



Perspective

Ecological and social justice should proceed hand-in-hand in conservation

Haydn Washington^{a,1}, John J. Piccolo^{a,*}, Helen Kopnina^b, Fergus O'Leary Simpson^c^a Institution for Environmental and Life Sciences, Karlstad University, Universitetsgatan 3, Karlstad 65188, Sweden^b Newcastle Business School, University of Northumbria, Newcastle NE1 8ST, United Kingdom^c Institute of Development Policy, University of Antwerp, Lange Sint-Annastraat 7, 2000 Antwerp, Belgium

ARTICLE INFO

Keywords:

Ecojustice
Ecocentrism
Values
Intrinsic
Harmony

ABSTRACT

We highlight the need for ecological justice and ecological ethics to go hand in hand with social justice in conservation science. We focus on the importance of ecocentric (non-anthropocentric) worldviews for advancing both social and ecological justice. While acknowledging the need to “decolonize” conservation, we question whether conservation a whole may be justifiably termed “colonial”; noting that colonialism in the name of profit and political power has long been a main driver of *both* human rights abuses and biodiversity loss. Moreover, modern conservation science explicitly strives for social justice and equity while protecting biological diversity and thus ought not to be conflated with colonialism's long and unjust history. We suggest that efforts to portray modern conservation science as patriarchal, racist, and colonial are shortsighted, disregarding longstanding efforts by conservationists to reconcile social and ecological values. Such critiques may adopt a patronizing approach to Indigenous and local peoples, portraying them as idealized guardians. Such views may obscure the complex socio-economic conditions that leave Indigenous and local communities vulnerable to resource exploitation; these factors must be understood if these groups are to fulfil their vital role as conservation allies. We conclude that the conservation community should shift focus toward targeting the main political actors and economic structures that oppress both humans and non-humans alike. A more nuanced appreciation of the shared history of colonialism and conservation may illuminate how social and ecological values converge in the mission of sustaining the ecological life support system on which every human and non-human being depends.

1. Introduction

This Special Issue of *Biological Conservation* focuses on ‘The central importance of social justice in conservation science’ calling much-needed attention to social injustices that have resulted from efforts to protect biological diversity. The cases described, such as forced relocation of Indigenous peoples (Mahalwal and Kabra, 2023) and loss or degradation of livelihoods (Molnár et al., 2023; Sarkki et al., 2023) are, unfortunately, representative of widespread social injustices in the name of nature protection. The models of “fines and fences” or “fortress” conservation (Brockington, 2002) that were developed during the last century are no longer tenable – such models have proven inadequate for fostering social justice and the sustainable livelihoods upon which community conservation depends. Exporting such “colonial conservation” models around the world has led to calls to “decolonize” conservation science and practice (Adams and Mulligan, 2003; Dawson et al., 2023; Millhauser and Earle, 2022; Trisos et al., 2021). Thus,

conservation science – arguably a broadening of conservation biology – finds itself in a paradox: it is now widely recognized that the loss of biodiversity is among the greatest threats to humankind, and that biodiversity protection must be expanded. At the same time, new paradigms are needed that foster *both* social and ecological justice (Crist et al., 2021; Pascual et al., 2017).

The twin existential environmental crises that humanity faces – climate change and mass extinction of biodiversity – are global in scale. Solutions, therefore, require international cooperation at multiple levels (e.g., IPCC, IPBES, CBD, IUCN). International cooperations, however, inherently run the risk of the intercultural imposition of worldviews and values, and the history of nature protection is no exception (Adams and Mulligan, 2003). The creation of national parks in the United States, for example, disenfranchised Native Americans from vast tracts of land of irreplaceable sustenance and cultural value; such fortress conservation policies have since spread around the globe, in particular in the Global South (Brockington, 2002). An honest dialogue of the social injustices

* Corresponding author.

E-mail addresses: john.piccolo@kau.se (J.J. Piccolo), helen.kopnina@northumbria.ac.uk (H. Kopnina), fergus.simpson@uantwerpen.be (F. O'Leary Simpson).¹ Deceased.

attributed to colonial conservation, however, must consider the ca. 150-year history of nature protection in light of 500+ year history of European imperial colonialism. Conservation scientists (and their critics) must bear in mind that the Euro-centered imperial expansion to Africa, the Americas, Asia, and Australia (and their incalculable social injustices) was perpetrated long before the conquerors were concerned about biodiversity protection.

Mainstream conservation has been criticized for disconnecting Indigenous peoples from their ancestral lands and resources, thereby replicating colonial power relations. The problem with predominant “colonial” (often used synonymously with “fortress”) forms of conservation, it has been argued, is that these strategies focus on the symptoms of poaching and land conversion rather than on the fundamental causes of environmental degradation, which are to be found in wider political economies of extraction (Duffy et al., 2019). Decolonizing conservation is therefore proposed as the answer (Dawson et al., 2023). While fully supporting social justice in conservation, we counter the loose way in which the word colonialism is increasingly applied to conservation as a whole, and we contend that the overwhelming emphasis on “colonial conservation” serves to divert attention from the more fundamental causes of inequality and biodiversity loss: i.e. the expansion of extractive commodity frontiers driven by unsustainable, consumerist lifestyles coupled with economic growth (Martinez-Alier et al., 2010; Scheidel et al., 2023). In turn, poaching and other extractive resource uses are not just symptoms of poverty. They are often big business or even organized crime for profit – as has been shown to be the case in Central Africa and Latin America (Ramirez et al., 2023; Nelleman et al., 2010). Sweeping claims that contemporary conservation is exacerbating social inequity and failing environmental protection (see Domínguez and Luoma, 2020), therefore, need to be examined on a case-by-case basis to avoid oversimplification and wrongful misrepresentation of socially-just practices.

We believe efforts to portray modern conservation overall as patriarchal, racist and colonial (e.g. Dawson et al., 2023; Denning, 2018), are shortsighted on at least three grounds. First, such critique disregards the long-term efforts by modern conservation science and practice to reconcile social and ecological values. Second, this research tends to adopt a patronizing and misguided approach to local and indigenous peoples, portraying them homogeneously as the “best environmental custodians” (Domínguez and Luoma, 2020:7) while ignoring entanglements of certain communities and members therein in wider extractive processes that degrade social and environmental values. By failing to recognize these nuances, many proponents of so-called decolonizing conservation obscure the conditions that leave indigenous and local communities with few options but to participate in damaging resource exploitation. Such factors must be understood to break the barriers for these groups to fulfil their vital role as conservation allies. Finally, infighting between conservationists and local community advocates shift the focus away from the main political actors and economic structures oppressing both non-human species and poor and marginalized peoples who often rely the most on biodiversity and functioning ecosystems to sustain their livelihoods; namely, the elites that are driving the destruction of ecosystems and livelihoods through their *imperial modes of living* (Brand and Wissen, 2017).

