

Perspective

Inclusive conservation and the Post-2020 Global Biodiversity Framework: Tensions and prospects

Christopher M. Raymond,^{1,2,3,4,*} Miguel A. Cebrián-Piqueras,⁵ Erik Andersson,^{6,7} Riley Andrade,^{8,9} Alberto Arroyo Schnell,¹⁰ Barbara Battioni Romanelli,¹⁰ Anna Filyushkina,¹¹ Devin J. Goodson,⁹ Andra Horcea-Milcu,¹² Dana N. Johnson,¹³ Rose Keller,¹⁴ Jan J. Kuiper,⁶ Veronica Lo,⁴ María D. López-Rodríguez,¹⁵ Hug March,^{15,16} Marc Metzger,¹⁷ Elisa Oteros-Rozas,^{15,18} Evan Salcido,⁹ My Sellberg,⁶ William Stewart,⁹ Isabel Ruiz-Mallén,¹⁵ Tobias Plieninger,^{5,19} Carena J. van Riper,⁹ Peter H. Verburg,¹¹ and Magdalena M. Wiedermann²⁰

¹Helsinki Institute for Sustainability Science, University of Helsinki, Helsinki, Finland

²Ecosystems and Environment Research Program, Faculty of Biological and Environmental Sciences, University of Helsinki, Helsinki, Finland

³Department of Economics and Management, Faculty of Agriculture and Forestry, University of Helsinki, Helsinki, Finland

⁴Department of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences, Alnarp, Sweden

⁵Department of Agricultural Economics and Rural Development, University of Göttingen, Göttingen, Germany

⁶Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden

⁷Unit for Environmental Sciences and Management, North-West University, Potchefstroom, South Africa

⁸Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL, USA

⁹Department of Recreation, Sport and Tourism, University of Illinois at Urbana-Champaign, Champaign, IL USA

¹⁰IUCN European Regional Office, Brussels, Belgium

¹¹Institute for Environmental Studies (IVM), Vrije Universiteit Amsterdam, Amsterdam, the Netherlands

¹²Hungarian Department of Biology and Ecology, Babeş -Bolyai University, Cluj-Napoca, Romania

¹³Institute for Resources, Environment and Sustainability, University of British Columbia, Vancouver, BC, Canada

¹⁴Norwegian Institute for Nature Research, Lillehammer, Norway

¹⁵Internet Interdisciplinary Institute (IN3), Universitat Oberta de Catalunya (UOC), Barcelona, Spain

¹⁶Estudis d'Economia i Empresa, Universitat Oberta de Catalunya (UOC), Barcelona, Spain

¹⁷School of Geosciences, University of Edinburgh, Edinburgh, UK

¹⁸FRACTAL Collective, Madrid, Spain

¹⁹Faculty of Organic Agricultural Sciences, University of Kassel, Kassel, Germany

²⁰Department of Geology, Lund University, Lund, Sweden

*Correspondence: christopher.raymond@helsinki.fi

<https://doi.org/10.1016/j.oneear.2022.02.008>

SUMMARY

The draft Post-2020 Global Biodiversity Framework commits to achievement of equity and justice outcomes and represents a “relational turn” in how we understand inclusive conservation. Although “inclusivity” is drawn on as a means to engage diverse stakeholders, widening the framing of inclusivity can create new tensions with regard to how to manage protected areas. We first offer a set of tensions that emerge in the light of the relational turn in biodiversity conservation. Drawing on global case examples applying multiple methods of inclusive conservation, we then demonstrate that, by actively engaging in the interdependent phases of recognizing hybridity, enabling conditions for reflexivity and partnership building, tensions can not only be acknowledged but softened and, in some cases, reframed when managing for biodiversity, equity, and justice goals. The results can improve stakeholder engagement in protected area management, ultimately supporting better implementation of global biodiversity targets.

INTRODUCTION

To achieve the United Nations Sustainable Development Goals as well as the 2050 vision of the Convention for Biological Diversity to ensure that biodiversity is conserved and restored (and valued), area-based conservation will diversify in the 21st century to deliver not only increased coverage across different elements of biodiversity but also inclusive and equitable governance outcomes.¹ The Post-2020 Global Biodiversity Framework (First Draft)² has targets on the fair and equitable sharing of nature's benefits (target 13) and ensuring equitable and effective biodiversity decision-making (target 21). However, the draft framework has been criticized for not foregrounding local communities' rights and agency in biodiversity manage-

ment and policy.³ For example, the International Union for the Conservation of Nature (IUCN)⁴ and United Nations (UN) High Commissioner for Human Rights⁵ have encouraged the expansion of targets to recognize and secure the rights of indigenous peoples, women, and local communities to lands, territories, and resources as well as rights to environmental information, public participation, environmental justice, and inter-generational equity. It is thus timely to consider how protected area management can widen its frame to include biodiversity conservation, equity, and well-being goals through “inclusive conservation,” which seeks to recognize the plurality of values and visions of multiple stakeholders. Inclusive conservation is grounded in distributional justice regarding the fair allocation of benefits and burdens from ecosystem services production and



consumption; procedural justice concerning transparent, accountable, and participatory management of ecosystems; and recognition justice that respects the different rights, identities, and ecosystem management practices in a given area.^{4–6}

Inclusive conservation builds on multiple approaches, including (1) co-management and multi-centered conservation where the emphasis is governed by, with, and/or for local and indigenous communities;^{7,8} (2) mosaic governance with an emphasis on engagement of diverse actors and active citizen groups within and across planning sectors to support multi-functional landscape outcomes;^{9,10} and (3) convivial conservation, which looks beyond nature and culture dichotomies to establish visions, politics, and governance principles to promote social and ecological justice and long-lasting and open-ended relationships with biota and ecologies.¹¹ The practice-oriented literature provides standards for the creation of legitimate, equitable, and functional protected area governance arrangements and processes for identifying, hearing, and resolving conflicts and recognizing gender issues.^{12,13} According to this literature, protected areas need to encourage diversity by including areas governed by multiple actors under different arrangements or by recognizing and supporting perceptions and values of stakeholders in the conserved territories and outside of the system. Protected area governance needs to enhance quality by respecting good governance principles like legitimacy, performance, accountability, fairness, and rights. In addition, protected area governance needs to be vital by being responsive to changing contexts and needs; by organizing timely responses to emerging environmental conditions, problems, and opportunities; and by being aware of socio-ecological histories and being open to new ideas and solutions.^{13,14} Although these standards are broadly supported, their operationalization is not straightforward. Efforts until now have largely focused on examining the opportunities/positive aspects of inclusive conservation strategies while omitting analysis of the underpinning tensions that may arise if such strategies are implemented. We define “tensions” as well-intentioned but differing perspectives on protected area management that emerge when diverse groups are asked to elicit and deliberate on visions for protected area management in pursuit of managing different targets.

Tensions become more pronounced when studying different management contexts. Conservation policies in Europe have traditionally relied on natural resource management directives (e.g., Birds and Habitats and Water Framework Directives) to protect biodiversity in agricultural systems. Sustainable agriculture approaches, such as high nature value farming, have been encouraged, entailing low use of chemical inputs, low stocking densities, and labor-intensive management practices.^{15,16} Most of these farming systems in Europe are associated with a long history of shaping and maintaining semi-natural habitats of high biodiversity.¹⁷ In contrast, protected area management, which began in the United States, was strongly influenced by the Wilderness movement, underpinned by values for “pristine” nature. This movement was paralleled by resource management practices focused on wise use and sustainable yield driven by utilitarian concerns (e.g., access to game, mining, and forest production). Principles around ecosystem management and the land ethic ensued, followed by an emphasis on complexity,

integrity, and interconnectedness of human and ecological systems across changing landscapes.¹⁸

In this perspective, we contribute to the global discussion on how to navigate biodiversity conservation, equity, and human well-being outcomes in the context of protected area management. We go beyond earlier work identifying the needs for inclusive conservation by discussing tensions associated with defining land uses, managing values, integrating knowledge systems, and acknowledging power asymmetries that need to be navigated to successfully operationalize inclusive conservation in biodiversity conservation and protected area management. We also offer insights into how to recognize, soften, and reframe tensions to enable the consideration of biodiversity, equity, and well-being goals in protected area management. Our perspective is informed by a 3-year effort to develop a new approach for inclusive conservation of protected areas in Europe and the United States.^{19,20} Drawing on multi-method approaches, we first present an overview of different theoretical perspectives on inclusive conservation. We then outline tensions associated with inclusive conservation and illustrate their implications for conservation with examples from protected area practice. We finally offer some insights for managing such tensions as part of the efforts to ensure better implementation of the Post-2020 Global Biodiversity Framework.

