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Review

Perspectives on area-based conservation and its meaning for future biodiversity policy

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Abstract: During 2021, Parties to the Convention on Biological Diversity (CBD) are expected to meet in Kunming, China, to agree on a new global biodiversity framework aimed at halting and reversing biodiversity loss, encouraging the sustainable use of biodiversity, and ensuring the equitable sharing of its benefits. As the post-2020 global biodiversity framework evolves, parties to the convention are being exposed to a range of perspectives on the conservation and sustainable use of biodiversity, relating to the future framework as a whole or to aspects of it. Area-based conservation measures are one such aspect, and there are diverse perspectives on how new targets might be framed in relation to these measures. These perspectives represent different outlooks on the relationship between human and nonhuman life on Earth. However, in most cases there is a lack of clarity on how they would be implemented in practice, the implications this would have for biodiversity and human well-being, and how they would contribute to achieving the 2050 Vision for Biodiversity of "living in harmony with nature." We sought to clarify these issues by summarizing some of these perspectives in relation to the future of area-based biodiversity conservation. We identified these perspectives through a review of the literature and expert consultation workshops and compiled them into 4 main groups: Aichi+, ambitious area-based conservation perspectives, new conservation, and whole-earth conservation. We found that although the perspectives Aichi+ and whole earth are in some cases at odds with one another, they also have commonalities, and all perspectives have elements that can contribute to developing and implementing the post-2020 global biodiversity framework and achieving the longer term CBD 2050 Vision.

Keywords: biodiversity, perspectives, protected areas

Perspectivas de la Conservación Basada en el Área y su Significado para las Futuras Políticas de Biodiversidad

Resumen: Durante 2021, se espera que las partes miembro del Convenio sobre la Diversidad Biológica (CBD) se reúnan en Kunming, China, para acordar un nuevo marco de trabajo global para la biodiversidad enfocado en detener y revertir la pérdida de la biodiversidad, promover el uso sustentable de la biodiversidad y asegurar la repartición equitativa de sus beneficios. Conforme evoluciona el marco de trabajo global para la biodiversidad post-2020, las partes miembro del convenio están conociendo una gama de perspectivas de la conservación y el uso sustentable de la biodiversidad, relacionándolas con el futuro marco de trabajo en su totalidad o sólo con algunos aspectos del marco de trabajo. Las medidas de conservación basadas en el área son uno de dichos aspectos y existen diversas perspectivas sobre cómo los nuevos objetivos podrían estar enmarcados en relación a estas medidas. Estas perspectivas representan diferentes puntos de vista sobre la relación entre la vida humana

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y no humana en la Tierra. Sin embargo, en la mayoría de los casos existe una falta de claridad sobre cómo se implementarían en la práctica, las implicaciones que ésto tendría para la biodiversidad y el bienestar humano y cómo contribuirían para alcanzar la Visión para la Biodiversidad 2050 de "vivir en armonía con la naturaleza". Buscamos aclarar estos temas al resumir algunas de estas perspectivas en relación al futuro de la conservación de la biodiversidad basada en el área. Identificamos estas perspectivas por medio de una revisión de la literatura y talleres de consulta a expertos y las compilamos en cuatro grupos principales: Aichi+, perspectivas ambiciosas de conservación basada en el área, conservación nueva y conservación del mundo entero. Descubrimos que aunque las perspectivas Aichi+ y conservación del mundo entero entran en conflicto en algunos casos, también tienen puntos comunes, y todas las perspectivas tienen elementos que pueden contribuir al desarrollo e implementación del marco de trabajo global para la biodiversidad post-2020 y para alcanzar la Visión CBD 2050 de mayor plazo.

Palabras Clave: áreas protegidas, biodiversidad, perspectivas

摘要: 《生物多样性公约》缔约方将于 2021 年底在中国昆明举行会议, 就全球生物多样性的新框架达成一致, 该框架旨在制止和扭转生物多样性丧失、鼓励可持续利用生物多样性、确保公平和公正分享遗传资源所产生的惠益。随着 2020 后全球生物多样性框架的发展, 公约的缔约方接触到了生物多样性保护和可持续利用的一系列观点, 涉及未来框架的整体或其各个方面。而在基于区域的保护措施这个方面, 人们对如何制定相关新目标持有不同观点。这些观点代表了对地球上人类和非人类生命之间关系的不同看法。然而, 在大多数情况下, 如何实践这些观点、它们对生物多样性和人类福祉有何影响, 以及它们将如何帮助实现 "与自然和谐相处"的 2050 生物多样性愿景, 都缺乏明确的说明。我们试图通过总结与区域生物多样性保护的未来相关的一些观点来阐明这些问题。我们通过文献综述和专家咨询研讨会确定了这些观点, 并将它们分为 4 个主要的类别:爱知+、具有雄心的区域保护观点、新的保护观点和保护整个地球的观点。我们发现, 虽然"爱知+"和"保护整个地球"的观点在某些情况下不能取得一致, 但它们也有共同点, 并且都具有帮助制定和实施 2020 后全球生物多样性框架和实现《生物多样性公约》 2050 长期愿景的因素。 **【翻译: 胡怡思; 审校: 聂永刚 】**

