

## Commentary

# A step change needed to secure a nature-positive future—Is it in reach?

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The 1972 Stockholm Conference put environmental protection on the global agenda for the first time. But since then, biodiversity losses and increasing threats have outpaced the conservation response. A step change is needed to reverse this trend and will require scaled-up action across society, including from governments, businesses, and financial institutions.

The United Nations Conference on the Human Environment held in Stockholm in 1972 put environmental protection at the forefront of global concerns for the first time. Taking stock of the impact of human activities, the intergovernmental meeting sought to forge “a common outlook and common principles” for the preservation and enhancement of the environment. The ensuing Stockholm Declaration drew attention to “the heritage of wildlife and its habitat which are now gravely imperilled,” calling for the safeguarding of natural ecosystems through careful management and nature-sensitive development planning.<sup>1</sup>

Over the 50 years since the Stockholm Conference, our world has transformed. The amount of raw materials extracted to meet final consumption demand has more than doubled, although there are massive disparities between low- and high-income nations. Extreme poverty has been reduced, but inequality has increased such that 1% of Earth’s population controls half of its wealth. Concomitantly, the increasing demand for resources and energy has continued to whittle away at Earth’s natural capital. In 1972, Earth Overshoot Day (the date when humanity’s demand for resources exceeds what Earth can regenerate in that year) fell on December 10. By 2021, it fell on July 29. Our consumption has outstripped the planet’s biocapacity by 56%.<sup>2</sup>

The consequent impact on biodiversity has been tremendous. More than 1 million plant and animal species face extinction

within the next few decades.<sup>2</sup> The planet is on the verge of a sixth mass extinction event, distinct from the previous five in being anthropogenic. This is closely interlinked with the loss and degradation of ecosystems and habitats worldwide, as well as human-mediated species invasions.

Fifty years since the environment first appeared on the global agenda, we are at a crucial juncture. We are precipitously close to several important ecological tipping points: mass coral reef bleaching events are becoming the norm, the Amazon rainforest’s transition to savannah is looming, and many wild fisheries are at the brink of comprehensive collapse. The Stockholm Declaration’s vision of safeguarding nature (as well as the visions of most international environment agreements since) has yet to be achieved. Although we have put systems and processes in place to consider nature, desirable nature conservation outcomes elude us. On the 50<sup>th</sup> anniversary of the Stockholm Conference, and with negotiations underway for the Convention on Biological Diversity’s (CBD) Post-2020 Global Biodiversity Framework (GBF), we summarize the rapidly changing scale of the global conservation challenge and the evolution of conservation approaches and discuss what is needed now to turn the tide on global biodiversity loss.

## A scale mismatch between conservation need and response

Although conservation efforts have achieved significant successes over the past 50 years, the sheer scale of the pres-

ures facing biodiversity has meant that the losses have exceeded the wins (Figure 1). For instance, although the net rate of forest loss globally has halved since the 1990s, natural ecosystems continue to be lost; between 2000 and 2013 alone, almost 2 million km<sup>2</sup> of intact ecosystems became highly human modified.<sup>3</sup> Similarly, although more populations of marine mammals are now recovering than declining,<sup>4</sup> overall vertebrate populations globally have fallen by 68% over the past 50 years.<sup>5</sup> Likewise, although the amount of fishing bycatch has halved since the 1980s,<sup>6</sup> a third of commercial fish stocks are now overfished<sup>7</sup> (Figure 1).

