is considerable variation between the taxonomic groups covered – corals are declining fastest, while cycads are, on average, most threatened – the Index has declined by 10% since the 1990s, with that deterioration occurring faster each decade (Figure 4). At the regional level, much of Asia suffers from the most severe overall extinction risk, and has witnessed the steepest declines alongside Oceania over the past 30 years, representing backsliding against SDG Target 15.5 and Goal A of the GBF. Northern America and Europe, and Western Asia and Northern Africa, present the lowest overall extinction risk (Figure 5).

The figures are equally startling at the ecosystem level, with more than 40% of the more than 2,800 ecosystems assessed by the Red List of Ecosystems facing collapse (IUCN-CEM, 2022). Meanwhile, tropical primary forest loss increased in 2022, rising to 4.1 million hectares, or 10% more than in 2021 (Weisse et al., 2023).

International trade of species

Direct and indirect exploitation is among the top drivers of species extinctions. Much of this is linked to international trade, including illegal trade, which is increasingly a threat to biodiversity, as well as to public health, law enforcement and human security. A recent assessment identified over 11,700 species at risk of extinction on account of current and future trade (Scheffers et al., 2019). The Red List Index for global internationally traded species exhibits significant deterioration since the 1990s as threats to species have grown over that period (Figure 6), directly relevant to measurement of progress towards SDG Target 15.7 on illegal wildlife trade. Further research undertaken by IUCN and its partners has developed a mechanism to identify the species most likely to be threatened by international trade (Challender et al., 2023), potentially a valuable input into conservation decision-making, including at the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

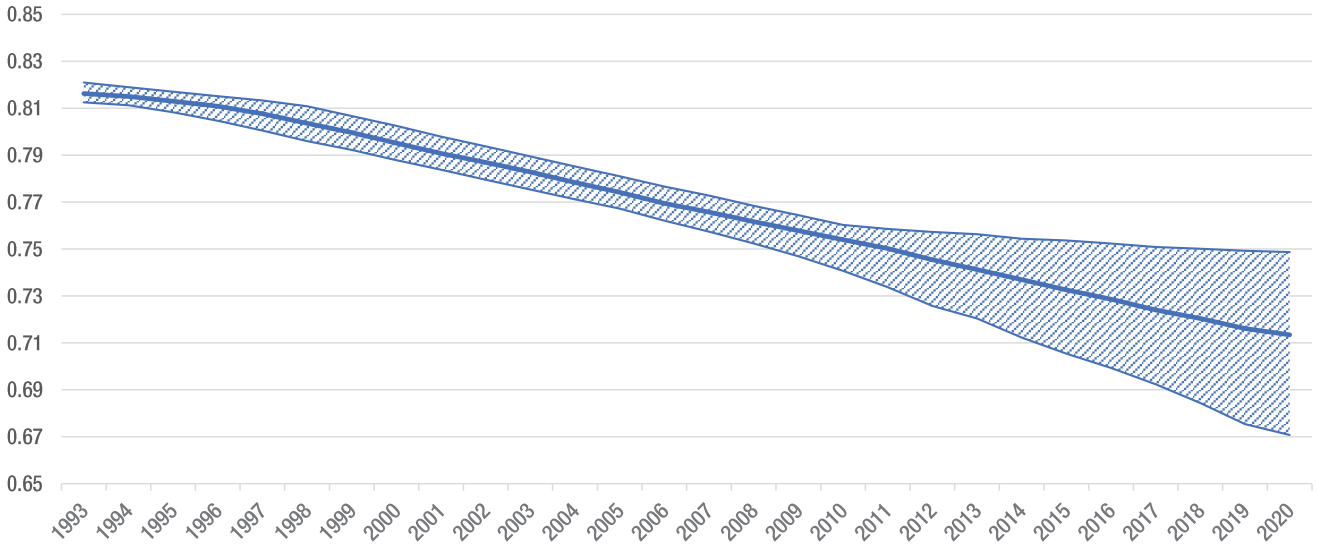
Figure 5 SDG indicator 15.5.1 – Red List Index, by region (2000–2022) Source: IUCN (2022a).



9 The Red List Index is derived from repeat assessment of every species across entire taxonomic groups for the IUCN Red List of Threatened Species™, to avoid changes in status driven by improved knowledge or revised taxonomy. The Index is '1' when no species are threatened and '0' when all species are extinct. For more information, please see: https://www.iucnredlist.org/assessment/red-list-index.

Figure 6 Red List Index for global internationally traded species (1993–2020) as a complementary indicator for SDG Target 15.7

Shading shows 95% confidence intervals Source: IUCN (2022a).



Invasive species

Turning to SDG Target 15.8, almost every country has adopted legislation related to invasive species, which tends to be in cross-cutting sectors (for example, plant and animal health, or fisheries and aquaculture), although more are adopting laws specifically targeting invasive alien species or biosecurity (Figure 7). Further, countries are increasingly aligning their invasive alien species objectives with global targets – up from 74% in 2016 to 87% in 2022 – including Aichi Target 9, which has now been replaced by Target 6 of the GBF. Adequate resourcing is likewise essential to manage effective invasive alien species responses; more than half of surveyed countries have made domestic budget allocations, and almost one-fourth have accessed global financial mechanisms to support such responses.

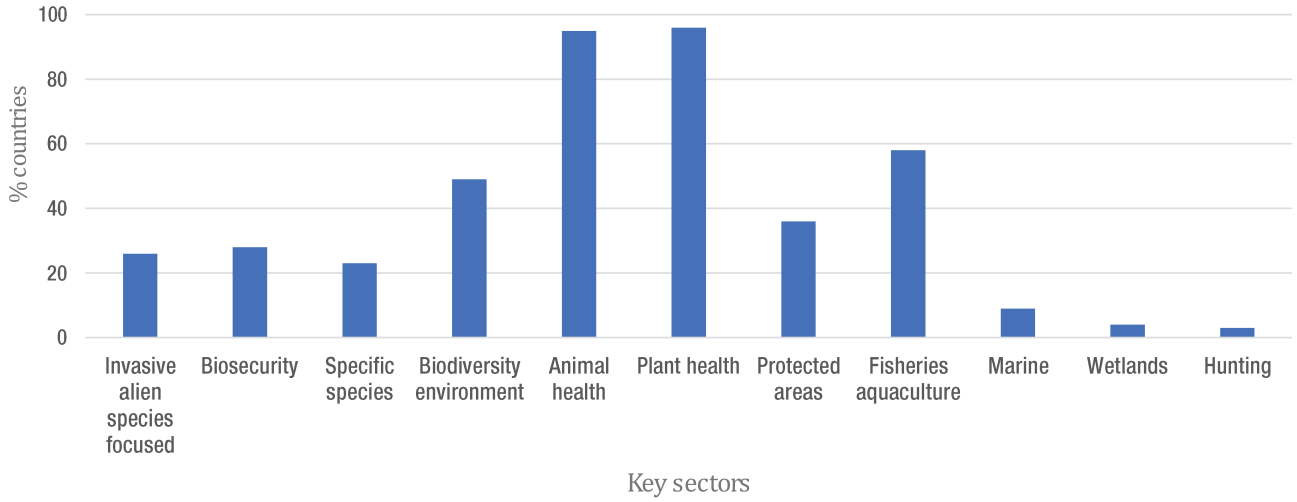
Despite these trends, the rate of introductions is not slowing down, tied as it is to the movement of people and goods. Indeed, it is estimated that more than a third of all introductions over the past 200 years have taken place since 1970, and that established invasive species will increase by 36% between 2005 and 2050 (Seebens et al., 2017; Seebens et al., 2021). This means that we will continue to see negative biodiversity impacts, with 10% of species on the IUCN Red List threatened by invasive species. The

> “... 10% of species on the IUCN Red List [are] threatened by invasive species

effects are also socio-economic, touching on at least 10 SDGs (IUCN, 2018), as they impact a variety of sectors including agriculture, infrastructure, forestry, tourism and health. Global economic losses have estimated to total more than US$ 1.2 trillion between 1970 and 2017 (Diagne et al., 2021), reaching US$ 423 billion annually in 2019 (IPBES, 2023). Africa's agricultural sector alone is estimated to lose US$ 66 billion annually from invasive alien and pest species (Eschen et al., 2021). A great deal of work remains to be done to manage pathways of introduction through biosecurity measures and early warning systems, as well as to eradicate invasive alien species from priority sites.

Figure 7 SDG indicator 15.8.4 – Proportion of countries adopting relevant national legislation to invasive alien species, by key sector

Source: Survey conducted by the IUCN SSC Invasive Species Specialist Group. For more information, please see: https://unstats.un.org/sdgs/metadata/files/Metadata-15-08-01.pdf



2.2 SDG 6 – Water

Ensure availability and sustainable management of water and sanitation for all

In freshwater, the latest data on SDG 6 show uneven progress across the targets, with none on track. This includes challenges in water management pertaining to intersectoral coordination and international collaboration, coupled with abnormally high fluctuations in surface water extent around the world (UN-Water, 2023).

Water use efficiency

On SDG Target 6.4, while water use efficiency has increased since 2015, this masks significant regional and sectoral variation. Likewise, although the world as a whole is not considered to be water stressed, this hides large regional and basin-level variations, with 2.4 billion people projected to live in water-stressed countries (FAO, 2022a). Furthermore, the proportion of global freshwater withdrawals to renewable freshwater resources available is increasing, and unsustainable water use remains a key driver of ecosystem degradation and species loss, as well as a significant threat to human well-being, with demand forecast to outstrip supply by 40% by 2030 (GCEW, 2023).

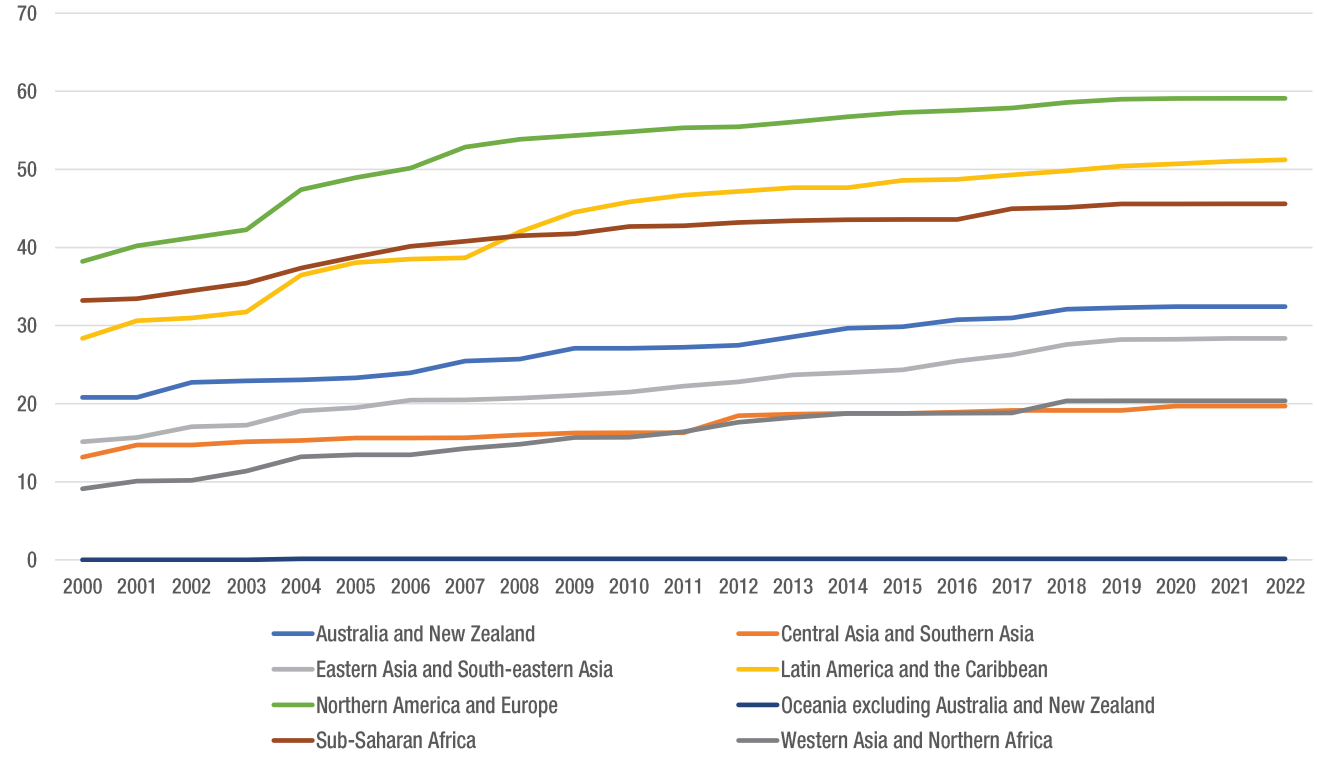
Integrated Water Resources Management and transboundary cooperation

With respect to integrated water resources management and transboundary cooperation, SDG Target 6.5, significant acceleration in progress is needed. The former is being implemented to a greater degree since 2017, but rates must almost double by 2030 to meet the target, all the more urgent as increasing populations and economic activities will make balancing competing demands for water more difficult without adverse consequences for ecosystems and people (UNEP, 2021a). Meanwhile, only about 20% of countries that share transboundary waters have operational arrangements covering at least 90% of their shared waters, a figure which must increase to address conflicts and sustain communities and ecosystems that depend on these waters (UN-Water, 2023; Box 5).

Freshwater ecosystems and biodiversity

Looking at SDG Target 6.6, freshwater covers less than 1% of the Earth's surface yet supports over 10% of known species, including 30% of vertebrates and more than half of known fish species (IUCN, 2022a). Among the freshwater fish species assessed by the IUCN Red List, 30% are threatened with extinction, driven by pollution, habitat destruction,

Figure 8 SDG indicator 15.1.2 – Proportion of important sites for freshwater biodiversity that are covered by protected areas, by region (2000–2022) Sources: BirdLife International (2023); UNEP-WCMC & IUCN (2023)



reservoirs and energy infrastructure, and over-abstraction of water for agriculture. This figure increases to 94% among the subset of mega-fishes, those that weigh more than 30 kg such as catfish and sturgeon (He et al., 2019). The Red List Index for global freshwater species shows deterioration over the past 30 years. On the whole, inland and freshwater ecosystems have exhibited among the highest rates of decline on earth (IPBES, 2019).