关键词: 观点, 生物多样性, 保护地

Introduction

Species are disappearing from 100 to 1000 times faster today than at the historical background rate, mainly due to human activities, especially habitat conversion to agriculture (e.g., Ceballos et al. 2015). Area-based measures, such as protected areas (PAs), are a globally recognized approach to conserving nature (e.g., Geldmann et al. 2014) that play an important role in reducing habitat loss (Joppa et al. 2008), maintaining species population levels (Watson et al. 2014; Gray et al. 2016), and providing a functioning environment for people (Ferraro & Hanauer 2015).

In 2010 Parties to the Convention on Biological Diversity adopted the Strategic Plan for Biodiversity 2011–2020 and its associated 20 Aichi Biodiversity Targets. Aichi Biodiversity Target 11 relates specifically to area-based conservation by calling for at least 17% of terrestrial and inland water and 10% of coastal and marine areas to be conserved "through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes" (CBD 2010).

Progress toward Target 11 has been mixed. According to the latest updates to the 2018 Protected Planet report (UNEP-WCMC, IUCN, & NGS 2020), which draws on the World Database on Protected Areas (WDPA), there are just over 245,000 PAs that cover 15% of the world's terrestrial surface and inland waters. The same report shows that coverage of the global PA estate has changed rapidly over the past decade, particularly in the marine environment (UNEP-WCMC, IUCN, & NGS 2020), where just under 8% of the global ocean is now protected. The majority of these PAs are concentrated in Exclusive Economic Zones (0–200 nautical miles from the coast): 18% of these zones are currently under protection. Beyond these zones, however, only 1.2% of the remaining ocean is protected. There has been an increase in PA coverage and a growing recognition of the important role of indigenous people and community-led conservation efforts (Garnett et al. 2018), but progress toward achieving the qualitative elements of the target, which include the need for connectivity, representativeness, equity, and effectiveness, remains slow (Tittensor et al. 2014; UNEP-WCMC & IUCN 2016; Visconti et al. 2019*b*).

The Aichi Biodiversity Targets were politically driven interim measures, grounded in a recognition of the long-term efforts required to bring meaningful changes to the status of biodiversity and ecosystems. The 2050 Vision for Biodiversity of "living in harmony with nature" was adopted as part of the Strategic Plan for Biodiversity. The 2010–2020 plan is regarded as a step toward the 2050 Vision. It is expected that China will host the CBD 15th Conference of the Parties (COP15), at which a post-2020 global biodiversity framework will be agreed on up

to 2030. The theme Ecological Civilization: Building a Shared Future for All Life on Earth will frame the conference, highlighting the complementary nature of the 2050 Vision. As part of the process leading up to COP15, a so-called zero draft of the post-2020 global biodiversity framework was released in January 2020 (CBD 2020*a*) that sets out an ambitious plan underpinned by a theory of change emphasizing the need to combine traditional approaches with new innovations to conserve and sustainably use nature. This zero draft has received numerous comments and has been debated in the second session of the Open Ended Working Group that is charged with developing the post-2020 global biodiversity framework. This has resulted in a series of proposed changes to the draft Target 2 on PAs and other effective area-based conservation measures (CBD 2020*b*).

Over the past few years, new and ambitious approaches relating to area-based conservation have emerged that aim to respond to the ongoing biodiversity crisis. We refer to these as *perspectives*. These perspectives drive some of the thinking behind discussions on what form the area-based targets should take. They provide proposals for future targets related to area-based conservation and sustainable use, all of which are grounded within broader perspectives on the relationship between human and nonhuman nature and the future of conservation as a whole. These perspectives represent alternative ideas of how PAs might play an essential role in conserving biological diversity and make a significant difference to human well-being, as outlined in the 2050 Vision for Biodiversity and the 2030 Agenda for Sustainable Development.

