



## Perspective

## Re-centering social justice in conservation science: Progressive policies, methods, and practices

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## ABSTRACT

From the inception of the field itself, conservation biology has been described as a mission-driven discipline. While the mission orientation has been aligned to protect and recover biodiversity, the manner in which conservation practice has been implemented has, at various times and in various places, come at a cost to the basic rights of local people. With multi-national commitments aiming to expand protected areas both in number and size, there is the potential for human rights violations to also rise. Importantly, biodiversity conservation and human rights are not incompatible spheres. Herein, both ecological and social values can be integrated to reshape conservation science and increase the efficacy of the discipline's applied practices. To do so, however, the social justice dimensions must be highlighted and amplified and various methods, techniques, and applied practices to uplift local people in conservation, must necessarily be incorporated. To this end we have edited a Special Issue in Biological Conservation called "The Central Importance of Social Justice in Conservation." Here, we discuss the reasons why social justice is integral to effective conservation practice. We then briefly highlight the impressive work being performed around the world to embed principles of social justice within the fabric of progressive conservation practice. Exploring case studies of emergent techniques and methods to conserve biodiversity and improve the well-being of local human communities, we conclude by discussing how the integrity of coupled human and natural systems requires conservation practice that facilitates the protection of biodiversity via the promotion of human social justice.

## 1. Conservation as a crisis discipline

Conservation biology was specifically formed to respond to the challenge of biodiversity loss (Soulé, 1985, 1986; Trombulak et al., 2004). When it was originally established in the late 1970's, the founders intentionally differentiated conservation biology from other concomitant and related fields of study (Soulé and Wilcox, 1980; Van Dyke and Lamb, 2020). Conservation biology was presented as a mission-driven discipline that conducted research on biodiversity loss and translated that research into policies and practices that could recover biodiversity (Meine et al., 2006). It may not have been clear at that time just how challenging it would be to be successful in pursuit of these goals. For example, since these goals were established, greater than 65 % of

biodiversity on planet Earth has been lost (see Leclère et al., 2020). Nevertheless, it is within these founding documents that we find the first allusions and references to conservation biology as a reactive discipline, imbued with a sense of urgency and desperation. "Conservation biology differs from most other biological sciences in one important way: it is often a crisis discipline. Its relation to biology, particularly ecology, is analogous to that of surgery to physiology and war to political science" (Soulé, 1985, p. 727). Herein, we see reference to conservation biology being entrenched in a war on environmental degradation and biodiversity loss. The strong and emotive constructs of these themes have brought forth a 'conserve at all costs' mentality that has encouraged green militarization and fortress conservation. For conservation to retain moral legitimacy, it needs to weigh the pros and cons of less

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socially unjust options, just as crisis interventions in medicine and public health have considered via dark logic models (Cavanagh and Brehony this issue).

The implementation of forceful ‘conservation practices’ have violated basic human rights, alienated Indigenous Peoples and Local Communities (IPLC), devalued local knowledge, and broken trust with local communities (Butt et al., 2019; López-Cubillos et al., 2022). Where these issues have occurred, it has often been detrimental to biodiversity conservation, either immediately or in the long run (Massé and Luns-trum, 2016; Duffy et al., 2019). In such cases, social justice should be viewed as a cornerstone to the effective implementation of conservation practice, not an optional extra (Washington et al. this issue).

## 2. Ecological versus social value systems

A central tension within conservation biology is the historic and present tendency to place ecological values in a position of primacy (Redford and Sanderson, 2000). The logic here is that the very existence of human society depends on a healthy environment with comparative stasis in abiotic and biotic conditions (Pörtner et al., 2023). Those conditions, however, have been disturbed by concurrent growth of human populations and the built environment necessary to support those populations (Chapin Iii et al., 2000). Consequently, there is a strong negative correlation between human population growth and biodiversity loss (Crist et al., 2017). The implication is that ecological justice and ecological values must be prioritized if, for no other reason, than to ensure that human societies can continue to inhabit the Earth (Piccolo et al., 2022). Some have suggested, however, that privileging ecological values can be detrimental to social values (Jonas et al., 2021) and questioned how conservation can be prioritized over basic human rights (Dowie, 2011). We argue that ecological and social values are not incommensurate and that both are essential to robust and effective conservation practice (Beattie et al. this issue). The greatest test of integration of ecological and social values has been in the implementation of protected area management. Such testing, however, has never considered conservation instruments that may have seeds of social injustice built into their fabric (see Cavanagh and Brehony this issue; Mahalwal and Kabra this issue).