These sharp declines threaten not only freshwater biodiversity, but also the millions of people who depend on those resources for their health and livelihoods, and present clear threats to progress on SDGs 2 and 3. More than half of the world's population lives within 3 km of freshwater bodies (Kummu et al., 2011), and throughout Africa, Asia and South America, 200 million people depend on freshwater fisheries as their main source of animal protein and essential nutrients, and 60 million, most of whom are women, for their employment (WWF, 2021a). Indeed, such fisheries provide many services to individuals (food, economic and empowerment), societies (cultural, recreational, health and well-being) and the environment (ecosystem function, early warning systems and sustainable food) (Lynch et al., 2016).

The proportion of freshwater KBAs that are covered by protected areas has increased since 2000, although as in the terrestrial realm, this progress has slowed in recent years (Figure 8). While officially this reflects progress towards SDG 15 rather than SDG 6 according to the indicator framework, the trend is relevant for freshwater biodiversity and ecosystems. Further, the evidence for protected areas effectively protecting freshwater biodiversity is mixed, as the integrity of freshwater systems is dependent upon system connectivity, and many areas are not purposefully designed to address water quality and flow issues (see section 3.5).

Meanwhile, wetlands, the world's most effective carbon sinks and providers of approximately 40% of global ecosystem services (Baigún et al., 2022), declined by 35% over the past 50 years, or three times the rate of forests (Convention on Wetlands, 2021). This has had knock-on effects on freshwater biodiversity, water quality (driven in large part by pollution from plastic, synthetic chemicals and pesticides, pharmaceutical residues and nutrient runoff from sewage and agriculture), human health and as a source of carbon emissions (Reid et al., 2019). Additionally, degraded wetlands are unable to provide key services that people rely upon,

including reliable water for drinking and irrigation, buffers against droughts and floods, and carbon sequestration.

As the natural resource that is embedded in almost all economic transactions – critical for food production, human health, energy security, biodiversity and a key driver of our climate – we will not achieve the SDGs without making progress on water.

2.3 SDG 14 – Oceans

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

In the marine realm, none of the SDG 14 targets to be met by 2020 were achieved, despite increased recognition that the ocean underpins human existence, evidenced by the fact that it was the first SDG to have a dedicated UN conference: the 2017 UN Ocean Conference.[10] Only about 8% of the ocean, and about 1.5% of areas beyond national jurisdiction, are covered by protected areas, with less than 3–4% fully or highly protected (UNEP-WCMC & IUCN, 2023). As such, the vast majority remains vulnerable to threats, including pollution, overfishing, aquaculture, shipping and resource extraction (UN, 2021). On this final point, recent discussions at the International Seabed Authority (ISA) on deep-sea mining regulations have brought attention to the question of whether such activities would be consistent with SDG 14 and the blue economy.[11] Given the potential threats that deep-sea mining poses to marine ecosystems, IUCN has called for a moratorium until the risks are better understood and a range of governance policies are put in place (IUCN, Members Assembly, 2020a).

Plastic pollution

Beginning with SDG Target 14.1, plastic pollution is one of the most important consequences of ineffective economic models and poor waste management systems. This has resulted in over 14 million tonnes of plastic ending up in the oceans annually, constituting over 80% of the debris from surface to floor (IUCN, 2021c). As a major threat to ocean and human health, marine species, food safety and tourism, transformational change to our production and consumption patterns is needed to achieve SDG 14. Failure to do so will compromise efforts on multiple SDGs, especially among low- and middle-income countries (LMICs) and Small Island Developing States (SIDS).

Coastal and marine ecosystems

As indicated above, coastal and marine ecosystems are under significant threat, compromising progress towards SDG Target 14.2. While official indicator data are lacking, IUCN and several partners recently took stock of the extent to which countries

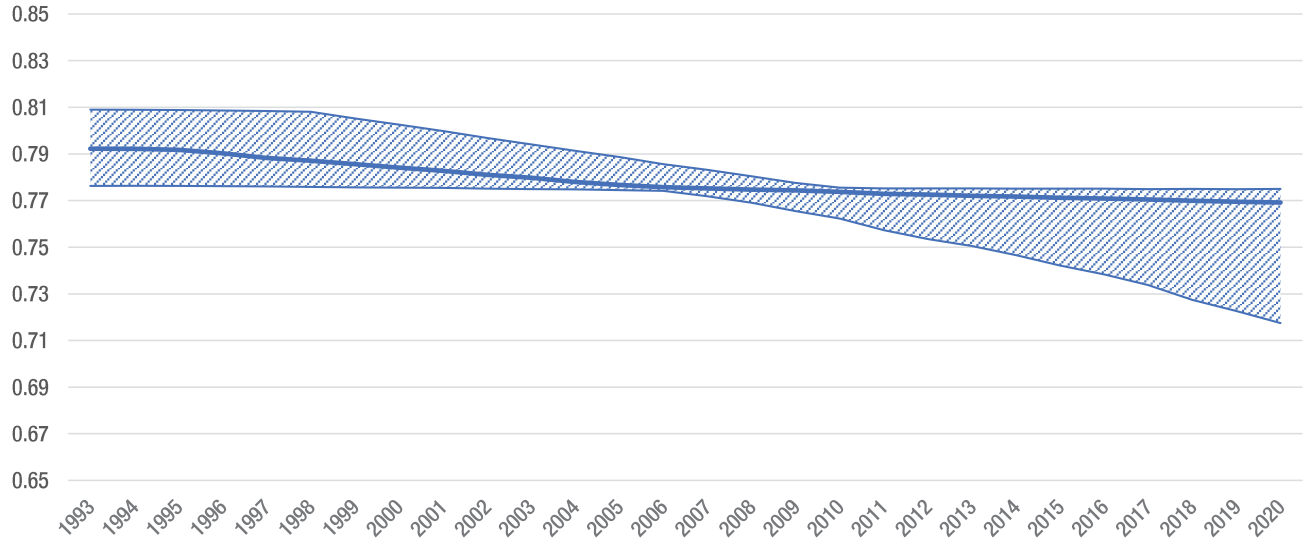
“Given the potential threats that deep-sea mining poses to marine ecosystems, IUCN has called for a moratorium until the risks are better understood and a range of governance policies are put in place

10 This was followed by the 2022 UN Ocean Conference. The ocean's importance for climate change mitigation and adaptation was recognised in the Glasgow Climate Pact, adopted at UNFCCC COP-26 (UNFCCC, 2021).

11 Singh (2021) provides a thorough review of the issues at stake in reconciling deep-sea mining and SDG 14.

Figure 9 Red List Index for global impacts of fisheries (1993–2020) as a complementary indicator to SDG Target 14.4

Shading shows 95% confidence intervals. Source: IUCN (2022a).



have included coastal and marine Nature-based Solutions (NbS) in their Nationally Determined Contributions (NDCs) under the UN Framework Convention on Climate Change (UNFCCC), finding that 71 countries (or 60% of all submissions) had put forward such approaches for mitigation and/or adaptation measures as of October 2021 (Lecerf et al., 2021). Moreover, this target is closely interlinked with several others under SDG 14, including those discussed below on fishing and protected areas.

Climate change

On SDG Target 14.3, ocean acidification is occurring 10 times faster than over the previous 300 million years, leaving the ocean 30% more acidic than during the pre-industrial era. Further, the ocean's oxygen content has decreased by 2% since the 1950s and is expected to fall 3–4% by 2100 due to climate change and nutrient discharge, with severe impacts for marine biodiversity and the functioning of the ocean's ecosystems (Laffoley & Baxter, 2019). All of these effects portend profound socio-economic impacts for coastal communities and beyond.

Indeed, on climate change specifically, the ocean is significantly affected, having absorbed more than 90% of the excess heat from greenhouse emissions since the 1970s. While this buffer has shielded humans from more rapid global warming, the effects on ocean life have been and are projected to be deeply concerning.

The Intergovernmental Panel on Climate Change (IPCC) reports that climate change may drive the loss of 70–99% of the world's coral reefs (IPCC, 2018; see also Figure 4), which contain the highest levels of biodiversity of any ecosystem on earth, while directly supporting over 500 million people's livelihoods (IUCN, 2021d). Meanwhile, severe declines in fishery distribution and revenues have been driven by a 13% decline in ocean animal biomass (IPCC, 2022a). Twelve of the 17 mangrove ecosystems assessed by the Red List of Ecosystems are threatened by climate change (IUCN-CEM, 2022), especially concerning as they are among the most important natural ecosystems on earth, providing critical climate change mitigation, adaptation and disaster risk reduction benefits. Additional impacts are likely to include increased ocean stratification, sea level rise, massive increases in marine heatwaves (which can push ecosystems beyond their threshold for recovery) and more extreme El Niño events.

Fisheries

The IPBES Global Assessment reported that direct exploitation of fish and seafood is the primary driver of losses to marine biodiversity (IPBES,

2019). Further, over 35% of global fishery stocks were operated outside of biologically sustainable levels in 2019, slightly over 1% higher than in 2017 (FAO, 2022b). This trend is captured in the Red List Index for global impacts of fisheries (Figure 9), which complements the measurement of progress made towards SDG Target 14.4 on regulating unsustainable fishing practices. The direct exploitation of marine biological resources includes both targeted and incidental capture, much of which takes place without strong monitoring, reporting, or other controls. This has been exacerbated by the expansion of unselective, unsustainable and unmonitored (UUU) fisheries, mainly using bottom trawl fishing gear, which threaten marine biodiversity. However, effective management has been demonstrated to rebuild fish stocks without breaching ecosystem boundaries, which could play an important role in supporting food security, nutrition and livelihoods for coastal populations around the world.

Protected areas and Key Biodiversity Areas

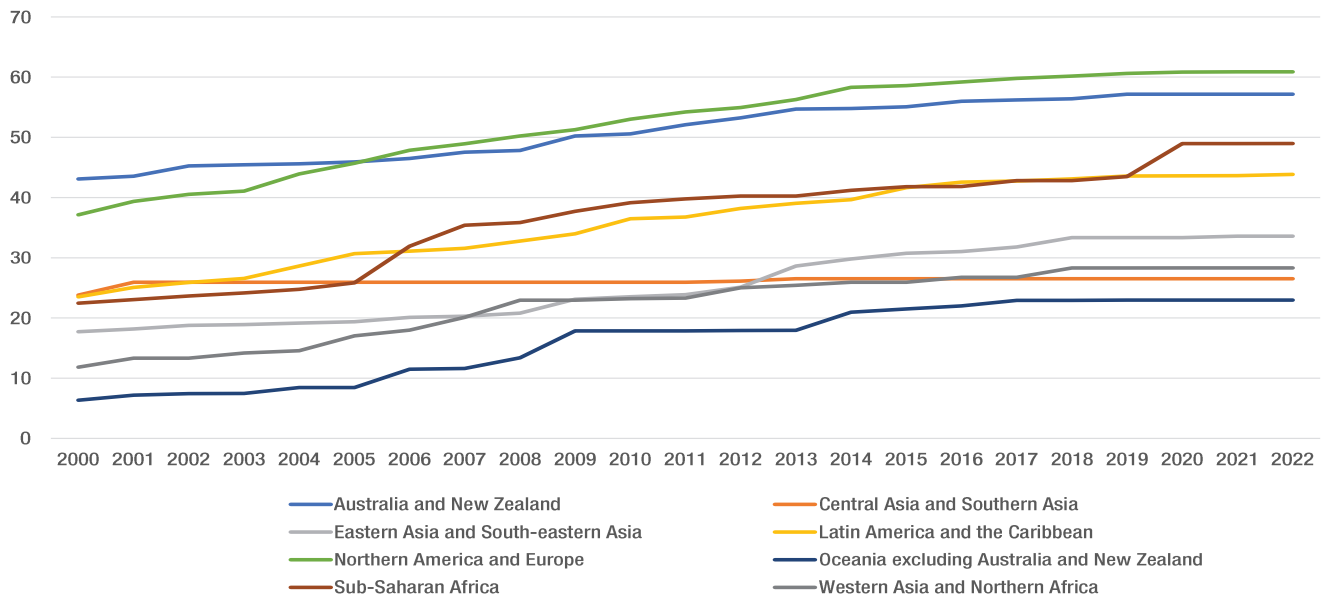
Much as in the terrestrial and freshwater realms, looking at SDG Target 14.5, the proportion of marine KBAs covered by protected areas has increased in the past two decades, though progress has slowed, and there is considerable variation between the regions, with Oceania at just over 20% and Northern America and Europe at over 60% (Figure 10). These figures remain extremely low in areas beyond national jurisdiction.

2.4 SDG 13 – Climate

Take urgent action to combat climate change and its impacts

The climate emergency is not distinct from the biodiversity crisis; rather they are two sides of the same coin. And yet, according to the UN Secretary-General's Progress Report, while fair progress is being made on some of the SDG 13 targets, we are not on track to meet any (UNGA, 2023). This is alarming, given the recent findings of the IPCC Sixth Assessment Report, which underscores that despite calls and commitments to the contrary, global GHG emissions continue to increase with unequal historical and ongoing contributions from unsustainable energy use, land use and land-use change, lifestyles, and consumption and production patterns.

Figure 10 SDG indicator 14.5.1 – Coverage of protected areas in relation to marine areas, by region (2000–2022) Sources: BirdLife International (2023); UNEP-WCMC & IUCN (2023).



Climate-related disasters

Starting with SDG Target 13.1, disasters are a major threat to progress on the 2030 Agenda, and they are increasing – a function of the fact that many natural hazards that precipitate disasters, including floods, droughts, landslides and cyclones, are becoming more frequent and intense as a result of climate change (IPCC, 2021) and widespread environmental degradation. This is compounded by increases in underlying vulnerabilities such as poverty and inequality. The number of disasters has doubled over the past 20 years, and under current trends, the number of disasters globally is projected to increase by 40% between 2015 and 2030, or over the lifetime of the SDGs (UNDRR, 2022). In 2022 alone, 185 million people were affected, and over US$ 220 billion in damages were recorded (CRED, 2023). Further, in an increasingly interconnected and globalised world, cascading impacts of disasters can reach populations, geographies and sectors not directly affected by the event.

Many ecosystems and their services can provide protection and reduce damages from both rapid and slow onset natural hazards, in some cases more cost-effectively than built infrastructure (Monty et al., 2016). Ecosystem-based disaster risk reduction has been practised in many countries over recent decades, and more recently has been acknowledged at the highest policy levels, including within the Sendai Framework for Disaster Risk Reduction adopted in 2015, and more recently at the G20, albeit more work needs to be done to mainstream these approaches (see section 3.6).