We sought to summarize prominent perspectives that have emerged over the past few years; outline steps for practical implementation, potential perverse incentives, and unintended consequences that could result from implementing a particular perspective; and explore what they would actually mean for the achievement of area-based targets and the broader 2050 Vision for Biodiversity. Our intention was to clearly delineate the elements common among the perspectives to help further the debate and facilitate consensus in developing future targets.

Area-Based Conservation Perspectives

We explored ideas and their potential to influence the implementation of area-based conservation after 2020. These perspectives were identified through a review of literature and expert consultation workshops. The literature review was undertaken based on a series of published and gray literature. The expert consultation workshops were held in February and April 2018 (CBD 2018*a*, 2018*b*) and were augmented by informal discussions at the CBD COP14 meeting in December 2018 and an international meeting of scientists in May 2019 (UNEP-WCMC 2019).

Following our review of literature and workshop discussions, we distilled the debate on conservation's underlying philosophies into 4 main groups or perspectives: Aichi+, ambitious area-based conservation perspectives, new conservation, and whole-earth conservation (Table 1). The emphasis of Aichi+ is effective implementation of the current Aichi Target 11, achieving all elements of the target, and filling gaps under the current Strategic Plan for Biodiversity 2011–2020. The group ambitious area-based conservation perspectives includes movements to protect 30% of the planet by 2030 (Dinerstein et al. 2019) and 50% by 2050, such as the Half Earth (Wilson 2016) and Nature Needs Half (Locke 2013) approaches, as well as initiatives such as the nationally led China Ecological Conservation Red Line (ECRL), which aims to protect >25% of its land (Gao 2019). New conservation emphasizes the benefits of nature to humans and explores the integration of conservation and neoliberal economic approaches through measures such as biodiversity offsets, payment for ecosystem services, and ecotourism (Igoe & Brockington 2007; TEEB 2010; Hunter et al. 2014; Kareiva 2014). Whole-earth (or convivial conservation) approaches propose going beyond PAs to embrace a way of life that entails "living with other aspects of nature in ways that balance human and nonhuman needs" (Büscher et al. 2016; Büscher & Fletcher 2019). This perspective has parallels with ecological civilization.

By summarizing each perspective below, we aimed to draw out key distinctions and commonalities of each perspective in relation to area-based conservation. Therefore, their descriptions are not exhaustive. Furthermore, these perspectives are not mutually exclusive and elements of them, such as enhanced recognition of indigenous and community conserved areas, ecological connectivity, and restoration approaches, are relevant in all cases.

Aichi+

This perspective focuses on implementing the current elements of Aichi Target 11 for a further 10 years to ensure all its qualitative elements, not just the percentage of coverage targets, are achieved by 2030. Although there is evidence that percent targets increased national conservation efforts (Bacon et al. 2019; Díaz et al. 2019; Green et al. 2019), it is widely agreed that better links are needed between quantitative and qualitative targets, including measures of conservation outcomes. This requires looking beyond percent targets and conventional PAs and focusing on ecological representation, well-connected, and other area-based measures for biodiversity, including under the governance of indigenous peoples and local communities, and ecosystem

Table 1. A summary of the 4 conservation perspectives presented in relation to the practical steps for implementation of the perspectives and potential unintended consequences.

Perspective	*Summary*	*Practical steps for implementation (nonexhaustive list)*	*Potential unintended consequences*
Aichi+	Emphasis on effective implementation of the current Aichi Target 11—achieve all elements of the target and fill any gaps, including indicators to monitor progress under the current Strategic Plan for Biodiversity 2011–2020.	Focus on qualitative elements of the target and develop appropriate indicators to monitor progress. Recognize and report on areas that contribute toward biodiversity, e.g., ICCAs, OECMs, as well as ecological connectivity and restoration.	Percentage of target may still remain the focus—quantity-over-quality' approach continues. Misinterpretation of what an OECM is may lead to confusion in national reporting processes.
Ambitious area-based conservation targets	Includes movements to protect 30% of the planet by 2030 (Dinerstein et al. 2019) and 50% by 2050, such as Half Earth (Wilson 2016) and Nature Needs Half (Locke 2013).	Implement more area-based conservation but targeted at the right places, i.e., areas with critical habitats and species, and climate stabilization areas. Draw on examples such as China Ecological Conservation Red Line. Recognize and report on areas that contribute to biodiversity, e.g., ICCAs, OECMs, and ecological connectivity and restoration.	Physical and economic displacement resulting from extension of protected area estate. Burden of expanding PA estate shared unequally, e.g., Southern vs. Northern hemisphere. Percentage of target may overshadow qualitative elements.
New Conservation	Emphasizes the benefits of nature to humans and explores the integration of conservation and neoliberal economic approaches.	Measures such as biodiversity offsets, payment for ecosystem services, and ecotourism Investing in protected areas and conserving biodiversity in productive landscapes through market values.	Anthropocentric focus risks exclusion of keystone species. Business as usual continues and planetary limitations may be exceeded.
Whole Earth	Proposes going beyond protected areas to embrace a way of life that balances human and nonhuman needs.	Enhancing recognition of, and support for, territories and areas governed by indigenous peoples and local communities. Transforming consumption patterns and shifting toward 100% clean, renewable energy.	Risk of undermining extensive protected area successes and benefits to people and nature. Long-term focus may endanger vulnerable species and habitats requiring strict protection measures to survive.

