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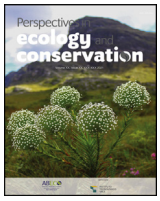

Policy Forums

Opportunities and challenges of other effective area-based conservation measures (OECMs) for biodiversity conservation

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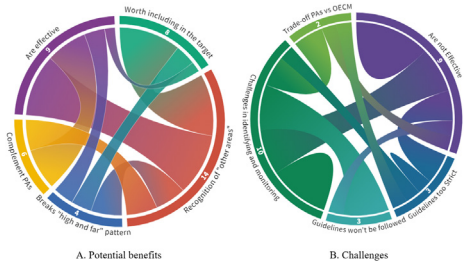
HIGHLIGHTS

- The inclusion of OECMs into the post-2020 GBF may enable the recognition of other actors.
- OECMs can contribute to improve linkages between equitable and effective conservation.
- OECM's identification, reporting and monitoring are a challenge.
- Robust guidelines, and improved monitoring, are recommended to ensure OECMs integrity.

GRAPHICAL ABSTRACT



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ABSTRACT

In 2010, the Convention on Biological Diversity adopted the Strategic Plan for Biodiversity 2011–2020. As international attention turns to the development of the post-2020 Global Biodiversity Framework, discussions are focusing on the way in which other effective area-based conservation measures (OECMs) should be reflected in the Framework. To inform this discussion, we gathered in-depth perspectives and expert elicitation on the opportunities and challenges that OECMs offer and present to biodiversity conservation. To do so, we conducted semi-structured interviews with experts involved in OECM-related deliberations. The explicit consideration of OECMs in conservation policy represents a recognition that there are sites outside of formal protected area networks that benefit biodiversity and ecosystems in important ways. However, these benefits and the future social and ecological impacts of OECMs will depend largely on robust guidelines for their identification, effective monitoring, and whether relevant actors report the areas they govern as OECMs.

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Introduction

The Convention on Biological Diversity's Strategic Plan for Biodiversity 2011–2020 (CBD, 2010) has provided the overarching framework for the conservation and sustainable use of biodiversity over the last decade, chiefly through the establishment of the 20 Aichi Biodiversity Targets. Aichi Target 11 states that by 2020, at least 17% of the terrestrial areas should be conserved through "ecologically representative and well-connected systems of protected areas and *other effective area-based conservation measures*" (OECMs - emphasis added) (CBD, 2010). Yet despite the important role of OECMs, the strategic plan provided no official guidance on what OECMs were or how to recognize or report them (Jonas et al., 2014). Only in 2018, at the 14th Conference of the Parties, did the CBD adopt the definition of an OECM as: *"a geographically defined area other than a Protected Area (PA), 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). The most important difference between PA and OECMs is that while the former should have biodiversity conservation as a primary objective, an OECM must deliver biodiversity conservation regardless of its main objective (CBD, 2018).

The appropriate recognition, reporting and support for OECMs has the potential to promote effective conservation of biodiversity through: (i) recognizing conservation initiatives outside formal PA; (ii) contributing to ecologically representative and well-connected area-based conservation networks; (iii) improving management and restoration initiatives; and (iv) assuring long-term conservation (Diz et al., 2018; Borrini-Feyerabend, 2010; Juffe-Bignoli et al., 2016; CBD, 2018). Yet concerns about the inclusion of OECMs have been raised. Examples are: (i) the fear that ineffective areas might be included into Target 11 (Mackinnon et al., 2015); (ii) difficulty in assuring long-term effectiveness (Mwamidi et al., 2018); and (iii) challenges associated with assessing effectiveness, including in the context of territories and areas governed by Indigenous peoples and local communities (Jonas et al., 2017).