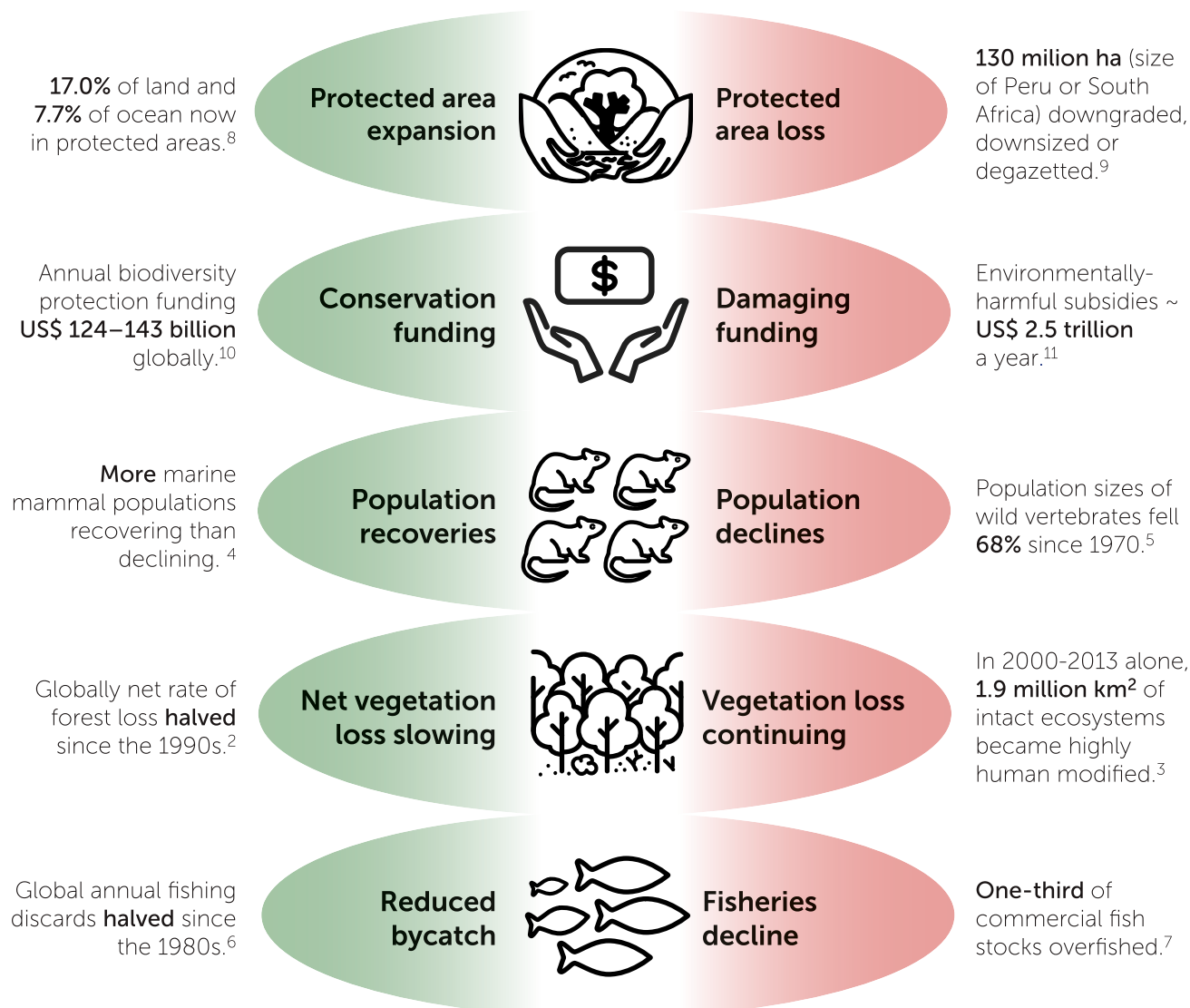
Even the less ambitious conservation goals of slowing rates of decline, or safeguarding the best of what’s left, have been only partially realized. Only a few of the Aichi Biodiversity Targets, which countries set about to achieve by 2020, for example, were met: programs for eradicating invasive species have been successfully implemented on some islands, but new introductions continue apace; the global protected-area estate now covers 17% of the terrestrial realm and nearly 8% of the marine realm,<sup>8</sup> but protected areas continue to fare poorly in terms of ecological representativeness, connectivity, and effectiveness. In many places, habitat protection has been reversed<sup>9</sup> (Figure 1).

The scale mismatch between conservation response and the threats facing biodiversity is also exemplified by the quantum of financing flowing into



## Conservation wins

## Conservation losses



**Figure 1. Conservation wins and losses**

Expansion<sup>8</sup> versus loss<sup>9</sup> of protected areas, conservation funding<sup>10</sup> versus damaging funding,<sup>11</sup> population recoveries<sup>4</sup> versus declines,<sup>5</sup> net slowing<sup>2</sup> versus continuation<sup>3</sup> of vegetation loss, and reduced bycatch<sup>6</sup> versus fishery decline.<sup>7</sup>

conservation versus that flowing into activities that put biodiversity at risk. The total annual flow of funds toward biodiversity protection is US\$124–\$143 billion globally, but the global conservation finance gap remains US\$598–\$824 billion per year,<sup>10</sup> and environmentally harmful subsidies are larger still<sup>11</sup> (Figure 1).