services (Butchart et al. 2015; Chauvenet & Barnes 2016; Lewis et al. 2017). Clear, comparable performance metrics for measuring effectiveness of PAs globally also need development (Geldmann et al. 2015; Mace et al. 2018). Some suggestions have been made for how the current target might be implemented to focus on conservation outcomes (Visconti et al. 2019*a*) and prioritize biogeographical or ecological representation (Dinerstein et al. 2017).

Governments currently have limited capacity to manage existing PAs, let alone an expanded PA estate (Coad et al. 2019). Therefore, on a practical level, implementing the Aichi+ approach and expanding the PA estate also requires engaging with actors managing other areas, such as private PAs and territories and areas conserved by indigenous peoples and local communities (ICCAs) (Bingham et al. 2017; Garnett et al. 2018). A framework for expanding this type of engagement has been established. In 2018, 196 Parties to the CBD adopted a new definition of *other effective area-based conservation measures* (known informally as OECMs or conserved areas), a concept referenced in Target 11 of the Strategic Plan for Biodiversity 2011–2020 (CBD 2018*c*). This definition paves the way for identifying, recognizing, and reporting on areas that contribute to conservation even though this may not be their primary objective, such as sacred natural sites, military sites, and historic shipwrecks (IUCN–WCPA 2019). The potential benefits of this approach include improved understanding of ecological representation, connectivity, and maintenance of ecosystem functions and services, as well as their contribution to the integration of biodiversity management in the wider landscape and seascape (Dudley et al. 2018; Jonas et al. 2018). They may also promote the equitable inclusion of diverse stakeholders in conservation efforts under different governance and management models through enhanced participation of women in decision making, transparency in terms of rights, and benefit sharing (Zafra-Calvo et al. 2017).

The WDPA is currently the main tool used to track progress on global PA commitments (Lewis et al. 2017). The current contributions of conserved areas to Aichi

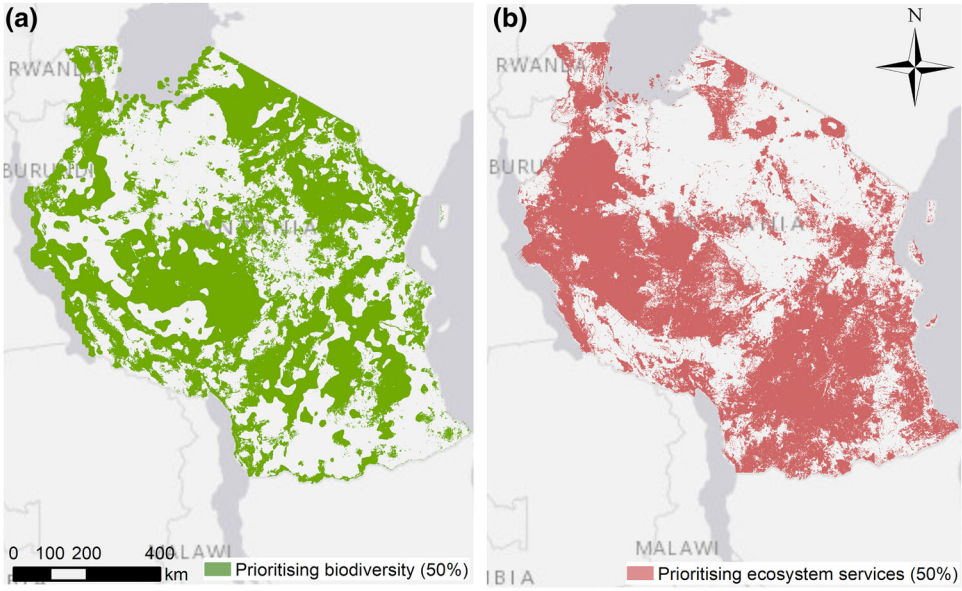

Figure 1. An example from Tanzania of how conservation planning leads to the selection of different areas depending on the selected priority attributes: (a) 50% protection based on high levels of biodiversity and (b) 50% protection based on high levels of ecosystem service provision modeled with Co$tingNature V2 Ecosystem Service assessment tool (http://www.policysupport.org/costingnature). See further details in (Mulligan et al. 2010).