In this article, we focus on the importance of ecocentric (non-anthropocentric) worldviews for advancing *both* social and ecological justice (ecojjustice) in the long term. We begin by exploring to what extent colonial conservation has overridden social justice for Indigenous cultures. As opposed to making a direct connection between modern conservation and colonialism (as many scholars now do, for instance, Dawson et al., 2023 and Trisos et al., 2021), we suggest that they should be viewed separately, albeit related. We judge that contemporary conservation science is, in fact, one of the best defenses we have against colonial imperialism in the name of capitalist profit and political power, which have long been the main driving factor of *both* social injustices and biodiversity loss worldwide (Martinez-Alier, 2002). Both

conservation scientists and practitioners increasingly strive for social justice and equity and should, therefore, not be simply conflated with colonialism. We then discuss how anthropocentric worldviews may help to “write nature out of the picture”, and we argue that the current discussion about justice in conservation largely lacks an essential *ecojjustice* component. Next, we consider who are (as well as who are not) the true culprits of ecological and social injustice. We explore the various meanings of ‘conservation biology’, and show how an anthropocentric worldview in conservation has increased in recent decades. Finally, we make a case for social justice going hand in hand with ecological justice.

2. From colonial- to inclusive- conservation

2.1. Early conservation and colonial imperialism

Nature protection by western societies certainly has a shared history with imperialist colonialism, entailing widespread oppression and social injustice (Denning, 2018). The creation of national parks and reserves, particularly during the 1800s–1900s, led to the displacement and marginalization of countless indigenous and local communities (Sème, 2022). Many landscapes around the world were turned into parks without the consultation or blessing of the Indigenous peoples previously living on them (Dowie, 2011); such practices continue to this day, and as such are abhorable and are justly denounced (see Kashwan et al., 2021). There is no doubt that some strands of conservation have ignored or undermined the customary rights of poor, marginalized and indigenous peoples to access nature and sustain their livelihoods.

In the light of this history, recent efforts to “decolonize” conservation and bring social justice to the forefront are therefore both laudable and essential to long-term conservation success (see, for example, Dawson et al., 2023). As we shall propose, however, conflating larger-scale 19th- and 20th- century “fines-and-fences” or “fortress” conservation with modern conservation science and practice is largely a misrepresentation. Doing so misses all the progress that has taken place within the discipline and practice over several decades to intermarry concerns for social and ecological justice. To that end, we question the overgeneralized labelling of conservation as “colonial” without consideration of the diversity of thought within the conservation movement.

2.2. Social inclusion and justice in modern conservation

Modern conservation science and policy developed in large part as a response to the widespread environmental degradation in the 1960s–1970s (Taylor et al., 2020), and by the 1980s the concepts of biological diversity (Wilson, 1985), conservation biology (Soulé, 1985), deep ecology (Naess, 1973), and ecological ethics (Sylvan and Plumwood, 1980, Rolston III, 1985) had taken hold as leading concepts and ideas in conservation movements. In addition, and contrary to what some scholars who link conservation and colonization frequently claim (see Mbaria and Ogada, 2016; Trisos et al., 2021), principles of justice, social inclusion, and respect for indigenous rights have long been fundamental concepts in conservation science and policy (Plumwood, 2012).

Prominent conservation biologists have expressed grave concerns about the perverse consequences of colonial projects. For example, long time *Conservation Biology* editorial board member Callicott and McRae (2017) has written extensively on non-western worldviews and delivered searing critique of the “genocide” undertaken during the colonization of the Americas.

Leading conservation biologists have also long advocated for putting people at the centre of conservation practice. Take the case of the Society for Conservation Biology (SCB), founded in 1985, which adopted the mission to “*To advance the science and practice of conserving Earth’s biological diversity*”, stating that: “*We recognize the importance of a diverse, equitable, and inclusive community in addressing the worlds’ global challenges to maintaining biological diversity.*” This inclusive aspiration is also

apparent in the Convention for Biological Diversity (CBD), which states in its Preamble:

“Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations, and practices relevant to the conservation of biological diversity and the sustainable use of its components, [and] Recognizing also the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation,”

3. Valuing nature in conservation and community engagement

3.1. Postmodern attacks on conservation

The postmodern critique, particularly rooted in a ‘hard’ constructivist epistemology (Robbins, 2011), assumes a ‘nature skeptic’ stance, as exemplified by scholars like Castree (2013) and Woolgar (1988). This critique posits that the distinction between humans and nature is artificial and rests on a false dichotomy (Malone, 2016; Adams and McShane, 1996). Its advocates have sometimes relativized the loss of wilderness, flora and fauna as socially constructed crisis “narratives” that serve to legitimize coercive conservation measures (see Schuetze, 2015; Vasile and Iordăchescu, 2022). Some proponents go to the extent of denouncing the very concept of ‘wilderness’ as a colonial myth (Cronon, 1996) and criticize conservationists promoting the preservation of pristine nature (Fletcher, 2009). According to this view, ‘nature’ embodies: ‘privileged, nostalgic, romantic (and primarily white male US) notions’ (Malone, 2016: 341).

Constructivists often place social justice concerns at the forefront of conservation efforts (see Fletcher, 2009; Schuetze, 2015), and ultimately – similarly to neoliberal “new conservation” (Kopinina et al., 2018a) – see nature fundamentally as valuable only through the value (material or cultural) that it provides for humans (an idea rigorously criticized by Crist, 2019). Both of these approaches fail to fully appreciate the intrinsic value inherent in nature, which transcends its utilitarian (anthropocentric) function. They therefore also fail to incorporate the imperative for ecojustice alongside social justice. Here, we promote an eco-sensitive ‘critical realist’ ontology. In doing so, we call for the acknowledgment of the diverse cultural perceptions of nature (Ducarme and Couvet, 2020) while concurrently recognizing the undeniable reality of wild ‘nature’ and environmental degradation. This approach can help to reconcile human-centric concerns with a more far-reaching understanding of nature's intrinsic worth.