## 3. History of protected area establishment

The establishment of protected areas (including national parks, game reserves, and community conservancies) is one of the principal strategies for preserving the environment and conserving biodiversity (Allan et al., 2022). The historic growth of protected areas globally was facilitated by imperialism and colonialism, especially the American model of national park creation and European land tenure systems (Grove, 1996; Brockington, 2004). The implementation of these two models has often proved to be detrimental to the IPLC living in the areas that have been subsequently allocated for conservation (Montgomery, 2020). Such communities were commonly stripped of their rights to land, made to relocate via forced evictions, and stripped of their sovereignty (Brockington and Igoe, 2006). These issues are not only historic in nature, but they are also contemporaneous (e.g. Mahalwal et al. this issue). With the establishment of new protected area complexes or new conservation management strategies, there is a potential conflict over access to lands for IPLC cultivation and subsistence (Meng et al., 2023). This raises the question whether, in certain parts of the world, the very conception of protected areas as being people-free should be revisited.

## 4. 30 by 30 commitments

Irrefutable evidence has made clear that the combined effects of climate change and biodiversity loss represent one of the most profound issues ever confronted by human society (Dinerstein et al., 2020). In light of this existential threat, by the turn of 2020 a number of proposals

had been presented and considered to drive environmental sustainability globally. One of these proposals was the so-called Half Earth, also known as Nature Needs Half, concept which articulated that as much as half of the planet should be under some form of protected area management (Dinerstein et al., 2019). Another such measure, agreed at the United Nations Biodiversity Conference COP15 in 2022 and ratified via the Kunming-Montreal Global Biodiversity Framework (UN CBD, 2022), advocated for the protection of 30 % of the world's terrestrial, aquatic, and coastal areas by the year 2030 (i.e., the 30 by 30 initiative). Although this framework broadly recognizes the rights of IPLCs within these conservation initiatives, the social justice dimensions would depend upon the individual practices of national governments. The history of national park and protected area establishment has led to concerns about the human rights of the approximately 1 billion people that presently reside within the boundaries of the new protected areas that have been envisioned via the Half Earth concept (Schleicher et al., 2019). Though not intended, as most of these areas will be managed under the ‘other effective area-based conservation measures’ (OECMs; Jonas et al., 2021), protected area expansion could endanger social justice on a grand scale. If undertaken well, however, IPLCs could benefit from the protected area management through implementation of new paradigms of conservation practice (Montgomery et al., 2020; Waldron et al., 2020). Once again, these contexts highlight the central importance of social justice in conservation.

## 5. Themes of the special issue

Via the process of editing this Special Issue in Biological Conservation, we have had the pleasure of ushering into print 12 articles developed by a diverse set of authorship groups. This research has derived from a variety of systems around the world covering all aspects of conservation social justice. As editors, we have distilled the contents of this Special Issue into four primary themes. Here, we discuss each of these themes, present the context in which the themes are relevant, and briefly link to the aligned findings of the articles in this special issue.

### 5.1. Fortress conservation and social (in)justice

Fortress conservation involves eviction or restrictions on access of IPLCs. Despite global policy consensus around fair compensation to mitigate injustice, its consequences for local communities have been predominantly negative (Brockington and Igoe, 2006; Cernea and Schmidt-Soltau, 2006; Rangarajan and Shahabuddin, 2010). In response, policy solutions now suggest ‘voluntary’ relocation with free prior-informed consent, higher compensation, proper rehabilitation, and efforts to introduce new livelihoods and benefit-sharing through activities like ecotourism. These purported win-win-win scenarios for humans, biodiversity, and markets (Karanth et al., 2018; Karanth, 2018; Brockington and Duffy, 2011) have gained enormous currency in protected area policy-making.