Target 11 are difficult to track due to a lack of global data; however, this information is now being collated by UNEP-WCMC into the World Database on OECMs. Once a baseline of conserved area coverage is established, they will be an important component of future area-based targets in the future post-2020 framework (Jonas et al. 2018; UNEP-WCMC, IUCN, & NGS 2020). Key to the practical implementation of the Aichi+ perspective is the use of clear indicators for tracking progress toward area-based targets. For example, indicators to track management effectiveness of PAs should incorporate biodiversity outcomes and should be defined clearly from the outset (UNEP-WCMC, IUCN, & NGS 2020).

Although Aichi+ may be a pragmatic approach that builds on past experiences, studies show that even if the quantitative targets are met at the global level, the current percent coverage targets are inadequate to conserve biodiversity and ecosystem services (Butchart et al. 2015; Larsen et al. 2015). Furthermore, there is evidence that percent targets have resulted in a perverse incentive for parties to focus on quantity over quality (Barnes et al. 2018). For example, although governments may be keen to meet quantitative targets, they often achieve this by designating areas that do not have the greatest conservation need (Barnes et al. 2016). The expansion of very large marine PAs, for example, has been criticized (Jones & De Santo 2016; Spalding & Hale 2016) because these areas are largely ineffective if they are not placed where they are needed. The incorporation of OECMs into the area-based conservation framework also poses some risks because they could provide a let-out clause for governments (Spalding et al. 2016).

The integration of aspects such as ecological representation, ecosystem services, connectivity, and OECMS in conservation planning would help maximize alignment and synergies with the Sustainable Development Goals (SDGs) by focusing attention on livelihoods, sustainable use, indigenous peoples' rights, and human well-being (Watson et al. 2011; Santini et al. 2015; Dudley et al. 2018).

Systematic conservation planning is a useful tool to support effective implementation of Aichi Target 11 because it can be used to ensure PAs cover the full variety of biodiversity and provide long-term persistence of all species and ecosystems within a protected and conserved areas network (Smith et al. 2019). However, the cultural and biodiversity context is important to consider here because decisions on what aspects of biodiversity or ecosystems to prioritize can have a significant influence on where areas identified for conservation or protection are located (Fig. 1).

Ambitious Area-Based Conservation Perspectives

There is evidence that Earth's last intact landscapes and seascapes are critical in a time of changing climate because they act as important refugia for biodiversity and are the most resilient parts of the ecosystem to climate change. Thus, they should be considered explicitly in future target-setting efforts (Watson et al. 2018). Recent evidence on the amount of space needed to safeguard biodiversity and preserve ecosystem services (Locke 2013; O'Leary et al. 2016; Watson et al. 2016; Dinerstein et al. 2019; Gao 2019; Jones et al. 2020) has led to a call for more ambitious conservation efforts to ensure a planet with functioning ecosystems. Two approaches that have been gaining momentum, Half Earth and Nature Needs Half, are rooted in the idea that the 2050 Vision has a spatial dimension and that a substantial amount of area-based conservation in the right places is needed to achieve it.

Half Earth is based on species–area curve calculations and aims to address the species extinction crisis by protecting 85% of species (Wilson 2016). Nature Needs Half stems from a variety of ecoregional studies and insights from indigenous knowledge (Noss & Cooperrider 1994; Noss et al. 2012; Locke 2013). Dinerstein et al.'s (2019) call for a "global deal for nature" in 2020, where 30% of Earth is formally protected by 2030 and an additional 20% is designated as climate stabilization areas, draws on 2 complementary approaches: an ecoregional approach to achieve greater representation of critical habitats and species and criteria established under OECMs to identify climate stabilization areas such as peatlands, mangroves, and tundra. The 30% by 2030 target was also proposed by the International Union for the Conservation of Nature (IUCN) as a critical milestone for marine conservation (IUCN Resolution World Conservation Congress—2016-Res-050).