Emissions trends

On SDG Target 13.2, the continued rise of emissions reflects an urgent need to scale-up global ambition, as limiting temperature rise to 1.5°C (with no or limited overshoot) requires that global emissions peak by 2025, decline by 43% from 2019 levels by 2030, and reach net zero by 2050 (IPCC, 2023) (Figure 11). According to the UN Environment Programme (UNEP), current policies would yield a 2.8°C rise by the end of the century, and absent transformative change, there is no credible pathway to 1.5°C (UNEP, 2022a). Meanwhile, the UNFCCC estimates that, taking into account the implementation of all the NDCs submitted as of September 2022, GHG emissions will reduce by only 0.3% below 2019 levels by 2030 (UNFCCC, 2022). This is all the more troubling as each fraction of a degree that we exceed 1.5°C increases the risks of triggering feedback loops and crossing tipping points, after which changes in the climate system and biodiversity losses – especially in ecosystems with low resilience – become irreversible (IPCC, 2023).

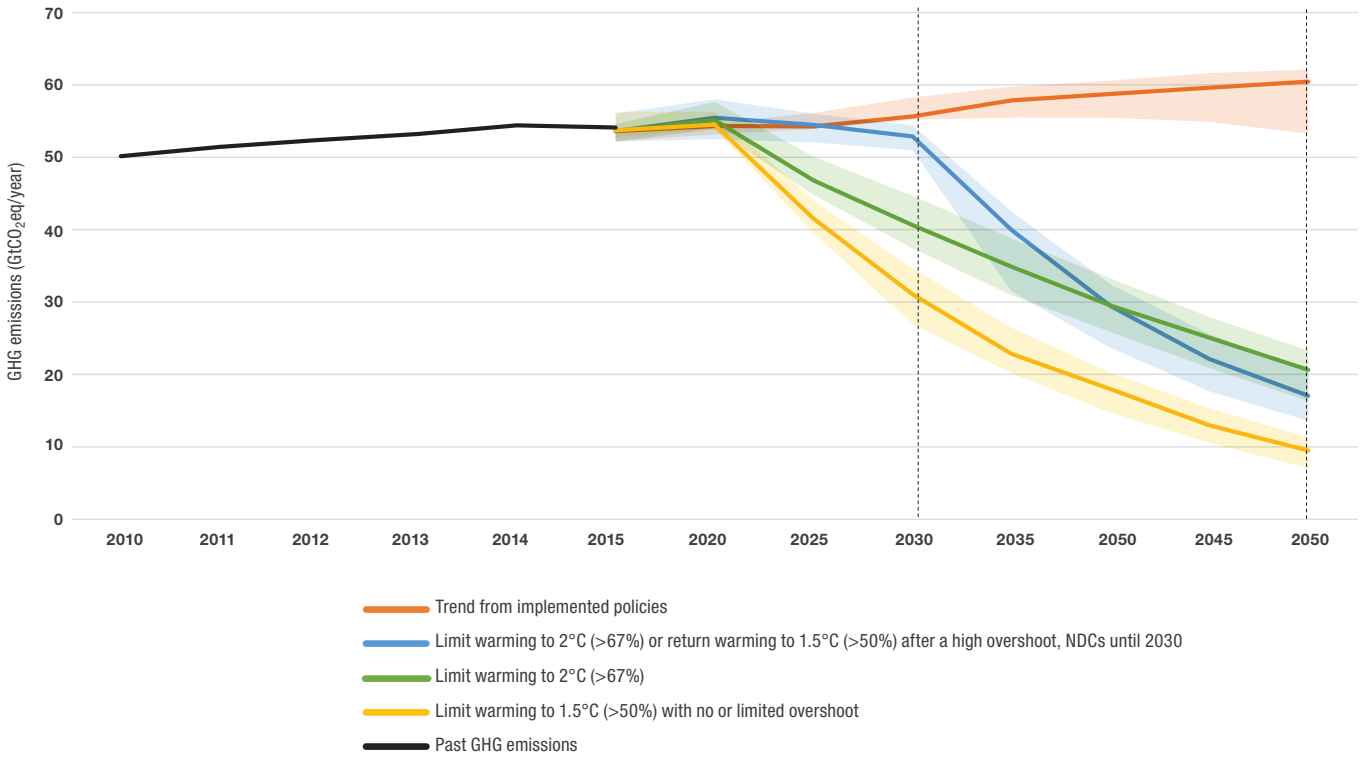
> “... rising temperatures have contributed to ecological, behavioural, physiological and genetic changes to species, with climate change and severe weather documented on the IUCN Red List as affecting more than 12,000 species

Ecosystems and biodiversity

Climate change is among the greatest direct drivers of biodiversity loss, disproportionally impacting species and ecosystems that have limited distributions, are near the limits of their tolerance, or are unable to relocate to alternative habitats (IPBES, 2019). Indeed, rising temperatures have contributed to ecological, behavioural, physiological and genetic changes to species, with climate change and severe weather documented on the IUCN Red List as affecting more than 12,000 species (IUCN, 2022a). This has important knock-on effects, reducing nature’s ability to mitigate climate change as a carbon sink (in some cases turning sinks into

Figure 11 Global emissions pathways consistent with implemented policies and mitigation strategies

Source: Based on IPCC (2022b, Figure SPM.4, p. 15).



sources), and its ability to support adaptation (for example, healthy coastal habitats, such as coral reefs, mangroves and barrier islands, provide natural storm protection) through the services it provides to protect lives and livelihoods.

Some ecosystems have already reached hard adaptation limits, with more at risk with each increment of additional warming, meaning that ecosystem-based adaptation measures will increasingly lose their effectiveness.[12] Between 3.3 and 3.6 billion people now live in areas that are highly vulnerable to climate change, and their fate is interdependent with ecosystem vulnerability. In the decade leading up to 2020, human mortality from extreme climate events (floods, droughts, storms) was 15 times higher in these regions than in regions with low vulnerability (IPCC, 2023).

These trends threaten progress on the goals on poverty eradication, food and water security, human health, and even our cultural heritage. Climate change has become the most widespread current and potential future threat to natural World Heritage sites, threatening 33% of sites (Osipova et al., 2020).

Alongside undertaking deep, ambitious and sustained emission reductions across sectors, investing in the protection, restoration and sustainable management of the world's ecosystems can play an essential role in making progress on SDG 13. Indeed, climate change and biodiversity loss are mutually reinforcing, and solving either will require solving both. For example, 22% of 2019 emissions came from agriculture, forestry and other land use, half of which are from land use, land-use change and forestry, predominantly deforestation (IPCC, 2023). This means that measures addressing either crisis cannot be narrowly focused, since they may have negative (or sub-optimal) impacts on the other, as well as for human well-being (Pörtner et al., 2021). It is therefore promising that 84% of the revised NDCs submitted in 2021 by Parties to the UNFCCC included ecosystem protection or restoration, both for mitigation and adaptation (NbSI, 2022).

12 The IPCC defines hard limits as occurring, "when adaptive actions become infeasible to avoid risks", for example in the case of sea level rise submerging communities and preventing access to freshwater. Soft limits can be overcome with financial, technological, or institutional support. For more information, please see: https://www.ipcc.ch/report/ar6/wg2/about/frequently-asked-questions/keyfaq4.

Climate and gender

Climate change affects women and men differently, and amplifies gender inequalities, including unequal access to land, natural resources and public services, compromising their health, as well as economic and food security (UN ECOSOC, 2020; UNEP, 2016). Climate change and the increased frequency and intensity of extreme weather events and natural disasters are hitting the poor and vulnerable hardest, and women constitute the majority of the world's poor, often lacking the productive resources and labour force access that men enjoy. Indeed, the IPCC has concluded that marginalisation linked to gender, as well as to historical and ongoing patterns of inequity, including among many IPLCs, heighten vulnerability to the impacts of climate change (IPCC, 2023). Women play a central role in mitigation and adaptation solutions, but their knowledge and experiences are often underutilised, as they have not been fully represented in decision making or planning. A recent analysis of revised NDCs to the UNFCCC showed progress in acknowledging the critical role of women and girls in progressing climate ambition and social equity, yet only 27% referenced the importance of women's participation in decision making (UNDP, 2021).

Re-planting mangroves
Photo: Kongkoon/Shutterstock

3 Actions to support the Rescue Plan for People and Planet: how do we meet the goals by 2030?

Despite the sobering picture of our progress on the SDGs, there is much more that we can do. For many societal challenges, including those that relate to nature, we know what kinds of interventions work. There is strong evidence that conservation efforts have had positive impacts where measures are effective and sustained. Absent these efforts, trends in species extinction risk would be at least 20% worse, and looking forward, according to the Species Threat Abatement and Recovery (STAR) metric,[13] increasing sustainability in crop production and restoring habitats could reduce global extinction risk by 24% and 56%, respectively. Often what is missing is the political will to implement these interventions at speed and scale, and perseverance in the face of adversity.

Now is the moment to radically expand our efforts. There is a great deal of momentum for action on nature, with significant successes at the international policy level, including the multilateral agreement on a definition of NbS at the fifth session of the UN Environment Assembly (UNEA), the adoption of the landmark Global Biodiversity Framework, the finalisation of international legally binding instrument under the UN Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (High Seas Treaty), and the UN General Assembly's recognition of the human right to a clean, healthy and sustainable environment (UNGA, 2022). Further, just in the past couple of years, elevated prominence has been given to nature and its interconnectedness with climate change and land degradation across the Rio Conventions. Never before has nature been higher on the political agenda.

In the interest of building on these positive developments, IUCN offers the following actions to support the UN Secretary-General's Rescue Plan for People and Planet, looking towards the SDG Summit (UNGA, 2023), which promises to be a pivotal moment in our collective endeavour to deliver on the 2030 Agenda. These actions, while representing only a small set of all those necessary to achieve the SDGs, strengthen the case that nature is fundamental to human well-being and shared prosperity now and into the future. The natural world must be urgently protected, both for its own sake and to fulfil the needs of over nine billion people by 2050.

It should be noted that while some of the interlinkages between SDGs are synergistic, others involve significant trade-offs. For example, a business-as-usual approach to addressing SDG 2 on zero hunger could contribute to competition over land, soil degradation and water pollution. The clean energy transition (SDG 7) can compromise efforts on SDGs 14 and 15 through land-use changes for distributed generation, increased

13 Using data from the IUCN Red List of Threatened Species, the STAR metric measures the contribution that investments and actions in threat abatement and habitat restoration in specific places can make to reducing species' extinction risk. It helps governments, cities, civil society, the finance industry, investors and companies to target their investments and activities to achieve conservation outcomes and contribute to global policy aims. This allows actors to measure these contributions and their potential impact, and thereby better coordinate efforts to implement global conservation goals. For more information, please see Mair et al. (2021).

mining activities for minerals for batteries, or deployment of hydroelectric facilities on free-flowing rivers. Continued exponential economic growth (SDG 8) can lead to the unsustainable use of natural resources, and contribute to climate change. While the literature generally suggests that synergies are more prevalent than trade-offs between SDGs (UN, 2023), the latter are real and not to be discounted. Likewise, studies have suggested that SDGs 14 and 15 are most susceptible to facing trade-offs from progress against other goals (Barbier & Burgess, 2019). As such, well-designed interventions must take measures to mitigate such trade-offs, to deliver benefits for nature and people and ultimately bring us closer to achieving the SDGs.

Protect biodiversity and natural resources

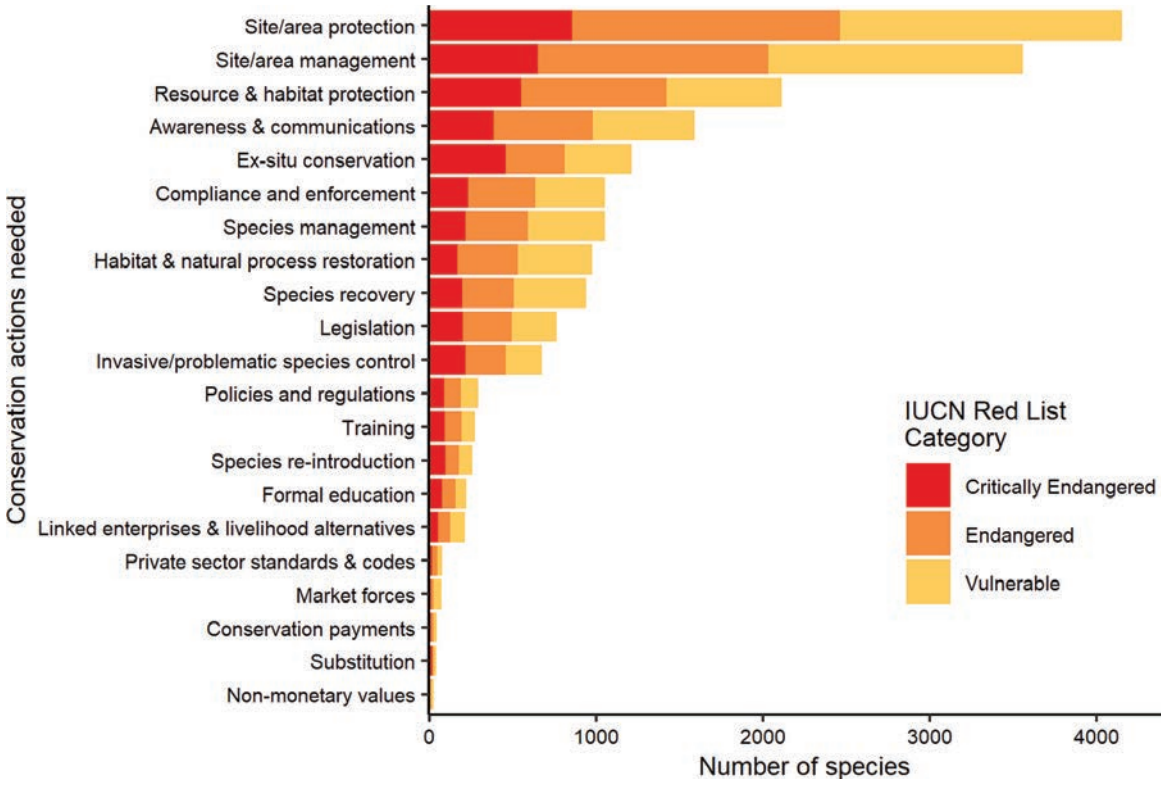
3.1 Urgently safeguard highly threatened species

Contributed by Philip McGowan

A key target of SDG 15 is protecting and preventing the extinction of threatened species (SDG Target 15.5). While it is critical to reduce threats to species in order to meet this target, it has become increasingly evident that reducing threats alone will not be sufficient to prevent species extinctions. Recent research undertaken by the IUCN Species Survival Commission (SSC) and Newcastle University revealed that species extinction rates for birds and mammals would have been 2.9–4.2 times higher since 1993 (when the CBD came into force) without targeted conservation and recovery actions for species (Bolam et al., 2021).