OECMs were included in the updated 'zero draft' of the post-2020 Global Biodiversity Framework (Open-Ended Working Group on the Post-2020 Global Biodiversity Framework, 2020), and there are expectations that they will play a large role in the conservation agenda for the next decade. However, given that the concept of OECMs is relatively new, its impacts and implications have not yet been assessed. Thus, we gather in-depth perspectives and elicitation from a diverse set of experts on the opportunities and challenges associated with OECMs in relation to biodiversity conservation. We intend our findings to inform the development of the post-2020 Global Biodiversity Framework as well as contribute to the growing discussion about the linkages between equitable conservation and effective conservation outcomes.

We conducted semi-structured interviews with a diverse set of experts to gather their in-depth perceptions and elicitation on the opportunities and challenges of OECMs. Usually semi-structured interviews are useful for evoking perceptions, judgments and sensitive information from a wide range of stakeholders and, rather than trying to achieve consensus, expert elicitation may aid decision-making by emphasizing different opinions within an expert community that may not have been discussed widely yet (Newing, 2011). Interviews were conducted with experts developing research or local projects related to Aichi Target 11, particularly OECMs. In total, we interviewed 26 experts (19 men and 7 women) from civil society (n = 9), academia (n = 4), government (n = 4), intergovernmental organizations (n = 4) and experts outside these categories (n = 5). Interviews were conducted during the second half of 2018 (July – November), either remotely or in person, and followed a semi-structured approach with topics variating around a set of core questions, depending on the interviewee's expertise and knowledge base (see *Supplementary Information* for more details on experts' selection).

Opportunities of OECMs

Benefits from the recognition of OECMs

Over half of the interviewees (number of interviewees, n = 14) saw the recognition of areas that deliver conservation outcomes but have been excluded from the mainstream conservation agenda as the primary benefit of identifying and legally recognizing an area as an OECM; corresponding with findings from the literature (Jonas et al., 2018). In addition, interviewees mentioned that recognizing an area as an OECM entails acknowledging and embracing its governance systems and value for biodiversity, and including them in the local-to-global conservation agenda. This might provide appropriate support to these areas, increasing biodiversity monitoring and rule enforcement, leading to increased pride and empowerment within local communities. Interviewees also mentioned that being recognized might increase governance authorities' sense of responsibility and improve their chances to attract funding from national or international bodies, such as the Global Environmental Facility, if required. Recognition could also incentivize managers to maintain their current practices over the long-term (Fig. 1). All of the above, according to the literature and subject to a range of caveats, could also increase security to both people (e.g. threat abatement, maintenance of cultural and social practices) and nature (e.g. biodiversity and ecosystem services conservation) in the area (Jonas et al., 2017).

Interviewees stated that increased recognition of OECMs could help engage a diversity of actors in local-to-international conservation processes (Diz et al., 2018; Kremen and Merenlender, 2018). The diverse cultural and spiritual beliefs, complex forms of governance, and management types in different OECMs might unfold in diverse conservation outcomes (Jonas et al., 2017), and improve linkages between equitable conservation and effective conservation outcomes (Hill et al., 2015; Fig. 1). Finally, interviewees said that being considered an OECM could be a solution for those communities that do not want the area they govern to become a PA but nevertheless, want recognition and/or tenure security. Recognition may also help accelerate the identification of other OECMs, which will depend largely on whether landowners, managers, civil society, and governments are interested in reporting or having their lands reported as OECMs. One interviewee recommended positive OECM case studies be created to incentivize other leaders to report their areas. Fig. 1 presents the flowchart with the consequences of recognizing these areas, from increasing sense of responsibility to the potential increase in equitability and the maintenance of diverse systems.