Although the large percentages expressed convey the magnitude of conservation action required, the proposed increase in percentages is not an end in itself (Jenkins & Joppa 2009). Scaling up area-based conservation is likely to require different conservation strategies beyond PAs and OECMs.

Ambitious area-based approaches are already being implemented in some areas of the world. In response to the increasing rate of urbanization and land-use change, the Chinese Government has launched a nation-wide initiative to integrate all conservation areas into a system of unified and strictly managed areas (He et al. 2018), with the aim of protecting one-quarter of its land (Gao 2019). The ECRL initiative consolidates multiple types of protected lands already being managed under various ministries, establishes strictly controlled ecological spaces, and is applied consistently throughout the country. The 3 global conditions for biodiversity conservation and sustainable use (Locke et al. 2019) are another example of a framework that aims to provide a scientifically grounded yet actionable approach that can help countries identify suitable national measures to achieve global conservation goals. Following the drivers–state–pressure–response approach, land-use drivers and human pressures are evaluated and a baseline state for 3 conditions of land is established: cities and farms, share land, and large wild areas (Locke et al. 2019). By mapping the world's terrestrial areas along these 3 conditions, the framework provides a basis for identifying suitable conservation actions and production practices (Locke et al. 2019).

Critics of the half-earth approach argue that it fails to address the main drivers of biodiversity loss—resource extraction and consumption—by assuming that nature's half can be managed in isolation from humanity (Büscher et al. 2016). Furthermore, it is argued that the perspective fails to account for the social impacts, such as physical and economic displacement, that would be caused by extending PAs and OECMs to 50% of the planet (Büscher et al. 2016; Ellis & Mehrabi 2019). It has also been argued (Schleicher 2019) that increasing global coverage of conserved areas to 50% could have considerable implications for people living in or around these areas. Similarly, Visconti et al. (2015) argue for greater examination of social considerations, contending that the lack of social data in conservation planning leads to false sense of feasibility.

Another common criticism is that, although it allows for ambitious percentage targets to be set at a global scale, it does not address the problem of where these new PAs and OECMs will be and how the burden of creating more areas will be shared globally (Büscher & Fletcher 2019; Ellis & Mehrabi 2019). Much of the existing PA estate is not managed effectively and is underfunded (Watson et al. 2014) and generally faces increasing development pressures (Geldmann et al. 2014). As a result, PAs are vulnerable to downgrading, downsizing, and degazettment, which may compromise overall objectives to conserve biodiversity (Golden Kroner et al. 2015; Qin et al. 2019), therefore casting doubt on the perspectives mentioned above. Although there may be many modes of application, further consideration is needed to determine where conservation actions are taken across the world (country, region, continent, and planet) and what strategies would be needed at each level (Visconti et al. 2015; Dinerstein et al. 2019).

Current levels of protection do not come close to the required levels; just under 8% of the oceans and 15% of land are currently formally protected. Based on this perspective, to protect biodiversity and secure critical benefits, the world's governments must set a much more ambitious area-based agenda. Coalitions of scientists and nongovernmental organizations have formed to motivate and inspire action to this end. A global survey carried out by the IUCN–WCPA Beyond the Aichi Targets Task Force to explore conservation scientists' perspectives on area-based conservation demonstrated significant support for large area-based targets (Woodley et al. 2019). There is a need to consider limitations and caveats of quantitative targets, but the importance of political momentum should not be underestimated. Therefore, promoting conservation at a much larger scale will be challenging, but ECRL in China provides a practical example that can be built on and scaled up.

New Conservation

This perspective is based on the understanding that the underlying motivation for conservation needs to be broadened beyond the traditional rationale (i.e., the intrinsic value of nature) and adopt a greater emphasis on the benefits of nature to people (TEEB 2010; Marvier & Kareiva 2014). New conservationists are proponents of protected and conserved areas if they provide benefits to human beings. The new conservation perspective advocates for collaboration with resource users and economic

players, such as the private sector (Marvier & Kareiva 2014). It incorporates strategies such as the integration of biodiversity conservation into a green or blue economy through concepts such as natural capital (and associated accounting practices), payments for ecosystem services, and biodiversity offsetting (Kareiva 2014). With new conservation, the values of nature are perceived in ways ranging from the strongly utilitarian approaches of some Western conservationists to more encompassing traditions grounded within Eastern philosophy (Holmes et al. 2017; Schleicher et al. 2017; Kadykalo et al. 2019).