Figure 12 Number of threatened species that need different types of conservation actions, as identified on the IUCN Red List, sorted by IUCN Red List category

The 15 species listed as Extinct in the Wild were excluded, as there are too few to visualise in this figure. Species-specific conservation actions are defined as "Ex situ conservation", "Species reintroduction" and "Species recovery". Source: Bolam et al. (2023, Figure 2, p. 67).



Key actions in avoiding extinctions included controlling invasive species, ex situ management (such as actions that take place outside of species' natural habitats), and particular site protection measures. For example, the orange-fronted parakeet (*Cyanoramphus malherbi)*, which is found only in New Zealand, was estimated to number only 150–200 individuals in 1999 as a result of invasive species and habitat alteration. Following intensive control of invasive species, nest site protection and translocation, numbers had doubled by 2019. Ex situ management has played a vital role for both birds and mammals, providing not only individuals, techniques and expertise for re-introduction, such as the Puerto Rican amazon (*Amazona vittata*) and black-footed ferret (*Mustela nigripes*) in the United States, but also providing a final refuge for some species, which are, or have been, categorised as Extinct in the Wild on the IUCN Red List of Threatened Species™ and thus are, or have been, found only in captivity such as the Hawaiian crow (*Corvus hawaiiensis*) and scimitar-horned oryx (*Oryx dammah*).[14]

Fortunately, the importance of such 'emergency' targeted actions for species that are threatened with extinction is now recognised by the Convention on Biological Diversity. In the early stages of negotiations on the GBF, it was considered that reducing pressures on biodiversity would be enough to achieve species outcomes, such as halting extinctions. However, further research has made clear that this approach would lead to problems for a range of species, such as those facing relatively uncommon threats, with specific recovery needs, or those with small population sizes, and concluded that recovery actions would be needed to sufficiently reduce the extinction risk of many threatened species (Bolam et al., 2023) (Figure 12). Making the initial findings available at an early stage in the negotiations allowed for a target on urgent recovery action (SDG Target 4)[15] to be included in the GBF.

The inclusion of this species conservation action target in the GBF, and its interlinkages with the other targets addressing spatial planning, restoration, and effective area-based conservation action, will be key not only to the success of the GBF, but to accelerating progress on SDG 15. And as described in sections 1 and 2, species play essential roles in healthy ecosystems, which contribute in myriad ways to human well-being, and thereby many of the other goals (Box 1).

3.2 Ensure that use of wild species is sustainable

Contributed by Dilys Roe

Over-exploitation (i.e. unsustainable utilisation) is one of the key drivers of biodiversity loss. However, as the IPBES Sustainable Use Assessment highlights, use of wild species is incredibly important for human well-being (IPBES, 2022b). The Assessment found that about half of all people use wild species in some form, with around 50,000 species in use overall. The use of wild species is especially important for poorer households (typically in rural areas) and for many IPLCs who often rely on the use and trade of wild resources for their livelihoods and to maintain cultural heritage practices. This may involve selling or consuming wild meat, fish, fungi, plants and insects; harvesting timber or collecting animal fibers and feathers; getting involved in wildlife-based tourism; or simply relishing a cultural or spiritual association with wild species.

With such significant implications for human well-being, it is critical to ensure that use of wild species can continue. Indeed, IPBES goes so far as to note that "Loss of opportunity to engage in sustainable use of wild species represents an existential threat to indigenous peoples and local communities" (IPBES, 2022b, p. xvii). At the same time, however, it is vital that use of wild species is sustainable, both to prevent further biodiversity loss and to ensure

14 A species is considered to be Extinct in the Wild (EW) when it is known only to survive in cultivation, in captivity, or as a naturalised population (or populations) well outside the past range. For more information, please see: https://www.iucnredlist.org.

15 GBF Target 4: "Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence."

BOX 1

Save Our Species

IUCN's Save Our Species is a science-based conservation action initiative, which funds frontline conservation organisations working to save animals, plants, and fungi that are threatened with extinction according to the IUCN Red List of Threatened Species™. Working with local partners, who have unique knowledge of their region and its biodiversity, ensures that these efforts will have the largest impact. This work is essential for sustainable development: in addition to their intrinsic value and their central place in our history, culture, tradition and folklore, species are the building blocks of healthy ecosystems, which provide a vast array of services to support people and societies.

The services that species provide – including food, water, medicine and livelihoods – and their sustainable use by communities around the world, contribute to a range of SDGs beyond those focused specifically on biodiversity (SDGs 14 and 15). To address SDG 3 on good health and well-being, Save Our Species has adopted a One Health Approach to a project in India focused on immunising livestock to reduce disease transmission to the wild ungulates on which tigers prey. On SDG 8 on decent work and economic growth, the initiative collaborates with local communities to provide employment opportunities both in conservation action and beyond, providing training to diversify livelihoods, including social enterprises focused on organic coffee, beekeeping and sustainable tourism in East Africa. Further work contributes to SDG 13 on climate action, with initiatives on lemurs in Madagascar and gibbons across 11 countries in Asia engaging with local communities on afforestation and deforestation activities, protecting natural carbon sinks and reducing habitat fragmentation.

Finally, under its African Wildlife Initiative, Save Our Species provides Rapid Action Grants, which enable timely responses to new and emerging threats. These were particularly important in supporting the operational continuity of civil society organisations during the COVID-19 pandemic, benefiting threatened species, while also ensuring livelihoods and services for people.

Taken together, Save Our Species' holistic and proactive approach to safeguarding threatened species makes a concrete contribution to a range of the goals, and ensures that the SDGs are integrated into conservation strategies around the world.

Source: Author, with contributions from Sophie Hall.

Based on IUCN Save our Species (n.d.)

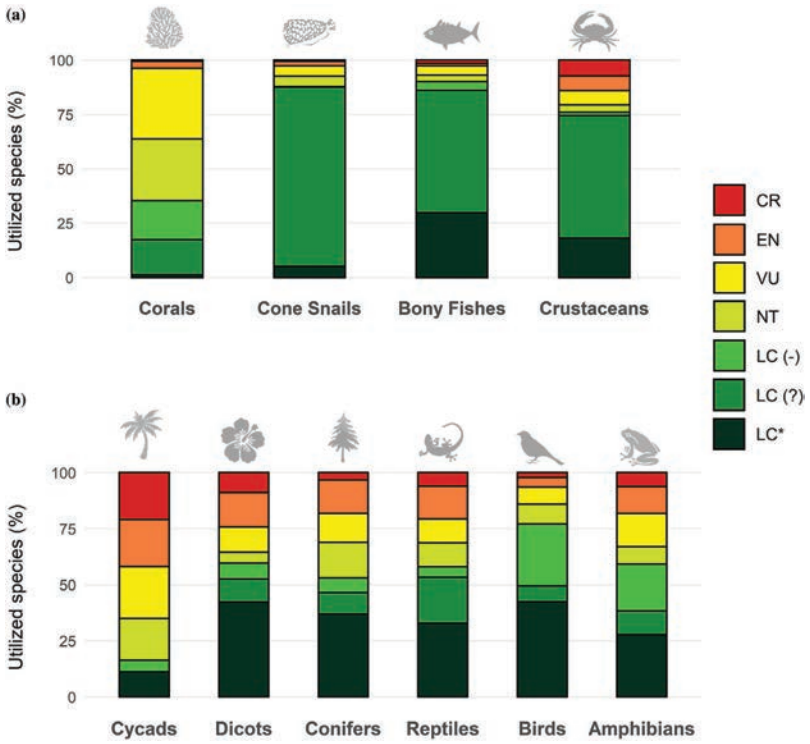
that wild species are able to continue to provide the contributions they currently make to human society.

Sustainable use is one of the three foundational pillars of the CBD – alongside conservation and equitable benefit-sharing. It also underpins other biodiversity conventions, including Ramsar, the Convention on Migratory Species (CMS) and CITES, and is enshrined in the GBF. Recognising the juxtaposition between over-use as a driver of biodiversity loss and sustainable use as a provider of benefits to people, Target 5[16] of the GBF seeks to ensure that all use is sustainable, legal and safe (thus reducing threats to biodiversity), while Target 9[17] provides the rationale for sustainable use – to provide "social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity" (CBD, 2022, p. 10).

As well as being specifically mentioned in SDGs 14 and 15, sustainable use also contributes to the achievement of several of the other goals. The IPBES Sustainable Use Assessment notes, however, that this contribution is largely overlooked. Failure to recognise the importance of sustainable use, and assumptions that it is neither compatible with conservation nor relevant to development, risk undermining its potential to continue to support livelihoods and local economies, and to secure the future for many species.

IUCN has long recognised the importance of the sustainable use of wild species – its Policy Statement on the Sustainable Use of Wild Living Resources, adopted at the 2nd World Conservation Congress in 2000, notes that use of biodiversity is "fundamental to the economies, cultures, and well-being of all nations and peoples" and that "use, if sustainable, can serve human needs on an ongoing basis while contributing to the conservation

Figure 13 Percentage of extent, data-sufficient species by IUCN Red List category in (a) aquatic and (b) terrestrial groups subject to use and trade Source: Marsh et al. (2022, Figure 3, p. 10).



Notes: Being LC and having a declining population trend, or being threatened and subject to use and trade, does not imply that use is a major threat. Bony fishes, dicotyledons (dicots) and reptiles include selected higher-level taxa.

Key: LC(-), Least Concern species with declining population trend; LC(?), Least Concern species with unknown population trend; LC(*), Least Concern species with stable or increasing population trend; NT, Near Threatened; VU, Vulnerable; EN, Endangered; CR, Critically Endangered.

16 GBF Target 5: "Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities."

17 GBF Target 9: "Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities."

BOX 2

The Species Use Database

The use of wild species can take many forms, ranging from the extractive – including harvesting, gathering, hunting – to the non-extractive – including safaris, snorkelling and cultural rituals. There is an ongoing debate about the sustainability of different wildlife uses, including controversial practices such as the killing of sentient creatures. There is therefore a need to collect and synthesise information and practices on the use of wild species globally, to improve the evidence base on its sustainability.

To address this issue, IUCN's Sustainable Use and Livelihoods Specialist Group, a joint initiative of the SSC and the Commission on Environmental, Economic and Social Policy (CEESP), has developed a database for documenting use of wild species and the recorded sustainability of that use (speciesusedatabase.com). These records and analyses can support evidence-based policies and decision making, which draw important distinctions between uses that are legal, sustainable and equitable, and those that are not.

At the outset, the database will be populated with species- and location-specific records drawn from a range of sources. While it is not designed to calculate formal sustainability assessments, it is anticipated that over time, as the body of evidence in the database increases, it may be possible to draw clear conclusions as to the conditions that underpin sustainability of different uses of different species.

Source: Author, with contributions from Dilys Roe.

Based on IUCN SULi (n.d.).

of biological diversity" (IUCN, Members Assembly, 2000, p. 2). This win-win scenario, where wild species use both serves human needs and contributes to biodiversity conservation, happens because the social and economic benefits derived from these activities provide incentives for people to conserve them.

It is therefore critical that the appropriate policy and institutional frameworks are in place so that the incentives do indeed favour conservation rather than over-exploitation and/or illegal use. To ensure this happens, there needs to be a dynamic process of active and adaptive management of wild species, backed up with appropriate regulation, particularly in the context of a changing climate and other uncertainties that influence the persistence of biodiversity. Recent analysis of IUCN Red List data found that of more than 10,000 species from across 10 species groups that were documented as "in use", that use was twice as likely to be sustainable as unsustainable for those species for which data was available (Marsh et al., 2022) (Figure 13). However, there was insufficient information for half the species assessed, emphasising the importance of strengthening the monitoring of species use.

It is important that such sustainable use practices are recognised in National Biodiversity Strategies and Action Plans (NBSAPs) as countries update their approaches to align with the new GBF. However, it is equally important that the role of wild species use is also reflected in national development strategies. Today, some countries are increasingly recognising the importance of a diverse 'wildlife economy' as a key driver of local and national economic growth, as well as contributing to conservation and climate resilience.

There is no one-size-fits-all model for ensuring sustainability of wild species use. Sustainability is a dynamic concept that is influenced by many social, economic and ecological contextual factors. A wide variety of policy instruments, interventions, tools and strategies already exist at international, national and local levels that seek to ensure legal and sustainable use. Evidence shows that these are most effective when tailored to the social and ecological contexts of the use of wild species and support fairness, rights and equity (IPBES, 2022b) (Box 2).

3.3 Safeguard areas of importance to biodiversity, covering at least 30% of global terrestrial, inland water and marine and coastal ecosystems

As the primary drivers of biodiversity loss include habitat loss and fragmentation, as well as over-exploitation, protected and conserved areas must feature prominently among the policy solutions pursued by the international community.[18] They have been fundamental to conservation efforts, as they seek to preserve functioning ecosystems, provide sufficient space for species, and support ecological processes that would not survive in heavily managed landscapes (Dudley, 2008).

While the term "protected areas" does not appear in the SDGs, three of the targets embedded in SDGs 14 and 15 directly concern protected and conserved areas (linking to the Aichi Biodiversity Targets and other international agreements), and they have significant potential to contribute to the sustainable development agenda across several goals. For example, many cities around the world rely on protected and conserved areas to provide them with cost-effective drinking supplies (SDGs 6 and 11), while others support SDG 2 by contributing to the genetic diversity of domesticated seeds, plants and animals, and their wild relatives. Other crucial services include poverty alleviation, disaster risk reduction and conflict risk mitigation (Dudley et al., 2017). Indeed, when effectively and fairly managed, they can safeguard nature while protecting health, cultural heritage and livelihoods.

Protected and conserved areas can also play a central role in tackling the climate crisis, already storing over 15% of terrestrial carbon stocks (Melillo et al., 2016). All Paris Agreement-compatible pathways require protecting and expanding carbon-rich ecosystems – including primary forests, peatlands, grasslands, mangroves, seagrass beds and saltmarshes – alongside deep and sustained reductions in GHG emissions. Such areas, as well as the corridors that connect them, contribute to ecosystem integrity, which provides the long-term support upon which these ecosystems depend. Further, these benefits can be achieved quickly and cost effectively, critical considerations considering the urgency and scale of the crisis (Smith & Young, 2022).