### Stockholm+50: Nature conservation then and now

The dominant conservation discourses have seen changes over the past 50 years.

Among the most prominent is a continuing evolution from a view of nature as separate to people to a more holistic perspective integrating humans with the rest of nature.<sup>12</sup> In the 1980s and 1990s, the then dominant exclusionary model of “nature for itself” began to give way to wider recognition of the importance of participation of local communities and the role of Indigenous communities as custodians of natural areas. Indigenous peoples’ lands make up at least 40% of the world’s protected areas and play a

significant role in biodiversity conservation.<sup>13</sup> At the turn of the century, the Millennium Ecosystem Assessment gave rise to the “ecosystem approach,” which focused on sustainable management of nature for optimizing its contributions to people. This paradigm has evolved further into the current more-nuanced approach envisaged under the CBD’s draft Post-2020 GBF of “living in harmony with nature.”<sup>14</sup>

A second fundamental shift is also underway. This shift is taking conservation

from a defensive posture of preventing damage to the most valued places and species to a wider recognition that “saving nature” is not enough and that active restoration is also needed—at scale. For example, the establishment and growth of protected areas has been a prominent focus in conservation, and the increase in the protected-area estate is considered one of conservation’s greatest successes. However, the major benefit of much place-based protection is the prevention of future loss, so increases in protected-area extent do not necessarily signal improvements in the state of biodiversity—rather, they represent a partial defense against further losses. Similarly, among the Aichi Biodiversity Targets, which parties to the CBD agreed to achieve by 2020, is a target aimed at reducing annual deforestation rates so that depletion happens more slowly—rather than envisaging a halt. At worst, this approach implies an end game in which only protected areas are retained and ecosystems beyond are transformed and converted for intensive human land uses—an outcome inconsistent with the new vision of living in harmony with nature.

In recognizing that merely slowing the rates of loss is not enough to provide the many benefits we ask of nature, a new paradigm has emerged. It is increasingly widely recognized that we must aim for—and achieve—a “nature-positive” future in which losses have ceased to accumulate, nature is on a path to recovery and restoration, and nature and people exist in dynamic equilibrium.<sup>14,15</sup> There has been a recent visible shift to approaches focused on net-positive outcomes, and the importance of restoration and repair is highlighted by the UN-designated “decade of restoration.” These shifts are also exemplified by the first draft of the CBD’s Post-2020 GBF (currently being negotiated), which includes a 2030 milestone of “net gain” in the area, connectivity, and integrity of natural systems by at least 5% and a 2030 action target for restoration of 20% of degraded ecosystems.<sup>14</sup>

### A step change is needed

The shifts in dominant conservation perspectives over time have been beneficial, but they have not yet been matched by action at the scale required. Despite

ample scientific evidence and countless calls by First Nations people, scientists, and conservationists to spur governments into action,<sup>16</sup> government responses have largely been too little too late. In reality, most policymaking and decision-making pertaining to economic development is marred by regulatory capture such that corporate interests sway government decisions. Even in countries with well-developed and mature regulatory systems, environmental interests rarely prevail over influential industry.

In the face of these challenges, the need to build on the foundations laid over the last 50 years and scale up responses is becoming even more pressing. The threats that biodiversity faces today are more intense and ubiquitous than they were five decades ago and are set to intensify further. Key drivers of biodiversity impact—such as climate change, infrastructure development, and agricultural expansion—are also likely to escalate, often at the cost of biodiversity predominantly in developing tropical regions. It is clear that acceleration of action is required across the board—not only in the prevention of impacts but also in the repair of damage.

### Hopeful levers for change

To counter the magnitude of threats that now face biodiversity and to definitively move toward a “nature-positive” future, we need action at a faster pace and at a larger scale. Central to this is mainstreaming biodiversity considerations at all levels of economic decision-making and policymaking.