OECMs are expected to be effective for conservation, ecologically representative, and integrated to the wider landscape

More than one third (n = 9) of the interviewees underscored CBD Decision 14/8 (2018) and the guidance by the IUCN Task Force on OECMs (2019) that areas reported as OECMs should be of high conservation value and effective for biodiversity conservation (Fig. 2a). Interviewees stated that, because OECMs must have positive biodiversity outcomes according to its guidelines, they might on average be more effective than PA. Even though interviewees acknowledged that it might be difficult to assess the effectiveness of many of these areas, literature has documented cases where territories occupied by Indigenous peoples and local communities are more effective

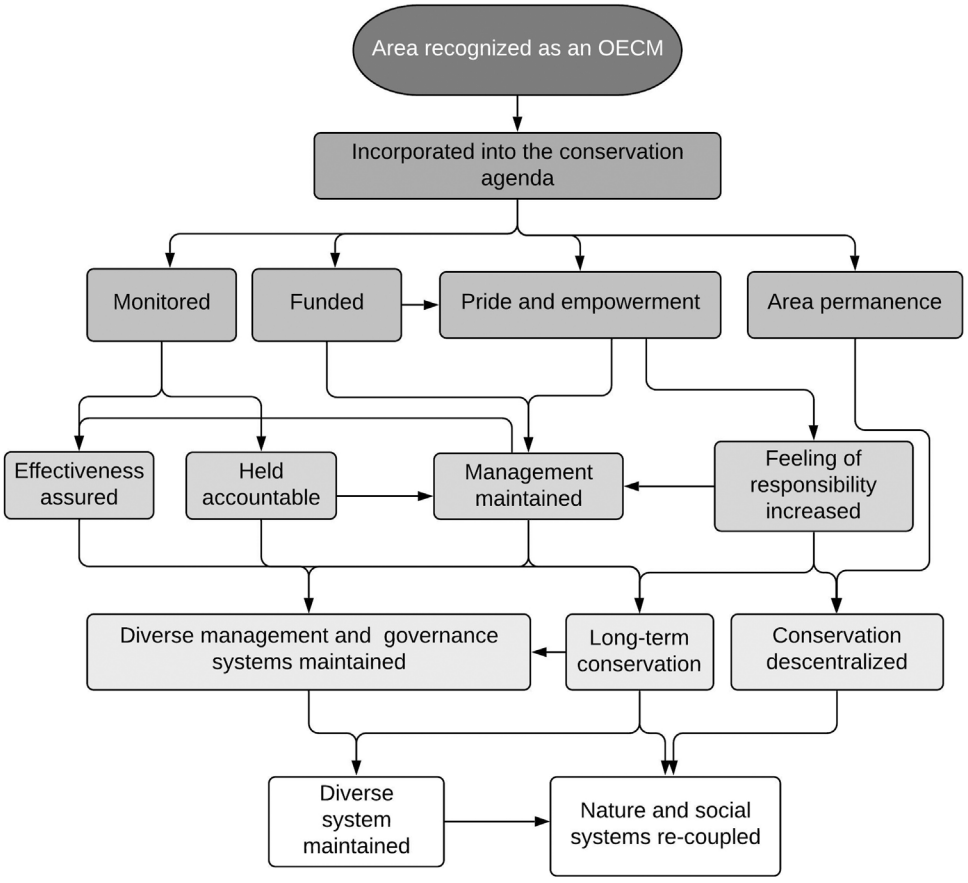

Fig. 1. Flowchart showing the positive impacts for nature and people of recognizing areas as an OECM; boxes and linkages drawn solely on interviewees responses. OECM recognition was suggested to lead to positive outcomes at site level, such as increased feeling of responsibility and empowerment, as well as at the system level, such as the maintenance of more diverse systems and recoupling of natural and social systems.