However, simply setting a percentage target is insufficient, as biodiversity is very unevenly distributed around the world, with some regions having much higher levels of diversity and endemism. This means that implementing this target will need to assume quality considerations, including the differentiated areas of importance for biodiversity, that is, KBAs. These encompass sites important for threatened species and ecosystems, geographically restricted species and ecosystems, exceptional ecological intactness, biological processes such as ecological connectivity and irreplaceability. They are then reflected in policy descriptions such as Ecologically and Biologically Significant Areas in the marine environment, Ramsar sites and World Heritage sites, whose effective protection and management will be essential in our collective efforts. Fortunately, this consideration has been integrated into the SDG targets, which look not at protected and conserved area coverage alone, but rather at the proportions of KBAs covered across different realms and ecosystem types.[19]

The GBF also elevates the range of approaches that can be used to protect species and habitats,

18 Throughout this section, the phrase "protected and conserved areas" includes other effective area-based conservation measures (OECMs). An OECM is defined by the CBD as "A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values" (CBD, 2018, p. 1).

19 Specifically, coastal and marine areas in SDG Indicator 14.5.1, terrestrial and freshwater areas in indicator 15.1.2, and mountain areas in SDG Indicator 15.4.1.

such as OECMs, and draws attention to the role of Indigenous territories as a third pathway beyond protected and conserved areas and OECMs, providing flexibility across different contexts (Tugendhat et al., 2023). Indeed, it is crucial that increasing the extent of areas brought under various forms of protection (including protected and conserved areas, OECMs, and the third pathway) be identified, designated and managed in partnership with IPLCs and other rights holders. This must include the free, prior and informed consent of Indigenous peoples and recognition of rights to their lands, territories and resources as elaborated in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), and respect for their diverse knowledge systems (IUCN, 2020b).

Only through such planning around areas of importance for biodiversity and ecosystem services, in partnership with IPLCs, as well as other stakeholders, to ensure effective management (Maxwell et al., 2020), can the expansion of protected and conserved areas make a transformative contribution to the 2030 Agenda (Box 3). The IUCN Green List of Protected and Conserved Areas Standard (IUCN & WCPA, 2017) can play an important role in ensuring that these approaches are fair and effective, and deliver real benefits consistent with the ethos of the 2030 Agenda to nature and people.

Secure food, water and sanitation systems

3.4 Invest in soil and land health to support a sustainable food system

Agriculture and food systems remain core conservation and development issues. Over the past few decades, intensive agricultural practices have significantly increased productivity. This has substantially reduced food insecurity as well as provided livelihoods for billions of people. [20]

However, it has also degraded soils, stressed and polluted water resources, and damaged ecosystems, leaving many farmers to seek out new lands or increase their use of synthetic inputs. Diversity in many modern agricultural landscapes is almost non-existent at the ecosystem, species and genetic levels. Globally, up to 40% of agricultural land is degraded or degrading (UNCCD, 2022), and the Food and Agriculture Organization of the UN forecasts that current trends point to 90% of topsoil being degraded by 2050 (FAO, 2022c).

Agriculture and food systems are the leading drivers of land-use change and stress on biodiversity (IPBES, 2019), including almost 90% of global deforestation, and have become the primary causes of water pollution and the degradation of inland and coastal waters in many developed and emerging economies (FAO, 2018). This threatens biodiversity and human health, and has significant economic costs, thereby compromising progress on multiple SDGs. There is an urgency not only to relieve these threats, but also to support biodiverse and resilient agricultural systems capable of feeding the world's population, while responding and contributing to evolving consumer expectations and diets.

This should begin with a focus on conserving soil biodiversity and soil organic carbon, which drive the key nutrient cycles that determine, to a large extent, the productivity of the land (IUCN, 2019a). One recent analysis has suggested that increasing soil organic carbon could support crop yields and food production by 2.3 billion tonnes per year, worth US$ 1.4 trillion (ELD Initiative, 2015), while another concluded that increasing it by 0.4% annually could yield production increases to maize, wheat and rice of 23.4%, 22.9% and 41.9%, respectively, equivalent to an estimated US$ 135 billion per year between now and 2050 (Larbodière et al., 2020).

All this before we consider the associated ecosystem services that would accompany improved soil health, including improved freshwater retention, as well as mitigation and adaptation to climate change. Indeed, it is estimated that soils store 75% of terrestrial carbon at any given time (Scharlemann et al., 2014). Climate-driven disruptions to dryland ecosystems may affect over

20 Even though it should be noted that as many as 828 million people globally continue to face hunger (FAO et al., 2022).

BOX 3

The Great Blue Wall

The Great Blue Wall is a roadmap for the Western Indian Ocean region to contribute to a nature-positive world, addressing the deeply interlinked biodiversity, climate and economic crises, to deliver concrete benefits by 2030. It aims to do this by dramatically scaling up ocean conservation actions, while supporting socio-economic resilience for 70 million coastal inhabitants, in a region whose marine asset base is estimated to be more than US$ 333 billion (Obura et al., 2017).

First, the initiative will establish a series of linked regenerative seascapes, collectively acting as large-scale marine protected and conserved areas, as well as a regional ecological corridor of conserved and restored mangrove, seagrass and coral ecosystems. These areas will be managed both inclusively and productively by IPLCs, to ensure that they deliver livelihood benefits. The objective is to achieve coverage of 2 million km2 of critical blue ecosystems, or 30% of the Western Indian Ocean. Second, the Great Blue Wall aims to provide significant climate benefits, both for mitigation and adaptation. The conservation and restoration of these ecosystems seeks to sequester more than 100 million tCO2e, a significant amount considering that, globally, the destruction of marshes, mangroves and seagrasses releases an estimated 0.15–1.02 billion tonnes of CO_2 each year, or up to 19% of those caused by global deforestation (Pendleton et al., 2012). Further, healthy coastal ecosystems can act as a buffer to protect coastal communities from climate-related extreme weather events. Finally, it seeks to unlock a blue economy in the region, providing at least 2 million jobs through entrepreneurship programmes, incubators, a natural capital financing facility, and the development of a pipeline of bankable projects.

The potential of this African-led and -driven approach has been recognised and endorsed at the highest policy levels, including by the UN Secretary-General, several Heads of State across the regions (including the 2023 Chairman of the African Union, President Azali Assoumani of the Union of Comoros), and most recently in the Moroni Declaration emerging from the Ministerial Conference on Blue Economy and Climate Action in Africa.* This buy-in constitutes an essential component of the framework necessary for this initiative, and others like it, to build the momentum needed to address our challenges at the required speed and scale.

The Great Blue Wall makes a concrete contribution to SDG 14, however it also has clear connections to SDGs 8, 13 and 16.

Source: Author, with contributions by Thomas Sberna.

Based on Oulmane & Sberna (2022) and The Great Blue Wall (n.d.).

*For more information, please see: https://www.uneca.org/eca-events/blue-future-conference.

BOX 4

Building a common understanding for the future of farming in Europe

Agriculture is the greatest driver of habitat degradation and species decline across the European Union (EU), where only 14% of assessed habitats and 27% of non-bird species considered to have a "good" conservation status (EEA, 2020), 15-20% of bee species are regarded as under threat as a result of either agricultural expansion, intensification, and shifts in agricultural practice or livestock intensification (Nieto et al., 2014), and 38% of water bodies are under strain as a result of agricultural pollution (Mateo-Sagasta et al., 2018).

The agricultural sector in the EU is largely shaped by the Common Agricultural Policy (CAP), which accounts for approximately one-third of the Union's entire budget. Current discussions around reforming the CAP seek to balance two potentially competing objectives: nature conservation and food production. Stakeholders across the region have generally reached a consensus that more sustainable food production methods are needed, there is less agreement about how to accomplish this goal.

To facilitate this debate, IUCN works with a variety of agricultural and environmental stakeholders in Brussels to reach a common understanding, including by demystifying the myriad terminologies, approaches and pathways. Oberč and Arroyo Schnell (2020) seek to do just that by outlining key approaches and providing a comprehensive glossary of almost 200 terms. Further, their report was extensively reviewed and socialised among experts in the field.

Despite the many seemingly disparate pathways to a sustainable transition, what the report concluded was that these approaches have more in common with one another than with conventional farming methods, and that they are each valuable in their own way. On the other hand, the report exhibited a series of common practices to many of these approaches – crop rotation, minimal or no tillage, including landscape elements – leading to the conclusion that all of these can be considered sustainable.

Sustainable agricultural practices, with a focus on soil health, can contribute to a range of SDGs, beginning with SDG 2 on zero hunger, but including SDGs 1, 6, 8, 13 and 15.

Source: Barbara Oberč.

Based on Oberč & Schnell (2020).

44% of the world's food system (IUCN, 2019b), and climate-smart approaches that leverage ecosystem services to build resilience can play a major role in mitigating extreme events and the production shocks than they often precipitate, presenting a major threat to the SDGs (Cottrell et al., 2019).

A focus on land and soil health can transform the agricultural sector from one of the leading threats to biodiversity and human well-being into an approach that addresses multiple SDGs, including those that relate to poverty, food and water security, and climate change. Indeed, increasing soil organic carbon content has been cited as one of the few interventions in the land management and food production sectors to show positive synergies with both the SDGs and "nature's contributions to people," the IPBES approach to ecosystem services, without major trade-offs (IPBES, 2019; McElwee et al., 2020).

Fortunately, the ways to maintain and restore land health are well established. The transition will involve adopting and mainstreaming agro-ecological and regenerative approaches – a set which includes a variety of sustainable farming methods that aim to address the central priorities of environmental preservation and safe and healthy food provision (Oberč & Schnell, 2020) (Box 4). This will, in turn, necessitate reducing and redirecting subsidies that are harmful to the environment (IUCN, 2022b), to incentivise, de-risk and reward practices that contribute to ecosystem services, rather than merely high levels of production. Finally, it will be essential to build mutual understanding between the conservation and agricultural communities, to facilitate information exchange, expand the area coverage of conservation activities and build a consensus on the importance of environmental stewardship across the sector (Larbodière et al., 2020).

In support of this transition, IUCN is strengthening the scientific foundation for monitoring progress. This includes the development of metrics to assess land health in productive landscapes and to better account for water use and its contribution to agriculture, as well as guidance to support agricultural actors in designing projects and investments that contribute to scaling up NbS. The inclusion of a specific target on agriculture in the GBF (Target 10)[21] may provide a further impetus for the widespread adoption of sustainable practices.

3.5 Protect, restore and promote healthy freshwater systems and habitats

Healthy freshwater ecosystems disproportionately support species and provide ecosystem services to people. To ensure their health, we must target better connectivity, quality, pollution control and system integrity, while taking decisions around water governance and investment that consider multiple values of nature, including Indigenous knowledge and cultural values. Natural infrastructure – including mangroves, saltmarshes and mudflats – can complement built infrastructure, much of which can degrade aquatic habitats by disturbing river flow, or separating floodplains (Cohen-Shacham et al., 2016). Furthermore, natural infrastructure accrues value, increasingly providing services to society over time, especially in a future characterised by climate stresses.

Protecting and restoring critical habitats is among the key strategies identified by IUCN and partner organisations as part of an Emergency Recovery Plan to address freshwater biodiversity loss (Tickner et al., 2020).[22] Such a plan would require more effective implementation of protection measures, including of Ramsar sites, by using lessons learned. These include involving local communities in such efforts, planning at the basin scale to address exogenous threats (including hydropower infrastructure, recognising that there will be trade-offs to consider as hydropower is an important

21 GBF Target 10: "Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, contributing to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services."

22 The other five priority actions identified in Tickner et al. (2020), which complement one another, are: accelerate implementation of environmental flows, improve water quality to sustain aquatic life, manage exploitation of freshwater species and riverine aggregates, prevent and control non-native species invasions in freshwater habitats, and safeguard and restore freshwater connectivity.

BOX 5

Building River Dialogues and Governance Programme (BRIDGE)

Poor governance poses real threats to the sustainability of freshwater resources, the ecosystems that depend on them and political stability in water-scarce regions. With projected population growth in regions, as many as 700 million people could be displaced from arid and semi-arid regions to more fertile areas in the coming years, and conflicts for access and use of water resources are likely to occur with growing demand. It is therefore essential that States, particularly those sharing waters, focus on ensuring cooperative water management and peaceful relations. While historically water has tended to serve as an instrument of peace, it remains essential to build capacity among key stakeholders at different levels of governance to ensure that cooperation is long-lasting in the face of emerging stresses.

BRIDGE works at the crossroads of these global challenges, encouraging multi-level governance and the inclusion of all relevant stakeholders to mobilise and accelerate action through dialogue, consensus building, cooperation and diplomacy. Since 2011, the programme has established a strong basis of water diplomacy in Latin America, sub-Saharan Africa and Asia, seeking to achieve poverty alleviation, nature conservation and economic growth in over 20 transboundary basins. These are long-term processes, which seek to build trust and achieve political buy-in.

Among others, BRIDGE has: i) strengthened and operationalised legal and policy frameworks of transboundary water governance institutions, including in the Lake Chad and its tributary river Logone (between Cameroon and Chad) and support for the development and ratification of three water sharing agreements for each of the Buzi-Pungwe-Save basins (between Mozambique and Zimbabwe) and the establishment agreement of a River Basin Organisation (RBO) for these three river basins; ii) developed strategies and plans to share benefits from water cooperation in the Sio-Malaba-Malakisi basin between Kenya and Uganda, and developed scenarios for optimising water use in 3S basin of the Mekong River in Asia; and iii) facilitated improved transboundary water management through supporting binational commissions in the Goascoran and Sixaola basins in Central America, including a review of management plans to strengthen Indigenous participation in the Commissions. In the current phase, BRIDGE emphasises further empowering women and youth to bring their knowledge and experiences to the table, with a view towards building a network of future leaders to advocate and mobilise for transboundary cooperation.

These activities constitute a critical contribution towards the achievement of SDG Targets 6.5 and 6.6 addressing integrated water resource management and protection of water-related ecosystems respectively. However, such initiatives also create clear co-benefits to SDGs 1, 2, 5, 13, 15 and 16.

Source: Author, with contributions from Maria Carreño Lindelien.

Based on IUCN (2023) and BRIDGE internal project documents.

part of the energy transition, both for generation and storage, and contributes to SDG Target 7.2), and employing protected area solutions that are not solely focused on the terrestrial ecosystems that surround freshwater bodies. These solutions must be targeted to address the distinct threats to the integrity of freshwater for biodiversity and ecosystem services, notably flow regimes and improving water quality.

Recent reviews have found that while protected areas can be effective for protecting freshwater biodiversity if well managed, in practice the evidence of their efficacy has been mixed (Acreman et al., 2019). This is because the integrity of freshwater systems is dependent upon system connectivity, including groundwater. Place-based management approaches contribute to water management, but are unlikely to have great impact apart from in specific locations. What remains key is the integration of conservation priorities for freshwater biodiversity into national and international water management practices.

