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Citation: Kopnina, Helen (2016) Half the earth for people (or more)? Addressing ethical questions in conservation. Biological Conservation, 203. pp. 176-185. ISSN 0006-3207

Published by: Elsevier

URL: https://doi.org/10.1016/j.biocon.2016.09.019 https://doi.org/10.1016/j.biocon.2016.09.019

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Half the earth for people (or more)? Addressing ethical questions in conservation

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3 Preserving global biodiversity depends upon designating many more large terrestrial and marine areas as strictly protected areas. Yet recent calls for addressing biodiversity loss by setting aside 4 5 more protected areas have been met with hostility from some social scientists and even some conservation biologists. The main objections against the so-called 'nature needs half' movement 6 include the following. First, setting aside protected areas implies that some vulnerable human 7 8 communities will be displaced to make space for wildlife. Second, separating humans from their 9 environment ignores the fact that humans have always been part of the environments around them, and creates a false dichotomy between nature and culture. Third, conservationists are said 10 to put the blame for biodiversity loss on all humanity, rather than on those who are doing most of 11 the damage. Fourth, many social justice proponents argue that human population growth is not 12 13 related to biodiversity loss or other sustainability challenges. This article critically addresses 14 these four objections, exposing their robust anthropocentric bias. Protected area critics reliably demand fairness for human beings at the expense of nonhuman beings, who they treat as morally 15 16 inconsequential. But justice is not only about just us. Conservation properly understood implies a 17 fair division of Earth's resources between human and nonhuman beings. Justice demands setting 18 aside at least half Earth's lands and seas for nature, free from intensive economic activities. 19 **Keywords**: animal rights; anthropocentrism; biodiversity loss; conservation; ecological justice;

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environmental justice

1. Introduction: Ethical debates about conservation

Habitat destruction, invasive species, pollution, population increase and over-harvesting (HIPPO)
have all intensified in the past few decades to the point of causing severe biodiversity crisis
(CBD). The World Wildlife Fund's Living Planet Report (WWF 2014) testifies to intensifying
threats to natural systems based on evidence of mass extinctions in the last few decades. The
Living Planet Index (WWF 2014), which measures more than 10,000 representative populations
of mammals, birds, reptiles, amphibians and fish, has declined by 52 per cent since 1970. Put

- another way, in less than two human generations, population sizes of vertebrate species have
- dropped by half. As Funk (2014) has stated: "In an Anthropocene of radical climate change and
- 31 accelerating species extinctions, nothing less than a grand vision of what might yet be achieved
- will bring about the preservation of our remaining unspoiled landscapes".
- Edward O. Wilson, a well-known biologist and author, has recently published an opinion blog
- called Half Earth. This blog calls for allocating "half the world for humanity, half for the rest of
- 35 life" (Wilson 2016a). This aim follows the moral duty to stop the sixth extinction and the
- existential threat to the planet that sustains our own species (Wilson 1985; 1993; 2016b).
- Wilson's blog reflects the calls of conservationists, biologists and other academics and
- practitioners supporting the 'Nature needs at least half' movement (http://natureneedshalf.org),
- arisen in the early 1990's out of interrelated scientific and ethical concerns. The idea of 'half'
- 40 comes from research of Noss (1992) and Noss and Cooperrider (1994), further developed by
- 41 Terborgh (1999), Svancara et al (2005) Estes et al (2011) and Funk (2014). This research
- 42 provides evidence that in most regions 25–75 percent (thus, on average 50 percent) or the
- 43 estimate that 1/3 to 2/3 of every region would need strict protection to maintain full biodiversity
- 44 (Noss 1992). The literature on the oceans indicates that 30-40 percent should protect all marine
- 45 biodiversity by a comfortable margin (e.g. Roberts 2007). While small fragmented habitats can
- sustain smaller species of plants, animals and other biota (e.g. Turner & Corlett 1996),
- 47 accommodating larger animals, including apex predators such as tigers or sharks, requires a
- 48 larger territory (Noss 1992; Soulé & Noss 1998).
- 49 Rewilding, and strict environmental protection precluding human interference is described as one
- of the most efficient and effective measures of conservation (e.g. Fraser 2009). The term
- rewilding was initially popularized by conservationists Michael Soulé and Reed Noss (1998) to
- describe a strategy of wilderness conservation that can be summarised as cores (healthy
- ecosystems need large carnivores), corridors and carnivores (large carnivores need connected big
- road-less areas). The rewilding movement is driven by the realization that biodiversity refers to
- 55 ecosystems formed through natural, not artificial, processes and seeks to return environment to
- self-sufficiency characterizing the pre human-impacted state (Foreman 1991; 2011; Wuerthner et
- al 2014). Rewilding involves the reintroduction of animals, plants, and fungi to environments
- from which they have been excised in order to rehabilitate ecosystems (e.g. Foreman 1991;