New conservation is arguably a pragmatic approach in terms of its alignment with the current socioeconomic system. The Economics of Ecosystems and Biodiversity is a global initiative focused on "making nature's values visible" (TEEB 2010). Such approaches may include payments for ecosystem services, reforming environmentally harmful subsidies, or introducing tax breaks for conservation. For example, providing private landowners with incentives to engage in conservation in Southeast Asia (Bateman et al. 2015) demonstrates the potential for adding a market-driven approach to addressing the issue of biodiversity loss. More broadly, investing in ecosystem conservation and restoration is considered a viable investment option in support of a range of policy goals including food security, urban development, water purification, regional development, and climate change mitigation and adaptation (TEEB, 2010).

This perspective has been criticized for its anthropocentric focus, which, according to critics, fails to acknowledge the intrinsic value of nature (Soulé 2014). Focusing conservation activities on ecosystems and species that provide the most benefits to humans risks the exclusion of keystone species that play a vital role in ecological processes and resilience to disturbances (Estes et al. 2011). Critics also point out that past and contemporary conservation activities (e.g., PA designations) have had considerable success in protecting biodiversity and sustaining human resource needs (Doak et al. 2015). New conservation has also been criticized for exaggerating nature's resilience and embracing economic growth while ignoring fundamental planetary limitations (Noss et al. 2015). It is argued that the maximization of both economic and ecological outcomes is rarely achievable, and given the multitude of human well-being and welfare groups it is vital for conservationists to, first and foremost, advocate for the protection of species and ecosystems that would otherwise be unrepresented (Doak et al. 2015).

In the context of area-based conservation, new conservation asserts that PAs, on their own, are unlikely to be sufficient to accomplish conservation goals (Kareiva 2014). New conservationists acknowledge the resilience of nature in the face of global change (Marvier & Kareiva 2014) and highlight the need to look beyond preserving pristine ecosystems and consider the value of conservation in ecosystems that have undergone significant human modification (Kareiva 2014). The perspective recognizes the value of PAs and the multiple and important contributions they make to human well-being. These include, for instance, the reduction and prevention of floods and other disasters; opportunities for tourism; cultural, religious, and spiritual values; provision of food and water; climate change mitigation through management of carbon sinks; and sustainable use of wild fauna and flora and climate adaptation (UNEP-WCMC & IUCN 2016). Social and indigenous values can also be incorporated into planning through the consideration of issues such as environmental justice, equity, and resource access (Adger et al. 2003; Cumming 2016). Nature-based tourism, for example, is supported because it generates funds, creates awareness, and encourages conservation efforts by providing education and promoting sustainable practices. It can also facilitate local empowerment and encourage local communities to take responsibility for long-term conservation (UNEP-WCMC & IUCN 2016).

From this perspective, PAs will increasingly depend on their perceived contribution to society and the economy. Establishing comprehensive, representative, effective, and equitably managed systems of PAs to conserve biodiversity and maintain a wide range of ecosystem services can help justify PA policy, identify funding and investment opportunities, and inform conservation priorities to support the achievement of the global achievement of area-based targets and the broader 2050 Vision for Biodiversity.

Whole Earth

This perspective argues against the spatial and conceptual separation of people and nature and the environmental services nature provides (Büscher et al. 2016) and draws on social theory to argue that biodiversity loss can be reversed only if the underlying drivers of this decline (e.g., resource extraction and overconsumption) are addressed (Wells & McShane 2004). According to this perspective, economic growth and inequality are the root causes of biodiversity loss. Emphasizing the need for a more effective and more equitable system, the whole-earth view links to emerging concepts such as convivial conservation, which builds on a politics of equity, structural change, and environmental justice (Büscher & Fletcher 2019). At its core, the whole-earth perspective holds that ending inequality would be more beneficial to conservation (Büscher et al. 2016). This perspective has strong links with the concept of ecological civilization adopted by China in 2007, wherein China called for reforms to reconcile contradictions between economic development and the environment and with the SDGs (Xiang-Chao 2018).

Moving from achieving the status quo of Aichi Target 11 to global, human-centered conservation and a

vision of conserving at least half of the planet, convivial conservation presents a political ecosystem perspective with a critical view of capitalism (Büscher et al. 2016). It is one of the more radical perspectives because the premise is built on broader systematic sociopolitical change through equitable distribution of benefits, structural change, and environmental justice (Büscher & Fletcher 2019). It directly opposes capitalist interests and promotes a society that encourages positive transformation. The central tenet of this perspective is that human and nonhuman nature are inseparable (Büscher & Fletcher 2019). Instead of thinking about the strict regimes of PA management that attempts to exclude anthropogenic influences to achieve biological conservation objectives, PAs should integrate local people as stakeholders. An ICCA provides an example of a group's political nature supporting a convivial vision (Büscher & Fletcher 2019). Establishing more effective responses to the main drivers of biodiversity loss will require increased area-based conservation efforts and broad policy responses to achieve conservation and SDGs.