THEORETICAL PERSPECTIVES ON INCLUSIVE CONSERVATION

The concept of “inclusive conservation” has emerged to theorize and operationalize equity concerns in biodiversity and protected area management scholarship. Tallis and Lubchenco,²¹ with 238 co-signatories, called for inclusive conservation to embrace diverse voices in biodiversity conservation, including stronger representation of scientists and practitioners from under-represented genders, cultures, and contexts, and advancing and sharing knowledge across disciplines. The debate has expanded through forums such as the Inter-governmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Values Assessment and Nature’s Future Framework²² to consider the voices and values of not only technical experts but also a range of Indigenous and local knowledge systems^{23,24} and their diverse values of nature.^{25,26} Also, recent perspectives call for a pluralistic lens on the conceptualization of biodiversity,²⁷ including consideration of biodiversity through the array of ways in which humans live and experience nature.^{28,29} It has been established that inclusive conservation supports conservation effectiveness and emphasizes the role of morality in establishing trust between stakeholders, which can explain perceived inclusivity in protected area decisions.³⁰ A review of 165 protected areas and 171 published papers found that, overall, beneficial conservation outcomes were more likely to be achieved when protected areas adopted co-management regimens, engaged a diversity of local actors, reduced economic inequalities, and maintained cultural and livelihood outcomes.³¹

Over the past 5 years, the scope of inclusive conservation in academia has been widened in response to the “relational turn.”³² This turn is characterized by the adoption of relational ontologies that seek to overcome the nature/culture divide and other dualisms (e.g., mind/matter, subjectivity/objectivity,

men/women, expert/non-expert),^{33,34} acknowledge the observer's role in shaping knowledge;^{34,35} respect a range of non-instrumental, relational values;^{36,37} and consider the interrelations between place-based and global drivers of change²⁴ and the use of inter- and *trans*-disciplinary methods to understand the iterative relations between social, ecological, and technological systems.^{34,38,39} It emphasizes place, contextualization, and local agency^{40,41} and challenges the researcher to interrogate their assumptions through the process of reflexivity.^{42,43} It seeks to create multi-level networks and collaborative relationships by promoting equity and the central role of women as agents of positive change, reframing conservation action through reconciliation and redress, ensuring rights-based approaches to conservation, and revitalizing customary and local institutions.⁴⁴

However, inclusive conservation also has its critics. Matulis and Moyer⁴⁵ argued that the dominant views on inclusive conservation at that time assumed that intrinsic values can be compatible with economic values. They cautioned that “deliberative consensus politics conceals uneven power relations” (p. 281) and overlooks the potential for competing publics and the existence of marginal views. Other scholars question the usefulness of “inclusive” neoliberal conservation leading to the commodification of carbon and under-representation of structural inequalities^{46,47} and the potential for new protected areas to discount the historical, social, and cultural contexts of the affected region.⁴⁸ A second critique concerns how stakeholder participation linked to “inclusivity” can be punctual, isolated, and often counterproductive, creating undesirable sustainability outcomes,⁴⁹ such as the exclusion of key social actors from the management of national parks because of selective participation.⁵⁰ Third, inclusive conservation has been criticized for depoliticizing conservation efforts. Turnhout et al.⁵¹ demonstrate how the dynamics in knowledge co-production processes reinforce unequal power relations and inhibit societal transformation. This is not only relevant to societal processes. The research process itself is a power-laden process, where “mutually reinforcing power structures, interests, needs and norms within the institutions of global environmental change science obstruct rethinking and reform” (p. 1).⁵² Issues of power have raised important questions about what actors do to co-produce, how human agency is conceptualized, how power relations are changed, and how impacts are catalyzed through collaborative modes of knowledge co-production, management, and governance.⁵³

TENSIONS ASSOCIATED WITH INCLUSIVE CONSERVATION

Tension 1: Supporting area-based conservation versus cross-boundary landscape management

The performance of protected areas under area-based management strategies assigns importance to the relation between the environmental qualities of a protected area or network of protected areas and their translation into ecosystem services, their relevance for overall conservation targets, and their effectiveness.^{1,54} Interest in system-wide connectivity has led to substantial research and discussions about whether to devote efforts to stricter area-focused conservation versus cross-boundary and cross-scale management. The latter accounts for ecosystem and social dynamics across sectors, landscapes, and seascapes

in an interconnected and tightly coupled world (*sensu*⁵⁵). Protected areas also influence and are influenced by neighboring land uses, which, by necessity, extends the definition of who is a stakeholder and what is at stake.⁵⁶ Protected areas are often short of the personnel and financial resources required for effective management.⁵⁷ Aligning management with adjacent land uses (e.g., grazing needs and rearing livestock) as mosaic conservation areas¹⁴ can bring management operations to economically feasible scales. Beyond the near hinterland, protected areas and their values are affected by tele-coupling and the increasing influence of distant land owners, investors, and companies.^{58–60} Boundaries and cross-boundary relations are not static. In situations of land use conflict or active transformation in response to changing circumstances (socioeconomic, political, climate), protected area boundaries and regulations are often renegotiated,⁶¹ as evidenced by protected area downgrading, downsizing, and degazettement (PADDD) events.⁶² An analysis of 36 countries shows that PADDD may substantially decrease mean area-based target (i.e., the current 30% target) achievement,⁶³ emphasizing the need to focus on both sides of the protected area boundary to ensure robust conservation outcomes.





To support resilient and robust conservation strategies for conservation areas, inclusive conservation thus needs to address not only what to protect but also how conservation can be aligned with other land uses and associated individual and societal interests. This is especially the case in small-scale, heterogeneous landscapes where economic and political realities are influenced by the larger region⁴ and governance is divided by multiple autonomous actors. Intra- and inter-country and regional cooperation pathways for future conservation of biodiversity are emerging,⁶⁴ but calls to manage biodiversity are not matched by efforts to manage the interrelationships between biodiversity, natural resource use, and cultural diversity and heritage for both biodiversity outcomes across scales.⁶⁵ Proactive work with adjusting and mainstreaming conservation measures is essential to ensure multiple conservation outcomes, and emerging research on the factors behind temporal dynamics of protected areas⁶⁶ may provide input to locally grounded, collaborative efforts to identify flexible governance strategies.

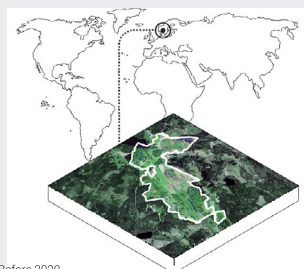
A participatory resilience assessment approach,⁶⁷ as developed by our team in the Västra Harg lövskogar nature reserve, Sweden (Box 1), is helpful for managing the interconnections and tension between interests and land uses across scales.⁶⁸ The approach was organized into four phases: (1) inventory and process design; (2) problem and target formulation, identifying strategy components; (3) articulating and describing strategies; and (4) connecting strategies.⁶⁹ The process used interviews, surveys, workshops, and webinars and sought to foster system knowledge (i.e., landscape components, drivers of change, functional processes, and interrelated dynamics), target knowledge (stakeholders' subjective perceptions, goals, and aspirations), and transformative or operational knowledge (feasible solutions, knowledge about mandates and roles of other actors, and process skills).⁷⁰ The process engaged private landholders involved in forestry, tourism, and livestock husbandry; the Östergötland County Administration Board responsible for management of the Västra Harg lövskogar nature reserve and the county's green infrastructure strategy; the farmers' association gathering interests of local landowners; and local village

Box 1. Managing for cross-boundary dynamics in the Västra Harg conservation area, Sweden

The Västra Hargs Lövsskogar nature reserve is a relatively small (345-hectare) protected area (IUCN category iv) in southern Sweden that preserves grasslands and ancient oak wood pastures, including a rich diversity of traditional grassland species. It is located in a mosaic landscape defined by more or less conspicuous edges and boundaries that simultaneously separate and connect different land uses, interest, and activities. Dead wood maintained in the reserve provides a habitat to support regional populations of pollinators as well as threatened species but also sparks concern of surrounding forest owners about outbreaks of spruce bark beetle. To preserve the herb, insect, and bird species associated with species-rich grasslands, the old hay meadows and pastures require frequent grazing, for which the reserve's management relies on sheep from neighboring farms and the farmers' knowledge. This, in turn, requires economic and social viability of the countryside, promoted by public investments in the nature reserve to increase recreation and tourism. Multi-actor governance arrangements can be helped by processes that support actors' understanding of each others' different perspectives and agencies. More information can be found at Panorama Solutions.⁶⁸

Västra Harg nature reserve Östergötland, Sweden

-  345 hectares
-  539 residents*
-  Multifunctional cultural landscape
-  Western taiga, Fennoscandinavian wooded pastures



*Before 2020
Bottom photo: Fredrik Olofsson



associations in Västra Harg (some of which also have responsibilities for practical management of the nature reserve).

Our process enabled discussions between different actors in a way that respected different and common interests and without necessarily having to reach a broad consensus. We explored potential shared interests in alternative strategies that support biodiversity and are economically viable, ranging from certification schemes to eco-tourism initiatives. Although tensions between interests were not necessarily resolved, the process opened up an additional platform to allow further collaboration around common goals. The process contributed to the subsequent establishment of a local management council for the Västra Hargs lövsskogar nature reserve that will meet biannually, where the County Administrative Board's interest in a regional green infrastructure will meet and negotiate with interests of local residents and landowners.

Tension 2: Recognizing versus reducing plurality in the visions for and values of nature

Different views exist in the conservation sector about which of the multiple values of nature should be managed and when.