- 59 2004). The Wildlands Network, for example, calls for a North American system of connected
- 60 cores that will sustain healthy and ecologically effective populations of all native species and
- allow for all ecological processes to operate unencumbered.
- However, rewilding and strict conservation policies have evoked a storm of criticism. The ethical
- battle that has issued after the publication of Wilson's blog is instructive in underlining the moral
- concerns of both the proponents and opponents of strict conservation. The most notable rebuttal
- of Wilson's blog was written by Robert Fletcher and Bram Büscher (2016), both of the
- 66 University of Wageningen in The Netherlands. Their criticism involves a number of stances
- discussed in the other published work by the authors (e.g. Büscher 2015; Büscher et al 2012;
- Fletcher 2009; 2014; Fletcher et al 2014; 2015) and by other critics of conservation. In this
- article, "conservation critics" will refer to broad groups including some conservationists
- 70 (particularly eco-modernists and new conservation scientists) as well as social scientists
- 71 (particularly, political ecologists, social geographers and environmental anthropologists) and
- social justice activists whose stances will be explicated below.
- 73 First, Fletcher and Büscher (2016) have stated that "Most existing 'wilderness' parks have
- 74 required the removal or severe restriction of human beings within their bounds". This statement
- 75 is based in a wider critique that setting aside protection areas displaces the most vulnerable
- human communities (e.g. Brockington 2002; Gabon 2008; Corry 2011). Critical scholars
- 77 advocate the local communities' entitlement to the natural resources and ecosystem services and
- 78 the right to remain in protected areas retaining traditional practices such as hunting (e.g. Chapin
- 79 2004; Brockington et al 2008; Holmes 2013; Duffy 2014; Fletcher et al 2015).
- 80 Second, it is argued that setting humans aside from nature ignores the fact that communities have
- always been part of and have changed environments around them (Fairhead & Leach 1996; Posey
- 82 1998). Simultaneously, conservation movement is described as a view that romanticizes the
- "glorious unbroken landscape of biological diversity" (West & Brockington 2012:2). Supposedly,
- 84 this romantic view achieves separation between humans and nature "physically, through
- 85 protected areas... and ideologically, through massive media campaigns that focus on blaming
- 86 individuals for global environmental destruction" (Ibid). Instead, the critics contend, the real
- 87 enemy is the romantic ideal of nature itself, as it represents 'capitalist imaginary' (Fletcher et al

88	2015) constructed by neo-colonial, elitist, western conservationists (e.g. Büscher et al 2012;
89	Büscher 2015).
90	Third, 'fortress conservation' (Brockington 2002) is said to put the blame for biodiversity loss on
91	all humanity, rather than the most powerful fractions of it that are disproportionately profiting
92	from nature exploitation (Chapin 2004; Holmes 2013; West & Brockington 2012; Fletcher at al
93	2014). Fletcher and Büscher (2016) state, "the world is riven by dramatic inequality, and different
94	segments of humanity have vastly different impacts on the world's environments. The blame for
95	our ecological problems therefore cannot be spread across some notion of a generalised
96	'humanity'". Critics also maintain that strict anti-poaching measures violate human rights, once
97	again scapegoating vulnerable communities whose ecological impact is negligible (Duffy 2014;
98	Büscher 2015).
99	Fourth, it is argued that when it comes to environmental problems, including biodiversity loss,
100	human population growth has no relevance to ecological sustainability (Fletcher et al 2014).
101	Noting that the remaining high-fertility problem spots are countries with some of the world's
102	lowest incomes, Fletcher & Büscher (2016) conclude that "paradoxically, then, it is those
103	consuming the least that are considered the greatest problem". Summing these points, the critics
104	assert that <i>Half-Earth</i> would be a "profoundly inhumane" (Fletcher & Büscher 2016).
105	Although all four of these objections may have some validity, as reminders to treat human beings
106	justly, they falter because they neglect the need to treat nonhuman beings justly. Turning the
107	tables, this article asks conservation critics to examine their own notions of justice, equality and
108	equity. The following sections will address each of the four criticisms by invoking principles of
109	ecological justice (see Ehrenfeld 1978 and more recently Baxter 2005 and Higgins 2010) and
110	animal rights (see Singer 1977 and for emergent field of animal law, see Peters 2016). A

concluding section will seek points of convergence between proponents of social justice and

ecological justice, and outline an integrated vision for a truly just conservation movement.

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2. Rebuttal of anti-conservation arguments

2.1. The question of displacement

116 First, there is a question of displacing vulnerable communities from protected areas, and the accusation that it is particularly poor people and indigenous communities that suffer the 117 118 consequences of this displacement. In response to this it needs to be noted that certainly not all protected nature areas are found in developing world, but in large countries such as Russia, 119 Greenland and Australia (CBD). The overwhelming majority of the world's poor do not live near 120 wilderness but in degraded agrarian areas or urban slums (UN 2015). In fact, most displacements 121 122 in recent history were hardly caused by conservation agencies but by large industrial or agricultural projects and the system of 'industrocentrism' (Kidner 2014) which threatens both 123 124 cultural and biological diversity (Sponsel 2016). 125 Conservationists have pointed out that most of conservation is already targeted toward human welfare, particularly in developing countries, often combined with economic development, 126 explicitly leaning towards enhancing community welfare (e.g. Oates 1999; Kareiva et al 2011). It 127 was noted that in many cases poverty elevation goes hand in hand with environmental restoration 128 129 (Goodall 2015) as healthy ecosystems are vital to sustainable agriculture, livelihood enhancement and resilience in the face of climate change (Fitzgerald 2015). Indeed, rewilding of formerly 130 131 developed areas and limiting economic activities within all protected areas is necessary not only to maximize biodiversity conservation (Foreman 2004), but also to benefit environmental 132 restoration to sustain long term survival of all species, including humans (Doak et al 2015). 133 Conservation provides livelihood to millions of people living next to protected areas, either 134 135 through traditional natural resource use, or through engagement in more capitalist activities such as eco-tourism (Goodall 2015). As noted by Doak et al (2015), consideration of human well-136 being in conservation decisions does not require a radical departure from current practices, as 137 138 humans have always and still do widely benefit from nature that is not destroyed, depleted or polluted. Thus, 139 "The Half-Earth solution does not mean dividing the planet into hemispheric halves or 140 any other large pieces the size of continents or nation-states. Nor does it require changing 141 ownership of any of the pieces, but instead only the stipulation that they be allowed to 142 143 exist unharmed. It does, on the other hand, mean setting aside the largest reserves possible

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By contrast, some new conservation scientists and political ecologists argue that the moral imperative of conservation should be human welfare, abandoning the pursuit of biodiversity

for nature, hence for the millions of other species still alive" (Wilson 2016a).

protection based on intrinsic values of nature argument, and seeking to "enhance those natural systems that benefit the widest number of people." (Kareiva et al 2011). This position "restricts the focus of conservation to the advancement of human well-being, which it frequently conflates with narrow definitions of economic development, and thereby marginalizes efforts to preserve diverse and natural ecosystems or to protect nature for aesthetic or other noneconomic benefits to humans" (Doak et al 2015:30). Indeed, due to the increasing emphasis on poverty alleviation among international donors and aid organizations, any direct confrontation between poverty alleviation and conservation, advocates of poverty alleviation are likely to get greater attention (Agrawal & Redford 2009:10). In this context, displacement of poor communities is seen as morally abhorrent, while the very termination of not only presently lived lives, but future generations of nonhumans are simply ignored. The "elephant in the room" is the dead elephant. It is possible that whole elephant species or subspecies may be exterminated in the wild if every territorial dispute or human-wildlife conflict is resolved in favor of local communities (Kopnina 2016a).