The establishment of the Vjosa River in Albania as the first Wild River National Park in Europe in March 2023 is highly encouraging. As part of a two-phase approach, the Vjosa will gain an IUCN Category II protected area status (national park),[23] and the management will focus specifically on the river itself, protecting it from dams and gravel extraction, while allowing people access. Likewise, the establishment of the Freshwater Challenge at the UN Water Conference could be a game-changer, as it aims to bring 300,000 km of rivers and 350 million hectares of wetlands under restoration by 2030, a critical contribution to Target 2[24] of the GBF.

Wetland conservation will likewise be critical for achieving multiple SDGs, given their important role in delivering on healthy coastal ecosystems, human health and food security, as well as to traditional spiritual and cultural values (Verschuuren, 2018), and potentially peace-making (Griffin & Ali, 2014). Specific actions to protect wetlands can be included in countries' NDCs under the Paris Agreement, including their critical role as blue carbon ecosystems, as well as their potential to support adaptation and disaster risk reduction (Convention on Wetlands, 2021).

Similarly, given the transboundary nature of our freshwater systems – more than 300 lake and river basins span national borders – it is critical that transboundary agreements, dialogues and diplomacy frameworks precipitate real action and investment on the ground (Box 5). This will include engaging riverine states to negotiate fair water sharing agreements, building inclusive governance processes to ensure equitable benefit sharing of water resources and supporting transboundary water institutions to become financially sustainable. Developing basin-level benefit-sharing arrangements can assist with communication and financing efforts (IUCN, 2020c).

Prevent new and reduce existing disaster risks

3.6 Implement Nature-based Solutions for climate and disaster risk reduction

Centred on the conservation, restoration, and management of the world's ecosystems,[25] NbS can make a critical contribution towards climate change adaptation and mitigation, biodiversity conservation, health, poverty eradication, food and water security, and human well-being. These approaches can be deployed across terrestrial, freshwater and marine realms, with recent research underscoring

23 IUCN Category II protected areas "are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities." (Dudley, 2008)

24 GBF Target 2: "Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity."

25 The full definition, as adopted in UNEA Resolution 5/5 Nature-based Solutions for Supporting Sustainable Development is, "actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits" (UNEP, 2022b). This builds directly upon the definition adopted by IUCN Members in Resolution 6.069 at the 2016 World Conservation Congress in Hawai'i (IUCN, Members Assembly 2016b).

Figure 14 Global Standard for Nature-based Solutions Source: IUCN (2020d, Figure 1, p. 1).

the potential contribution of the deep sea NbS to the SDGs and GBF (Hilmi et al., 2023). When well designed and executed, NbS can be a useful framework for aligning conservation and sustainable development efforts (Cohen-Shacham et al., 2019).

On climate change specifically, recent studies have suggested that NbS, when designed with ambition and for longevity, can save approximately 10–18 GtCO2e per year (Girardin et al., 2021; UNEP & IUCN, 2021). Others have estimated that they can potentially contribute as much as 37% of the cost-effective mitigation needed by 2030 for a 66% chance of staying below 2°C in temperature rise, or 30% of the global mitigation required by 2050 to achieve the 1.5°C target (Griscom et al., 2017; Roe et al., 2019).

The benefits of these solutions for adaptation are also significant, with coastal ecosystems providing protection to upwards of 500 million people globally, bringing benefits of over US$ 100 billion per year. Furthermore, adaptation approaches that integrate both technological and NbS can be more beneficial than either approach alone (Seddon et al., 2021; UNFCCC & IUCN, 2022). It is therefore encouraging to see that parties to the UNFCCC are increasingly incorporating NbS within their NDCs, although more can be done to make these more concrete and ambitious (NbSI, 2022; Seddon et al., 2019; WWF, 2021b).

NbS can also play an important role in addressing disasters. Many ecosystems and their services can provide protection and reduce damages from both rapid and slow onset natural hazards, often more cost-effectively than built infrastructure (Monty et al., 2016). As such, ecosystem-based disaster risk reduction,[26] such as conserving forests, mangroves, or coral reefs, is a Nature-based Solution that can support communities to weather and recover from extreme events, as they can reduce landslide risk, regulate floods and provide buffers against storm surges, strong winds and cyclones (IUCN, 2017). To take one example, wetlands were estimated to avoid US$ 625 million in direct flood damages during Hurricane Sandy, which struck the northeastern coast of the United States in 2012 (Narayan et al., 2017). Mangroves, on the other hand, provide over US$ 65 billion in flood protection each year, and 15 million additional people would experience annual flooding in their absence (Menéndez et al., 2020).

These ecosystem-based approaches can also assist communities to map social vulnerabilities and address risks proactively rather than reactively. This is a considerably more cost-effective approach, not to mention better suited for protecting lives, livelihoods, and ecosystem integrity and resilience. The converse is also well established: where ecosystems have been degraded or destroyed, their ability to serve as barriers against natural hazards, as well as provide goods and services to populations (both for basic needs and livelihoods), is significantly reduced (Monty et al., 2016).

NbS can play a role in bridging the gap between natural and built approaches, through hybrid or green-grey infrastructure investments, especially in the face of climate change (UNFCCC & IUCN, 2022). Enabled by technological developments, these approaches can be more cost effective and resilient,

26 The Partnership for Environment and Disaster Risk Reduction defines ecosystem-based disaster risk reduction as the "sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and by increasing livelihood resilience" (PEDRR, 2010).

BOX 6

Ecosystems Protecting Infrastructure and Communities (EPIC) in Nepal

Since the 2008 Decentralisation Act, there has been a rapid expansion of rural road construction in Nepal as the demand and need for rural development increased. Much of this construction has taken place without proper environment impact assessments, technical guidance, surveying, or drainage of the particular landscape (Monty et al., 2017). Of the 53,000 km of rural earthen roads in Nepal, most have been built without following the correct environmental measures, exposing them to natural disasters during the monsoon. As a result of haphazard construction, improper maintenance, inadequate provision of water drainage during monsoon season, the slope cuts made along rural roads affect the frequency of landslides, directly impacting communities and ecosystems by blocking roads, destroying resources including infrastructure (e.g. houses, irrigation canals and other physical infrastructure), and even taking lives.

While local governments and communities make large annual investments in road maintenance, including construction of retention walls and water drainage canals by using engineering technology to prevent landslides, this has not been effective in the long term. However, bio-engineering techniques that identify and implement local nature-based measures for disaster risk reduction, including the use of deep-rooted plants such as broom grass (*Thysanolaena maxima*) and scented grass (*Chrysopogon gryllus*), as well as low-cost drainage system technologies – have been more successful. These practices can reduce the immediate risk of disaster while providing long-term solutions to mitigate the effects of unplanned road construction. Further, they maximise community-level inputs and local resource utilisation to overcome land degradation from conventional road construction practices. IUCN has deployed such approaches across several pilot districts – including Kaski, Syangja and Parbat – to great effect, and is therefore scaling out these initiatives across the country.

Key to the success of this initiative has been local knowledge combined with on-site experiments, which provided the opportunity to use suitable plants for slope stabilisation as well as those known to be resistant to extreme climate events such as drought. Further, these no-regret approaches were cost effective: with payback periods ranging from one to 12 years depending on the scenario.

Ecosystem-based disaster risk reduction initiatives can contribute to a range of SDGs. In the case of EPIC in Nepal, the results would contribute towards the implementation of SDGs 9, 11, 13 and 15.

Source: Author, with contributions from Anu Adhikari.

Based on EPIC internal project documents.

BOX 7

Flood-based agriculture in the Upper Mekong Delta

Since Viet Nam's reunification in 1975, and especially over the past 15 years, the two natural flood plains of the Mekong Delta, which cover 1.3 million hectares, have been significantly modified as a result of agricultural expansion, particularly for rice growing. The result has been an almost 50% reduction in flood storage volume in the upper Delta, destroying ecosystem functions, decreasing climate and biodiversity resilience, putting pressure on freshwater fisheries, and increasing downstream flood risks. Such flood risks have even caused transboundary tensions with Cambodia.

In 2014, IUCN and its partners developed a plan to reform the policies around rice production, including intensive triple cropping and its associated practices, such as the construction of high dykes, which had been employed to address food security concerns. This reform involved building political consensus and adopting a sub-regional approach, allowing for coordination across provinces to strengthen ecosystem functions, and a 10-year initiative to employ flood-based agricultural livelihood models. The knowledge and experience of local farmers were leveraged across An Giang, Dong Thap, and Long An provinces to develop financially viable and low risk alternatives, including floating rice, lotus farming and rice aquaculture systems, thereby enhancing economic and climate resilience, while restoring ecosystem function and biodiversity across the flood plains. A cost-effectiveness analysis demonstrated that flood-based cropping systems were up to five times more profitable than double and triple rice cropping systems, highlighting economic benefits for farmers. Further, the project considered hybrid approaches, combining dykes and floodplains, to address the drought and flood risk and better manage weather fluctuations with cropping needs.

Critically, this intervention was assessed against the IUCN Global Standard for Nature-based Solutions. Its building blocks underscored a number of insights that help to explain its success, while also identifying next steps to facilitate its future uptake, scale-up and financial sustainability. This approach to agricultural NbS at scale in Viet Nam contributes to SDGs 6, 8, 12, 13 and 15.

Source: Author, with contributions from Kathryn Bimson.

Source: Based on Meyer (2022).

which is essential given the trillions of dollars of infrastructure spending required, especially in developing countries, to achieve the SDGs. In order to maximise their benefit, local communities should be engaged in all stages of their development to ensure that their needs are met, and that they have a stake in long-term maintenance (Browder et al., 2019; Green-Gray Community of Practice, 2020) (Box 6).

Mainstreaming these approaches will require better coordination of sectoral policies: integrating disaster risk reduction approaches with those dedicated to conservation, climate change and broader development planning, noting that many challenges – competing priorities, long time frames, difficulties in measuring impact and lack of available resources – will need to be overcome in that effort, requiring evidence-based guidance, improved data availability and political will (Sudmeier-Rieux et al., 2019).

The Enhancing Nature-based Solutions for an Accelerated Climate Transformation Initiative, launched at UNFCCC COP-27 to coordinate global efforts to address climate change, land and ecosystem degradation, and biodiversity loss through NbS, can strengthen collaboration among existing efforts and partnerships to build coherence across conventions and agendas.[27]

While further research is required to fully assess their benefits, reliability, cost effectiveness and trade-offs (Seddon et al., 2020), the IUCN Global Standard for Nature-based Solutions can help to design, execute and evaluate NbS with coherence and integrity (Figure 14 and Box 7). Consisting of a self-assessment tool with eight interconnected criteria, the Standard is designed to ensure not only that Nature-based Solution address societal challenges in a nature-positive fashion, but that they are designed inclusively, with key stakeholders involved, including IPLCs, women and youth.

NbS for climate change and disaster risk reduction can support these issues in an integrated manner to deliver a range of environmental, social and economic benefits, specifically addressing SDG 13, but also SDGs 2, 6, 8, 11, 14 and 15.

Invest in women and girls

3.7 Ensure gender equality as a human right

Gender equality and women's empowerment are matters of fundamental human rights and social justice, and are inextricably linked with biodiversity conservation and sustainable development. Women play vital roles as natural resource managers, knowledge holders and caregivers, yet remain under-represented in decision-making processes. Furthermore, biodiversity loss, alongside insecurities around land and resource tenure – less than 14% of landholders are women – is felt disproportionately by women in particular on account of gender disparities, as well as differentiated gender needs and roles in the use and management of biodiversity resources (IPBES, 2019; UN Women & UN DESA, 2019). Accelerating progress on SDG 5 on gender equality, as well as on the nature-related SDGs, will require that women and girls are able to meaningfully access and control natural resources, benefit from nature, and participate in decision making as equals (Woodhouse et al., 2022).

> "IUCN believes strongly that the full and equitable participation of women in social and economic life is essential both to nature conservation and sustainable development

27 For more information, please see: https://www.iucn.org/our-work/topic/nature-based-solutions-climate/our-work/enact-enhancing-nature-based-solutions.

BOX 8

A Union building gender equality as a human right and prerequisite for environmental action

In a landmark research initiative, IUCN found that although our planet counts on each of us to sustainably manage nature, for far too many, gender-based violence is used to reinforce who can engage, who can benefit and who is left behind in environmental and climate actions. Gender-based violence is used to negotiate and reinforce existing privileges and power imbalances in access and control of natural resources, and these dynamics are exacerbated in the face of climate change and environmental degradation and threats. Gender-based violence is also used to shape and control environment work and environmental defence – to silence women and to discourage their engagement in environmental activities, jobs and leadership.

With funding from the United States Agency for International Development (USAID), IUCN manages the world's only dedicated fund to support environmental programmes to identify and work to prevent, mitigate, or respond to gender-based violence and environmental linkages. IUCN is currently supporting five partnerships in eight countries around the world to address sex-for-fish exploitation, protect Indigenous Women Environmental Human Rights Defenders and their land defence activities, address domestic violence as a barrier for women's engagement in forestry and wildlife conservation, and challenge sexual harassment that dissuades women's leadership and engagement in protected area ecotourism.

By addressing violence as a barrier for women's engagement in environmental action, IUCN is working to bridge the SDG 5 targets towards ensuring that gender equality in conservation is a comprehensively and holistically addressed human right.

Source: Jamie Wen-Besson.

Despite their significant roles as biodiversity users – constituting 43% of agricultural workers in developing countries (FAO, 2011) and almost half of the labour force of global fisheries (World Bank, 2012) – women continue to be excluded from decision making. Likewise, the trends in biodiversity loss, environmental degradation and the overexploitation of nature described in section 2 – yielding household air pollution, microplastic contamination and climate displacement – tend to have outsized effects on women and girls, especially those facing multiple or intersecting forms of discrimination (UN ECOSOC, 2022). These trends also contribute to gender-based violence (SDG Target 5.2), which affects approximately one-third of women globally in their lifetimes (WHO, 2021), and reinforces gender inequalities (Box 8). A recent analysis undertaken by IUCN and its partners showed that pressures and threats on natural resources can lead to competition that contributes both to gender inequality and violence, and that sexual exploitation can intimidate women from engaging in ecosystem restoration (Castañeda Camey et al., 2020).

IUCN believes strongly that the full and equitable participation of women in social and economic life is essential both to nature conservation and sustainable development. This must entail equal and secure access to and benefits from land and natural resources (SDG Target 5.a), full and active participation in decision making, and enhanced

awareness and capacity for gender-responsive action. Indeed, gender-inclusive and -sensitive conservation approaches have been shown to have significant multiplier effects, supporting income-generating activities, improved health and increased adaptive capacities, potentially contributing to progress across multiple SDGs (Aijazi & Basu, 2021).