Fortress conservation is based on the notion of ‘human disturbance’ and inherently values ‘pristine’ habitats as being best suited to conservation (Schulze et al., 2017). This idea is contested in both ecological and social sciences (Kabra, 2019). Environmental history shows that the nature-culture binary is rooted in a colonial logic that views civilized spaces as distinct and separate from wilderness (Cronon, 1996). Most ‘wilderness’ contained in the global network of protected areas is actively constructed by human actions, and the task of ‘saving’ nature requires answering inherently biopolitical questions about whom it is to be saved *from*, and whom *for* (Brockington and Wilkie, 2015). A way forward is to study this question through the lens of biopolitics, or the decision to privilege some (mostly non-human) lives over others (human and non-human) at the level of individuals, species and communities (Biermann and Anderson, 2017).

This special issue here brings together empirical and conceptual insights aimed at fostering dialogue between proponents of fortress

conservation, community-based conservation, and radical alternatives. Cavanagh and Brehony, for instance, find that like medicine and public health, the use of dark logic models can help conservationists to actively anticipate the potential harm to vulnerable social groups whose contribution to biodiversity collapse is the lowest. Mahalwal and Kabra unpack the long-term micropolitical processes of ‘slow violence’ through which legitimacy is created for socially unjust fortress conservation, making the case to critically evaluate labels like ‘voluntary’ and ‘win-win’. Carmenta et al. highlight that biodiversity collapse is not necessarily linked to local resource use practices and could be driven by wealth accumulation in distant places. They make a case for Connected Conservation, a two-pronged approach that aims to reduce distant drivers of biodiversity collapse and empower local stewards of biodiversity. At the same time, Picolo et al. make a plea for a more nuanced reading of conservation’s colonial connection, highlighting the need to focus our critique towards actors and structures that oppress vulnerable humans and nonhumans.

### 5.2. Communities as traditional ecological knowledge holders

Many IPLC have developed intimate knowledge about nature that often includes detailed knowledge of ecosystem interactions and management developed over many generations (Molnár et al., 2024). For Indigenous Peoples, at least, the ecosystems they manage and/or own have been found to be in better ecological condition and are deteriorating less quickly than those managed under other management systems (Fa et al., 2020), even under conditions of duress (Beattie et al. this issue). The ecological management of such lands is often inseparable from the culture and worldview of the IPLC that manage it (Campion et al., 2023; Sarkki et al. this issue). The first challenge of meeting 30 × 30 targets will be making sure that such worldviews are respected (Molnár et al. this issue). This in turn requires that the holders of those worldviews are sufficiently empowered so that they are equal partners in any OECMs that may be agreed. This will require innovative approaches, such as those suggested by Carmenta et al. (this issue) to strengthen collaboration between telecoupled local communities and wealthy global markets. When species go extinct, millions of years of evolutionary history goes with them. When TEK is lost, and it is under tremendous pressure (Fernández-Llamazares et al., 2021), many thousands of years of accumulated knowledge of how to live in constructive partnership with species can also be swept away by a modernity that will prove ephemeral unless humanity recognizes how much its future relies on both ecological and social justice.

Contemporary conservation recognizes the role of IPLC and the importance of traditional ecological knowledge to inform and direct conservation policies and practices. International declarations and conventions as well as national legislations often incorporate general mentions of traditional ecological knowledge and the protection of the rights of IPLC to preserve, protect, diffuse, share, and obtain benefits from their ecological knowledge (United Nations, 2007; International Labor Organization, 1989; United Nations, 1992; International Treaty on Plant Genetic Resources for Food and Agriculture, 2004, among others). However, there are still many gaps in understanding of how different knowledge systems should interact in the design of conservation policies and the implementation of conservation initiatives. This is important because rhetorical references to Indigenous knowledge could imply either its instrumentalization or assimilation to justify top-down conservation policies and practices (Agrawal, 1995).

In this special issue, Indigenous ecological knowledge is a relevant theme across different articles. Authors have directly or indirectly reflected on Indigenous knowledge concerning the ‘technological turn’ in biodiversity conservation (Parris-Piper et al., 2023). Danielle et al. (this issue) discuss how remote sensing technologies might either promote or diminish Indigenous Peoples rights and social justice in conservation. For instance, the use of drones in combination with Indigenous knowledge of their territory might support stewardship over highly biodiverse

lands. In this regard, Beattie et al. (this issue) based on satellite analysis, found that Indigenous Peoples have been able to moderate ecosystem degradation before, during, and after armed conflict because of their ties to their lands and their determination to protect their territories. These authors suggest that recognition and support for these efforts is not only socially just but also essential for the global post-2020 conservation targets. Ripeka et al. (this issue) explore how Indigitization might reinforce data sovereignty by the transfer of Indigenous ecological knowledge through digital platforms to younger Māori generations in New Zealand. However, new technologies might also facilitate criminalization and harmful forms of surveillance that affect privacy and data sovereignty of those living in conservation areas (Danielle et al. this issue).