Some groups suggest that the intrinsic values of nature, including aspects of biotic diversity and variety, should be privileged in protected area management and biodiversity conservation decision-making.⁷¹ In contrast, others advance plurality as a way to bring equity and justice to needs and wants of all legitimate stakeholders.²⁷ However, legal frameworks, skewed distribution of financial resources, and a lack of sensitivity to local cultural norms can obscure or impede the consideration of relational values of equity and justice in conservation planning.⁷² The tension between recognizing versus reducing plurality becomes more complicated when eliciting the values of various land management sectors and seeking to manage trade-offs related to use of natural resources coupled with management of native species.⁷³ Harmáčková et al.²⁹ found that, although stakeholders from different land management sectors could balance diverse visions, including cultural heritage, economic development, rural lifestyle, and providing space for wilderness and managed/cultural landscapes, conflicts emerged more frequently when seeking to balance management options associated with each vision. Navigating plurality toward protected area management may happen through spatial planning, using

Box 2. Managing for local residents', conservation sectors', and agricultural sectors' interests in Kromme Rijn

The Utrechtse Heuvelrug National Park and adjacent Kromme Rijn region are located near one of the largest cities in the Netherlands, Utrecht. The Park, founded in 2003, includes important forest areas and biodiversity values and is being co-managed by several nature organizations together with private land owners. The Kromme Rijn area next to the Park (220 km², approximately 86,000 inhabitants) is a dynamic cultural landscape with different Dutch landscapes varying from mosaics with patched forests to wide open pastures on the river banks. Multi-functionality is the norm and valued by local actors but can lead to strong trade-offs between multiple functions, including wood harvesting, over-crowding of recreational areas, conflicting recreational activities (exacerbated by the COVID-19 pandemic), and intensive agricultural use in the Kromme Rijn area, leading to high nitrogen loads on the sensitive nature of the national park. More information can be found at Panorama Solutions.⁷⁴



different parts of the landscape to represent different functions and values, and, thus, providing space for sharing conflicting interests. However, this approach is only viable when neighboring uses of the landscape do not conflict or present undesirable trade-offs that reduce the value of other parts of the landscape.

Methods applied in the Kromme Rijn and Utrechtse Heuvelrug region of the Netherlands provide an example of how to represent different functions and values of protected areas (Box 2).⁷⁴

In this case, we asked residents to identify the trade-offs between diverse visions for protected area management, in addition to which areas were key for multi-functionality within the landscape. We asked residents to share their individual visions for the landscape based on a series of A3 cartoons in an arts-based engagement tool named STREAMLINE,⁷⁵ which was followed by a survey to deepen the understanding of how these diverse visions could be managed. Four visions for protected area management emerged from these efforts: (1) an inclusive cultural landscape for sustainable living, a holistic approach to landscape management with a strong belief in the possibility to balance productivity and biodiversity goals; (2) a productivity-oriented landscape, managing for economic productivity and efficiency; (3) an environmentally friendly landscape, supporting biodiversity conservation, good quality of drinking water, and climate mitigation; and (4) a peri-urban landscape, focusing on

maintaining and increasing attractiveness of the area for recreational purposes.

The results highlighted the possibility for spatial planning to contribute to accommodating (some of) the plurality of visions, softening the tension. At the same time, the survey indicated the overall high demands on the area for different functions, directly resulting from the peri-urban character of the region. Results indicate that multi-functionality also comes with trade-offs, which are acknowledged by the respondents. Recognizing the plurality of visions and values does not exclude the need to prioritize some values over others, possibly informed by national-level policy targets or by an analysis of the trade-offs.

Tension 3: Incorporating local and experiential knowledge into the dominant Western knowledge system

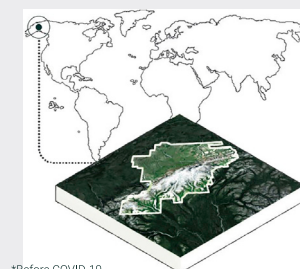
Two distinct trajectories, being driven by complementary societal forces, are converging to underscore the need for inclusive conservation practices. One trajectory is related to the development of geographies of exclusion in protected area decision-making, where power has shifted in the direction of local stakeholders.⁷⁶ In reaction to the global tide of populism and rise of regional powers, local stakeholders and nearby communities are increasingly becoming stronger forces in protected area

Box 3. Co-producing knowledge in Denali National Park to align local and regional conservation aspirations

Established in 1917, Denali National Park and Preserve is a protected area covering nearly 2.5 million hectares. Each year, Denali National Park attracts around 600,000 visitors who come to see the charismatic wildlife, sub-arctic tundra, and vast, wild landscape that hosts the highest peak in North America, Mt. Denali (6,190 m). The population of communities adjacent to Denali nearly doubles during peak tourism season (June–August) because of the influx of seasonal employees, increasing from about 2,000 to 4,000 residents. Local stakeholders include Native Alaskan corporations, Alaska Native Tribal councils, a collection of distinct local communities spanning up to 325 km apart, and federal, state, and local governments.⁸⁷ More information can be found at Panorama Solutions.⁸⁶

Denali National Park and Preserve, Alaska, USA

-  2,428,114 hectares
-  2,000 residents (4,000 during June–August)*
-  600,000 visitors/year*
-  Taiga forest, alpine tundra, mountains



*Before COVID-19



policy decisions.^{77,78} The second trajectory is that of a growing global conservation framework closely tied to professional expertise, scientific forums, and inter-governmental policy networks as well as legal and regulatory frameworks favoring globally applicable knowledge.⁷² New techniques have been developed for integrating multiple forms of evidence and building a more holistic understanding of conservation contexts, drawing on tools like Bayesian belief networks, Q-methodology, and scenario planning,⁷⁹ and processes for promoting dialogue within and across local, Indigenous, and scientific knowledge systems.^{23,80} As the plurality of knowledge perspectives considered in protected area management widens, tensions inevitably emerge around what counts as evidence and how this evidence can be systematically collated and presented to inform conservation decisions.

Mechanisms and institutional arrangements exist for managing power differentials in policy arenas and for recognizing multiple forms of knowledge in conservation decision-making.^{24,81–83} At the local scale, co-production between scientific and Indigenous knowledge is seen as a way to support adaptation pathways for conservation at the place-specific scale,^{23,84} but often scientific investigations proceed in ignorance of contested histories of nation-state colonization.⁸⁵ Addressing tensions concerning how knowledge is represented and combined requires rethinking how issues of po-

wer, agency, trust, and partnership are considered in protected area management.

In Denali National Park, Alaska, United States (Box 3), we tested and validated a set of methods for building trust and partnerships between diverse stakeholders and local communities.⁸⁶ In Denali, there are generally low but variable degrees of trust instilled in federal agencies among stakeholders, spanning positive working relations to suspicion and distrust. This variability in trust spills over to researchers and the information generated from research projects and influences perceptions of inclusivity in land management decision-making among stakeholders, including residents, decision-makers, and scientists.³⁰ Specifically, this case study sought to soften the tensions between local and science-based knowledge systems by implementing a mixed-method design that engaged decision-making authorities and local residents in co-production of knowledge with the research team. Early stages of our study drew on interpretive methods to generate an in-depth understanding of the region, and these findings informed the development of generalizable models and the application of an experimental design employed in the final stages of research. Informal meetings with representatives from multiple sectors also helped in efforts to come to know one another and build familiarity, trust, and partnerships with local stakeholders, along with hiring a respected local resident to support the project through its various

phases. Additionally, the research team formed an Executive Committee comprised of local and regional stakeholders to provide stakeholder updates, interpret interim results, and advise subsequent phases of study.

The multi-method approach adopted in this case helped to re-frame conservation as a process of developing trust and partnerships, with outcomes tied to fairness in knowledge exchange between local residents and regional decision makers. Early in the research process, we conducted focus groups in each of the study communities and encouraged broad participation by co-sponsoring the events with community-based organizations and meeting at local venues such as a school library, Native Tribal community center, and town hall. The focus groups were usually part of regularly scheduled meetings and framed as an opportunity to voice opinions on the future of the Denali region. Our introductions to communities were extensive and critical to set the tone for the engagement process and encourage open discussion. We spent time characterizing ourselves and the political ideology behind our efforts, such as our history of research working to connect voices of people to decision-making, research that helps democratize policy-making, and sensitivity to the portrayal of dissent. These introductions generated open discussions about our trustworthiness as well as spirited stories of frustration with the contested histories of relations with Denali National Park and Preserve.³⁰ We also employed “fuzzy cognitive mapping” exercises with individuals and groups of residents to visualize perceptions of landscape conditions and change in the region along with a regional household survey.⁸⁷

The project culminated in a social learning experiment that engaged a group of 35 participants from 10 Denali communities in a longitudinal, online discussion about landscape change. Residents were engaged in three focus groups, a 5-week facilitated exchange, and final webinar to understand how values shift when diverse stakeholders are involved in deliberation. Complementary to recent work on reframing agency,⁵³ this case demonstrates how frequent dialogue coupled with an iterative social learning evaluation can promote convergence in values and protected area management visions across diverse stakeholder groups.

Tension 4: Acknowledging power relations in conservation: Seeking consensual outcomes versus embracing dissent

Plural and discordant voices are a constitutive part of current development in conservation.⁸⁸ Various, non-exclusive options exist for managing diverse voices and competing interests in conflict-ridden conservation governance: (1) to build consensual solutions,⁸⁹ (2) to allow conflicts to surface dissenting visions and un/under-represented voices,^{45,90} and (3) to use dissent to open up new possibilities for more transformative action in conservation governance.⁹¹ Political ecologists have argued that engaging dissent instead of permanently seeking for consensus is a way of avoiding the suppression of marginal visions within conservation and to open up innovative ways to tackle current socio-environmental problems.⁴⁵ In other words, there is a trade-off between representing dissent through the recognition of conservation conflicts or looking for consensual outcomes to appreciate the points of agreement and contextualize conflict in ways that minimize harm.