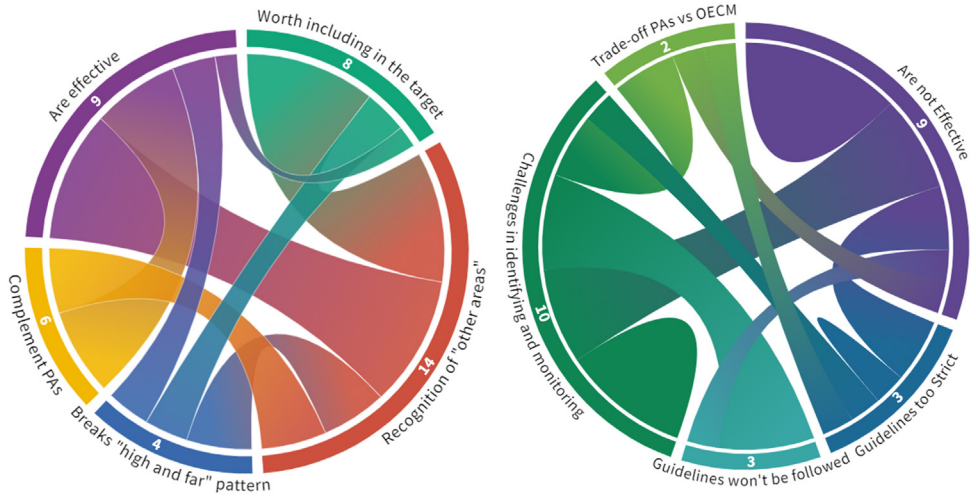

Fig. 2. Chord diagrams showing the main categories of responses related to the potential benefits (A), and challenges of OECMs (B). The links between themes do not show any causality between them. The width of the link between chords is proportional to the number of times both concepts were mentioned in the same interview. Different colours are only for visualization. White numbers in the chords show the number of interviewees that mentioned that theme. For instance, in A, the perception that OECMs will contribute by recognizing 'other areas' and the perception that they are effective appeared frequently together.

in conserving biodiversity than some restricted-use PA (Hayes and Ostrom, 2003; Nelson and Chomitz, 2011; Nolte et al., 2013). OECMs could also cover species and ecosystems that are not well conserved inside formal PA. For example, in Australia, almost 75% of threatened species are found within lands governed by Indigenous peoples (Renwick et al., 2017). Further, 76.5% of all unprotected Key Biodiversity Areas (KBAs) (IUCN, 2016) across 10 countries were in places with characteristics that resembled OECMs, such as areas governed and managed in ways to achieve sustained conservation (Donald et al., 2019).

Six interviewees highlighted that OECMs could serve the purposes of protecting high-threat regions and improving ecological

representativeness, connectivity, and landscape integration. PA are known in many places for being established in areas of low threat, low value for agriculture and development and farther from roads ("high and far"; Joppa and Pfaff, 2010; Nelson and Chomitz, 2011; Fig. 2a). As a result, ecosystems in high threat areas and of high value for agriculture and development have no or little protection. Only 43% of the 821 terrestrial ecoregions identified by Olson et al. (2001) have 17% or more of their area within formal PA (UNEP-WCMC, 2018). A study showed that KBAs not under PA tend to be in places of high human population density areas. Some of these have OECM-like characteristics, such as effective management and governance types, are geographically defined and are effective for biodiversity conservation (Donald et al., 2019). Thus, OECMs could serve the purpose of protecting highly threatened regions, thereby improving the ecological representativeness of area-based conservation networks, and complementing PA coverage (Fig. 2a). Finally, an interviewee addressed the importance of OECMs for protecting areas with high ecosystem services value, such as water provision and carbon sequestration. This is important as, in many cases, areas with high biodiversity value do not overlap with areas of high ecosystem services value (Naidoo et al., 2008), and studies have shown that ecosystem services are not always being conserved inside PA (Durán et al., 2013).

To ensure OECMs are indeed representative, three interviewees suggested that guidelines for allocating future identification of OECMs are developed and tailored for a regional context, considering the specificities of each region. Prioritization methods could help define the most important areas for potential OECMs and as a result perhaps help address the 'high and far' issue. The KBA criteria (IUCN, 2016), which is a global standard for identifying areas of high conservation value, could be used for prioritizing the identification of OECMs. In this sense, the first candidate OECMs to be evaluated could be the ones that overlap with KBAs, thereby ensuring they will be in areas of high importance for biodiversity. Other approaches, based on self-selection, also have value.