Indigenous knowledge is also inspiring new theoretical and governance frameworks. Robinson et al. (this issue) examine how big data production systems in conservation can be renegotiated to address conservation inequalities and injustices in local communities. Rather than assimilate Indigenous and local knowledges, they suggest new ways of collecting, curating, analyzing, and translating data insights so that diverse voices are included in knowledge governance to inform conservation decisions. Carmenta et al. (this issue) criticize how conventional conservation prioritizes local interventions and site-level protection rather than actions focused on wealthy centres. They propose “Connected Conservation” to amplify the contributions of IPLC knowledge and practices to conservation beyond their immediate environments towards the redefinition of common visions of prosperity and plural values in society at large. Aguilar and Webb (this issue) expand the notions of diversity, wellbeing, and coexistence as ‘keystones for conservation’. They propose a more holistic understanding of biodiversity as inclusive of intersecting human and nonhuman diversity across every axis (race/ethnicity, species), including ways of knowing across scales.

Indigenous knowledge also inspires the openness of conservation towards a plural knowledge ecosystem, that includes traditional knowledge of non-Indigenous Peoples. In this regard, Molnár et al. (this issue) address the limited recognition of traditional knowledge holders in Europe, such as the knowledge of small-scale, traditional farmers and herders, forest users, hunters, fishers, foragers, and other inhabitants that know, manage, and steward their surrounding environment. The analysis illustrates how European traditional knowledge holders are often underrepresented in global conservation institutions, for example in the negotiations of the Convention on Biological Diversity (CBD) and in the assessments of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

### 5.3. Solutions promoting human-wildlife coexistence

Conservation paradigms of management have evolved from fortress and exclusionary conservation in which human communities were removed from conservation initiatives towards community or rights-based conservation, in which conservation must be based on community rights and their effective participation. Whereas internationally there seems to be a consensus on the participatory rights of IPLC in conservation, nationally it is very contentious to define to what extent participatory rights entitle these peoples to co-management and self-determination over conservation initiatives.

In this context, the articles within this special issue presented different frameworks, governance models, and scenarios to achieve solutions for human-wildlife coexistence. Unbalanced forms of coexistence might generate indirect forms of ‘slow violence’ by forcing people to ‘voluntary relocation’ as shown by Mahalwal and Kabra (this issue) in the Kuno National Park, India. The very notion of coexistence might also be revisited considering interdisciplinarity in the conservation field. In this regard, Kaye and Webb (this issue) problematize the restricted notion of coexistence concentrated on humans and other animals at population scales, leaving knowledge gaps concerning non-animal

species (e.g., plants, microbes), individual experiences, and socio-ecological systems. They propose to expand the study of coexistence to the broader multispecies processes and socioecological systems, and better understand how ecological, sociocultural, and political-economic mechanisms can promote human-nonhuman coexistence across the biosphere.

The articles by Washington et al. and Carmenta et al. (this issue) criticize contemporary conservation for its emphasis on in-site initiatives foreclosing the broader and unequal political economy. Washington et al. (this issue) formulate different critiques of decolonizing conservation and one of them relates to how critical approaches produce infighting between conservationists and local community advocates, shifting the focus away from the main political actors and economic structures oppressing both non-human species and poor and marginalized peoples. Relatedly, Carmenta et al. (this issue) propose “Connected Conservation” in contrast to conventional conservation that focuses on site-based interventions often in combination with local poverty alleviation initiatives. This new approach challenges conservation to target wealth accumulation in distant geographies as the key factor driving environmental degradation.