Part of the process of allowing the emergence of dissent in conservation practice implies opening up the possibility of divergent understandings of what nature means for different actors while seeking collective action in conservation governance. As has been highlighted, “there are a multitude of natures and a multitude of existing, possible or practical socio-natural relations –and proper politicization of the environment needs to endorse this heterogeneity fully” (p. 255).⁹² In both cases, governance processes influencing conservation targets (e.g., policies governing protected areas establishment, strategies determining PADD events) are embedded with power asymmetries^{51,93,94} that need to first be acknowledged and actively managed.^{95,96} Increasing evidence shows that dominant power dynamics in such processes and the diversity of interests that power holders may have (e.g., environmental protection versus economic development) raise important implications for conservation outcomes.^{94,97} Despite recognition of power dynamics, questions remain about how to enable diverse voices to feel comfortable while engaging in management strategies for protected areas and how to allow issues of interest to emerge and be openly shared toward encouraging transformative action.⁹⁸

In Sierra de Guadarrama National Park, Spain (Box 4), we tested and applied multi-methods that enabled sharing of issues of interest from diverse perspectives.⁹⁹ More specifically, we explored how stakeholders participate and interact with the park’s governance system to manage the tension between seeking consensual outcomes and embracing dissent. Results from 76 semi-structured interviews show that stakeholder participation is shaped through a wide variety of formal and informal mechanisms with distinct equity conditions and power distribution.¹⁹ We then combined consensus and dissent-based approaches in an online participatory scenario planning exercise in the National Park that involved decision-makers, researchers, local users, and non-governmental organizations. Participants discussed whether and how the area might continue to contribute to the quality of life of those who currently enjoy its ecosystem services, the advantages and disadvantages of the envisioned future scenarios, and who would lose or gain in the various scenarios.





To navigate consensus and dissent as inherent aspects of conservation, we asked stakeholders about their degree of public participation in protected area management and then invited them to create scenarios for the intensity of desired recreational uses in the park. We also utilized a “barometer of power” using the “Spatial Chat” software for the participants to deliberate on their roles and power relations and invited participants to visualize and draw stakeholders’ positions in relation to power in conservation decision-making, in current and future scenarios via the “Canva” digital platform. We also used a context-specific graphical tool as a boundary object to explore different levels of stakeholders’ willingness to engage in the strategies for protected area management they collectively defined.

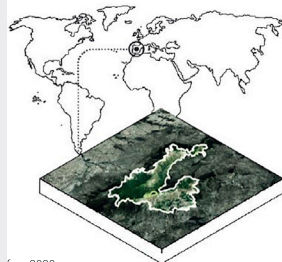
The participatory scenario planning process helped elicit stakeholders’ roles, responsibilities, and abilities to influence decision-making and reflect on how power relations could be articulated in the future. This facilitated a better understanding of the extent to which each stakeholder can participate and influence decision-making in the context of their own positions in relation to power.

Box 4. Dealing with power relations and diverse voices to foster social engagement and cooperation in Sierra de Guadarrama National Park, Spain

Sierra de Guadarrama National Park is part of a mountain system in central Spain (34,000 hectares), very close to Madrid (the country's capital, over 6.5 million inhabitants), that features unique granite rock formations and Iberian endemic species. Local stakeholders are engaged in diverse activities, such as extensive livestock farming, research, and environmental education. The National Park is also heavily used for recreation and sports activities by visitors (almost 2.5 million visitors per year). There are also multiple state administrations at different decision-making scales with governing competencies in the site, with two regional administrations sharing the main legal authority in conservation decisions. The multiple and sometimes competing uses and values create social tensions around how the park should be governed. More information can be found at Panorama Solutions.⁹⁹

Sierra de Guadarrama National Park, Spain

-  33,960 hectares
-  175,000 residents*
-  Nearly 2.5 million visitors/year
-  Mountains, glacial cirques, alpine lakes, grasslands and pastures, pine forest



*Before 2020



MANAGING TENSIONS THROUGH MULTI-LEVEL ENGAGEMENT

This perspective has presented multi-method approaches for identifying and, where possible, managing tensions inherent to inclusive conservation in protected area management. Such tensions are likely to surface when addressing biodiversity conservation and equity targets in the Post-2020 Global Biodiversity Framework. Placing consideration of equity and justice on equal footing with biodiversity requires a transformation of the processes, structures, and outcomes underpinning research and decision-making.¹⁰⁰ In this discussion, we focus on process reform. We demonstrate that tensions can, in many cases, be softened or reframed by not only surfacing hybridity in views but also by enabling conditions for reflexivity, committing to reframing tensions, and forging new partnerships in support of protected area management. We also highlight a dynamic interplay across phases: hybridity, which commits protected area managers to acknowledging diverse visions and values for protected area management the agency of other local actors; reflexivity, which seeks to develop a collective understanding of protected area management problems and creating space for shared and conflicting values to be heard on an equal footing; and partnership building, which connects diverse stakeholders in ways that forge

a better understanding of controversy through deeper exploration of the problem or issue, particularly among groups adversely affected by proposed protected area management strategies. This stage ultimately may mean reframing problems to find new solution spaces (Figure 1).

Each case sought to recognize hybridity with respect to eliciting and assessing different power relations, plural and dominant values, and/or multiple knowledge systems but from different starting points. This phase sought to empower diverse voices and recognize the multiple ways of knowing and doing, aligning with knowledge co-production principles discussed previously in the sustainability literature.^{38,53} It also explicitly acknowledges difference, which is core to pluralistic governance.¹⁰¹ In the Västara Hargs Lövslogar nature reserve, the participatory resilience assessment sought to articulate and describe the diverse protected area management strategies of foresters, graziers, and the County Administration Board applicable at different scales of management. In contrast, in Denali, the fuzzy cognitive mapping was able to create a visual representation of the differing views on landscape conditions, which was followed by a community discussion forum to encourage social learning about place-based values and preferences for future landscape conditions. The Kromme Rijn case employed STREAMLINE as a way to visualize diverse visions for protected area management

and the trade-offs between different landscape functions. In the Sierra de Guadarrama case, we combined document analysis, interviews, participatory scenario planning, and deliberative spaces to show the wide variety of equity and power distribution conditions under the protected area governance arrangements as well as the narratives of consensus and dissent in relation to current protected area management strategies. Despite the different entry points, each case reveals that surfacing hybridity alone does not manage tensions. Like several ropes knotted tightly together, the solution space seems quite small, and it is challenging to find ways to unlock the different points of view (Figure 1). For example, the four visions for protected area management that emerged from the Kromme Rijn engagements on face value represent opposing ways of managing the landscape, with seemingly no options to resolve the differing views.

When implementing the Post-2020 Global Biodiversity Framework, recognizing hybridity could involve

- translating, synthesizing, and applying multiple forms of local and indigenous knowledge;^{23,80}
- combining system knowledge, target knowledge, and transformative or operational knowledge to address cross-boundary management challenges; and
- establishing multiple engagement platforms, given that all methods have their inherent biases and represent interests in different ways.⁷²

Combining methods for surfacing hybridity with processes that enabled conditions for reflexivity (being aware of one's own assumptions and biases and fostering learning^{100,102}) led to the softening of tensions, which helped to contextualize the points of conflict and dissensus that remained. In the Västra Harg case, the cross-scale tension was softened by developing a collective understanding of different strategies for supporting biodiversity and livelihoods at different scales of management. The various uncertainties associated with each strategy (e.g., market demand and support for different products and the critical roles played by different actors, organizations, or associations) were critically reflected on as part of establishing connecting points between strategies (stage 4) of the participatory resilience assessment. In the Sierra de Guadarrama case, results from the interviews informed a (virtual) place-based participatory scenario workshop that enabled stakeholders to critically reflect on the advantages and disadvantages of the envisioned future scenarios and the various injustices that could result from them. By combining methods for surfacing hybridity with processes for enabling reflexivity, new options for partnership-based protected area management emerged, softening tensions as represented by the undoing of knots in ropes (Figure 1, phase 2).

When implementing the Post-2020 Global Biodiversity Framework, softening tensions could involve

- teasing apart the underpinning assumptions and uncertainties in visions for protected area management identifying associated biases and power relations, and determining how each stakeholder can participate in and have influence on protected area governance;
- jointly identifying the multiple ways stakeholders relate and connect (to open up for more common ground); and

- explicitly acknowledging the losses for some stakeholders if certain values are prioritized over others and finding appropriate schemes for compensation or helping to adapt to the new situation.

Building on previous work,^{38,51,100} we suggest that multi- or mixed-method research designs are needed to support the reframing of tensions. In the Denali case, researchers invested time and resources in developing new partnerships and supporting the bidirectional flow of knowledge and information throughout the research process. The social learning forum involved five weeks of knowledge exchange. This process sought to validate different knowledge systems and to build trust and a sense of empowerment that residents could form a collective voice on issues that mattered. Social learning was acknowledged during the process. Points of conflict, although still present, became hybridized in ways that complicated their histories and invited reflexive re-positioning of previous dichotomies. Decision-makers across federal, state, and local levels were eager for a wider application of the social learning assessment and discussed options of incorporating content into school curricula to sustain outcomes from the project and teach about inclusive conservation in the context of protected area management.

When implementing the Post-2020 Global Biodiversity Framework, reframing tensions could involve

- facilitating knowledge exchange, respecting rights, and building partnerships and trust in an environment of care and mutuality⁸⁰ and
- emphasizing not only adaptability, biases, and power relations but also the development of processes that seek to define, critically reflect on conflicts, and reframe existing assumptions regarding who is responsible for protected area governance.