3.2. Local communities and conservation

There are clear cases where conservation projects have resulted in violations of the human and territorial rights of indigenous and local communities (Dowie, 2011). Forced evictions and the separation of communities from their ancestral lands can have devastating effects, and often lead to the economic impoverishment and social marginalization of communities (Brockington and Igoe, 2006; Kokunda et al., 2023). But this is far from the only story.

In many cases, local and indigenous peoples and conservationists have been allies rather than opponents (Schwartzman and Zimmerman, 2005; Tran et al., 2020). In fact, community conservation often hinges on strong connections between international organizations and communities (Berkes, 2007). Globally, from Canada to Colombia, protected areas increasingly adopt co-management approaches (Pourcq et al., 2015; Fedreheim and Blanco, 2017). In some cases, indigenous peoples have sought conservation organizations' assistance to establish protective areas on their lands, as a way to shield them from encroaching

extractive interests (Brockington et al., 2012). Through collaboration with conservation NGOs, some indigenous groups have even gained legal land titles, including through Indigenous Protected and Conserved Areas (IPCAs) (IUCN, 2021). Even concerning more coercive conservation areas, research reveals diverse perspectives. Armed conservation guards are seen by some communities living around protected areas as sources of violence and by others as providers of security (Simpson and Pellegrini, 2023). Our intent here is not to deny conservation's injustices but to highlight overlooked examples that challenge the idea that modern conservation is inherently colonial.

The idealization of Indigenous peoples as living in perfect harmony with nature is sometimes used within a highly anthropocentric social justice movement to discredit modern conservation as colonialist and racist (see Dawson et al., 2023). The assumption that Indigenous peoples are axiomatically the “best environmental custodians” (Domínguez and Luoma, 2020: 7) is not always scrutinized or accurate. This highly patronizing discourse serves to essentialize local and indigenous communities, failing to recognize that (just as in any other human community), local leaders and elites will sometimes pursue their own interests at the expense of others (including non-humans). Ironically, this discourse is also prevalent among proponents of ‘new conservation’, a strand of conservation with strong ties to neoliberal politics, ecomodernism, and corporate capitalism (Soulé, 2013), which scholars emphasizing the links between conservation and colonization often critique. In fact, decolonizers and new conservationists share many similarities. New conservation promotes market-based mechanisms utilizing economic incentives for conservation, viewing nature as a commodity primarily valuable for its utility to humans. Similarly, decolonizers, while justifiably addressing historical injustices, frequently focus on the anthropocentric values of nature to indigenous communities (instrumental/relational), emphasizing its role in livelihoods and culture. In both cases, the emphasis lies in harnessing nature's value to humans to improve human well-being, while potentially downplaying nature's intrinsic values and right to exist (Washington et al., 2018; Piccolo et al., 2022).

In many cases Indigenous populations undoubtedly do live in sustainable ways and can safeguard their territories from external threats. Notably, as per IPBES (2019: 33), Indigenous peoples traditionally manage, own, utilize, or inhabit approximately 25 % of the Earth's landmass. This allocation includes an estimated 35 % of formally designated protected areas and a similar proportion of terrestrial regions characterized by minimal human intervention. In numerous cases, Indigenous communities have demonstrated notable success in achieving superior conservation outcomes compared to established protected areas (Garnett et al., 2018; Hayes and Ostrom, 2005). However, there are also examples where indigenous leaders have welcomed the extractive industries onto their lands (Büscher and Davidov, 2013; Simpson and Pellegrini, 2022). In some cases, indigenous groups gaining control over “their” (notably, Indigenous non-human populations are never counted as having claim to the land) territories have then sold out resources to timber or mining companies (Kopinina, 2019). Given their vulnerable socioeconomic status, and a history of past colonial injustices against them, Indigenous peoples should not be chastised for such actions. Nevertheless, these facts do call for a more nuanced understanding of how they relate to their ancestral lands and resources.

4. Rethinking the culprits of social and ecological injustice

4.1. *Fighting within the conservation community - diverting attention away from the problem?*

Virtually all academics in the Global North (the authors of this article included) have inherited relatively affluent lifestyles and personal possibilities unknown to past generations, and still out of reach to many people around the world. Environmental footprint methodologies and Earth Overshoot metrics, for instance, although not without flaws,

clearly demonstrate how the economic privileges and material comforts of the wealthy nations entail a disproportional appropriations of the global environmental commons (Fanning et al., 2022). The very universities in which we sit, and the sciences which we study, are built upon a history of past social and ecological injustices and exploitations. We believe our academic colleagues who promote the decolonization of *conservation* as a panacea may divert attention away from the true causes of injustice: e.g., the spread of consumerist lifestyles, growth-dependent economies and extractive commodity frontiers since the colonial era (Martinez-Alier et al., 2010; Scheidel et al., 2023). As a result, conservationists are blamed for structural forces for which they bear little responsibility and over which they have but marginal control.

Neither conservation science nor modern conservation in practice can be held accountable for (colonizing) processes of extractivism, consumerism, and industrial growth that are fueling unsustainable development. Although we understand the temptation to engage in hyperbolic statements that inextricably link conservation with colonization (see Dawson et al., 2023; Trisos et al., 2021) in order to gain traction in a world populated by humans with only finite moral attention, these statements have the effect of diverting attention from the true causes of injustice and environmental degradation, as well as from finding meaningful solutions to those problems (see Section 5.1). Furthermore, opportunities for collaboration between critical social scientists, such as political ecologists and anthropologists, and conservation scientists, including conservation biologists, around their vastly similar interests and concerns are tragically lost.

4.2. From poachers and conservationists to global inequalities

While good points have been made regarding the myth of the ecologically Noble Savage and the romanticization of indigenous and local communities (Redford, 1991), framing them as major drivers of global environmental degradation is entirely misleading. Just as many exponents of the need to decolonize conservation miss the point by putting conservation scientists and organizations at the center of their criticism (see Dawson et al., 2023), so do the conservationists who characterize Indigenous communities as ‘forest destroyers’ (see examples in Forsyth and Walker, 2011). Both of these perspectives fail to appreciate how the metabolic patterns of growth-based societies (promoted by states allied with corporate power and enjoyed by wealthy elites at the expense of the poor) are the heart of the problem. We ignore this reality at our peril.