Associated challenges

Challenges in identifying and monitoring OECMs

Almost half of the interviewees (n = 10) believed that areas identification and monitoring will be a challenge, and that the correct identification and effective monitoring of OECMs may determine the effectiveness of the entire area-based network (Fig. 2b). The recognition of areas with characteristics that do not meet the IUCN OECM guidelines (2019), or fear that countries will not follow the guidelines appropriately, could lead to the incorporation of sites of low biodiversity value. Interviewees (n = 2) mentioned that if many sites of low biodiversity value are recognized and incorporated as OECM, there might be a trade-off between the creation of OECMs and PA, as few will continue to invest in the latter (Fig. 2b), also mentioned in Dudley and Stolton (2020). On the other hand, three interviewees believed that the criteria for recognizing OECMs are too strict, and might exclude areas with potential for contributing to biodiversity conservation but that do not meet all the IUCN guidelines criteria. Problems with identification have already been described in the literature. Lemieux et al. (2019) suggest that, in Canada, some of the declared OECMs do not meet the guidelines'standards as they are not commited to long-term conservation (Fisheries and Oceans Canada, 2017).

Interviewees identified three aspects that could increase the challenge of monitoring OECMs (Fig. 2b): (i) lack of monitoring tools; (ii) variation in governance; and (iii) lack of funding. First, there is no standard way of measuring effectiveness, and even though some of the remote sensing products based on land coverage might continue to be the most comprehensive tool for monitoring, there was a concern that they are an insufficient proxy for biodiversity and do not capture more subtle forms of ecosystem degradation (e.g. empty forest syndrome (Redford, 1992)). Some of the most robust studies on effectiveness using remote sense information are counterfactual assessments based on tools such as matching analysis (Schleicher et al., 2019).

Other monitoring alternatives are PA management evaluation tools (Protected Area Management Effectiveness – PAME) and ground monitoring. However, the former does not necessarily indicate effectiveness of protection, and the latter can be too expensive and difficult to develop for larger areas (Carranza et al., 2014). Second, there was no consensus among interviewees as to how different types of governance would impact robust and accurate monitoring. As local context is likely to influence the conditions that promote conservation within a certain type of governance, areas with similar governance regimes in different regions could have varied threats, effectiveness and thus need different monitoring systems. Moreover, because some potential OECMs are privately governed, the implementation of monitoring would largely depend on the commitment of the landowner.

Finally, some countries might have no resources to identify, recognize, report, or monitor OECMs which, according to interviewees, are expected to be smaller but more numerous than PA as they might include private areas, traditional community areas, and others that are generally smaller than formal PA. According to one interviewee, more collaboration between institutions for coordinating efforts and capacity building may be required due to the potentially large numbers and varied governance types of OECMs.

Interviewees suggested that the KBAs identification process could be a potential tool to help guide monitoring. KBAs purpose is to identify sites that have important features for the persistence of biodiversity (IUCN, 2016) and each site is evaluated in a threshold-based system to its importance to one or more biodiversity elements (KBA Standards and Appeals Committee, 2019). Thus, KBAs identification process and its associated monitoring processes could contribute for monitoring in two ways: first by targeting monitoring efforts on the elements for which that specific KBA was identified. Many OECMs might not have a conservation goal, and it is important that monitoring is focused on specific targets; second by assuring monitoring will be established, as the KBA consortium requires evaluation and vigilance, as each KBA has to be re-evaluated every 8–12 years according to the permanence of biodiversity (IUCN, 2016). Further, there are many forms of low-cost monitoring already being implemented inside KBAs, through citizen science or community-based monitoring (Maxwell et al., 2020; Smith et al., 2018).