Some of the cases demonstrate that hybridity, reflexivity, and partnership building inform each other and are not independent in their action (Figure 1, phases 1–3). By actively engaging in the interdependent phases of recognizing hybridity, enabling conditions for reflexivity, and partnership building, tensions can not only be acknowledged but also softened and, in some cases, reframed. In the latter phase, metaphorically speaking, ropes not only unlock but become reconfigured through the development of new partnerships and creating an environment for trust building (Figure 1). Negotiations at this part of the process need to be approached with empathy, trust, and a commitment to within-knowledge rather than cross-knowledge validation. Negotiation and facilitation techniques can be used to reframe problems and identify new solutions for transformative action. However, shared identification of solutions is sometimes not possible. In these cases, the reframing turns from conflict resolution to advancing parties' causes by less destructive means.¹⁰³

CONCLUSIONS

In this perspective, we argued that tensions evident in inclusive conservation approaches can be acknowledged, softened, and, in some cases, reframed in protected area management by employing multiple interlinked methods and processes of

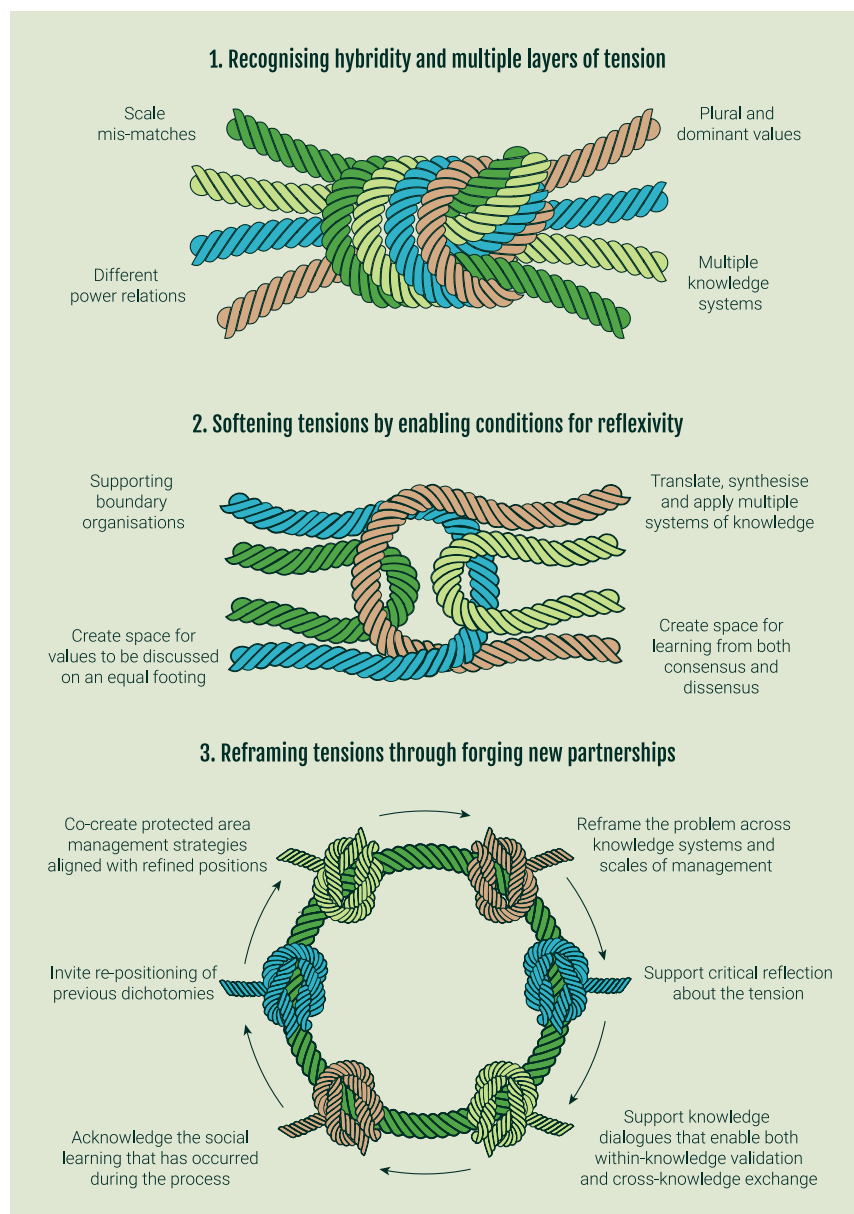


Figure 1. Process for identifying, softening, and reframing tensions in inclusive conservation of protected areas globally

stakeholder engagement that invite stakeholders to critically reflect on their values, visions, and positions and open grounds for rethinking existing dichotomies and points of conflict. The proposed actions for protected area governance presented in this perspective do not obviate the need for difficult protected area management decisions that lead to gains and losses for biodiversity and human well-being but, when employed systematically, provide grounds for improved understanding of challenges and the building of trust and new partnerships to achieve global conservation targets. Although our arguments are salient to distribution and procedural discussions about protected area governance globally, we do not engage with wider issues of recognition, including status equality, decolonialism, and the cultural or institutional roots of discrimination pertaining to biodiversity conservation in the global south (see Martin et al.¹⁰⁴ for an

overview). Future research could investigate how the multi-method approach presented here for recognizing hybridity, softening tensions, and reframing tensions could be developed further or upscaled in other contexts, including in the global south and countries that are parties to the Convention of Biological Diversity.

ACKNOWLEDGMENTS

ENVISION was funded through the 2017–2018 Belmont Forum and BiodivERsA joint call for research proposals, under the BiodivScen ERA-Net CO-FUND program, and with the support of the following national funders: the Swedish Research Council for Sustainable Development (FORMAS, 2018-02429); the Federal Ministry of Education and Research (BMBF) (FKZ:01LC1806A), Germany; the Netherlands Organization for Scientific Research (NWO); the National Science Foundation (1854767); a Cooperative

Agreement with the US National Park Service (P18AC00175); the University of Illinois Campus Research Board (RB19119); and the Ministerio de Ciencia e Innovación, Spain. E.O.-R. has been funded by Juan de la Cierva Incorporation Fellowship of the Ministry of Science Innovation and Universities (JCI-2017-34334). I.R.-M. gratefully acknowledges support from grant RYC-2015-17676 funded by MCIN/AEI/10.13039/501100011033 and by "ESF Investing in your future." J.J.K. received support from the Swedish Research Council for Sustainable Development FORMAS (2019-01648). C.M.R. also received support from the VIVA-PLAN project, funded by FORMAS (2018-00175).

DECLARATION OF INTERESTS

The authors declare no competing interests.