Recent research has shown that a focus on site-level biodiversity impacts is ill-equipped to address the disproportionate role of (often distant) inequalities in global biodiversity collapse (Carmenta et al., 2023). Increased growth of production and consumption in certain parts of the world (typically by advanced economies in the Global North) leads to increased energy usage and raw material extraction, hastening land use change, resource depletion, climate change, and biodiversity loss (often in the Global South) (Otero et al., 2020). Economic growth in advanced countries is essentially predicated on a significant appropriation of resources and labor from less advanced nations in the Global South. Hickel et al. (2022: 1) estimate that between 1990 and 2015 the drain of unequal exchange from the South to the North amounted to \$242 trillion, which represents about a quarter of Northern GDP. The main enemies of social and ecological justice are therefore neither conservationists nor Indigenous or rural peoples that lead frugal lives (even if often by social condition rather than choice) in biodiversity-rich areas, but a global economic system based on endless growth, the appropriation of disproportionate amounts of nature, and the perpetuation of extreme inequalities between nations, regions and peoples.

5. Social and ecological justice must go hand in hand in conservation

5.1. Anthropocentrism encroaches conservation science

Modern industrial society has long rested on strong anthropocentric values (Washington et al., 2021; Washington et al., 2022; Piccolo et al., 2022). Extended around the world through western globalization, this anthropocentrism stands in contradiction to historical Indigenous worldviews of, e.g., *kinship ethics* with nature (Washington et al., 2021; UN, 2023). Despite many authors speaking out against it historically (e.g. Thoreau, 1854; Muir (in Teale), 2001; Leopold, 1949; Carson, 1965; Naess, 1973; Plumwood, 2012), anthropocentrism not only remains a core value of modern society, but increasingly extends to conservation science (Taylor, 2010; Rolston III, 2012; Taylor et al., 2020; Muradian and Gomez-Baggethun, 2021; Washington et al., 2021). The “ecosystem services paradigm”, for example, focuses on nature’s delivery of services to people as a main justification for protecting nature (Thorén and Stålhammar, 2018). Such anthropocentric valuations of nature fail to account for intrinsic natural value (Piccolo, 2017), which is a cornerstone of ecological justice (Washington et al., 2018; Piccolo et al., 2022).

Soulé (1985), in his seminar article “What is conservation biology?” (currently termed conservation science) specifically acknowledged the intrinsic value of nature. Although intrinsic natural value is still a core belief of the Society for Conservation Biology (Piccolo et al., 2018), some advocates of the “new conservation” (Kareiva and Marvier, 2012) place human well-being center stage of conservation efforts. This utilitarian approach, whereby conservation just becomes a matter of promoting ‘ecosystem services’ and economic prosperity, undermines the ethical basis of ecocentric conservation (Taylor et al., 2020; Piccolo et al., 2022) and perpetuates the anthropocentric values that lie at the core of the global ecological crises (Muradian and Gomez-Baggethun, 2021). Conservation science should be careful not to forget its longstanding commitment to the more-than-human world (Wilson, 2016). Economic values are non-commensurable with many social and ecological values, and we start down a slippery slope when we attempt to monetize biodiversity (Gómez-Baggethun and Ruiz-Pérez, 2011; Spash, 2015; Spash and Hache, 2022).

The anthropocentric turn in conservation extends across the ideological spectrum from the neoliberal leaning (Kopnina et al., 2018a; Miller et al., 2014; Doak et al., 2015) doctrine of ‘new conservation’ to recent calls to the left-leaning ‘convivial conservation’ – the goal of which, according to its proponents, should not be to protect nature from humans but to promote nature for, to and by humans (Büscher and Fletcher, 2020: 163). These perspectives, some of which have been analyzed by Kopnina et al. (2018a) and Kopnina and Washington (2020), are largely instrumental or relational (i.e., anthropocentric), and while rightly forwarding causes of social justice, they may overlook the intrinsic rights of non-human nature (Piccolo et al., 2022).

Many authors in the academic conservation community are questioning the anthropocentric trend in conservation and sustainability science (Washington et al., 2017; Kopnina et al., 2018a, 2018b; Kopnina and Washington, 2020; Taylor et al., 2020; Muradian and Gomez-Baggethun, 2021; Crist et al., 2021; Washington et al., 2021, 2022; Piccolo et al., 2022). This body of literature makes the case that anthropocentrism does not encourage *respect* for nature or a sense of obligation to protect her (Graham and Maloney, 2019; Washington et al., 2021). Nor does it encourage a sense of eco-reciprocity (Washington, 2021) or the need to give back in gratitude to the natural world; such relational concepts are now considered key alternatives to the largely economic valuations of nature that characterized past assessments (Pascual et al., 2023).

Taylor (1986: 67) points out that humans *can* take the standpoint of an animal: “without a trace of anthropocentrism” and make decisions as to what is desirable from that viewpoint. Human valuation of course is done by humans; however, this makes it *anthropogenic* (carried out by

humans) not anthropocentric. Human valuation does not have to centre on us, this depends on cultural teachings. The fact that humans can only perceive nature by “human” senses does not mean we cannot attribute intrinsic value to it (Fox, 1990; Eckersley, 1992). On the contrary, we believe humans are quite capable of cultivating a non-anthropocentric (i.e. ecocentric) consciousness (Fox, 1990), and attributing intrinsic value to nature.

The terms “ecosystem services” and the more recent “nature’s contributions to people” are now dominant in environmental science (Washington, 2020). This is especially worrying as the intrinsic value of nature is a fundamental part of ecocentrism, and arguably the ethical basis for many past conservation strategies (Kopnina and Washington, 2020). It is because of the dominance of anthropocentrism, which seems to be growing within conservation scholarship and practice, that we focus next on ecocentrism, ecological ethics, and ecojustice.

5.2. Bringing the rights of nature back in

The ideas and principles underpinning the rights of nature are not novel. They can be said to stem from indigenous ways of conceiving and dwelling in the world. Even if they do not always act as essential forest guardians, Indigenous peoples can still maintain cosmologies akin to something resembling ecocentrism, “including kinship feelings and responsibilities toward nonhuman organisms” (Taylor et al. (2020: 4). The UN’s (2023) Twelfth Interactive Dialogue on Harmony with Nature noted the kinship that Indigenous people have with nature.