A step in the right direction is the ongoing increase in the uptake of models enabling Indigenous knowledge formations to guide conservation. Combined with increasing recognition of land rights, this is facilitating Indigenous-led land management, in line with the shifts in dominant conservation perspectives outlined above. Better recognition of the role of Indigenous knowledge in contributing to healthy biodiversity is enabling biodiversity management to be increasingly holistic and built upon cross-cultural knowledge systems. For example, Australia’s landscape has been shaped over millennia by Indigenous people and their communities, cultural practice, and associated knowledge systems. Indigenous ranger programs are one of the few

environmentally beneficial programs in Australia that enjoy bipartisan governmental support, and the country’s newly elected government has pledged to double the number of Indigenous rangers.

We can also take heart from the fact that businesses and financial institutions are increasingly cognizant of global biodiversity loss as a risk to organizational profitability and even survival. Biodiversity and ecosystem collapse have consistently dominated the World Economic Forum’s annual list of top five global risks to society.<sup>17</sup> As the materiality of biodiversity-related risks has become evident, a number of recent multi-stakeholder initiatives, such as the United Nations Environment Programme Finance Initiative’s Principles of Responsible Banking (signed by 200 banks) and the Task Force on Nature-Related Financial Disclosures, have put forth principles and mechanisms for companies and financial institutions to disclose their impacts on nature and take steps to address them. Such initiatives are promising but so far only voluntary. For such approaches to lead to the step change that is necessary, government leadership remains key. These initiatives are indeed starting to precipitate government action—for example, reporting climate disclosures is now mandatory in New Zealand, the United Kingdom, and soon the United States. However, many governments worldwide have, over time, reduced their stake in environmental governance, leaving private actors to lead and relying on markets to resolve environmental challenges.

The expansion of environmental markets, including greater use of biodiversity offsets, is increasingly cited as central to boosting conservation investment and mainstreaming biodiversity within economic decision-making. But such approaches are far from a silver bullet. Nearly 30 years since the first Payments for Ecosystem Services trade, liquid markets with strong flows of capital to biodiversity conservation remain perpetually in a state of emergence. Biodiversity offsets often fail to fully compensate for biodiversity losses, even against a counterfactual of ongoing biodiversity decline, and there is not enough land available for tree planting to achieve climate-mitigation goals. Such limits to environmental markets as solutions to biodiversity decline

need to be recognized, and their effectiveness should be evaluated by the additionality of conservation outcomes on the ground rather than by the number of trades or amount of finance raised.

### Will the momentum prove adequate?

There has been transformational change for the benefit of the environment in the past. The now-classic example is the successful limitation of ozone-depleting substances achieved largely through international cooperation on environmental policy. The scientific case was made through the 1970s and 1980s, culminating in the Montreal Protocol in 1987. The Protocol not only led to the near-total phasing out of the relevant chemicals and steady recovery of the ozone layer, but also most likely avoided emissions of 15 Gt of CO<sub>2</sub>e.<sup>18</sup> Implementation of the Protocol required major action from industry, substantial finance, and policy flexibility to updated scientific understanding—much like efforts to conserve and restore biodiversity will over the coming years.

Despite hopeful signs of improvement in humanity's relationship with nature, optimism must not breed complacency. In reality, humans can be resistant to change, and even great shocks do not necessarily bring the responses we might expect. Potentially paradigm-shifting events—such as the SARS-Cov-2 pandemic and megafires in Australia, Brazil, Indonesia, and the United States—have failed to precipitate significant societal shifts. Even as the fallout from these events continues, the ideological and politicized arguments over climate change continue, and greenhouse gas emissions are expected to return to pre-pandemic levels within a couple of years.

The societal transformation required for addressing the biodiversity crisis is vast. Nothing short of a paradigm shift in how humanity interacts with nature, and centers its stewardship in our societies and economies, will achieve the changes

needed. The 50<sup>th</sup> anniversary of the Stockholm Conference presents us with an opportunity to highlight the urgency and magnitude of action needed. To see this change, governments, businesses, and financial institutions must all be part of the solution. It remains to be seen who will lead.

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### DECLARATION OF INTERESTS

M.M. and M.C.E. provide advice to Australian state and federal government agencies on biodiversity offsetting and environmental accounting. M.M. is a member of the Board of BirdLife Australia, a Governor of WWF-Australia, and a member of the Wentworth Group of Concerned Scientists.

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