Wilson (2016a, 2016b) is not calling for the displacement of indigenous communities from the lands to be protected but rather for their recruitment into conservation roles. He agrees that traditional indigenous societies have often been the best custodians of their environments, so such societies would not be excluded from the protected areas. Under specified conditions, other forms of sustainable human activity could also be allowed. The real threat is the rhetoric of industrial sustainable development that turns land into industrial or agricultural production sites, with the cult of economic growth displacing, both physically and spiritually, the very possibility of life in an ecologically sustainable world.

As currently conceived, 'sustained and inclusive economic growth' (UN 2015) posits itself as a panacea for unsustainability challenges, such as poverty, health, mortality, and climate change (Kopnina 2016b). Yet, as critical scholars have noted, sustained and inclusive economic growth is likely to lead to deeper ecological crisis which will in turn affect the most vulnerable populations (e.g. Daly 1991; Washington 2015). While the evidence of the impact of protected areas on local communities worldwide is highly variable (Wilkie et al 2006), moral denunciations of detrimental effects of protected areas seem to be ideologically motivated judging by the "shrill rhetoric of the fortress critique, along with the intimidating high moral ground of human rights it

professes" (Crist 2015:93). Indeed, what is occurring on the large scale is displacement of both human and nonhuman populations in the quest for industrial development. But it is often the vulnerable human communities that get most public sympathy (Agrawal and Redford 2009). While the largest human displacement had occurred due to agricultural and urban expansion, in the case of displacement to create protection areas there remains a crucial query as to whether

anyone, advantaged or disadvantaged, has the right to prioritize their own interests to the extent that those of the non-human are deemed expendable (Strang 2016). Can being "indigenous" confer an exclusive moral right to use 'natural resources', even if using these 'resources' leads to the extinction of nonhuman species? The just answer is "no." In prioritizing human welfare in

often overt economic terms, it is unclear whose side the critics of the 'elites' are actually on.

Conservation, in ideal terms, is not about capital accumulation, but about biodiversity loss.

Also, crucially, we need to ponder who is really being displaced. Considering that early human populations have spread from Africa into areas already occupied by a rich biota, it is debatable whether either 'indigenous' or the more recent settlers into the 'new world' have a right to colonize and claim pre-eminence over other species in areas they migrate to. This type of displacement simply eradicates resident communities of wildlife by destroying their habitat (Fitzgerald 2015) – without compensation and without any discussion of animal rights (Peters 2016) or 'earth rights' (Higgins 2010). This type of displacement can only be attributed to a "human-nonhuman apartheid regime" that has "legitimated our self-consigned prerogative to occupy, use, displace, and eradicate the natural world at will" (Crist 2015:90). The query "who gains and who loses from compensated displacement from protected areas" (Rantala et al 2013) is not concerned with 'compensation' for non-humans. Instead of realizing this great injustice, the "strictly protected areas are scapegoated, and wild nature, once again, is targeted to take the fall for the purported betterment of people, while domination and exploitation of nature remain unchallenged" (Crist 2015:93).

2.2. Separating humans from their environment

Second, it is argued that humans have been interacting with natural environments and changing them for many thousands of years and are thus 'part of nature' (Fairhead and Leach 1996;

209 Gorenflo et al 2012; Sponsel 2013). Conservation critics argue that conservationists and 210 environmentalists willfully perpetuate the dichotomy between humans and nature by presenting humans as enemies (e.g. Brockington et al 2008; Büscher et al 2012; Nonini 2013) while 211 'romancing the wild' (Fletcher 2014). The charge of romanticism is levelled against the 212 suggestion that there is a morally correct way for humans to live in and with nature and that 213 indigenous peoples often instantiated this ideal. Indeed, in the past, many indigenous populations 214 have preserved traditional ecological knowledge that allowed them to manage their environments 215 well, at times possibly contributing to forest increase and local biodiversity (e.g. Fairhead & 216 Leach 1996; Posey 1998). As Gorenflo et al. (2012: 8037) state, biological and cultural diversity 217 are closely interlinked: 'the tendency for both to be high in particular regions suggests that certain 218 219 cultural systems and practices... tend to be compatible with high biodiversity'. Indeed, 220 '[w]ildernesses have often contained sparse populations of people, especially those indigenous 221 for centuries or millennia, without losing their essential character' (Wilson 2016a). Assuming that the indigenous people are the best guardians of their environment (Sandall 2000), it was 222 223 argued that protecting indigenous sacred places can 'simultaneously help protect cultures, religions, and rights as well as the associated biotic species, ecosystems, and ecological 224 225 processes" (Sponsel 2016:135). 226 227 Yet, the reification of 'traditional cultures' as 'noble' (e.g. Koot 2016), and the "romantic insistence on the superiority of the primitive" (Sandall 2000:1) lacks realization that indigenous 228 229 people are 'rarely isolated from global market forces' (Pountney 2012:215), and that the scope of 230 'traditional' activities has greatly expanded due to demographic pressures and technology. Simply, when the number of people increases, this leads to an increased demand for food; "but 231 the wildlife in a set area does not tend to increase, its numbers remain steady and thus so must the 232 harvest if it is to be sustainable' (Sinclair 2015: 77). Thus, while the critics imply that 233 conservationists perpetuate the ideal of 'wilderness', they tend to reify local communities as 234 235 'untouched' by the logic of capitalist development. 236 Ironically, on other occasions the critics fully embrace the capitalist logic that views of nature as 237 a commodity, using the very vocabulary of the power-holders they criticize in speaking of the 238 'market value of lost physical assets' (Rantala et al 2013:99). Simultaneously with idealizing the 239