Related to ecocentrism, ecological or Earth ethics, (e.g., Rolston III, 2012) is an ethics that extends to the non-human. John Muir (1911: 110) wrote early in the 20th Century: ‘Whenever we try to pick out anything by itself, we find it hitched to everything else in the universe’. As Washington (2019) notes, one of the main issues addressed by ecological ethics is the dilemma of anthropocentrism versus ecocentrism, and of the intrinsic value of nature vs. utilitarian value (i.e., just for human use) or instrumental value (value to acquiring something else) (Zack, 2002; Curry, 2011; Rolston III, 2012). Various scholars argue that the ‘value of life’ is the key principle in ecological ethics (Sweitzer, 1949; Schopenhauer, 1983; Viikka, 1997; Curry, 2011). Green virtue ethics can also be an important part of ecological ethics (Curry, 2011).

Washington et al. (2018) argue that ecojustice is simply justice for nature. They make clear that non-human nature also deserves justice. Environmental justice most commonly is interpreted as not being justice for nature but justice for people affected by environmental issues (Washington et al., 2018). We argue that ecojustice must apply to nature, that nature cannot just remain a thing, a “resource” for human use, as anthropocentrism portrays it (Crist, 2019). As a discipline, conservation biology has ecocentric origins, as Soulé (1985) argued for nature’s intrinsic value. We are concerned that conservation biology and conservation science more broadly has come increasingly to accept the instrumental resource argument, along with other anthropocentric trappings (‘ecosystem services’ is one, Washington, 2020). To be fair, at the very least the discipline is at a fulcrum where this issue is under debate. We are concerned that this SI seems to lend support to social justice *alone*, without a countervailing emphasis on ecojustice.

5.3. Ecological justice integrated with social justice

Although ecocentrism has sometimes been characterized as being misanthropic, social and ecological values are by no means mutually exclusive – there are clearly large areas of convergence among pluralistic valuations of life on Earth, human and nonhuman. Ecocentrism, in fact, is grounded upon a worldview that recognizes interwoven social and ecological values (Shoreman-Ouimet and Kopnina, 2015). Callicott (2013) for example, shows how social and ecological values populate Earth’s web of life, calling for duties to human and to nonhuman individuals and collectives. This does not change the fact, however, that ecojustice is often the missing component in many contemporary

conservation discussions. It cannot be assumed that by addressing social justice, ecological justice will automatically follow. The call-for-papers text for this Special Issue of *Biological Conservation*, for example, seemed to celebrate the strides being made to make social justice the key focus of conservation. There was no wording supporting the intrinsic right of nature to exist, or the need for social and ecological justice to proceed hand-in-hand (Kopnina and Washington, 2020).

If nature is not granted ecojustice, if nature is seen as having no rights or moral standing, then it will continue to be peripheral, to lose out in any decision-making. Ultimately, the colonization of nature also has negative consequences for social justice. For instance, a case study of conservation in Nigeria shows that unchecked exploitation and degradation of ecosystems and biodiversity had a direct negative effect on vulnerable communities (Kopnina et al., 2022). While the inherent value of nature has been sidelined for hundreds of years, this has not always been the case. In many Indigenous cultures, for instance, nature was seen as kin, and was granted respect, where people had an *obligation* to protect it (Graham and Maloney, 2019). Today, the ‘Harmony with Nature’ approach (UN, 2023), an alternative to anthropocentrism, provides a chance to find a middle-ground where social justice, but *also* ecojustice, operates. The Jane Goodall Institute also champions an alternative approach that strives to balance social and ecological justice. The Institute promotes a comprehensive model of conservation rooted in human rights principles. Their projects encompass various facets, including nature preservation, ecological restoration, sustainable food production, employment, opportunities for small businesses, family planning, and education (Goodall, 2015).

We argue that ecojustice is essential to conservation for several reasons. Firstly because it highlights *why* we do conservation – as our non-human kin have a right to exist for themselves, which has historically been the main driving force behind ecocentric conservation (Adams, 2013). Secondly, because it asserts up front that justice must *also* apply to the non-human world, something social justice-oriented or decolonial conservation approaches, such as convivial conservation (Büscher and Fletcher, 2020), almost never consider. Rather, these approaches assume that by addressing social justice concerns environmental protection will follow.

We have always maintained that ecological justice and social justice must be entwined (Washington et al., 2018; Kopnina and Washington, 2020). We certainly do not oppose social justice, we simply maintain that justice cannot be limited to humanity, that it must cover all the living world. That means it must include the non-human world, our living kin, and the landscapes of Earth (geodiversity). We acknowledge that the integration of social and ecological justice can be difficult and that tradeoffs and conflicts are inevitably involved (Kopnina and Washington, 2020; Gómez-Baggethun, 2022). Silver bullet solutions do not exist.

Fundamentally, it is not a productive or ethical strategy to insist that social justice must always override ecojustice. If it does, then extinction and ecosystem breakdown will accelerate. Rather, we support the Jane Goodall Initiative’s approach, where both forms of justice operate together.

6. Conclusion

In recent years anthropocentric approaches to conservation, e.g. new conservation, have come to dominate. We find this worrying because these approaches downplay ecocentric views which may foster the development of ecojustice. In some cases, the needs of humans, i.e., social justice, have been unfairly pitted against the needs nonhumans, i. e. ecojustice. As advocates for ecojustice, we emphasize the need for social justice and ecojustice to proceed hand-in-hand. We do not believe that readers of *Biological Conservation* should lose sight of one of the core values of conservation, to protect nature for its intrinsic value. This in no way denies the need for social justice. It simply requires that ecojustice remains an equal part of the dialogue. A shift from anthropocentrism to

ecocentrism should promote ecological ethics and ecojustice, as might inclusion of relational ‘kinship ethics’ common in Indigenous and pre-modern cultures.

The inherent complexities of sustaining biological diversity while equitably sharing nature's abundance among a burgeoning human population should not prevent us from striving to achieve such a transformation (Crist et al., 2021). We believe that only the simultaneous and tireless pursuit of *both* ecological and social justice can lay the foundation for equitable future for Earth's biological and cultural diversity.

CRedit authorship contribution statement

Haydn Washington: Conceptualization, Writing – original draft. **John J. Piccolo:** Conceptualization, Writing – original draft, Writing – review & editing. **Helen Kopnina:** Conceptualization, Writing – original draft, Writing – review & editing. **Fergus O’Leary Simpson:** Conceptualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

No conflicts of interest are stated.

Data availability

No data was used for the research described in the article.

Acknowledgements

A draft of this article was originally formulated by Haydn Washington, before his untimely departure from our world in late 2022. The remaining authors contributed equally to finalizing this version for publication. We dedicate this work to Haydn, and his passionate and unwavering dedication to biological conservation. Haydn authored books and many articles on conservation and sustainability, and we encourage readers explore his conservation legacy. We sincerely thank E. Gomez-Baggethun for much valuable input to a previous draft of this manuscript.

