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***Toward a pluralistic conservation science.* Conservation Letters, 16 (3). ISSN 1755-263X.**

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Toward a pluralistic conservation science

Abstract

This editorial reflects on the history of the conservation movement, the strong continuing influence of its colonial past, and the counter-emergence of a more pluralistic and respectful worldview. Conservation Letters seeks to support and foster an ethical and inclusive discipline of conservation that discards elements of its colonial and racist history. This will involve broadening the disciplinary scope of “conservation” and paying greater attention to traditional ecological knowledge and nonwestern conservation approaches. We also see a particular need for theoretical advances that guide conservation practice by informing and connecting different kinds of expertise to understand social-ecological interactions and their implications for both people and ecosystems. Conservation can and should play a vital role in securing the joint future of ecosystems and people, but it will only achieve its full potential if it retains its social license and stays relevant to emerging concerns and values.

KEYWORDS

biodiversity, conservation biology, conservation practice, Indigenous knowledge, justice, wildlife management

1 | INTRODUCTION

“Conservation” means different things to different people. Many conservation scientists would define it as a mission-oriented “crisis discipline,” seeking to rescue under-pressure biological diversity from the harmful impacts of humanity (e.g., see Hunter & Gibbs, 2006; Soulé, 1985, 1991; Soulé & Wilcox, 1980). Some contemporary textbooks (e.g., Sher, 2022) still define the three goals of conservation as: (1) documenting biological diversity on earth; (2) investigating human impacts on biological diversity and systems; and (3) developing approaches to prevent

species extinctions and restore biological communities and their associated functions. Conservation has also, however, become a more general umbrella for a set of theories, values and actions that facilitate ecologically sustainable land use and management (Gavin et al., 2015; Robinson, 2006; Van Dyke, 2008); and for its critics, conservation is now an outdated artifact of colonial thinking and resource appropriation (Domínguez & Luoma, 2020).

There is no denying that conservation, in rhetoric and in practice, has changed tremendously over the past 20–30 years. Compared to 30 years ago, the conservation sector seems far more aware of the social, psychological, political and economic aspects of conservation. There is ongoing interest, for example, in the diverse values and benefits that influence human interactions with biodiversity; local knowledge and adaptation; and environmental justice, equity, and power dynamics (Chambers et al., 2021; Díaz et al., 2019; Mastrángelo et al., 2019). These changes have expanded recognition of the underlying values of conservation beyond its initial intrinsic focus to explicitly include the relevance of instrumental values (Kareiva & Marvier, 2012) and relational values (Chan et al., 2016). It is increasingly recognized that the ultimate success of conservation initiatives depends on balancing ecological objectives with other important concerns, such as social justice and human well-being (Loos, 2021; Mullenbach et al., 2022).

Despite its continued broadening and diversification, conservation still encounters barriers arising from persistent historical attitudes and assumptions. Critiques from political ecology and critical conservation social science (e.g., Adams & Hutton, 2007; Brockington et al., 2012; Duffy, 2010; Holmes & Cavanagh, 2016; Wong et al., 2022) remain valid in some sectors of conservation. Conservation failures still occur because of outdated approaches, such as imposing top-down change on local communities, ignoring power imbalances, or being insensitive to histories of land ownership. Some recent examples include the naïve creation of marine protected areas that negatively impact the livelihoods of small-scale fishers (Ban et al., 2019;

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Bennett et al., 2017; Chuenpagdee et al., 2013); the complex tangle of imposed and polarized western values relating to safari hunting in Africa (discussed in Dickman et al., 2019; Mbaiwa & Hambira, 2021); the involvement of global conservation NGOs in the displacement and harassment of Indigenous people to make way for “wilderness” protected areas (Ramutsindela et al., 2022); and community forestry initiatives that impose conservation measures over local rights to natural resources (Hajjar et al., 2021; Sigman, 2022).

In this editorial, we reflect on how we see the field of conservation changing and how we hope that content published in *Conservation Letters* will respond. We will speak to these topics briefly, and subjectively, by reflecting on four main themes: (1) the origins of conservation as an academic and practical discipline; (2) the need to recognize and support ongoing efforts to reframe conservation; (3) the need for pluralism and the recognition that there is no one-size-fits-all panacea for solving conservation problems; and (4) disciplinary and ethical norms and standards for conservation.