Fear of OECMs artificially inflating progress towards coverage targets

One third of the interviewees (n = 8) expressed concern that OECMs could exacerbate an unhelpful focus on the percentage coverage element of Aichi Target 11 and of any areas-based target(s) in the post-2020 Global Biodiversity Framework. Work in other contexts shows that there is a clear risk of indicators becoming targets in themselves, whether or not they are actually good indicators of the targets they are assumed to measure – a phenomenon known as *Godhart's law* (Godhart, 1975). The concern here is that countries may aim to meet their coverage targets by designating large PA or OECMs in places with low opportunity costs and marginal conservation benefits, rather than focusing on delivering meaningful biodiversity conservation in places that could provide greater additionality to the existing area-based conservation network. In this

case, elements such as biodiversity, which require more complex monitoring and evaluation tools, would be underestimated, and the quality of the areas would be jeopardized (Barnes, 2015). Interviewees believed that OECMs, together with low-value PA, could be used as a way to increase *de jure* coverage without increasing *de facto* protection, a concern also expressed in the literature (Barnes et al., 2018; Visconti et al., 2019).

Interviewees described potential consequences of the recognition of low-value areas: i) small areas important for biodiversity, but with high values for agriculture, would remain unprotected; ii) the recognition of other, more effective PA and OECMs might be disincentivized, as governments could argue that sufficient area coverage has already been achieved; iii) the budget for the designation and monitoring of other, more effective areas would be diluted (Giglio et al., 2018). For instance, in Brazil two very large marine PA (protection status VI from IUCN) were created in remote areas in 2018 (ICMBio, 2018). This prompted concerns that these areas could be used to show that Brazil has reached its target for marine protection (10%), even though the designation of these areas has low restriction and might not be effective for conservation. Note, however, that this example illustrates that the risk of inflating progress towards protection targets is not exclusive to OECMs.

Conclusion

OECMs have been included into the updated 'zero draft' of the post-2020 Global Biodiversity Framework and can bring several opportunities for both the conservation and social agendas. The recognition of areas that are not part of the formal PA network could empower leaders and increase their responsibility for maintaining sustainable management, assuring their rights, and conserving biodiversity. As OECMs might have positive impacts on biodiversity and ecosystem services they could complement PA and ensure a range of ecosystems and landscapes are protected, increasing habitat connectivity and the ecological representativeness of conserved sites. However, despite important opportunities, challenges remain. Identification and monitoring will depend largely on the countries and land and sea managers' ability and will to assure OECM criteria are followed appropriately. The KBAs identification process could be an important tool to help prioritize the recognition of OECMs, as well as help define conservation goals in case they overlap, as the former are recognized for containing a specific important biodiversity element. Robust guidelines that provide the criteria and practical means for the identification, recognition, supporting, reporting, and monitoring of these areas is essential, closely tailored to sectors and governance types, including for Indigenous peoples and local communities. Some other potential challenges that have not been mentioned by the interviewees in this study might also have to be considered in the future, such as the long-term effectiveness of OECMs, issues with data privacy, particularly for private areas and traditional communities, and communities not willing to be recognized as an OECM due to fear of displacement or other unwelcome intervention. Finally, reporting will require increased funding, capacity building, and the dissemination of information about what an OECM is and which areas can be reported. Crucially, cases of success should be disseminated to incentivize others and give visibility to those that have been recognized.

Conflict of interest

- The work is all original research carried out by the authors. All authors agree with the contents of the manuscript and its submission to the journal.
- No part of the research has been published in any form elsewhere, unless it is fully acknowledged in the manuscript.
- The manuscript is not being considered for publication elsewhere while it is being considered for publication in this journal.
- Any research in the paper not carried out by the authors is fully acknowledged in the manuscript.
- All sources of funding are acknowledged in the manuscript, and authors have declared any direct financial benefits that could result from publication.
- All appropriate ethics and other approvals were obtained for the research.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.pecon.2021.01.004.

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