References

- Adams, W.B., 2013. *Against Extinction: The Story of Conservation*. Routledge, London.
- Adams, J.S., McShane, T.O., 1996. *The Myth of Wild Africa: Conservation Without Illusion*. University of California Press.
- Adams, W.M., Mulligan, M., 2003. *Decolonizing Nature: Strategies for Conservation in a Post-colonial Era*. Earthscan, London.
- Berkes, F., 2007. Community-based conservation in a globalized world. *Proc. Natl. Acad. Sci.* 104 (39), 15188–15193.
- Brand, U., Wissen, M., 2017. The imperial mode of living. In: *Routledge Handbook of Ecological Economics*. Routledge, pp. 152–161.
- Brockington, D., 2002. *Fortress Conservation: The Preservation of the Mkomazi Game Reserve*. Indiana University Press, Oxford: Bloomington.
- Brockington, D., Igoe, J., 2006. Eviction for conservation: a global overview. *Conserv. Soc.* 4 (3), 424–470.
- Brockington, D., Duffy, R., Igoe, J., 2012. *Nature Unbound: Conservation, Capitalism and the Future of Protected Areas*. Routledge.
- Büscher, B., Davidov, V. (Eds.), 2013. *The Ecotourism-Extraction Nexus*. Routledge.
- Büscher, B., Fletcher, R., 2020. *The Conservation Revolution: Radical Ideas for Saving Nature Beyond the Anthropocene*. Verso Books.
- Callicott, J.B., 2013. *Thinking Like a Planet: The Land Ethic and the Earth Ethic*. Oxford University Press.
- Callicott, J.B., McRae, J. (Eds.), 2017. *Japanese Environmental Philosophy*. Oxford University Press.
- Carmenta, R., Barlow, J., Lima, M.G.B., Berenguer, E., Choiruzzad, S., Estrada-Carmona, N., Hicks, C., 2023. Connected conservation: rethinking conservation for a telecoupled world. *Biol. Conserv.* 282, 110047.
- Carson, R., 1965. *The Sense of Wonder*. Harper-Row, New York.
- Castree, N., 2013. *Making Sense of Nature*. Routledge.
- Crist, E., 2019. *Abundant Earth: Toward an Ecological Civilization*. University of Chicago Press, Chicago, IL, USA.
- Crist, E., Kopnina, H., Cafaro, P., et al., 2021. Protecting half the planet and transforming human systems are complementary goals. *Front. Conserv. Sci.* 2, 761292.

- Cronon, W., 1996. The trouble with wilderness; or, getting back to the wrong nature. *Environ. Hist.* 1 (1), 7–28.
- Curry, P., 2011. *Ecological Ethics: An Introduction*, 2nd ed. Polity Press, Cambridge, UK.
- Dawson, A., Fiore, L., Survival International, 2023. *Decolonize conservation*. In: *Global Voices for Indigenous Self-Determination, Land, and a World in Common*. Common Notions, New York.
- Denning, A., 2018. The nature of German imperialism: conservation and the politics of wildlife in colonial east Africa by Bernhard Gissibl. *Ger. Stud. Rev.* 41 (1), 176–178.
- Doak, D.F., Bakker, V.J., Goldstein, B.E., Hale, B., 2015. What is the future of conservation? In: Wuerthner, G., Crist, E., Butler, T. (Eds.), *Protecting the Wild: Parks and Wilderness*, the Foundation for Conservation. The Island Press, Washington, London, pp. 27–35.
- Domínguez, L., Luoma, C., 2020. Decolonising conservation policy: how colonial land and conservation ideologies persist and perpetuate indigenous injustices at the expense of the environment. *Land* 9 (3), 65.
- Dowie, M., 2011. *Conservation Refugees: The Hundred Year Conflict Between Global Conservation and Native Peoples*. MIT Press, Cambridge.
- Ducarme, F., Couvet, D., 2020. What does 'nature' mean? *Palgrave Commun.* 6, 1–8.
- Duffy, R., et al., 2019. Why we must question the militarisation of conservation. *Biol. Conserv.* 232, 66–73.
- Eckersley, R., 1992. *Environmentalism and Political Theory: Toward an Ecocentric Approach*. UCL Press, London, UK.
- Fanning, A.L., O'Neill, D.W., Hicckel, J., Roux, N., 2022. The social shortfall and ecological overshoot of nations. *Nat. Sustain.* 5 (1), 26–36.
- Fedreheim, G.E., Blanco, E., 2017. Co-management of protected areas to alleviate conservation conflicts: experiences in Norway. *Int. J. Commons* 11 (2).
- Fletcher, R., 2009. *Against wilderness*. *Green Theory Praxis* 5, 169–179.
- Forsyth, T., Walker, A., 2011. *Forest Guardians, Forest Destroyers: The Politics of Environmental Knowledge in Northern Thailand*. University of Washington Press.
- Fox, W., 1990. *Toward a Transpersonal Ecology: Developing New Foundations for Environmentalism*, First edition. Shambhala, Boston.
- Garnett, S., et al., 2018. A spatial overview of the global importance of indigenous lands for conservation. *Nat. Sustain.* 1 (7), 369–374.
- Gómez-Baggethun, E., 2022. Political ecological correctness and the problem of limits. *Polit. Geogr.* 98, 102622.
- Gómez-Baggethun, E., Ruiz-Pérez, M., 2011. Economic valuation and the commodification of ecosystem services. *Prog. Phys. Geogr.* 35, 613–628.
- Goodall, J., 2015. Caring for people and valuing forests in Africa. In: Wuerthner, G., Crist, E., Butler, T. (Eds.), *Protecting the Wild: Parks and Wilderness*, the Foundation for Conservation. Island Press, Washington, DC, pp. 21–26.
- Graham, M., Maloney, M., 2019. Caring for country and rights of nature in Australia – a conversation between earth jurisprudence and aboriginal law and ethics. In: La Follette, C., Maser, C. (Eds.), *Sustainability and the Rights of Nature in Practice*. CRC Press, Florida (forthcoming 2019).
- Hayes, T., Ostrom, E., 2005. Conserving the world's forests: are protected areas the only way? *Ind. L. Rev.* 38, 595.
- Hicckel, J., et al., 2022. Imperialist appropriation in the world economy: drain from the global south through unequal exchange, 1990–2015. *Glob. Environ. Chang.* 73, 1–13.
- IPBES, 2019. *Summary of Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. IPBES secretariat, Bonn, Germany.
- IUCN, 2021. *Indigenous Peoples launch self-determined agenda at IUCN World Conservation Congress*. See: <https://www.iucn.org/news/governance-and-rights/202109/indigenous-peoples-launch-self-determined-agenda-iucn-world-conservation-congress-4>.
- Kareiva, P., Marvier, M., 2012. What is conservation science? *Bioscience* 62, 962–969.
- Kashwan, P., et al., 2021. From racialized neocolonial global conservation to an inclusive and regenerative conservation. *Environ. Sci. Policy Sustain. Dev.* 63 (4), 4–19.
- Kokunda, S., et al., 2023. Batwa indigenous peoples forced eviction for “conservation”: a qualitative examination on community impacts. *PLOS Glob. Public Health* 3 (8), 1–15.
- Kopnina, H., 2019. *Indigenous rights and ecological justice in Amazonia*. *Int. J. Wilderness* 25 (1). <https://ijw.org/indigenous-rights-and-ecological-justice-in-amazonia/>.
- Kopnina, H., Washington, H. (Eds.), 2020. *Conservation: Integrating Social and Ecological Justice*. Springer Nature, Cham, Switzerland.
- Kopnina, H., Washington, H., Taylor, B., Gray, J., 2018a. The “future of conservation” debate: defending ecocentrism and the nature needs half movement. *Biol. Conserv.* 217, 14–18.
- Kopnina, H., Taylor, B., Washington, H., Piccolo, J., 2018b. Anthropocentrism: more than just a misunderstood problem. *J. Agric. Environ. Ethics* 31 (1), 109–127.
- Kopnina, H., Muhammad, N.Z., Olaleru, F., 2022. Exploring attitudes to biodiversity conservation and Half-Earth vision in Nigeria: a preliminary study of community attitudes to conservation in Yankari Game Reserve. *Biol. Conserv.* 272, 109645.
- Leopold, A., 1949. *A Sand County Almanac*. Ballantine Books, New York, NY, USA.
- Mahalwal, S., Kabra, A., 2023. The slow violence of fortress conservation creates conditions for socially unjust “voluntary” relocation. *Biol. Conserv.* 286, 110264.
- Malone, K., 2016. Theorizing a child–dog encounter in the slums of La Paz using post-humanistic approaches in order to disrupt universalisms in current ‘child in nature’ debates. *Child. Geogr.* 14, 390–407.
- Martinez-Alier, J., 2002. *The Environmentalism of the Poor: A Study of Ecological Conflicts and Valuation*. Edward Elgar Publishing.
- Martinez-Alier, J., Kallis, G., Veuthey, S., Walter, M., Temper, L., 2010. Social metabolism, ecological distribution conflicts, and valuation languages. *Ecol. Econ.* 70 (2), 153–158.