To ensure that these approaches propagate through our collective conservation efforts over the coming years, IUCN collaborated with many partners to ensure that they were included in the recently-adopted GBF, making the Framework and its Gender Plan of Action (GPA) two of the most progressive instruments to advance these issues in the biodiversity sector. GBF Target 23[28] sets the provisions for the implementation of the Framework through a gender-responsive approach, and the GPA is the first to recognise the need to address gender-based violence, including violence against women, environmental human rights defenders and park rangers, and include it as a standalone objective.

Deliver an SDG stimulus and reform the international financial architecture

3.8 Scale up and repurpose finance for biodiversity and climate

At its heart, the 2030 Agenda is an investment agenda, and substantial investments in nature and conservation will be critical to reach the SDGs on time by 2030. At the time the SDGs were adopted, estimates of the annual investment required to finance the necessary transformations to achieve the SDGs ranged from US$ 1.4 to 2.5 trillion (UN, 2023). More recent estimates have suggested that this could be as high as US$ 4.2 trillion following the COVID-19 pandemic (OECD, 2020), and that individual SDGs, including 6 and 13, may require approximately US$ 1 trillion annually in additional financial resources (Kulkarni et al., 2022). Given that we have only seven years left, these are critical gaps to fill urgently.

Likewise for nature, sustained financial resources must be secured and invested in conservation action, particularly in developing countries. Recent estimates have indicated that globally, US$ 722–967 billion is needed annually to halt and reverse biodiversity loss by 2030, substantially more than the estimated US$ 124–143 billion that went into conservation in 2019 (Deutz et al., 2020; ETC, 2023). Others suggest that current financial flows to NbS must double by 2025 and triple by 2030 in order to reach our global environmental goals (UNEP, 2022c).

Filling this gap will require a range of responses, from subsidy reforms and domestic tax policies, to specialised 'green' financial products and blended approaches, to innovative mechanisms such as new approaches to debt-for-nature swaps. These efforts must align with the targets adopted under the GBF – including mobilising US$ 200 billion and reforming at least US$ 500 billion of the US$ 1.25-1.8 trillion in environmentally-harmful subsidies to agriculture, fisheries and fossil fuels annually by 2030 (Damania et al., 2023; Koplow & Steenblik, 2022), as well as its longer-term resource mobilisation strategy.

Only about 3% of international financial assistance (US$ 10.3 billion per year) targets biodiversity. Much of this is unscreened for positive biodiversity impacts, and all of it is unscreened for negative impacts, despite the fact that much of it is directed to sectors where negative impacts can potentially occur. Simply screening three relevant sectors for biodiversity risk – agriculture, forestry, and fisheries; industry, mining and construction; and energy – would cover US$ 45.5 billion annually. Proper assessments and subsequent adjustment to activities to positively impact biodiversity could considerably increase support for conservation (IUCN, 2022c).

Subsidy reform will be a central element of scaling up financing for biodiversity. In the agriculture sector, removing the US$ 160 billion in subsidies to inputs, outputs and factors of production could prevent almost half of projected land conversions by 2040. If those subsidies were redirected to productivity-increasing and emission-reducing

28 GBF Target 23: "Ensure gender equality in the implementation of the Framework through a gender-responsive approach, where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity."

BOX 9

Nature+ Accelerator Fund

Launched in 2022 with the Global Environment Facility (GEF) as an anchor investor, the Nature+ Accelerator Fund has already secured US$ 10 million in risk-tolerant financing. The commercially-operated fund, which will be managed by asset management company Mirova, aims to raise further investment to create a US$ 200 million portfolio of projects ranging from the seed investment phase through to the sustainable growth phase. The accelerator fund will apply the STAR metric within its investment portfolio. Its development emerged from the work of the Coalition of Private Investment in Conservation (CPIC), which supported the accelerator fund through a working group focused on fund structuring.

The accelerator is offering investment funds to early-stage pilots and project ideas, as well as impact enterprises with high potential for scalability, complemented by a region-focused technical assistance and capacity building programme. It is intended to create a scalable pipeline of conservation investments with social benefits while generating returns, and effectively supporting a new natural capital asset class. For this, the fund will be deployed for seed-phase investments of ticket sizes of between US$ 100,000 and US$ 5 million, beginning with a focus on terrestrial conservation and restoration, marine conservation and coastal resilience, sustainable agriculture, and nature-based innovation.

To address the challenge of non-standardisation, the accelerator relies on investment 'blueprints' from the more than 80 member CPIC community: a group of leading civil society organisations, private and public sector financial institutions, and academia working to deliver a material increase in private, return-seeking investment in conservation.

The fund launched the first request for proposal in 2022 and is in the process of screening and selecting projects for investment on an ongoing basis.

Source: Author.

Based on GEF (2020); IUCN (2020e); Mirova (2022); UN-DESA (2022); and internal project documents.

technologies, over 100 million hectares could be released for restoration and the sector could see its emissions fall by 20% (Gautam et al., 2022). For fossil fuels, covered by SDG Target 12.c, estimates suggest that efficient fuel pricing by 2025 would reduce global CO_2 emissions by 36% below baseline levels, while raising over US$ 3 trillion in emerging markets and developing countries, exceeding their estimated additional SDG spending needs (Gaspar et al., 2019; Parry et al., 2021). It is important to note that, even when environmentally and economically justified, subsidy reform comes with trade-offs, including distributional and other socio-economic impacts. However, in many cases the current subsidy regime benefits the wealthy, and reform efforts could be pro-poor if designed to protect and compensate vulnerable groups.

For the private sector, the barriers to scaling up finance for conservation have been well established – including high search costs, limited pipeline, scalability, standardisation, predictability of cash flows, ticket size – but so have the solutions (Huwyler et al., 2016). IUCN and its partners are leading new initiatives to address these barriers, and leveraging private financing for nature (Box 9

BOX 10

The Blue Natural Capital Financing Facility and the Blue Carbon Accelerator Fund

The Blue Natural Capital Financing Facility (BNCFF) was launched in 2018. Managed by IUCN, it is designed to support NbS financing opportunities in and around marine and coastal environments to strengthen blue natural capital projects that combine bankability and positive environmental and social impacts. Blue natural capital is the backbone for functioning ecosystems and biodiversity, and lends support to climate change adaptation and mitigation efforts.

Under its first phase, BNCFF screened more than 100 proposals, selecting the eight most promising ones that met BNCFF's standards of prospective commercial viability, habitat protection and livelihood improvement for vulnerable climate-threatened communities. Under its second phase, BNCFF is supporting three green-grey infrastructure projects and six projects focused on marine protected areas OECMs. Over time, the facility has both supported a number of specific projects in their pathways to bankability, as well as developed a set of knowledge products, including critical insights and practical feedback on how to engage in NbS and nature-positive marine opportunities.

The Blue Carbon Accelerator Fund (BCAF) was established by Australia and IUCN in 2021 as a dedicated funding scheme to support blue carbon restoration and conservation projects in developing countries and help pave the way for private sector finance. The BCAF addresses barriers to scaling-up financing for blue carbon restoration by supporting the development and implementation of quality blue carbon projects, facilitating capacity building through technical collaboration, assisting with brokerage for future financing, and monitoring and valuing both carbon and non-carbon outcomes. BCAF provides funds for: i) readiness support that helps project developers with activities to prepare coastal blue carbon restoration projects for implementation and future private sector finance (growing the global portfolio); and ii) implementation support for on-the-ground blue carbon ecosystem restoration or conservation projects that demonstrate and measure climate, biodiversity and livelihood benefits (enhancing the business case).

Source: Melissa Abderrahim.

and Box 10). Part of the solution lies in improving regulatory frameworks to be more fit-for-purpose. Recent advances of the Taskforce on Nature-related Financial Disclosures and the International Sustainability Standards Board are promising, though further work is needed to fundamentally shift the financial sector towards a sustainable economy.

An important piece of this effort will be to make better use of available biodiversity data, much of which is already available at the global scale (such as The IUCN Red List of Threatened Species™), for decision making towards investing in nature, as well as integrating biodiversity considerations into the alignment of the financial system to sustainable development. The development and deployment of targeted metrics, including STAR, can support companies, financial institutions and governments to assess opportunities and risks, set targets and evaluate value chain and portfolio impacts.

Public fiscal authorities and international financial institutions can play an important role in channelling private finance to biodiversity in developing countries through the provision of credit

enhancements to address perceived risks and creditors' fiduciary duties. These can include new and existing tools, including on-lending facilities, subordinated debt tranches and guarantees, among others. The potential is massive, with global fixed income markets valued at over US$ 130 trillion in December 2022 (BIS, 2023).

Finally, even though IPLCs own or manage an estimated 25% of the world's land surface, including 40% of terrestrial protected areas, 37% of ecologically intact landscapes, and over a third of the world's remaining irrecoverable carbon (Garnett et al., 2018; Noon et al., 2022), their direct access to biodiversity and climate finance has been extremely limited. By one recent estimate, to date, donors have directed less than 1% of climate change funding to IPLCs, demonstrating that significant scaling up is needed (CI & IUCN, 2023).

Harness trade to work for the SDGs

3.9 Make trade and the circular economy work against pollution and for nature

Biodiversity considerations have featured on the international trade agenda for decades, touching on specific species, as well as safeguards against commodities whose production could contribute to environmental degradation (e.g. deforestation). Supply chains and trade flows of many goods and services account for an increasing share of resource exploitation, including of wildlife products and agricultural commodities, and are consequently closely linked to biodiversity and climate impacts (UNEP, 2021b). Likewise, 20% of calories consumed are traded, many of which are sourced from water-scarce countries, and the costs of the virtual water embedded in this trade often remain hidden (GCEW, 2023).

Production, consumption and trade in material resources has grown significantly over the past 20 years, and coupled with the embodied materials contained therein (i.e. those used in extraction and production), this growth has placed large environmental stresses on resource-exporting countries (UNEP & IRP, 2020). Addressing these challenges gets to the heart of SDG 12 on responsible consumption and production.

The expansion of international trade has also meant that activities harmful to nature are often driven by consumption in places far removed. Recent estimates suggest that almost 25% of global deforestation between 2010 and 2015 was induced by international trade (Mittempergher et al., 2023), as is approximately 30% of global species threats (Lenzen et al., 2012).[29] In particular, consumption of commodities produced in developing countries is responsible for much of this trend, meaning that many developed countries' extinction-risk footprint is principally located beyond their borders.[30] These developed countries, along with China and India, are the world's largest importers of extinction-risk footprint. Meanwhile developing countries located primarily in Africa and Central America are relatively large exporters of extinction-risk footprint, with 42% of their total footprint accounted for by consumption in wealthy countries, and only a very small portion driven by domestic consumption (Irwin et al., 2022).

Trade policies can have positive impacts that support conservation and sustainable use of biodiversity, and subsequently sustainable development, by improving sustainable supply chains through a "nature positive" approach (UNEP & TESS, 2023). These may include trade in sustainable products and natural ingredients, which generate jobs and can reduce threats to biodiversity. For example, the BioTrade Initiative, which addresses "activities of collection or production, transformation and commercialization of goods and services derived from biodiversity, under criteria of environmental, social, economic sustainability," is being implemented in over 45 countries, generating US$ 4.8 billion in sales in 2017 (UNCTAD, 2021, p. 4).

29 This estimate does not include invasive alien species, whose introduction pathways are also closely interlinked with international trade.

30 Irwin et al. (2022) use "footprint" to refer to an environmental impact associated with both the final demand for a product or service, as well as the economic interactions at each supply chain node involved in its delivery.

Further, it is essential that trade policies be designed inclusively to foster non-discrimination and assistance to developing countries to allow them to fight pollution in a way that meets their obligations both under trade law and multilateral environmental agreements (UNEP & TESS, 2023), while advancing the SDGs. Fortunately, the need for environmental regulation that also impacts trade has not, to date, caused challenges at the World Trade Organization (WTO) level (de Anzizu et al., 2023).

Juvenile fish habitat on the Virgin Islands
Photo: GRID-Arendal/CC BY-NC-SA 2.0

Subsidies – including to agriculture, fossil fuels, water, and fisheries – greatly impact trade flows, and as such have been the subject of numerous WTO agreements. It is therefore to be commended that the WTO 12th Ministerial Conference adopted an historic Agreement on Fisheries Subsidies (WTO, 2022). The upcoming 13th Ministerial Conference should solidify the implementation of the Agreement, as well as reflect the need to bridge the issues of fisheries subsidies, plastic pollution and fossil fuel subsidies in the WTO with commitments under the GBF and the ongoing plastic pollution treaty negotiations. Trade arrangements can highlight efficient and wasteful water subsidies, with a view towards promoting sustainable water use (GCEW, 2023). UNEP and TESS (2023) offer a range of WTO-focused trade policies and measures – border measures, requirements and standards, economic incentives, aid for trade, information and data, and stakeholder engagement – which could support the implementation of the GBF, and consequently the achievement of the SDGs, especially SDG 12, including its social and economic dimensions.

Finally, circular economy approaches can play an essential role as part of a broader effort to induce greater resource efficiency (and thereby reduced extractive demands, provided that rebound effects are addressed) and nature-positive trade (Box 11), an area that WTO members have addressed in the past, but for which there is plenty of scope for increased contributions (Steinfatt, 2020). A recently published IUCN report makes clear that in order to fulfil its promise, the circular economy must take biodiversity into account (Oberč et al., 2022). The report acknowledges the strong potential of the circular economy to achieve the international community's environmental targets, and points out that some theories or practices associated with the circular economy concept today need to be carefully reconsidered to ensure they do not pose a risk to biodiversity. Importantly, decision makers should enshrine in the respective legal frameworks the requirements and guidance provided by relevant GBF decisions, including through biodiversity-inclusive Life-Cycle and Environmental Impact Assessments and appropriate measures (including NbS) to prevent and minimise individual and cumulative impacts of pollution on ecosystems, at appropriate scales so that their integrity and functioning is not negatively affected.

BOX 11

Plastic Waste Free Islands (PWFI)

Marine litter can have devastating impacts on island states, damaging local communities' lives and livelihoods through damaging key sectors such as fisheries and tourism. In Saint Lucia alone, a recent IUCN analysis estimated the broader impact of marine plastics, including costs to fisheries and potential lost tourism revenue (should plastic pollution be left unchecked), to be as high as 52–61% of the island's GDP in 2019 (Raes et al., 2022).