2 | THE ORIGINS OF CONSERVATION

Perhaps we should not be surprised by ongoing conservation failures stemming from historical attitudes. The history of western conservation (as opposed to often pre-existing sustainable resource use by Indigenous peoples) begins with the writings of predominantly white, wealthy men of European ethnicity, often living in European colonies. In many cases, they mistakenly assumed that recently depopulated landscapes, that had been influenced by people for thousands of years, were genuinely representative of “wild nature” (Butzer, 1992; Sluyter, 2001). The “gentleman naturalists” recognized many of the values of nature, as well as the need to ensure that biodiversity and its associated ecological functions were maintained in the midst of economic growth and development. However, they typically failed to grasp the broader impacts of their own culture and society on those landscapes, or the relationships of other cultures to the land. Their observations were supported and reinforced by existing narratives of colonization.

In the United States, early conservationists were able to achieve the commitment of large areas of public land to biodiversity conservation or other nonfarming uses through the support of the federal government (Van Dyke, 2008). Although many early conservation leaders practiced ecologically focused land management on their own properties (e.g., Leopold, 1966), the American conservation movement focused on “wilderness” (Case et al., 2020). It created a vision of conservation that relied on the creation of protected areas without human inhabitants. This

movement had parallels in many European colonies, with parks being created in Australia, South Africa and elsewhere in the late 19th century. In these places, the original human inhabitants of the “wilderness” were displaced, either before or after protected area creation, and their own land ethics and management approaches were generally ignored or lost (Stark et al., 2022). Western conservation seems to have been less concerned with the oceans until the 1960s and 1970s, with the world’s first marine parks created in 1975 (Cape Hatteras, USA and the Great Barrier Reef Marine Park, Australia). Additional conservation goals (e.g., invasive species management, protection of vulnerable animal populations, containment of far-ranging species, reductions in poaching and human-wildlife conflict) became important in some locations, resulting in such strategies as the creation of island sanctuaries to protect species that were vulnerable to introduced predators (Burbidge, 1999) and the erection of fences, often with further implications for access by Indigenous communities (e.g., Hoole & Berkes, 2010).

Developments in setting land aside for nature were quite different within Europe, where conservation advocates often had to work with legally recognized ownership rights and upper-class control of prime land and wealth (e.g., Sheail, 1975). Many conservation areas were originally the property of the wealthy (e.g., “crown land”), and had been used as hunting or fishing grounds, managed for forestry, left as key catchment areas, or were unfarmed due to their low agricultural potential. The original European conception of land set aside for nature was therefore quite different from the wilderness model that the same nations applied in their colonies; it was feudal rather than colonial, and included working landscapes used for livestock or timber production. Many examples exist of similar practices outside Europe. For instance, the Indian Emperor Ashoka (268–232 BC) established an early network of protected areas, and the Kushan King Hunishka (106–138 AD) established a conservation forest in Afghanistan (Sinha, 1995). Hluhluwe-Imfolosi National Park in South Africa was demarcated precolonization as a Hunting Reserve for the Zulu Royal Family and was used to provide wild antelope for royal feasts (Hall, 1979). Similarly, after a visit to north-eastern China in 1681, the Kangxi Emperor created an Imperial Hunting Reserve of more than 15,000 km² by resettling the local inhabitants (Reardon-Anderson, 2000).

Notably, most National Parks established in Europe are not, and have never been, formally recognized as “wilderness” areas. In France, for example, the first National Park was only established in 1963 (Vanoise National Park) and the first “wilderness” park in Germany, in 1970 (Bavarian Forest; van der Knaap et al., 2020). The wilderness focus, and its operational assumption that conservation areas should exclude people and production, is squarely rooted in North America and other European colonies.

Intriguingly, the British chose to assemble detailed criteria and lists of locations for new National Parks in Africa in 1931, only initiating a process to do the same in the United Kingdom in 1934 (Hingston, 1931; Sheail, 1975).

Moving forward in time, a series of post-World War concerns about the impacts of economic growth and industrialization on natural environments and human health reignited conservation. This period saw an expansion of conservation efforts beyond area-based measures, with the introduction of international treaties and other measures focusing on particular species (e.g., the 1931 Geneva Convention for Regulation of Whaling [Leonard, 1941] and the 1975 ratification of CITES, The Convention on International Trade in Endangered Species of Wild Fauna and Flora [Wijnstekers, 2003]). The publication of “Silent Spring” in 1962 by Rachel Carson marked a watershed moment in the United States, resulting in various forms of environmental legislation (e.g., the use of DDT as a pesticide was banned in 1972).