Sarkki et al. (this issue) discuss the different scenarios that have been designed to achieve ambitious conservation targets. The Half Earth concept might be a major driver for conflicts due to its hierarchical top-down attempt to protect 50 % of the Earth, and leave the other half for economic activities. The “Sharing the Planet” scenario seeks that diverse people can live in and use landscapes in a way that does not exceed environmental limits. Despite being based on collaborative governance, this scenario may not be able to secure the rights of IPLCs, who often depend on large areas of land for their traditional livelihoods and ways of life. The authors propose the “Rights for Life” scenario as fit for sparsely-populated indigenous homelands and rural regions where local communities depend on culturally important nature-based livelihoods for their well-being. The key premise of this scenario is that IPLCs rights must be formally institutionalized in policy and legal frameworks to ensure environmental sustainability and social equity. In summary, these articles challenge current forms of conservation theory and practice by integrating into the field different scales, dimensions, and approaches to social justice.

#### 5.4. Centrality of race in efforts to deal with (in)justice in biodiversity conservation

While arguing that modern conservation is not necessarily colonial nor racist (a point noted by Washington et al. this issue) we cannot afford to ignore the imperial history of biodiversity conservation in formerly-colonized regions of the world. As we argue here, great efforts have been made globally to rid conservation of its racist legacy in these former colonies, yet recent studies continue to demonstrate how challenging it is to decolonize conservation (Rudd et al., 2021; Price et al. this issue). Thus, in line with Derek Gregory's framing, identifying that the colonial present remains a force in conservation, there continues to be discomfort among conservation practitioners, and indeed conservation scholars, to explicitly confront the issue of race in conservation (Kepe, 2009).

As can be seen from studies in this special issue, great strides have been made to center social justice in conservation, but it needs to be acknowledged that, in addition to ambiguities of buzzwords including *justice* (Cornwall, 2007), injustices are multiple, complex, and unevenly experienced by people. Injustices can be violent (Mahalwal and Kabra this issue) and can lead to what Atuahene (2016) calls ‘dignity taking’ when they lead to dehumanization of a people affected by colonial projects involving their ancestral lands. Historically marginalized Black, Indigenous, and People of Color (BIPOC) communities in the formerly-colonized regions of the world arguably constitute the majority of the people that Atuahene argues have, and continue to experience ‘dignity taking’, by virtue of not having the freedom of agency of decision

making on their ancestral lands. Efforts to reverse these paradigms are challenging, but explicitly confronting the race issue in conservation is one small, yet powerful, way to increase efforts to bring about justice in biodiversity conservation. It is perhaps important to consider John Rawls' (1999) principle of difference that favors the prioritizing of marginalized people in the distribution of benefits. Anything less than that, it can be argued, appears to ignore social justice. This reminds us that attainment of justice has to move beyond catch phrases such as equity, inclusion, participation, to mention a few, to be possibly radical in prioritizing the most marginalized people, largely defined as the BIPOC population. These are some of the issues that need to be prioritized in future research. Such activities are integral to progressive conservation efforts, especially because many biodiversity hotspots overlap with lands occupied by BIPOC people (Beattie et al. this issue).

## 6. Making conservation practice more effective

The unabated loss of biodiversity globally has made clear just how challenging it has been for conservation biology to achieve the two founding goals of the discipline. The loss of biodiversity also underscores how urgently it is needed for conservation science to adapt and evolve. The diversity of papers in this Special Issue provide practical guidance on how social justice can be integrated into conservation practice to generate more effective outcomes. Though humans have long struggled with conceptualizing their roles within trophic systems (see Tansley, 1935; Alberti et al., 2003; Moll et al., 2021), there is no question that people are integral components of coupled human and natural systems throughout the world. For instance, there are a diversity of roles that humans play in trophic ecology, many of which are beneficial to biodiversity recovery (Gardner et al., 2022). Increased efforts to integrate ecological and social values in conservation science will be essential to pushing the discipline forward to more effectively confront the challenges of the future. Future success will be predicated upon the implementation of strategies to enable IPLC to be placed in their rightful position as conservation ambassadors.

### CRedit authorship contribution statement

**Robert A. Montgomery:** Conceptualization, Investigation, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing. **Asmita Kabra:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing. **Thembele Kepe:** Conceptualization, Writing – original draft, Writing – review & editing. **Stephen Garnett:** Conceptualization, Writing – original draft, Writing – review & editing. **Roger Merino:** Conceptualization, Writing – original draft, Writing – review & editing.

### Declaration of competing interest

The authors declare that they have no competing interests.

### Data availability

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