local communities, the heralding of the Anthropocene has precipitated a new wave of "postnature" critique that openly or subtly celebrates human dominion, technocratic administration and a managerial approach to domesticating the "global garden" (Wuerthner et al 2014). Fletcher (2009:178-179) reflects: 'So what we need is to eliminate the distinction between the wild and tame entirely, to realize that the "wild" is a human idea, that it has never truly existed as an objective reality, and that, in the final analysis, it has caused us more harm than good.' Thus, it is reasoned, '...we find ourselves confronted with a counterintuitive truth: As long as we need wilderness we will never be free' (Fletcher 2009:179). The idea of reconciling the wild and the tame (Fletcher 2014), manifests itself in a "rambunctious garden" metaphor (Marris 2011). This metaphor implies that there is no difference between, for example, the naturally occurring blossoming of cacti in the Arizona desert and the artificially maintained 'ecosystem' of imported palm trees and generously watered and cropped lawns that unnaturally freckle Phoenix, the state capital (Shoreman-Ouimet & Kopnina 2016). While conservation critics argue that nature is socially constructed – both in linguistic and practical terms (e.g. Cronon 1996; Fletcher 2009, 2014; West & Brockington 2012), they construct the humans as creators or managers of nature (Ehrenfeld 1988). Yet, nature has not been constructed by humans and has been there much longer than our species (Kidner 2014). The trouble with wilderness is not that it is imagined by elitist environmentalists, as Cronon (1996) and Fletcher & Büscher (2016) would have it, but that it is rapidly being destroyed. Thus, the accusation that environmentalists create a human/nature dichotomy is unfair. Within the land ethics or deep ecology perspective there is no place for the dualistic vision of nature and

culture (Leopold 1949; Devall & Session 1985; Naess & Rothenberg 1989; Kopnina 2015). In fact, most bioethical theories resituate humankind within a world mutually composed of and by human and non-human agents and agentive processes (Strang 2016). It can be argued, however, that humans have set themselves apart from nature with agricultural and later industrial development, which marked the beginning of conquest and control, of stepping outside of natural

environments in order to dominate them (Johnson & Earle 2000; Henley 2011; Kidner 2014).

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Here we enter a dangerous terrain, and the need to recognize the logical consequences of deconstructing dichotomies (Kopnina 2016d). If there were no dichotomy between humans and environment in legal terms, environmental protection would not be controversial but widely accepted as just and fair. Humane treatment and protection from exploitation and abuse of animals (e.g. Singer 1977; Peters 2016) would be respected in the same way as human rights.

This leads us to one of the salient points regarding dichotomies discussed by Kopnina (2016a) and raised by an anonymous reviewer of this manuscript. Both deep ecology conservationists and eco-modernist conservationists reject human/nature dualism but do so for different reasons, drawing diametrically opposed ethical conclusions from their opposition to it. The reason some conservation critics argue that humans are part of nature is to show that, as products of evolution, whatever we do in and to the biosphere is natural. In other words, the human co-optation of the biosphere then becomes unobjectionable, as any other phase of evolution. If humans disturb ecologies, or introduce new 'artificial' elements into them, including road pavements and vehicles that routinely turn millions of nonhuman 'trespassers' into the neutral category of roadkill, this is just nature 'disturbing' itself. It logically follows than that if human beings were part of nature there is no reason to insist upon the detrimental role of human communities. Humans remain 'parts of nature' no matter what they do 1.

By contrast, the deep ecology and land ethics idea of unity with nature requires recognition of integrity of ecosystems and a certain balance of needs (Leopold 1949; Naess 1973), which can be interpreted in terms of interspecies egalitarianism or equity (Baxter 2005). If the questions of interspecies equity were taken seriously, the planet would need to be divided on the basis of species' natural resource requirements (e.g. Noss 1992; Mathews 2016), and not on the basis of

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¹ Thus, the claim that "humans are part of nature" shows that this formulation is not sufficiently precise. The term, 'nature', does not adequately designate the intended object of conservation. From the deep ecology perspective, humans are not morally privileged in relation to nature, nor are they morally entitled to co-opt all natural resources for their own use but must share those resources equitably with other species. Reserving some areas exclusively for the use of non-human species is then consistent with the non-dualist stance of deep ecology which privileges integrity of whole ecosystems and not necessarily individual species. In this framing, removal of people from protected areas need not be construed as dualist - it is just the administration of non-dualism in a world already morally skewed in favour of humans. On the other hand, if indigenous communities would prefer to remain in those areas while maintaining traditional livelihoods, and if it can be shown that their presence would indeed not be detrimental to ecological integrity, reconciliation may be possible.

what one single species proclaims to be its entitlement. Thus, the issue at stake is not so much whether humans are part of nature or not – of course they are – but whether their influence endangers all other elements of nature. After all, Ebola virus is part of nature as well, yet it is questionable whether the spread of its population and influence should be welcomed by other species.

2.3. Who is to blame for the damage?

Third, there is the argument that conservationists fail to realize that "different segments of humanity have vastly different impacts on the world's environments" (Fletcher & Büscher 2016). The concomitant argument is that conservationists should stop blaming humanity as a whole but realize that their own idea of 'wilderness' is nothing more than a romantic ideal of dominant elites (Cronon 1996; Fletcher 2009). According to the critics the real perpetuators of injustice are conservation organizations themselves. The critics argue that environmentalism 'went south' and established itself in the recently decolonized nations and while there, 'got snugly in bed with its old enemy, corporate capitalism' (West & Brockington 2012:2). The critics see large conservation NGO's as closely aligned with economic development agencies and other power holders that profit from conservation (e.g. Brockington et al 2008; Büscher et al 2012; West & Brockington 2012; Claus & Freeman 2016).