“Conservation biology” emerged during the same decade as a scientific discipline in its own right, through the efforts of a number of leading scientists. The writings of one of the most prominent, Michael Soulé, shaped the views of a generation of conservation scholars and practitioners in the 1980s (Hunter & Gibbs, 2006; Noss & Cooperrider, 1994; Soulé, 1985). In his original framing of conservation biology, Soulé (1985) outlined four “functional,” and four “ethical” or “normative” postulates. The ethical postulates included, briefly, that: (1) diversity of organisms is good; (2) ecological complexity is good; (3) evolution is good; and (4) biotic diversity has intrinsic value. Despite inclusion of social science in his list of relevant disciplines for conservation biology, Soulé (1985) made no mention of people as critical elements of conservation problems or solutions; nor of justice, equity or Indigenous people and their rights.

The “nature for itself” and “nature despite people” perspectives still persist in conservation today, despite the more recent emphasis on “nature for people” and “people and nature” that emerged from a growing recognition of our embeddedness and deep reliance on the natural world (Mace, 2014). Indeed, older views are still heavily promoted by a dwindling but vocal camp of authors (Wuerthner et al., 2014). While we have no quarrel with earlier understandings of the ecological elements of conservation problems, white European colonial thinking must be placed firmly behind us (Mullenbach et al., 2022).

3 | REBUILDING CONSERVATION

Conservation is already in the process of rebuilding itself to formally recognize and incorporate the close interac-

tions between people and ecosystems (Chan et al., 2016; Kareiva & Marvier, 2012; Mace, 2014). This shift has profound implications for how we understand conservation as a discipline. In particular, it means embracing a broader, more inclusive, and less western-centric view of (1) what constitutes conservation; (2) who does conservation; and (3) how, where and when conservation measures should be implemented. To clarify, we are not advocating the abandonment of ethically and politically acceptable protected areas as a conservation tool. Our point is that more still needs to be done to formally recognize the ecological value of production landscapes, embrace sustainable resource use, and acknowledge the importance of environmental justice and the capacity of Indigenous and local communities to manage their own lands and waters (Latulippe & Klenk, 2020).

Indigenous people have deliberately managed natural resources to produce ecosystem services and maintain relational values for thousands of years (Berkes, 2018). Management examples from Indigenous communities span fields currently recognized as forestry, fire management, fisheries, and agriculture. Despite good evidence of the long-term persistence of many of these practices and social-ecological systems, many classically trained conservation biologists still treat Indigenous management systems with suspicion (Robbins, 2019). To understand why, it is important to recognize that for many years, non-western knowledge and practices were either deliberately ignored or caricatured as unsustainable by settlers wanting to establish land/resource claims. Indigenous people and their expertise were regarded as inferior (Nakata, 2002). For example, visiting the Great Zimbabwe archaeological site as a child, the first author was told by a white guide that black Zimbabweans did not build its impressive stone structures; they “*must have been built by foreigners, possibly Arabs, because the local people were clearly incapable of their construction.*” This obviously false perspective ignored oral traditions, the lack of evidence for Arabic intervention, and the consistency of Great Zimbabwe with other archaeological sites across the country. The colonial pot was further stirred by influential right-wing intellectuals like Garrett Hardin and his theory of the “Tragedy of the Commons” (see discussion in Frischmann et al., 2019), which gained traction during a period of western resource appropriation and economic expansion and continues to be taught uncritically in many university conservation courses. Mainstream conservation has been deeply complicit in the westernization of social-ecological interactions and the dominance of an environmental narrative that disregards local knowledge (Heffernan, 2022; Jones & Murphree, 2013). Differences in the motivations underpinning conservation actions between cultures do not mean that the resulting actions are fundamentally

different in their outcomes (Berkes, 2018). If our definition of conservation is the “just, sustainable use and cohabitation of people with nature, in a way that maintains biodiversity and ecosystem function” (as opposed to a definition that focuses on “wilderness”) then a large number of Indigenous and local management approaches constitute conservation actions.