- Mbaria, J., Ogada, M., 2016. *The Big Conservation Lie: The Untold Story of Wildlife Conservation in Kenya*. Lens & Pens Publishing.
- Miller, B., Soule, M., Terborgh, J., 2014. 'New conservation' or surrender to development? *Anim. Conserv.* 17 (6), 509–515.
- Millhauser, J.K., Earle, T.K., 2022. Biodiversity and the human past: lessons for conservation biology. *Biol. Conserv.* 272, 109599.
- Molnár, Z., et al., 2023. Social justice for traditional knowledge holders will help conserve Europe's nature. *Biol. Conserv.* 285, 110190.
- Muir, J., 1911. *My First Summer in the Sierra*. Houghton Mifflin, Boston.
- Muradian, R., Gomez-Baggethun, E., 2021. Beyond ecosystem services and nature's contributions: is it time to leave utilitarian environmentalism behind? *Ecol. Econ.* 185, 107038.
- Naess, A., 1973. The shallow and the deep, long-range ecology movement: a summary. *Inquiry* 16, 95–100.
- Nellemann, C., Redmond, I., Refisch, J., 2010. *The Last Stand of the Gorilla: Environmental Crime and Conflict in the Congo Basin*. UNT Digital Library. United Nations Environment Programme.
- Otero, I., Farrell, K.N., Pueyo, S., Kallis, G., Kehoe, L., Haberl, H., Pe'er, G., 2020. Biodiversity policy beyond economic growth. *Conserv. Lett.* 13 (4), e12713.
- Pascual, U., et al., 2017. Valuing nature's contributions to people: the IPBES approach. *Curr. Opin. Environ. Sustain.* 26–27, 7–16.
- Pascual, U., Balvanera, P., Anderson, C.B., Chaplin-Kramer, R., Christie, M., González-Jiménez, D., Zent, E., 2023. Diverse values of nature for sustainability. *Nature* 620 (7975), 813–823.
- Piccolo, J.J., 2017. Intrinsic values in nature: objective good or simply half of an unhelpful dichotomy? *J. Nat. Conserv.* 37, 8–11.
- Piccolo, J.J., Washington, H., Kopnina, H., Taylor, B., 2018. Why conservation scientists should re-embrace their ecocentric roots. *Conserv. Biol.* 32, 959–961.
- Piccolo, J.J., Taylor, B., Washington, H., Kopnina, H., Gray, J., Alberro, H., Orlikowska, E., 2022. "Nature's contributions to people" and peoples' moral obligations to nature. *Biol. Conserv.* 270, 109572.
- Plumwood, V., 2012. *The Eye of the Crocodile*. ANU Press.
- Pourcq, K.D., et al., 2015. Conflict in protected areas: who says co-management does not work? *PLoS One* 10 (12), 1–15.
- Ramirez, et al., 2023. *Stolen Amazon: the roots of environmental crime in five countries. Medellín: InSight Crime*. See: <https://insightcrime.org/investigations/stolen-amazon-roots-environmental-crime/>.
- Redford, K., 1991. The ecologically noble savage. *Orion Nat. Q.* 9 (3), 25–29.
- Robbins, P., 2011. *Political Ecology: A Critical Introduction*. John Wiley & Sons.
- Rolston III, H., 1985. Duties to endangered species. *BioScience* 35 (11), 718–726.
- Rolston III, H., 2012. *A New Environmental Ethics: The Next Millennium for Life on Earth*. Routledge, New York, USA.
- Sarkki, S., et al., 2023. "Rights for Life" scenario to reach biodiversity targets and social equity for indigenous peoples and local communities. *Biol. Conserv.* 280, 109958.
- Scheidel, A., et al., 2023. Global impacts of extractive and industrial development projects on Indigenous Peoples' lifeways, lands, and rights. *Sci. Adv.* 9 (23), 1–9.
- Schopenhauer, A., 1983. *The Will to Live: The Selected Writings of Arthur Schopenhauer*, ed Richard Taylor. Ungar, New York.
- Schuetz, C., 2015. Narrative fortresses: crisis narratives and conflict in the conservation of mount Gorongosa, Mozambique. *Conserv. Soc.* 13 (2), 141–153.
- Schwartzman, S., Zimmerman, B., 2005. Conservation alliances with indigenous peoples of the Amazon. *Conserv. Biol.* 19 (3), 721–727.
- Sème, A.L., 2022. *Against wildlife republics: conservation and imperialist expansion in Africa. The Republic*, vol 6, nr. 3.
- Shoreman-Ouimet, E., Kopnina, H., 2015. Reconciling ecological and social justice to promote biodiversity conservation. *Biol. Conserv.* 184, 320–326.
- Simpson, F.O., Pellegrini, L., 2022. Conservation, extraction and social contracts at a violent frontier: evidence from eastern DRC's Itombwe nature reserve. *Polit. Geogr.* 92.