Most conservationists and environmentalists will not deny the destructive reach of industrial elites. Environmentalists such as Crist (2015) have clearly stated that economic growth is one of the most significant causes of unsustainability and indeed, disappearance of habitats and species. It is a well-known maxim that if all of us lived as Western consumers right now, we will need a few planet earths to satisfy our consumption needs. But while the destructive reach of the affluent is globally profound, that of the poor is more localized, involving deforestation for subsistence agriculture and fuel (e.g. Oates 1999), and overhunting for bushmeat, leading to the 'empty forest syndrome' (Redford 1992; Peterson 2013; Crist & Cafaro 2012).²

² http://www.cites.org/eng/news/pr/2011/20110610_bushmeat.shtml

Fletcher and Büscher (2016) chose to illustrate their opinion piece by an image of an armed white ranger leaning threateningly over the black poacher – an image evoking colonial associations in the 'war to save biodiversity' (Duffy 2014; Büscher 2015). They forget to mention the war against the most vulnerable communities – those of non-human species and those that protect them (Shoreman-Ouimet & Kopnina 2015). The argument that anti-poaching measures violate human rights completely excludes the rights of nonhumans, even the most endangered ones. Laying the blame for violations of human or indigenous rights on conservationists tends to depoliticize the need for legal protection not just for nonhumans, but also for their advocates. Grass-roots support for environmental protection and/or animal rights is known worldwide with committed individuals sacrificing their lives to protect habitats and various forms of life they sustain (Kopnina 2015; Shoreman-Ouimet & Kopnina 2016). Among them are Latin American (Fears 2016a), African and Asian environmental activists (Global Witness 2014; Lakhani 2014; Fears 2016b). In fact, Western neoliberal apparatus has no monopoly on either environmental conservation or environmentalism (Sponsel 2016). Environmentalist action by individuals is cross-cultural, despite severe repercussions, demonstrating that commitment to environmental causes is a universal rather than uniquely Western phenomenon (e.g. Foreman 1991; Kellert and Wilson 1995; Wilson 1993 and 2016b; Kopnina 2015). The 'war' in conservation is often not between the colonialist elites and impoverished individuals driven to hunt out of despair, but between well-organized and heavily armed poachers, using equipment ranging from helicopters to advanced weaponry and often operating as part of international criminal cartels, and those who are trying to protect nonhumans (Goodall 2015). An alternative image would be a memorial wall portraying environmental activists killed by poachers (https://vimeo.com/28701717), from Joy Adamson and Joan Root in Kenya to Berta Cáceres in Honduras, to Jairo Mora Sandoval in Costa Rica, to Chut Wutty in Cambodia. As an American environmental activist William C. Rodgers, convicted for his role in the Earth Liberation Front wrote in his suicide note:

To my friends and supporters to help them make sense of all these events that have happened so quickly: Certain human cultures have been waging war against the Earth for millennia. I chose to fight on the side of bears, mountain lions, skunks, bats, saguaros, cliff rose and all things wild. I am just the most recent casualty in that war. But tonight I

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have made a jail break—I am returning home, to the Earth, to the place of my origins. Bill, 12/21/05 (the winter solstice.)

Another image could be a homage to billions of mammals, birds, amphibians, reptiles, plants, and other biota rendered and consumed as 'resources'. This could be a better illustration of colonialism - a complete subordination of nonhuman species under the banner of justice (Crist 2012). Liberation movements of the past have challenged the underlying morality of oppressive regimes both ideologically and materially (Fanon 1963) yet presently fall short of realizing the necessity of liberating the earth (Rodman 1977). The war metaphor employed by Duffy (2014) excludes this battle. The real culprit is the anthropocentrism itself and the people who persecute those that stand up for nature. These persecutors can be capitalist developers but also be conservation critics that fail to realise the victimhood of nonhuman communities.

2.4. Population growth and biodiversity loss.

Fourth, the argument that "It is not the number of people on the planet that is the issue – but the number of consumers and the scale and nature of their consumption" (Satterthwaite quoted in Cumming 2016) is well-established, among others by Fletcher et al (2014). What complicates the matter is that population question is inextricably intertwined with a number of very sensitive political, ethical and ideological concerns that precludes discussing it as a sustainability challenge (Wijkman & Rockström 2012). The recent online comments in reaction to Fletcher & Büscher (2016) are revealing:

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Do you believe that infinite population growth is possible? Forget the talk about inequality, who's going to pay for what and how it might be achieved. If infinite growth is not possible then there must be a point where it stops. What is that end point?...Your article only asserts that Wilson is dangerously wrong. So what's your solution? Altruistic sharing, then more "equitable" growth to the point of what -- infinity?!

Büscher

The point is that the problem of conservation has nothing at all to do with population growth in and of itself, so the question whether infinite population growth is possible is a moot one. The core of the conservation problem has to do with the type of political economy we live in (namely a neoliberal capitalist political economy), that believes that the economy can grow forever. This is the type of 'infinite growth' we should really be talking about. And what this type of economic growth does is to create an elite upper class with an insane impact on our natural world - more than the poorest half of the planet

combined, the half that Wilson arguably wants to get rid off. So the solution is pretty straightforward: start degrowing our economies, start sharing the global resources far more equitably (And get rid of the elite upper class altogether)...

Fletcher

The point is that the main threat to conservation nearly everywhere in the world is not the physical encroachment of breeding bodies onto protected areas, it is the spread of extractives (i.e oil) and other forms of industry (i.e palm oil) into these area. And this is mostly being done for profit-driven consumption in a few wealthy societies. So if we want to tackle the problem most effectively where should we start: with the breeding bodies or with the economic logic driving this consumption and production?

PO

...Population pressure in our lifetime has made things dramatically worse. When I was born (1942) we only had 2-1/2 billion people on the planet, and now it's three times that number. Plus, most people are a lot richer, consuming huge amounts of everything every year. The planet is paying the price for our biological success. The fact that the world will be losing all its wild places is a foregone conclusion...