4 | NO PANACEAS

Many eminent scientists have pointed out that there is no single solution for conservation (e.g., Brock & Carpenter, 2007; Ostrom & Cox, 2010; Young et al., 2018). Although we regard the incorporation of relevant Indigenous and local knowledge and values into conservation practices as absolutely essential for the future of the discipline, they are not a panacea. Many were developed within past social and ecological contexts that no longer exist, and as a set of relational values and practices that cannot readily be rebuilt (Berkes, 2018). For instance, belief in at least the possibility of divine retribution or an afterlife seems a necessary component of a resource management system that uses duty to the gods or the ancestors to enforce taboos. Westernization of Indigenous cultures has eroded religious beliefs in many locations (Lingard et al., 2003); and in some cases, traditional practices are maintained out of necessity rather than because traditional value systems are in place (Hartel et al., 2023). Climate change and landscape management have also led to significant changes in the biophysical feedbacks that structure vegetation (Alkama & Cescatti, 2016), and contemporary landscapes have many barriers to the free movement of both animals and people (Aryal et al., 2018; Berger-Tal & Saltz, 2019).

Modern technologies (e.g., for resource extraction, transport and refrigeration) have further changed markets and the economic incentives underpinning social-ecological interactions. Access to global markets has changed traditional diets and altered the relative values of different ecological goods (Lapointe et al., 2020). Transport and storage technologies have reduced the relevance of many traditional management approaches and institutions, such as those that reduced overexploitation and waste through food sharing (Islam & Berkes, 2016). Higher human population densities, mobility and resource demands also make the creation and enforcement of effective natural resource management institutions harder (Agrawal & Chhatre, 2006; Robson & Klooster, 2019; Wollenberg et al., 2007).

Lastly, all people have cognitive and cultural limitations that influence our capacity to recognize and respond to environmental change (Gallotti et al., 2016). We are particularly bad at recognizing ecological change over time

frames longer than a human lifespan or at spatial scales that we cannot easily visualize (Aubrecht et al., 2013; Carpenter & Turner, 2000; Peuquet, 2002). In the case of long-lived, slowly reproducing organisms, for example, communities in the Pacific are thought to have caused the extinction of close to a thousand nonpasserine species (including at least 17 species of slowly reproducing large, flightless bird) in the period between first human arrival and European contact (Duncan et al., 2013; Latham et al., 2020). Traditional management approaches were often sensitive to heterogeneity across landscapes, and people learned coping strategies from other animals (e.g., by following ungulate populations from summer to winter grazing lands; Behnke, 2011), but satellite remote sensing and other recent technological and scientific advances have made it easier to grasp broad-scale ecosystem change (Lauer & Aswani, 2010).

5 | TOWARD A NEW CONSENSUS

Although there is no panacea for solving conservation problems, a consensus is emerging around how we should approach them. Clear guidelines now exist for how to interact with local communities to develop and apply modern, pluralistic management approaches using a mixture of different methods (e.g., Ban et al., 2018; Berkes, 2018; Chambers et al., 2021; Margules et al., 2020). Western knowledge systems are not privileged over others in this emerging view, as recognized by (among others) the Intergovernmental Panel on Biodiversity and Ecosystem Services (Brondizio et al., 2019). Conservation needs to be inclusive, transparent, just, and locally sensitive. This is critical because conservation gains its social license from people and must either demonstrate a meaningful commitment to human well-being or be marginalized.

In addition, conservation is no longer a purely “ecological” or “biological” discipline, and there is no excuse for undertaking conservation research using simplistic or flawed models of human societies or economies. Conservation should be just as reliant on theory and methodological best practice as any other area of science, and researchers undertaking interdisciplinary work must observe the same disciplinary rigor as experts working within the single disciplines that are to be integrated. In practice, this means collaborating with experts in other disciplines through the entire research process, from conception to outputs. Furthermore, conservation science needs collaborations that connect different disciplines to consider whole-system dynamics and evaluate trade-offs and indirect causality (Anderies et al., 2022).

If we return to Mace’s (2014) framing of conservation stages, and ask what lies before and after the time period

she considered, conservation appears to be slowly cycling back toward its precolonial origins. “People in nature” is where Indigenous resource management began; in many traditional worldviews, people are seen as embedded within nature rather than dominant over it (Berkes, 1999; Berkes et al., 2008). Thus, it is entirely consistent with long-standing conservation theory and practice that conservation reframes itself as a discipline that focuses broadly on understanding how to achieve just and sustainable social-ecological interactions, using approaches that span the full spectrum of epistemologies and disciplines.