It has been argued that an expansion of the global PA estate, and particularly an increase in PAs under strict protection, is likely to contribute to socioeconomic disparity and conflict (Büscher et al. 2016). However, the risk of shifting the focus away from PAs and instead pushing for "widespread programmes of regulation and redistribution to equalize use of resources" (Büscher et al. 2016) may undermine the extensive long-term conservation efforts that have resulted in positive gains for biodiversity and people. As the cornerstone of biodiversity conservation (Kuempel et al. 2018; Naidoo et al. 2019), PAs have benefited a broad range of species (Gray et al. 2016) and provided crucial ecosystem services, such as income generation through tourism, water security (Dudley et al. 2014), climate change mitigation, and all the benefits listed in the New Conservation section. Although there is a need for more systematic and rigorous research into the impacts of PAs on material living standards and health, there is evidence to suggest that several types of PAs have positive impacts on important aspects of human well-being (Gray et al. 2016). It could therefore be argued that advocating against the expansion of PAs, at a time when PAs are already facing a shortage of funding and a decline in political support (Watson et al. 2014), would risk reducing the positive impacts they have on human and environmental well-being. A perverse outcome of this would be that poorer members of society who currently benefit from the ecosystem services provided by PAs may end up worse off.

From an area-based perspective, rather than designating PAs for the purposes of nature protection, the main goal of special conservation areas would be to promote nature areas for people. Some examples of such area-based measures include areas supported by the Forest Peoples Programme, which aims to promote alternative visions of how forests should be equitably managed. However, the exact role of PAs in supporting the implementation of whole-earth precepts is unclear. By focusing on the longer term goal of overhauling the socioeconomic system, there is a lack of clarity on how the whole-earth perspective would ensure that species at risk of extinction in the short term are safeguarded.

Discussion

The Strategic Plan for Biodiversity 2011–2020 and the SDGs constitute critical global-level commitments that recognize the important role of conservation and sustainable use of biodiversity. The process of developing the post-2020 global biodiversity framework provides an opportunity to reflect on various perspectives that are generating new ideas and suggesting new approaches that will have implications for how humanity understands and manages the world around it. Parties to the CBD have already highlighted the need for transformative change to achieve the 2050 Vision of living in harmony with nature and for thinking further on each of these perspectives and their implications, which will help in considering what might be needed to deliver this change.

However, it is important to recognize that these "perspectives" are just that. They are "food for thought" for those charged with negotiating the post-2020 global biodiversity framework. To date, there is varying detail on what each of the perspectives we summarized actually entails. In particular, there is a lack of clarity on issues such as the role of protected and conserved areas within each of the approaches, the implications of each approach for nature outside the PA estate, and the reconciliation of human needs (e.g., food production) with protecting biodiversity. In fact, the 4 perspectives we outlined (Table 1) provide different views on the role protected and conserved areas, and other area-based measures can or should play in addressing socioeconomic and environmental challenges. In some cases, these views are grounded in fundamentally different philosophical outlooks on the relationship between human and nonhuman life on Earth.

Although it is important to acknowledge different visions and philosophies driving action for the conservation and sustainable use of biodiversity, it is also valuable to understand how aspects of various strains of thought can inform the development of ambitious and actionable targets. In this sense, the perspectives outlined here are not mutually exclusive but can help one find a balance between ambition and practicality. This involves drawing on lessons learned from the Aichi targets (as proposed by the "Aichi+" perspective) and acknowledging the need to think about the drivers of biodiversity loss and transformational change (as promoted by the "whole earth" perspective) while also setting goals that are

communicable and accessible to political actors and economic players (i.e., drawing on elements of ambitious area-based target's and new conservation).

As the development of the post-2020 global biodiversity framework proceeds, academics and civic groups are advocating for different approaches as illustrated in the 4 perspectives. However, ultimately, the development of the post-2020 global biodiversity framework is a process of negotiation among nation states that will draw on advice provided to them. We hope this article helps increase understanding of different perspectives on area-based conservation and helps further the debate and facilitate consensus in developing future targets.

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