Büscher

Thanks for your thoughts. So let me get this straight: you are saying that Wilson's plan to displace millions of ('fertile') people and his unfettered, ungrounded believe in the ideology of the free market, together with all the crazy contradictions in his text is 'objective science'? And let me also ask whether you might volunteer to give up your house and the city or place you live in ... to be 'rewilded' and given back to the 'half earth' of parks that Wilson is advocating for?

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And let me ask whether you might volunteer to give up your house and the city or place you live in... to the poor, discriminated, downtrodden people that you are advocating for (given your high moral ground)?

Büscher's comment that Wilson wants to get rid of the poor half of the world is not just untrue but perverse. Wilson suggests no such thing. In contemplating Fletcher and Büscher's (2016) moral crusade for equity and equality, one may question how they actually propose to "get rid of the elite upper class altogether" without coercion or worse. Such an enterprise seems naïve at best, and more likely dangerous, as illustrated by the lessons of the Russian revolution that has destroyed the old and produced the new elites (Kopnina 2016c). While corporate capitalism may be the greatest force for environmental destruction at present, the solution of overthrowing the elites is not available to conservationists, so other solutions need to be advanced, with in-built compensation to any human groups who are disadvantaged by those solutions.

429 Another question is how making capitalism go away will result in a better relationship with 430 nature – other than by substituting capitalist by a socialist system which in practice equally relies 431 on environmentally devastating systems of industrial production. The insistence that social inequality is the root cause of unsustainability ignores the long pre-capitalist history of hierarchy, 432 exploitation and nature destruction that lies at the basis of the Western dominant paradigm, 433 434 positing that resources are infinite or infinitely substitutable (Dunlap & Van Liere 1978). As 435 unsustainable production and consumption in developed countries is far from abating and developing countries are eager to imitate this 'progress' stimulating the 'catch-up' with the rich 436 437 countries, the noble aim of equitable redistribution does not bode well for the planet (Hansen & Wethal 2014). The sheer scale of human influence on the environment today is unprecedented in 438 439 evolutionary history. From a biological point of view, having seven and a half billion apex 440 predators who are high in the food chain, either the 'innocent' poor or the 'guilty' rich, implies 441 increased demand of food, be it factory produced, hunted, or scavenged. 442 Due to the twin forces of industrial development and population pressure, the situation that used to characterise presumably sustainable societies is very different today (Sponsel 2013; Wilson 443 444 2016b) and traditional activities are rarely sustainable (Pountney 2012). For example, in the 445 recent article published in this journal, Cronin and colleagues (2016) indicate that while hunting 446 has been a traditional activity for generations on Bioko Island in Guinea, present use of modern weapons is driving Bioko's most threatened primates towards extinction. Not only massive 447 448 industrial-scale farming tends to deplete natural environments, but also the traditional farming (e.g. slash and burn agriculture) applied by an increasing number of people reveals the 449 450 fundamental incompatibility of large-scale agriculture with nature conservation (Henley 2011). 451 The Neolithic transition, and later agricultural development and pastoralism have fundamentally transformed the human-nonhuman relationship by setting in motion the cycle of intensification 452 453 driven by population pressure, thus scaling up all activities that might have been benevolent in 454 earlier settings (e.g. Johnson & Earle 2000). Meanwhile, contemporary capitalism typically 455 includes a commitment to rapid population growth, as a means to increase corporate profits 456 (Kopnina & Blewitt 2014). Denying that population growth in developing world is one of the drivers of unsustainability can 457 458 only be true if one expects that the poor will never escape poverty, nor ever migrate to the more

economically developed countries (Kopnina & Washington 2016). This is obviously not the ideal of equality and freedom that social justice advocates would embrace. Since it is assumed that all human beings have a right to a decent living, and since no sustainable system of production has yet been devised, population pressure is not going to help long term welfare of future generations (Wijkman & Rockström 2012). Growing population does, however, serve short term economic interests— the greater population, the bigger the expansion of market away from the already saturated 'rich' countries, and the bigger, once again, economic growth (Kopnina & Blewitt 2014). This alignment of demographic expansion and capitalist interests seems to escape conservation critics' attention. Nor do they seem to be aware of robust literature that supports sustainability in the context of ecological integrity. Instead of perpetuating the economic rationale for continuous growth, which Fletcher and Büscher (2016) rightly criticize, the core of transformative sustainability thinking has been a call for transition to the steady state economy (e.g. Daly 1991; Washington 2015), Cradle to Cradle (e.g. Braungart & McDonough 2002; Kopnina & Blewitt 2014), degrowth (e.g. Victor 2010; O'Neill 2012), and circular economy (e.g. Lieder and Rashid 2015) models. Yet leaving population growth out of the sustainability equation tends to exacerbate challenges of economic transition (Daly 1991; Washington 2015). Support of alternative economies based on degrowth in rich countries and the promotion of non-coercive measures to address population growth globally is both needed (e.g. Washington 2015). Last but not least, there is a question of population ethics. Noss (1992) has argued persuasively that the ecosystems and the collective needs of non-human species should take precedence over the needs and desires of humans, because people are both more resilient to environmental change and more destructive than any other species. Putting the needs of one species above those of all other species combined, as exemplified by the sustainable development rhetoric (UN 2015), is one of the most pernicious trends in modern conservation (Noss 1992). The preservation of large areas of tropical rain forest can safeguard the complete biota, and prevent large vertebrates suffering from habitat fragmentation (e.g. Turner & Corlett 1996). As it was recently noted in this journal, the scale mismatch between necessary breeding territory for large predators and the actual territory free of human settlement adds to the vulnerability of existing small populations of tigers (Chundawat et al 2016).