REFERENCES

- Maxwell, S.L., Cazalis, V., Dudley, N., Hoffmann, M., Rodrigues, A.S.L., Stolton, S., Visconti, P., Woodley, S., Kingston, N., Lewis, E., et al. (2020). Area-based conservation in the twenty-first century. *Nature* 586, 217–227. <https://doi.org/10.1038/s41586-020-2773-z>.
- Convention on Biological Diversity (2021). First Draft of the Post-2020 Global Biodiversity Framework. <https://www.cbd.int/article/draft-1-global-biodiversity-framework>.
- Reyes-García, V., Fernández-Llamazares, Á., Aumeeruddy-Thomas, Y., Benyei, P., Bussmann, R.W., Diamond, S.K., García-del-Amo, D., Guadilla-Sáez, S., Hanazaki, N., Kosoy, N., et al. (2021). Recognizing Indigenous peoples' and local communities' rights and agency in the post-2020 Biodiversity Agenda. *Ambio* 51, 84–92. <https://doi.org/10.1007/s13280-021-01561-7>.
- Andersson, E., Langemeyer, J., Borgström, S., McPhearson, T., Haase, D., Kronenberg, J., Barton, D.N., Davis, M., Naumann, S., Röschel, L., et al. (2019). Enabling green and blue infrastructure to improve contributions to human well-being and equity in urban systems. *Bioscience* 69, 566–574. <https://doi.org/10.1093/biosci/biz058>.
- Langemeyer, J., and Connolly, J.J.T. (2020). Weaving notions of justice into urban ecosystem services research and practice. *Environ. Sci. Pol.* 109, 1–14. <https://doi.org/10.1016/j.envsci.2020.03.021>.
- Zafra-Calvo, N., Pascual, U., Brockington, D., Coolsaet, B., Cortes-Vazquez, J.A., Gross-Camp, N., Palomo, I., and Burgess, N.D. (2017). Towards an indicator system to assess equitable management in protected areas. *Biol. Conserv.* 211, 134–141. <https://doi.org/10.1016/j.biocon.2017.05.014>.
- Berkes, F. (2009). Evolution of co-management: role of knowledge generation, bridging organizations and social learning. *J. Environ. Manag.* 90, 1692–1702. <https://doi.org/10.1016/j.jenvman.2008.12.001>.
- Armitage, D., Marschke, M., and Plummer, R. (2008). Adaptive co-management and the paradox of learning. *Global Environ. Change* 18, 86–98. <https://doi.org/10.1016/j.gloenvcha.2007.07.002>.
- Buijs, A., Mattijssen, T., Van der Jagt, A., Ambrose-Oji, B., Andersson, E., Elands, B., and Møller, M. (2016). Active citizenship for urban green infrastructure: fostering the diversity and dynamics of citizen contributions through mosaic governance. *Curr. Opin. Environ. Sustain.* 22, 1–6. <https://doi.org/10.1016/j.cosust.2017.01.002>.
- Buijs, A., Hansen, R., Van der Jagt, S., Ambrose-Oji, B., Elands, B., Lorange Rall, E., Mattijssen, T., Pauleit, S., Runhaar, H., Stahl Olafsson, A., et al. (2019). Mosaic governance for urban green infrastructure: upscaling active citizenship from a local government perspective. *Urban For. Urban Green.* 40, 53–62. <https://doi.org/10.1016/j.ufug.2018.06.011>.
- Büscher, B., and Fletcher, R. (2019). Towards convivial conservation. *Conserv. Soc.* 17, 283–296.
- IUCN (2017). IUCN Green List of Protected and Conserved Areas: Standard, Version 1.1. <https://iucngreenlist.org/>.
- Borrini-Feyerabend, G., Bueno, P., Hay-Edie, T., Lang, B., Rastogi, A., and Sandwith, T. (2014). A Primer on Governance for Protected and Conserved Areas: Stream on Enhancing Diversity and Quality of Governance. https://www.iucn.org/sites/dev/files/content/documents/primer_protected_and_conserved_areas.pdf.
- Borrini-Feyerabend, G., and Hill, R. (2015). Governance for the conservation of nature. In *Protected Area Governance and Management*, G.L. Worboys, M. Lockwood, A. Kothari, and I. Pulsford, eds. (ANU Press), pp. 169–206. <https://doi.org/10.22459/PAGM.04.2015>.
- Grass, I., Batáry, P., and Tschamtker, T. (2021). Combining land-sparing and land-sharing in European landscapes. In *The Future of Agricultural Landscapes, Part II*, D.A. Bohan and A.J. Vanbergen, eds. (Academic Press). <https://doi.org/10.1016/bs.aecr.2020.09.002>.
- Oberć, B., and Arroyo Schnell, A. (2020). Approaches to Sustainable Agriculture. <https://doi.org/10.2305/IUCN.CH.2020.07.en>.
- Plieninger, T., Flinzberger, L., Hetman, M., Horstmannshoff, I., Reinhard-Kolempas, M., Topp, E., Moreno, G., and Huntsinger, L. (2021). Dehesas as high nature value farming systems: a social-ecological synthesis of drivers, pressures, state, impacts, and responses. *Ecol. Soc.* 26. <https://doi.org/10.5751/ES-12647-260323>.
- Nash, R. (2014). *Wilderness and the American Mind*, Fourth Edition (Yale University Press). <https://doi.org/10.12987/9780300153507>.
- López-Rodríguez, M.D., Ruiz-Mallén, I., Oteros-Rozas, E., March, H., Keller, R., Lo, V.B., Cebrán-Piqueras, M.A., and Andrade, R. (2020). Delineating participation in conservation governance: insights from the Sierra de Guadarrama national park (Spain). *Environ. Sci. Pol.* 114, 486–496. <https://doi.org/10.1016/j.envsci.2020.09.019>.
- ENVISION (2021). Summary of ENVISION: Decision-Making Toolbox for Inclusive Conservation in Protected Areas (ENVISION BiodiversA Project). <https://doi.org/10.5281/zenodo.5810576>.
- Tallis, H., and Lubchenco, J. (2014). Working together: a call for inclusive conservation. *Nature* 515, 27–28. <https://doi.org/10.1038/515027a>.
- Pereira, L.M., Davies, K.K., den Belder, E., Ferrier, S., Karlsson-Vinkhuyzen, S., Kim, H., Kuiper, J.J., Okayasu, S., Palomo, M.G., Pereira, H.M., et al. (2020). Developing multiscale and integrative nature-people scenarios using the Nature Futures Framework. *People Nat.* 2, 1172–1195. <https://doi.org/10.1002/pan3.10146>.
- Tengö, M., Hill, R., Malmer, P., Raymond, C.M., Spierenburg, M., Danielson, F., Elmqvist, T., and Folke, C. (2017). Weaving knowledge systems in IPBES, CBD and beyond—lessons learned for sustainability. *Curr. Opin. Environ. Sustain.* 26, 27. <https://doi.org/10.1016/j.cosust.2016.12.005>.
- Díaz, S., Pascual, U., Stenseke, M., Martín-López, B., Watson, R.T., Molnár, Z., Hill, R., Chan, K.M.A., Baste, I.A., Brauman, K.A., et al. (2018). Assessing nature's contributions to people: recognizing culture, and diverse sources of knowledge, can improve assessments. *Science* 359, 270–272. <https://doi.org/10.1126/science.aap8826>.
- Zafra-Calvo, N., Balvanera, P., Pascual, U., Merçon, J., Martín-López, B., van Noordwijk, M., Mwampamba, T.H., Lele, S., Ifejika Speranza, C., Arias-Arévalo, P., et al. (2020). Plural valuation of nature for equity and sustainability: insights from the Global South. *Global Environ. Change* 63, 102115. <https://doi.org/10.1016/j.gloenvcha.2020.102115>.
- Arias-Arévalo, P., Martín-López, B., and Gómez-Baggethun, E. (2017). Exploring intrinsic, instrumental, and relational values for sustainable management of social-ecological systems. *Ecol. Soc.* 22. <https://doi.org/10.5751/ES-09812-220443>.
- Pascual, U., Adams, W.M., Díaz, S., Lele, S., Mace, G.M., and Turnhout, E. (2021). Biodiversity and the challenge of pluralism. *Nat. Sustain.* 1–6. <https://doi.org/10.1038/s41893-021-00694-7>.
- O'Connor, S., and Kenter, J.O. (2019). Making intrinsic values work; integrating intrinsic values of the more-than-human world through the Life Framework of Values. *Sustain. Sci.* 14, 1247–1265. <https://doi.org/10.1007/s11625-019-00715-7>.
- Harmáčková, Z.V., Blättler, L., Aguiar, A.P.D., Daněk, J., Krpec, P., and Vackářová, D. (2021). Linking multiple values of nature with future impacts: value-based participatory scenario development for sustainable landscape governance. *Sustain. Sci.* 1, 3. <https://doi.org/10.1007/s11625-021-00953-8>.
- Goodson D.J., van Riper C.J., Andrade R., Cebrán-Piqueras M., Hauber M. Evaluating levels of perceived inclusivity and trust among stakeholders in Alaska. *People Nat.* <https://doi.org/10.1002/pan3.10312>.
- Oldekop, J.A., Holmes, G., Harris, W.E., and Evans, K.L. (2016). A global assessment of the social and conservation outcomes of protected areas. *Conserv. Biol.* 30, 133–141. <https://doi.org/10.1111/cobi.12568>.
- West, S., Haider, L.J., Stålhammar, S., and Woroniecki, S. (2020). A relational turn for sustainability science? Relational thinking, leverage points and transformations. *Ecosyst. People* 16, 304–325. <https://doi.org/10.1080/26395916.2020.1814417>.
- Djoudi, H., Locatelli, B., Vaast, C., Asher, K., Brockhaus, M., and Basnett Sijapati, B. (2016). Beyond dichotomies: gender and intersecting inequalities in climate change studies. *Ambio* 45, 248–262. <https://doi.org/10.1007/s13280-016-0825-2>.
- Walsh, Z., Böhme, J., and Wamsler, C. (2021). Towards a relational paradigm in sustainability research, practice, and education. *Ambio* 50, 74–84. <https://doi.org/10.1007/s13280-020-01322-y>.
- Hakkara, V., Anderson, C.B., Eriksson, M., van Riper, C.J., Horcea-Milcu, A., and Raymond, C.M. (2020). Grounding IPBES experts' views on the multiple values of nature in epistemology, knowledge and collaborative science. *Environ. Sci. Pol.* 105, 11–18. <https://doi.org/10.1016/j.envsci.2019.12.003>.