5.1 | Looking forward: Conservation and *Conservation Letters*

This editorial makes no claims for novelty. Many others have already called for rethinking conservation-related research agendas and practice (Bennett et al., 2017; Leach et al., 2018; Wyborn et al., 2021); we have tried to emphasize the transformation of conservation and highlight the need for the discipline to abandon outdated modes of thinking and practice.

Broadly relevant manuscripts with a disciplinary focus that have significant and direct implications for policies and practices of biodiversity conservation will remain welcome at *Conservation Letters*. We seek to retain the journal’s individual character as a home for exciting, rigorous, high-impact conservation research with direct value for policy and practice. In addition, we hope to include a greater number and diversity of interdisciplinary, cross-cutting papers. We encourage papers that develop or apply cutting-edge theory and methods to address important conservation questions; or that simply reveal transformative knowledge relating to the just and sustainable cohabitation of people with nature.

We would particularly welcome novel, insightful papers in the following emerging conservation research areas:

- Social-ecological systems research with clear conservation relevance (e.g., on resilience, transformation and adaptation).
- Research focusing on conservation-relevant aspects of governance, politics, institutions, and common or private property systems.
- Critical reflections and analyses of conservation practice and evidence, particularly where these advance new mechanism-based theories, methods, and approaches for achieving conservation success or can be directly connected to policy.
- Analyses that incorporate traditional and local ecological knowledge with western science to answer pressing

conservation questions and inform practice, or that interrogate the interface between knowledge systems as they relate to conservation.

- Studies from under-represented areas and communities. We are currently working on ways to reduce publication barriers for authors from such groups.
- Studies that apply relevant lenses from outside the normal scope of conservation science (e.g., gender, resource economics, development studies) to conservation problems.
- Proposing and advancing integrative conservation theory, particularly new conceptual frameworks and mechanistic models that can support forward-thinking, proactive policy and practice.

We acknowledge that some of these topics lend themselves more to place-based case studies, which have not previously been an emphasis at *Conservation Letters*. Case-focused research is welcome but will need to build an argument for its broader importance, where findings or perspectives are likely to stimulate discussion and debate across a diverse range of conservation professionals and be of interest across a range of regions, sectors, and disciplines.


We expect that all research published in the journal will be conducted using ethically sound approaches and pay appropriate attention to concerns of justice and equity. We therefore ask authors from privileged backgrounds to proactively advance equity and build capacity. We particularly encourage the coproduction of knowledge that is solutions-oriented and tackles inclusivity and prevalent power dynamics in the research process (Chambers et al., 2021). In practice, this means that we will maintain our current stance that papers will only be considered for publication if authors: (1) interact appropriately with local communities or scientists; (2) engage critically, where necessary, with outdated colonial concepts or attitudes; (3) refrain from making inappropriate claims; and (4) observe sound practice in each of the disciplines they incorporate.

We are excited to see how conservation progresses in the years to come. We firmly believe that conservation can and should play an important role in contributing to a better world for all. This role can only be supported by adopting strong ethical standards ourselves, including overcoming and removing any harmful attitudes and approaches that still linger on, and embracing diversity and pluralism.

ACKNOWLEDGMENTS

We are grateful to the outgoing Editor in Chief, Dr. Edward Game, for bringing the journal to where it stands today, to the editorial board for their past and ongoing service to the journal, and to the Society for Conservation

Biology for their support. We also thank Michael Bode and Fikret Berkes for their feedback on an earlier draft of this manuscript.

Graeme S. Cumming^{1,2} 

Zoe G. Davies³

Joern Fischer⁴ 

Reem Hajjar⁵ 

¹ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia

²Department of Ecology and Zoology, College of Science and Engineering, James Cook University, Townsville, Australia

³School of Anthropology and Conservation, Durrell Institute of Conservation and Ecology (DICE), University of Kent, Canterbury, Kent, UK

⁴Social-Ecological Systems Institute, Leuphana University of Lüneburg, Lüneburg, Germany

⁵Department of Forest Ecosystems and Society, Oregon State University, Corvallis, Oregon, USA

Correspondence

Graeme S. Cumming, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia.

Email: gscumming@gmail.com

ORCID

Graeme S. Cumming  <https://orcid.org/0000-0002-3678-1326>

Joern Fischer  <https://orcid.org/0000-0003-3187-8978>

Reem Hajjar  <https://orcid.org/0000-0003-0219-7313>

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