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Combining deep ecology and animal rights ethics, ecocide, defined as killing of living beings,
either directly through consumption, medical experimentation, and hunting, or indirectly through
habitat destruction, can be framed a legal crime (Higgins 2010; Peters 2016). Higgins (2010)
refers to ecocide as "the extensive destruction, damage to or loss of ecosystem(s) of a given
territory, whether by human agency or by other causes, to such an extent that peaceful enjoyment
by the inhabitants of that territory has been severely diminished" (Higgins 2010). Sociologist
Eileen Crist (2012:147) equates ecocide to genocide: "the mass violence against and
extermination of nonhuman nations, negating not only their own existence but also their roles in
Life's interconnected nexus and their future evolutionary unfolding". Underlining the exceptional
ethical stakes involved in species extinction, Soulé and Wilcox (1980:8) comment: "Death is one
thing; an end to birth is something else". This is not comparable to displacement of communities
as nonhumans are not only displaced but erased, eliminated, exterminated forever. From this
perspective, the consideration of justice in the context of demographic imbalances needs to
include consideration of populations of billions of the earth's nonhuman citizens and their
entitlements (Cafaro 2015). Asserting that people need the whole planet at the expense of non-
human inhabitants testifies to human chauvinism and the worst kind of anthropocentrism -
human supremacy (Crist 2012). Mathews (2016) argues that just speaking of other species'
viability leaving out the question of population and proportional distribution of resources
between species is an implicit concession to human hegemony, revealing the underlying
anthropocentrism of 'biodiversity for the sake of people' only perspectives.
As Crist (2012:149) has stated, the question we should be asking is: "How many people, and at

what level of consumption, can live on the Earth without turning the Earth into a human colony

genocide of nonhumans is something about which the mainstream culture, including the political

founded on the genocide of its nonhuman indigenes? The latter is rarely posed because the

left, observes silence". Perhaps it is time to break this silence.

3. Discussion

3.1. The question of justice

519 As discussed above, historically, most protected areas and national parks have been established for the people, everywhere in the world, and not just in postcolonial nations (e.g. Doak et al 520 521 2015). What Wilson (2016a; 2016b) proposes is that these parks need to be created for nonhumans as well, evoking ecological justice. While the term 'environmental justice' often refers 522 to (un)equal distribution of environmental burdens and benefits across human populations (e.g. 523 Low and Gleeson 1998), the term 'ecological justice' (or biospheric egalitarianism), refers to 524 justice between species (Wissenburg 1993; Baxter 2005; Schlosberg 2007; Cafaro & Primack 525 2014; Kopnina 2014; Cafaro 2015). 526 Anthropologist Veronica Strang (2016) discusses relational 'justice' referring to recognising, 527 528 appreciating and upholding value in other communities and individuals. Similar to Baxter's 529 (2005) support for the right of (at least some) non-human species to distributive justice, Strang recognizes that this right is founded in inclusive definition of equity, which requires that all life 530 forms have access to the resources that they need to flourish. This implies, according to Mathews 531 532 (2016), an ethic of bio-proportionality which moves beyond mere viability of species but requires optimization of populations of all species, including territory proportional to species 533 534 requirements. In order to guarantee this justice, though, human representatives need to stand in 535 democratic assemblies for other species or even ecosystems. Examples of such representatives 536 are Polly Higgins, the lead advocate for Ecocide law (http://pollyhiggins.com/) and Steve Wise, a founder of Nonhuman Rights Project (http://www.nonhumanrightsproject.org/steve-wise/). 537 538 It is significant to note that the critics make an assumption that humans are more important than 539 all other species but never take the time to explain why humans are more important, and why 540 their intra-species struggles should take priority over all other species. The arrogance of humanism (Ehrenfeld 1978), and the arrogance of resourcism (Foreman 1991; 2011) explain this 541 542 anthropocentrism, but the only logical justification of it seems "might makes right" utilitarianism 543 - as noted by a number of scholars (Rodman 1977; Dunlap & Van Liere 1978; Ehrenfeld 1978; 544 Noss 1992; Soulé & Noss 1998; Foreman 1991; Crist 2012; Wuerthner et al 2014; Shoreman-545 Ouimet & Kopnina 2016). The position that conservation is hurting most vulnerable communities and thus should be abandoned unless it benefits these communities seems morally defendable 546 because nonhuman communities are simply left out of consideration. Simply put, human 547 548 inequality and injustice toward one another have been around for millennia. We should continue

to work for their just resolution—but not to the neglect of the global crisis of biodiversity loss, which is a matter of interspecies justice. To paraphrase George Orwell, exclusive focus on interhuman injustice implies that human beings are infinitely more 'equal' then all other living beings. That position is itself unjust.

3.2. Points of convergence between social and ecological justice

Sometimes, mixed methods, in which "conservation should give up its infatuation with parks and focus on 'mixing' people and nature in mutually conducive ways" (Fletcher & Büscher 2016) can offer positive results- but only in cases where human-wildlife conflict and the possibility of overuse can be avoided. Successful example of conservation that combines social and ecological objectives includes the Roots & Shoots program, founded by Jane Goodall. This program aims to help young people to play an active role in addressing ecological and social challenges including poverty alleviation (Goodall 2015). Goodall (2015:23-24) reports on some of the activities of the program, which started with selecting a team of local Tanzanians who gained the cooperation of the villagers by respecting and addressing their needs and priorities. These were needs were outlined as increased food production (accomplished through restoration of fertility to the overused farmland—without the use of chemical fertilizers); improved health facilities; and better education. The program has encouraged the establishment of wood lots close to the villages, introduced fuel-efficient stoves and hygienic latrines. The program started micro-credit programs (especially for women) for environmentally sustainable projects of their choice, including tree nurseries (Ibid). The program also provided scholarships for girls to stay in school and have trained volunteers who provide family planning information and thus helped to reduce unwanted pregnancies. These initiatives led to positive community responses and action:

And, because of the good relations we had built up with the villagers, they agreed to set aside, for forest regeneration, a buffer zone surrounding Gombe National Park. Within this buffer zone—a designated village forest reserve—there can be no hunting or tree felling, although limited access does allow for foraging for medicinal plants and mushrooms, beekeeping, and gathering dead wood… This buffer zone also protects the watershed and thus the water supply to the villages. Over the past ten years new trees have grown from seeds and from the stumps left in the ground, and many of these have reached heights of over 20 feet so that the chimpanzees of Gombe can, once again, move out of the park when certain fruits ripen in the buffer zone (Goodall 2015:23).