36. Chan, K.M.A., Balvanera, P., Benessaiah, K., Chapman, M., Díaz, S., Gómez-Baggethun, E., Gould, R., Hannahs, N., Jax, K., Klain, S., et al. (2016). Opinion: why protect nature? Rethinking values and the environment. *Proc. Natl. Acad. Sci.* 113, 1462–1465. <https://doi.org/10.1073/pnas.1525002113>.
37. Himes, A., and Muraca, B. (2018). Relational values: the key to pluralistic valuation of ecosystem services. *Curr. Opin. Environ. Sustain.* 35, 1–7. <https://doi.org/10.1016/j.cosust.2018.09.005>.
38. Norström, A.V., Cvitanovic, C., Löf, M.F., West, S., Wyborn, C., Balvanera, P., Bednarek, A.T., Bennett, E.M., Biggs, R., de Bremond, A., et al. (2020). Principles for knowledge co-production in sustainability research. *Nat. Sustain.* 3, 182–190. <https://doi.org/10.1038/s41893-019-0448-2>.
39. McPhearson, T., Raymond, C.M., Gulsrud, N., Albert, C., Coles, N., Fagerholm, N., Nagatsu, M., Olafsson, A.S., Soininen, N., and Vierikko, K. (2021). Radical changes are needed for transformations to a good Anthropocene. *Npj Urban Sustain.* 1, 1–13. <https://doi.org/10.1038/s42949-021-00017-x>.
40. Martín-López, B., Balvanera, P., Manson, R., Mwampamba, T.H., and Norström, A. (2020). Contributions of place-based social-ecological research to address global sustainability challenges. *Global Sustain.* 3. <https://doi.org/10.1017/sus.2020.18>.
41. Grenni, S., Horlings, L.G., and Soini, K. (2020). Linking spatial planning and place branding strategies through cultural narratives in places. *Eur. Plan. Stud.* 28, 1355–1374. <https://doi.org/10.1080/09654313.2019.1701292>.
42. Horlings, L.G., Nieto-Romero, M., Pisters, S., and Soini, K. (2020). Operationalising transformative sustainability science through place-based research: the role of researchers. *Sustain. Sci.* 15, 467–484. <https://doi.org/10.1007/s11625-019-00757-x>.
43. Borie, M., Gustafsson, K.M., Obermeister, N., Turnhout, E., and Bridgewater, P. (2020). Institutionalising reflexivity? Transformative learning and the intergovernmental science-policy platform on biodiversity and ecosystem services (IPBES). *Environ. Sci. Pol.* 110, 71–76. <https://doi.org/10.1016/j.envsci.2020.05.005>.
44. Armitage, D., Mbatha, P., Muhl, E., Rice, W., and Sowman, M. (2020). Governance principles for community-centered conservation in the post-2020 global biodiversity framework. *Conserv. Sci. Pract.* 2, e160. <https://doi.org/10.1111/csp2.160>.
45. Matulis, B.S., and Moyer, J.R. (2017). Beyond inclusive conservation: the value of pluralism, the need for agonism, and the case for social instrumentalism. *Conserv. Lett.* 10, 279–287. <https://doi.org/10.1111/conl.12281>.
46. Scheba, A., and Scheba, S. (2017). REDD+ as ‘inclusive’ neoliberal conservation: the case of Lindi, Tanzania. *J. East. Afr. Stud.* 11, 526–548. <https://doi.org/10.1080/17531055.2017.1357102>.
47. Chomba, S., Kariuki, J., Lund, J.F., and Sinclair, F. (2016). Roots of inequity: how the implementation of REDD+ reinforces past injustices. *Land Use Pol.* 50, 202–213. <https://doi.org/10.1016/j.landusepol.2015.09.021>.
48. Anaya, F.C., and Espirito-Santo, M.M. (2018). Protected areas and territorial exclusion of traditional communities: analyzing the social impacts of environmental compensation strategies in Brazil. *Ecol. Soc.* 23. <https://doi.org/10.5751/ES-09850-230108>.
49. Wamsler, C., Alkan-Olsson, J., Björn, H., Falck, H., Hanson, H., Oskarsson, T., Simonsson, E., and Zolmerlow, F. (2020). Beyond participation: when citizen engagement leads to undesirable outcomes for nature-based solutions and climate change adaptation. *Clim. Change* 158, 235–254. <https://doi.org/10.1007/s10584-019-02557-9>.
50. Maestre-Andrés, S., Calvet-Mir, L., and Apostolopoulou, E. (2018). Unravelling stakeholder participation under conditions of neoliberal biodiversity governance in Catalonia, Spain. *Environ. Plan. C Polit. Space* 36, 1299–1318. <https://doi.org/10.1177/2399654417753624>.
51. Turnhout, E., Metz, T., Wyborn, C., Klenk, N., and Louder, E. (2020). The politics of co-production: participation, power, and transformation. *Curr. Opin. Environ. Sustain.* 42, 15–21. <https://doi.org/10.1016/j.cosust.2019.11.009>.
52. Lahsen, M., and Turnhout, E. (2021). How norms, needs, and power in science obstruct transformations towards sustainability. *Environ. Res. Lett.* 16, 25008. <https://doi.org/10.1088/1748-9326/abd0f0>.
53. Chambers, J.M., Wyborn, C., Ryan, M.E., Reid, R.S., Riechers, M., Serban, A., Bennett, N.J., Cvitanovic, C., Fernández-Giménez, M.E., Galvin, K.A., et al. (2021). Six modes of co-production for sustainability. *Nat. Sustain.* 1–14, 983–996. <https://doi.org/10.1038/s41893-021-00755-x>.
54. Hoffmann, S. (2021). Challenges and opportunities of area-based conservation in reaching biodiversity and sustainability goals. *Biodivers. Conserv.* 1–28. <https://doi.org/10.1007/s10531-021-02340-2>.
55. Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., Scheffer, M., Österblom, H., Carpenter, S.R., Chapin, F.S., et al. (2021). Our future in the Anthropocene biosphere. *Ambio* 50, 834–869. <https://doi.org/10.1007/s13280-021-01544-8>.
56. Tanaka, T. (2019). Governance for protected areas “beyond the boundary”—a conceptual framework for biodiversity conservation in the anthropocene. In *Charting Environmental Law Futures in the Anthropocene* (Springer Singapore), pp. 71–79. https://doi.org/10.1007/978-981-13-9065-4_6.
57. Coad, L., Watson, J.E.M., Geldmann, J., Burgess, N.D., Leverington, F., Hockings, M., Knights, K., and Di Marco, M. (2019). Widespread shortfalls in protected area resourcing undermine efforts to conserve biodiversity. *Front. Ecol. Environ.* 17, 259–264. <https://doi.org/10.1002/fee.2042>.
58. Verburg, P.H., Alexander, P., Evans, T., Magliocca, N.R., Malek, Z., Rounsevell, M.D.A., and van Vliet, J. (2019). Beyond land cover change: towards a new generation of land use models. *Curr. Opin. Environ. Sustain.* 38, 77–85. <https://doi.org/10.1016/j.cosust.2019.05.002>.
59. Folke, C., Österblom, H., Jouffray, J.B., Lambin, E.F., Adger, W.N., Scheffer, M., Crona, B.I., Nyström, M., Levin, S.A., Carpenter, S.R., et al. (2019). Transnational corporations and the challenge of biosphere stewardship. *Nat. Ecol. Evol.* 3, 1396–1403. <https://doi.org/10.1038/s41559-019-0978-z>.
60. Carrasco, L.R., Chan, J., McGrath, F.L., and Nghiem, L.T.P. (2017). Biodiversity conservation in a telecoupled world. *Ecol. Soc.* 22, 24. <https://www.jstor.org/stable/26270174>.
61. Golden Kroner, R.E., Siyu, Q., Cook, C.N., Roopa, K., Pack, S.M., Bonilla, O.D., Anne, C.-K.K., Bruno, C., Mingmin, F., Isabel, M.G.M., et al. (2019). The uncertain future of protected lands and waters. *Science* 364, 881–886. <https://doi.org/10.1016/j.marpol.2021.104437>.
62. Mascia, M.B., and Pailler, S. (2011). Protected area downgrading, downsizing, and degazettement (PADDD) and its conservation implications. *Conserv. Lett.* 4, 9–20. <https://doi.org/10.1111/j.1755-263X.2010.00147.x>.
63. Kuempel, C.D., Chauvenet, A.L.M., Symes, W.S., and Possingham, H.P. (2021). Predicted protected area downsizing impedes conservation progress across terrestrial ecoregions in the tropics and subtropics. *Conserv. Sci. Pract.* 3, e529. <https://doi.org/10.1111/csp2.529>.
64. Shakyia, B., Uddin, K., Yi, S., Bhatta, L.D., Lodhi, M.S., Htun, N.Z., and Yang, Y. (2021). Mapping of the ecosystem services flow from three protected areas in the far-eastern Himalayan Landscape: an impetus to regional cooperation. *Ecosyst. Serv.* 47, 101222. <https://doi.org/10.1016/j.ecoser.2020.101222>.
65. Martín-López, B., Felipe-Lucia, M.R., Bennett, E.M., Norström, A., Peterson, G., Plieninger, T., Hicks, C.C., Turkelboom, F., García-Llorente, M., Jacobs, S., et al. (2019). A novel telecoupling framework to assess social relations across spatial scales for ecosystem services research. *J. Environ. Manage.* 241, 251–263. <https://doi.org/10.1016/j.jenvman.2019.04.029>.
66. Qin, S., Golden Kroner, R.E., Cook, C., Tesfaw, A.T., Braybrook, R., Rodriguez, C.M., Poelking, C., and Mascia, M.B. (2019). Protected area downgrading, downsizing, and degazettement as a threat to iconic protected areas. *Conserv. Biol.* 33, 1275–1285. <https://doi.org/10.1111/cobi.13365>.
67. Enfors-Kautsky, E., Järnberg, L., Quinlan, A., and Ryan, P. (2021). Wayfinder: a new generation of resilience practice. *Ecol. Soc.* 26. <https://doi.org/10.5751/ES-12176-260239>.
68. Kuiper, J. (2021). Building capacity for resilient and inclusive conservation of cultural landscapes. *Panor. Solut. A Heal. Planet.* <https://panorama.solutions/en/solution/building-capacity-resilient-and-inclusive-conservation-cultural-landscapes>.
69. Andersson, E., Sellberg, M., and Kuiper, J.J. (2020). ENVISION Fact Sheet: Building Capacity for Resilient and Inclusive Conservation of Cultural Landscapes. <https://doi.org/10.5281/zenodo.4386500>.
70. Kueffer, C., Schneider, F., and Wiesmann, U. (2019). Addressing sustainability challenges with a broader concept of systems, target, and transformation knowledge. *GAIA* 28, 386–388. <https://doi.org/10.14512/gaia.28.4.12>.
71. Faith, D.P. (2021). Valuation and appreciation of biodiversity: the “maintenance of options” provided by the variety of life. *Front. Ecol. Evol.* 9, 201. <https://doi.org/10.3389/fevo.2021.635670>.
72. Guirunet, L., Gerritsen, P.R.W., Sierra-Huelsz, J.A., Flores-Díaz, A.C., García-Frapolli, E., García-Serrano, E., Pascual, U., and Balvanera, P. (2021). Beyond participation: how to achieve the recognition of local communities’ value-systems in conservation? Some insights from Mexico. *People Nat.* 3, 528–541. <https://doi.org/10.1002/pan3.10203>.