PWFI is a four-year project that seeks to promote circular economy approaches and demonstrate effective solutions to addressing plastic leakage from SIDS in the Pacific (Fiji, Samoa and Vanuatu) and Caribbean (Antigua and Barbuda, Grenada and Saint Lucia).

The project's overall purpose is to demonstrate viable pathways to repurposing waste into commercial products to generate employment opportunities and support livelihoods in local communities. A cross-sectoral approach seeks to develop demand-driven solutions to plastic waste, resulting in a series of business plans and 'blueprints', which are replicable and scalable so that: i) the lessons and successes can be applied beyond the initial target islands; and ii) approaches can be designed to address the entire value chain from source to sea, and across different sectors, such as fisheries, tourism, and waste management.

The first step is to assess the kinds of plastic waste produced across these islands, to separate polymers that are recyclable from those that are not. The identification of detailed stocks and flows of different kinds of waste is essential to develop appropriate strategies (including the implementation of source segregated waste streams), as well as policy and regulatory support for priority measures. Where polymers can be recycled, IUCN works with local businesses to identify substitute products that can be developed locally with existing technologies and for an identified market. For those that cannot be recycled, sound treatment and disposal options can be identified to minimise leakage.

Crucially, all the policy recommendations emerging from this work are developed and then validated through a participatory approach with local stakeholders from relevant sectors, including government officials, businesses involved in the co-management of proposed actions and civil society.

Source: Author, with contributions from Karine Siegwart.

Based on Raes et al. (2022).

4 Conclusion: the SDG Summit moment

The data are clear: we are falling behind in our commitments to achieve the SDGs by 2030. This holds true across SDGs 6, 13, 14 and 15, or the "nature-related" Goals. These trends portend significant deterioration across the other social and economic goals, as a healthy biosphere, and the services it provides to people, make human thriving possible. That is, unless we collectively decide to radically change course, and back that decision up with a commitment to undertake transformative actions.

As the preceding sections of this report have argued, a healthy biosphere is a fundamental precondition to human well-being. As such, the trends of land degradation, habitat destruction across all realms, species extinction, and climate change threaten progress and the potential to reach all of the SDGs. Looking specifically at the data that IUCN provides to the SDG indicator framework, we see that species extinction rates continue to trend in the wrong direction, with deterioration of the Red List Index accelerating with each passing decade. Meanwhile, even though progress has been made on protecting KBAs across the terrestrial, freshwater, mountain and marine realms, that progress has largely stalled across much of the world.

To address these trends, among many others, the UN Secretary-General has proposed a Rescue Plan for People and Planet, to be delivered at the SDG Summit. As described in section 3, IUCN is contributing to several areas of this plan, and seeks to work with its Members and partners to scale up these actions and accelerate implementation of the SDGs. These activities address the plan's three breakthroughs:

A. Prioritising policies and investments that have multiplier effects across the goals

As described in the introduction to this report, achieving the SDGs by 2030 will require concerted action and investment across the 2030 Agenda. The SDGs are integrated and indivisible, including the nature-related goals. Actions that specifically address a single goal or a small subset therefore contribute to the overarching agenda. IUCN is working to address several of the components identified by the Secretary-General as essential to creating synergies across the Goals.

First, to protect biodiversity and natural resources, IUCN proposes a series of actions that will support, primarily, SDGs 14 and 15. These address targeted conservation action for highly threatened species, and ensure that the use of wild species – essential to the health, livelihoods and cultural practices of many communities around the world – is sustainable. In parallel, it will be critical to address negative trends of deforestation and habitat destruction, and urgent action is needed to expand the protected area coverage of areas of importance to biodiversity across all realms, with a focus on quality, equity and effectiveness. The adoption of the GBF, as well as the recent High Seas Treaty, will provide essential policy guidance on structuring a global response to these urgent needs, and IUCN is actively working to do its parts, including through partnerships with its Members, constituting both UN Member States and non-state actors.

> IUCN and its partners are active in working with governments on conservation investments, and actively seeking to address the barriers to scaling up private financing

Business-as-usual approaches to our food and water systems are failing to protect both the environment, as well as many communities around the world. Agriculture and food systems are the leading drivers of land-use change, water resource depletion and pollution, and stress on biodiversity. Investing in agro-ecological and regenerative approaches that emphasise soil and land health could transform the sector into an instrument of progress towards the SDGs that relate to poverty, food security,and climate change. For freshwater, protecting and restoring freshwater habitats will be essential to addressing the crisis in freshwater biodiversity and water management challenges beyond. The global community must seek to integrate the elements of SDG 15 specific to freshwater into water management practice. This may involve action to reform regulations and pricing systems to promote investment, demand management and efficiency of us, in particular for the largest water consumers such as agriculture. Concrete contributions, including the recently-launched Freshwater Challenge, can be game-changers to achieving multiple SDGs, as well as targets contained in multilateral environmental agreements. Among all of these interventions, cooperation across national borders and significant improvements in transboundary water management and cooperation – linked to action and investment on the ground – will be critical.

With respect to climate change and SDG 13, it is essential that emissions reductions are rapid and sustained, and complementary actions cannot change that. However, high integrity NbS can play a critical and supportive role – especially in the near-term – to deliver benefits for both mitigation, adaptation and disaster risk reduction, and the IUCN Global Standard for Nature-based Solutions can play a role in their design and execution. This will require finance to be mobilised at scale (discussed below), especially for IPLCs, as essential stewards of nature. An essential component will be to better align the global biodiversity, climate chang, and disaster risk reduction agendas and processes at the national level, including NDCs under the UNFCCC, NBSAPs under the CBD and national commitments and actions under the Sendai Framework.

Finally, women and girls, who play vital roles as natural resource managers, knowledge holders and caregivers, often lack secure access to land and natural resources, and remain largely under-represented in decision-making processes. This must change, not only on account of the potential gains across a range of SDGs, but also because women's empowerment is a matter of fundamental human rights and social justice.

B. Securing a surge in SDG financing and an enabling global environment for developing countries

The means of implementation for delivering on the SDGs are essential and must be fit for purpose. First and foremost, that means closing the biodiversity financing gap, including delivering on the relevant targets of the GBF (18 and 19). This will require a range of responses – public and private, international and domestic – from fiscal reforms, to blended approaches, to new mechanisms such as debt-for-nature swaps. IUCN and its partners are active in many of these spaces, working with governments on conservation investments, and actively seeking to address the barriers to scaling up private financing, including through different pilot

initiatives. The Union is also working to encourage better use of available biodiversity data for decision making, including through the development of targeted metrics, such as STAR.

In an increasingly globalised and interconnected world, international trade will play an essential role in supporting the acceleration of the 2030 Agenda, and for the nature-related SDGs therein. Recent analyses have demonstrated that significant portions of deforestation and species extinction risk are driven by consumption in other countries. Trade policies can be designed to be supportive of nature through promoting sustainable supply chains, and ensuring that countries are able to address their environmental priorities while complying with trade law and obligations under multilateral environmental agreements. These measures can be further supported by subsidy reform, including to agriculture, fossil fuels and fisheries, as well as the adoption of circular economy approaches that promote resource efficiency and explicitly take biodiversity considerations into account.

C. Equipping governance and institutions for sustainable and inclusive transformation

Finally, IUCN strongly supports the UN Secretary-General's calls for improved data, including adequate resourcing for it,[31] to contribute to improved SDG monitoring. IUCN is a standard-setter in the areas of conservation and sustainable development, generating data through widely-used knowledge products and metrics. Several of these are already deployed to support the monitoring and follow-up of progress towards SDG targets, including the IUCN Red List of Threatened Species™, the Red List of Ecosystems, the World Database of Key Biodiversity Areas, the Global Invasive Species Database, and Protected Planet. As discussed in section 2, various additional derived products are also important to complement existing indicators or otherwise track and reinforce conservation action in support of the SDGs, including the Green List of Protected and Conserved Areas (derived from Protected Planet) and STAR (derived from the IUCN Red List). In addition to monitoring progress, these tools and standards can facilitate collaboration, planning, and a range of actions to advance the sustainable development agenda. Finally, the new Contributions for Nature Platform allows IUCN constituents to document their intended actions to assist global policy goals and targets, including the SDGs, GBF and Paris Agreement.

The SDG Summit

The SDG Summit is the moment for the international community to come together and make concrete commitments to implement the Goals. In section 2, we have provided some priority areas of action for consideration, as they pertain to the nature-related SDGs, knowing that the impacts will touch on many of the other goals. These constitute a portion of IUCN's commitment to achieving the SDGs, noting that there are many other areas that will require our attention. Partnerships across sectors, geographies and generations will be essential to realising the needed transformations.

We have seven years left.

Given the scope and urgency of achieving the SDGs, all actors should have their voices heard. There is a role for everyone – all sectors of society – to contribute to the accelerated implementation of the 2030 Agenda and its SDGs, as well as complementary frameworks, including the Paris Agreement and the GBF. It will take our collective action and ambition to put us on a path to societal well-being, and to living in harmony with nature.

31 The pace of improvement of available biodiversity data, which must be up to date, comprehensive, and accurate to best inform decision making, is constrained by the current funding arrangements. Juffe-Bignoli et al. (2016) estimate that the annual cost of maintaining four key biodiversity datasets – the IUCN Red List of Threatened Species™, the IUCN Red List of Ecosystems, Protected Planet and the World Database of Key Biodiversity Areas – is around US$ 12 million, while upgrading them to provide an adequate monitoring system for global biodiversity would cost around US$ 100 million.

Bee on a flower
Photo: Scotty Turner/Unsplash

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Annex I The Sustainable Development Goals

Source: UN (n.d.).

Annex II Targets of SDGs 6, 13, 14 and 15

Source: UN (n.d.).

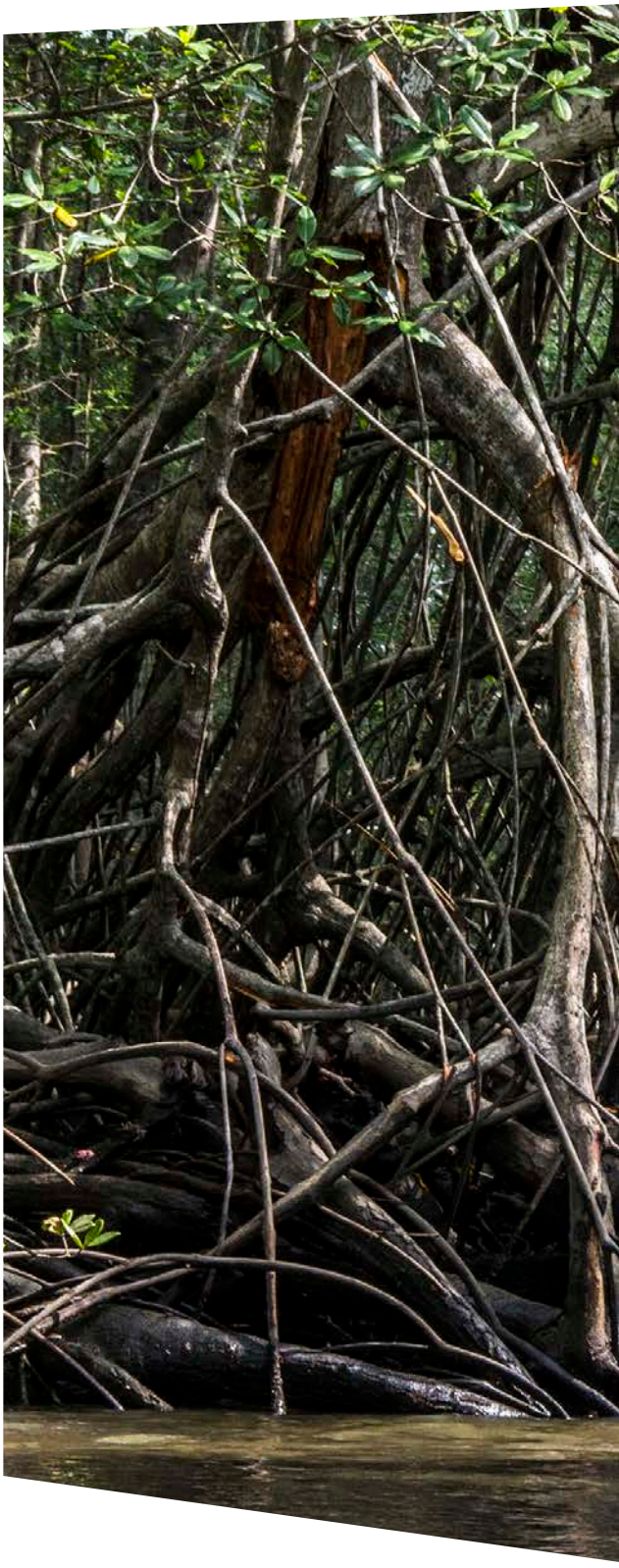
GOALS AND TARGETS	INDICATORS
6 **Ensure availability and sustainable management of water and sanitation for all**	
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of domestic and industrial wastewater flows safely treated
	6.3.2 Proportion of bodies of water with good ambient water quality
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1 Change in water-use efficiency over time
	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	6.5.1 Degree of integrated water resources management
	6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1 Change in the extent of water-related ecosystems over time
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan
6.b Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

GOALS AND TARGETS	INDICATORS
13 **Take urgent action to combat climate change and its impacts**	
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
	13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
	13.1.3 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change
	13.2.2 Total greenhouse gas emissions per year
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly US$ 100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	13.a.1 Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the US$ 100 billion commitment through to 2025
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	13.b.1 Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change

GOALS AND TARGETS	INDICATORS
14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	14.1.1 (a) Index of coastal eutrophication; and (b) plastic debris density
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	14.2.1 Number of countries using ecosystem-based approaches to managing marine areas
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	14.5.1 Coverage of protected areas in relation to marine areas
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation	14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries

GOALS AND TARGETS	INDICATORS
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	14.a.1 Proportion of total research budget allocated to research in the field of marine technology
14.b Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries
14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources
15	**Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**
15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area
	15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management
15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	15.3.1 Proportion of land that is degraded over total land area
15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15.4.1 Coverage by protected areas of important sites for mountain biodiversity
	15.4.2 (a) Mountain Green Cover Index and (b) proportion of degraded mountain land

GOALS AND TARGETS	INDICATORS
15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5.1 Red List Index
15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits
15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	15.7.1 Proportion of traded wildlife that was poached or illicitly trafficked
15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	15.8.1 Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species
15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	15.9.1 (a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting
15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	15.a.1 (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments
15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	15.b.1 (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments
15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked



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