- Simpson, F.O., Pellegrini, L., 2023. Agency and structure in militarized conservation and armed mobilization: evidence from eastern DRC's Kahuzi-Biega National Park. *Dev. Chang.* 0 (0), 1–40.
- Soulé, M., 1985. What is conservation biology? *BioScience* 35 (11), 727–734.
- Soulé, M., 2013. The "new conservation". *Conservation Biology* 27, 895–897.
- Spash, C.L., 2015. Bulldozing biodiversity: the economics of offsets and trading-in nature. *Biol. Conserv.* 192, 541–551.
- Spash, C.L., Hache, F., 2022. The Dasgupta review deconstructed: an exposé of biodiversity economics. *Globalizations* 19 (5), 653–676.
- Sweitzer, A., 1949. *The Philosophy of Civilisation*. Macmillan, New York.
- Sylvan, R., Plumwood, V., 1980. Human Chauvinism and Environmental Ethics. In D. S. Mannison, M. A. McRobbie & Richard Sylvan (eds.). *Environmental Philosophy*. Dept. Of Philosophy, Research School of Social Sciences, Australian National University, pp. 96–189.
- Taylor, P., 1986. *Respect for Nature: A Theory of Environmental Ethics*. Princeton University Press, Princeton, New Jersey.
- Taylor, B., 2010. *Dark Green Religion: Nature Spirituality and the Planetary Future*. University of California Press, Berkeley.
- Taylor, B., Chapron, G., Kopnina, H., Orlikowska, E., Gray, J., Piccolo, J.J., 2020. The need for ecocentrism in biodiversity conservation. *Conserv. Biol.* 34, 1089–1096.
- Teale, E., 2001. *The Wilderness World of John Muir*. Houghton Mifflin, New York.
- Thoreau, H.D., 1854. *Walden; or Life in the Woods*. Dover Publications, New York, USA.
- Thorén, H., Stålhammar, S., 2018. Ecosystem services between integration and economics imperialism. *Ecol. Soc.* 23 (4).
- Tran, T.C., Ban, N.C., Bhattacharyya, J., 2020. A review of successes, challenges, and lessons from indigenous protected and conserved areas. *Biol. Conserv.* 241, 1–19.
- Trisos, C.H., Auerbach, J., Katti, M., 2021. Decoloniality and anti-oppressive practices for a more ethical ecology. *Nat. Ecol. Evol.* 5 (9), 1205–1212.
- UN, 2023. *Harmony with Nature: Report of the Secretary-General*. See: <http://www.harmonywithnatureun.org/dialogue/pZ1HGF02SNLj3h0gTMT8YMnRafJo9i5H0ImK8nwJM9tCC8yWBBqQR7I!yoEG5hA3MwfoqWwVvT!DYWqA4WLUQ==>.
- Vasile, M., Iordăchescu, G., 2022. Forest crisis narratives: illegal logging, datafication and the conservation frontier in the Romanian Carpathian Mountains. *Polit. Geogr.* 96, 102600.
- Vilkkä, L., 1997. *The Intrinsic Value of Nature*. Rodolpi, Amsterdam.
- Washington, H., 2019. *A Sense of Wonder Towards Nature: Healing the World through Belonging*. Routledge, London, UK.
- Washington, H., 2020. Ecosystem services – a key step forward or anthropocentrism's "Trojan Horse" in conservation? In: Kopnina, H., Washington, H. (Eds.), *Conservation: Integrating Social and Ecological Justice*. Springer, New York.
- Washington, H., 2021. *Ecoreciprocity: Giving Back to Nature. Independently published, see, Sydney*. In: <https://www.lulu.com/en/gb/shop/haydn-washington/ecoreciprocity-giving-back-to-nature/paperback/product-8d9p74.html?page=1&pageSize=4>.
- Washington, H., Taylor, B., Kopnina, H., Cryer, P., Piccolo, J., 2017. Why ecocentrism is the key pathway to sustainability. *Ecol. Citizen* 1, 35–41.
- Washington, H., Chapron, G., Kopnina, H., Curry, P., Gray, J., Piccolo, J., 2018. Foregrounding ecojustice in conservation. *Biol. Conserv.* 228, 367–374.
- Washington, H., Piccolo, J., Gomez-Baggethun, E., Kopnina, H., Alberro, H., 2021. The trouble with anthropocentric hubris, with examples from conservation. *Conservation* 1 (4), 285–298.
- Washington, H., Gomez-Baggethun, E., Piccolo, J.J., Kopnina, H., Alberro, H., 2022. *Harmony in conservation*. *Conservation* 2 (4), 682–693.
- Wilson, E.O., 1985. The biological diversity crisis. *BioScience* 35 (11), 700–706.
- Wilson, E.O., 2016. *Half Earth: Our Planet's Fight for Life*. Liveright, London.
- Woolgar, S., 1988. *Science: The Very Idea*. Routledge.
- Zack, N., 2002. Human values as a source for sustaining the environment. In: Miller, P., Westra, L. (Eds.), *Just Ecological Integrity*. Rowman and Littlefield, Lanham, MD, pp. 69–73.