While the long term consequences of the program yet need to be investigated, according to the evaluative reports, according to evaluations (e.g. Czaplinski-Mirek et al 2007; Murphy 2014), the program succeeds in successfully tying in social in helping poor people live better lives, as well as ecological justice indirectly by curbing population growth through family planning information campaigns, and directly by setting aside more habitats for other animals. As of 2016, the Roots & Shoots program has expanded to more than 130 countries, illustrating the possibility of combining ecological and social objectives on large scale.

Another point of convergence is the general agreement between critics and supporters of strict conservation measures is that one of the core problems "has to do with the type of political economy we live in (namely a neoliberal capitalist political economy), that believes that the economy can grow forever" (Fletcher, blog comment response). It is not the fusing of wild and domesticated nature that is needed, but a common realization that the current industrialist system not only devastates and commodifies nature, but also colonise human beings and enlisting us as agents of industrialism (Kidner 2014).

Converging critique is also that of culture-nature dichotomy, and the need to see human interests congruent with that of environment and its elements. Yet, this convergence is only possible if the idea of being 'part of nature' does not overshadow the recognition of the necessity to guarantee integrity of the ecosystem as a whole. Wilson (2016a) reflects that allocating half of the earth to nature simultaneously aims to address our own survival as a species:

The beautiful world our species inherited took the biosphere 3.8 billion years to build. The intricacy of its species we know only in part, and the way they work together to create a sustainable balance we have only recently begun to grasp. Like it or not, and prepared or not, we are the mind and stewards of the living world. Our own ultimate future depends upon that understanding.

If anthropocentrism is to be countered, the issue of justice should be addressed from all possible angles – sustainability, including the questions of consumption and distribution of power, and more efficient conservation strategies, including the questions of trade-offs involved in sharing of our beautiful planet. The simple biological fact is that nature does not need humans, but humans need nature (Wilson 2016b).

Many interdisciplinary scholars already make valuable contributions to the development of non-anthropocentric values in their disciplines. Environmental philosophers (e.g. Leopold 1949; Devall & Session 1985; Naess & Rothenberg 1989), environmental sociologists (e.g. Dunlap & Van Liere 1978; Crist 2012) have all exposed anthropocentrism as one of the main drivers of the current ecological crisis. The conservation psychology studies of environmental values have indicated that people with ecocentric orientation are more likely to act upon their values in order to protect the environment than those with anthropocentric orientations (e.g. Thompson and Barton 1994; Stern and Dietz 1994; Stern 2000). These studies also offer a number of pragmatic and strategic recommendations in the quest for environmental sustainability.

Sponsel (2016) has proposed that anthropologists are especially well situated to serve as mediators among individuals from different interest groups like environmental, conservation, government, community, and religious organizations "through basic and applied research as well as through advocacy" (Ibid P. 134). Political scientists have discussed ways in which ecological justice can be incorporated into existing political systems (e.g. Eckersley 2004; Baxter 2005). Scholars working within the animal law field have discussed ways in which animal rights can be integrated in legal systems (e.g. Peters 2016).

4. Conclusion: Ethical and practical considerations

Continuing expansion of human population and commercial activities are rarely compatible with ecosystem flourishing, and strict protection has been most effective in addressing biodiversity loss (CBD). We, academics, could play a part in promoting public awareness and political decision-making to seriously engage with the question of setting nature aside for protection. To achieve this, the starting point is a truly balanced moral discussion about exclusive justice that extends beyond Homo sapiens – which is, supposedly, a unique species capable of rationality, compassion, and a sense of right and wrong (Wilson 1985). As Locke (2015) has noted, at the World Wilderness Congress in which 'Nature needs half' proposal has been discussed, some delegates have reflected "We must be realistic about what is politically achievable and that is not" (Locke 2015: 12). However, this rationale does should not apply to nongovernmental organizations (NGO's) "whose role in civil society is to say the things that governments ought to

641	do and to help find ways to bring that about" (Locke 2015:13). This is often not happening
642	because of NGO's fear losing donor sponsorship, and attracting a storm of critique in case their
643	cause is not seen as benefitting humans. The basic problem with this type of self-censorship is
644	that it "focuses on the actors not the outcome, which is the conservation of biodiversity (Ibid).
645	Basically, sharing the planet among all species will be better for humans, too, as it will prevent
646	turning the land and seas too exclusively toward economic activities, preventing an eventual
647	collapse of a sick and unsafe world—as well as locking in the injustice of mass extinction. The
648	living forms marked in WWF's Living Planet Index (WWF 2014) constitute the very fabric of
649	the ecosystems which sustain life on Earth - and the barometer of what we are doing to our own
650	planet, our only home.
651	In arguing that Wilson's suggestion to allocate half of the earth to nonhumans is unjust, Fletcher
652	& Büscher (2016) deny justice to the most vulnerable communities – those of nonhumans.
653	Rights-based conservation strategies challenge organizations to determine just who is benefiting
654	whose voices are being left behind, and how to close the gaps. Creating such strategies will
655	involve closer community and stakeholder engagement to give voice to the marginalized. This
656	article supports this call, but only if the label of 'marginalised' is expanded to a global
657	community of all living beings. Nature and humans can co-exist, but careful weighing of mutual
658	benefits, in which human interests do not outweigh those of other species, is needed (Strang
659	2016). Overall, As Johns (2009) has argued, a broader conservation politic that motivates people
660	to care for nature and motivates action of nature's behalf is needed.
661	I propose that rather than making excuses for conservationists and asserting that they do serve
662	humans after all (as they certainly do), the environmental cause is better served by a rebuttal
663	question: what justifies rampant anthropocentrism that condemns species and individuals within
664	species to use, abuse, displacement and in some cases even extinction? The correct answer to
665	critics of conservation should not be defensive or apologetic, but similar to what the leaders of
666	earlier human liberation movements have done: a frontal confrontation with the underlying
667	morality of oppressive regimes.

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