73. Turkelboom, F., Leone, M., Jacobs, S., Kelemen, E., García-Llorente, M., Baró, F., Termansen, M., Barton, D.N., Berry, P., Stange, E., et al. (2018). When we cannot have it all: ecosystem services trade-offs in the context of spatial planning. *Ecosyst. Serv.* 29, 566–578. <https://doi.org/10.1016/j.ecoser.2017.10.011>.
74. Filyushkina, A. (2020). Identification of visions for protected area management and quantification of their consequences in Utrechtse Heuvelrug and Kromme Rijn (Netherlands). *Panor. Solut. A Heal. Planet.* <https://panorama.solutions/en/solution/identification-visions-protected-area-management-and-quantification-their-consequences>.
75. De Vries Lentsch, A., and Metzger, M. (2018). STREAMLINE - a Visual Interview Methodology that Makes Semi-structured Interviews, Focus Groups and Stakeholder Workshops More Fun and Accessible (Univ. Edinburgh Dataset). <https://doi.org/10.7488/ds/2437>.
76. Sugrue, T.J. (2014). All politics is local: the persistence of localism in twentieth-century America. In *The Democratic Experiment* (Princeton University Press), pp. 301–326. <https://doi.org/10.1515/9781400825820.301>.
77. Cresswell, T. (2013). *Geographic Thought: A Critical Introduction* (Wiley-Blackwell).
78. Berkes, F. (2007). Community-based conservation in a globalized world. *Proc. Natl. Acad. Sci. U S A* 104, 15188–15193. <https://doi.org/10.1073/pnas.0702098104>.
79. Gillson, L., Biggs, H., Smit, I.P.J., Virah-Sawmy, M., and Rogers, K. (2019). Finding common ground between adaptive management and evidence-based approaches to biodiversity conservation. *Trends Ecol. Evol.* 34, 31–44. <https://doi.org/10.1016/j.tree.2018.10.003>.
80. Hill, R., Adem, Ç., Alangu, W.V., Molnár, Z., Aumeeruddy-Thomas, Y., Bridgewater, P., Tengö, M., Thaman, R., Adou Yao, C.Y., Berkes, F., et al. (2020). Working with indigenous, local and scientific knowledge in assessments of nature and nature's linkages with people. *Curr. Opin. Environ. Sustain.* 43, 8–20. <https://doi.org/10.1016/j.cosust.2019.12.006>.
81. Balvanera, P., Jacobs, S., Nagendra, H., O'farrell, P., Bridgewater, P., Crouzat, E., Dendoncker, N., Goodwin, S., Gustafsson, K.M., Kadykalo, A.N., et al. (2020). The science-policy interface on ecosystems and people: challenges and opportunities. *Ecosyst. People* 16, 345–353. <https://doi.org/10.1080/26395916.2020.1819426>.
82. Kadykalo, A.N., Buxton, R.T., Morrison, P., Anderson, C.M., Bickerton, H., Francis, C.M., Smith, A.C., and Fahrig, L. (2021). Bridging research and practice in conservation. *Conserv. Biol.* 35, 1725–1737. <https://doi.org/10.1111/cobi.13732>.
83. Cebrán-Piqueras, M.A., Filyushkina, A., Johnson, D.N., Lo, V.B., López-Rodríguez, M.D., March, H., Oteros-Rozas, E., Pepller-Lisbach, C., Quintas-Soriano, C., Raymond, C.M., et al. (2020). Scientific and local ecological knowledge, shaping perceptions towards protected areas and related ecosystem services. *Landsc. Ecol.* 35, 2549–2567. <https://doi.org/10.1007/s10980-020-01107-4>.
84. Lyons, I., Hill, R., Deshong, S., Mooney, G., and Turpin, G. (2019). Putting uncertainty under the cultural lens of traditional owners from the great barrier reef catchments. *Reg. Environ. Chang.* 19, 1597–1610. <https://doi.org/10.1007/s10113-019-01468-w>.
85. Hill, R., Walsh, F.J., Davies, J., Sparrow, A., Mooney, M., Wise, R.M., and Tengö, M. (2020). Knowledge co-production for Indigenous adaptation pathways: transform post-colonial articulation complexes to empower local decision-making. *Glob. Environ. Chang.* 65, 102161. <https://doi.org/10.1016/j.gloenvcha.2020.102161>.
86. Andrade, R. (2021). Inclusive conservation through social learning in Alaska protected areas. *Panor. Solut. A Heal. Planet.* <https://panorama.solutions/en/solution/inclusive-conservation-through-social-learning-alaska-protected-areas>.
87. Johnson, D., and van Riper, C.J. (2021). A Social-Ecological Inventory of the Region Surrounding Denali National Park and Preserve, Alaska (ENVISION Deliverable). <https://doi.org/10.5281/zenodo.4527775>.
88. Chapron, G., and López-Bao, J.V. (2020). The place of nature in conservation conflicts. *Conserv. Biol.* 34, 795–802. <https://doi.org/10.1111/cobi.13485>.
89. Redpath, S.M., Young, J., Evely, A., Adams, W.M., Sutherland, W.J., Whitehouse, A., Amar, A., Lambert, R.A., Linnell, J.D.C., Watt, A., et al. (2013). Understanding and managing conservation conflicts. *Trends Ecol. Evol.* 28, 100–109. <https://doi.org/10.1016/j.tree.2012.08.021>.
90. Cairns, R., Sallu, S., and Goodman, S. (2014). Questioning calls to consensus in conservation: a Q study of conservation discourses on Galápagos. *Environ. Conserv.* 41, 13–26. <https://doi.org/10.1017/S0376892913000131>.
91. Skrimizea, E., Lecuyer, L., Bunnefeld, N., Butler, J.R.A., Fickel, T., Hodgson, I., Holtkamp, C., Marzano, M., Parra, C., Pereira, L., et al. (2020). Sustainable agriculture: recognizing the potential of conflict as a positive driver for transformative change. In *Advances in Ecological Research* (Academic Press Inc.), pp. 255–311. <https://doi.org/10.1016/bs.aecr.2020.08.003>.
92. Swyngedouw, E. (2011). Depoliticized Environments: the end of nature, climate change and the post-political condition. *R. Inst. Philos. Suppl.* 69, 253–274. <https://doi.org/10.1017/S1358246111000300>.
93. Sandbrook, C. (2017). Weak yet strong: the uneven power relations of conservation. *ORYX* 51, 379–380. <https://doi.org/10.1017/S0030605317000618>.
94. Tesfaw, A.T., Pfaff, A., Golden Kroner, R.E., Qin, S., Medeiros, R., and Mascia, M.B. (2018). Land-use and land-cover change shape the sustainability and impacts of protected areas. *Proc. Natl. Acad. Sci.* 115, 2084–2089. <https://doi.org/10.1073/pnas.1716462115>.
95. Peterson, M.N., Peterson, M.J., and Peterson, T.R. (2005). Conservation and the myth of consensus. *Conserv. Biol.* 19, 762–767. <https://www.jstor.org/stable/3591066>.
96. Mudliar, P., and Koontz, T. (2018). The muting and unmuting of caste across inter-linked action arenas: inequality and collective action in a community-based watershed group. *Int. J. Commons* 12, 225–248. <https://doi.org/10.18352/ijc.807>.
97. Keles, D., Delacote, P., Pfaff, A., Qin, S., and Mascia, M.B. (2020). What drives the erasure of protected areas? Evidence from across the Brazilian amazon. *Ecol. Econ.* 176, 106733. <https://doi.org/10.1016/j.ecolecon.2020.106733>.
98. Berbés-Blázquez, M., González, J.A., and Pascual, U. (2016). Towards an ecosystem services approach that addresses social power relations. *Curr. Opin. Environ. Sustain.* 19, 134–143. <https://doi.org/10.1016/j.cosust.2016.02.003>.
99. López Rodríguez, M. (2021). Decision-making toolbox for inclusive conservation in the Sierra de Guadarrama national park. *Panor. Solut. A Heal. Planet.* <https://panorama.solutions/en/solution/decision-making-toolbox-inclusive-conservation-sierra-de-guadarrama-national-park>.
100. Wyborn, C., Montana, J., Kalas, N., Clement, S., Davila, F., Knowles, N., Louder, E., Balan, M., Chambers, J., Christel, L., et al. (2021). An agenda for research and action toward diverse and just futures for life on Earth. *Conserv. Biol.* 35, 1086–1097. <https://doi.org/10.1111/cobi.13671>.
101. Visseren-Hamakers, I.J., Razaque, J., McElwee, P., Turnhout, E., Kelemen, E., Rusch, G.M., Fernández-Llamazares, A., Chan, I., Lim, M., Islar, M., et al. (2021). Transformative governance of biodiversity: insights for sustainable development. *Curr. Opin. Environ. Sustain.* 53, 20–28. <https://doi.org/10.1016/j.cosust.2021.06.002>.
102. Dryzek, J.S., and Pickering, J. (2017). Deliberation as a catalyst for reflexive environmental governance. *Ecol. Econ.* 131, 353–360. <https://doi.org/10.1016/j.ecolecon.2016.09.011>.
103. Shapiro, D. (2017). *Negotiating the Nonnegotiable: How to Resolve Your Most Emotionally Charged Conflicts* (Penguin).
104. Martin, A., Coolsaet, B., Corbera, E., Dawson, N.M., Fraser, J.A., Lehman, I., and Rodríguez, I. (2016). Justice and conservation: the need to incorporate recognition. *Biol. Conserv.* 197, 254–261. <https://doi.org/10.1016/j.biocon.2016.03.021>.