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## **THE 'FUTURE OF CONSERVATION' DEBATE: DEFENDING ECOCENTRISM AND THE 'NATURE NEEDS HALF' MOVEMENT**

### **ABSTRACT**

The Future of Conservation survey, launched in March 2017, has proposed a framework to help with interpreting the array of ethical stances underpinning the motivations for biological conservation. In this article, we highlight what is missing in this debate to date. Our overall aim is to explore what an acceptance of ecocentric ethics would mean for how conservation is practiced and how its policies are developed. We start by discussing the shortcomings of the survey and present a more convincing and accurate categorization of the conservation debate. Conceiving the future of conservation as nothing less than an attempt to preserve abundant life on earth, we illustrate the strategic and ethical advantage of ecocentric over anthropocentric approaches to conservation. After examining key areas of the current debate we endorse and defend Nature Needs Half and bio-proportionality proposals. These proposals show how the acceptance of an ecocentric framework would aid both practices and policies aimed at promoting successful conservation. We conclude that these proposals bring a radically different and more effective approach to conservation than anthropocentric approaches, even though the latter purport to be pragmatic.

**Keywords:** anthropocentrism; biological conservation; deep ecology; ecocentrism; Nature Needs Half

### **1. INTRODUCTION**

With the popularization of the concept of ecosystem services, a longstanding ethical debate about the underpinnings of conservation has broadened to the conservation community at large (Marris, 2011; Kareiva and Marvier, 2012; Sandbrook, 2015; Holmes et al., 2016). Some ecologists, conservationist biologists, ethicists and social scientists have emphasized ecocentric values and the protection of nature for its own sake as prerequisites to successful conservation (Cafaro and Primack, 2014; Doak et al., 2015; Shoreman-Quimet and Kopnina, 2016; Batavia and Nelson, 2017; Cafaro et al., 2017; Piccolo, 2017; Washington et al., 2017). Others have argued that preservation of nature for its own sake is just one of many positions and that a plurality of perspectives on the ethics of conservation should be welcome (e.g. Mace, 2014; Marris, 2014; Marvier, 2014; Tallis and Lubchenko, 2014; Sandbrook, 2015; Holmes et al., 2016). Some authors have contended that anthropocentric motivation in protecting nature is inevitable or even benign for both vulnerable communities and ecosystems (e.g. Norton, 1984; Weston, 1985; Grey, 1993; Mikkelsen et al., 2007; Ellis, 2017) and that there is a positive correlation between environmental protection and poverty reduction (Roe, 2008; Goodall, 2015; Islam, 2015). Conversely, other authors have claimed that the creation of protected areas disadvantages the most vulnerable human communities as it displaces them for the sake of preserving biodiversity (e.g. Peluso, 1993; Adams and Hutton, 2007; Fletcher, 2009; Büscher and Dressler, 2012; Holmes, 2013; Fletcher et al., 2014; Fletcher and Büscher, 2016; Büscher et al., 2016; Büscher et al., 2017).

To arbitrate these competing viewpoints a framework could be beneficial. In March 2017 the creators of the Future of Conservation (FoC) survey (<http://futureconservation.org/>) launched one such framework. The survey was set up by four academics and hosted by the United Nations Environment Programme

(UNEP) World Conservation Monitoring Centre, where the lead author is based. The survey's creators stated aim was to distill the debate on conservation's underlying principles into four main orientations (<http://www.futureconservation.org/about-the-debate>): 'new conservation', 'traditional conservation', 'critical social science' and 'market biocentrism' (for summaries, see Figure 1).

This classification is highly misleading and that the crucial opposition in the conservation debate is that between ecocentric conservation and the various anthropocentric perspectives. We argue, in contrast, that it is anthropocentrism that hinders an ecologically sustainable solution. We surmise that the anthropocentric assumptions of some critics lead them to perceive only the negative impacts of conservation on people (and in the short term), and fail to see the positive impacts that ecocentric conservation would have on nature, and humans who are a part of nature, in the short, medium, and long term.

Furthermore, we concur with those who argue that the most important 'battleground' in the debate between ecocentric and anthropocentric conservation is about protected ecosystems and their management (Wuerthner et al., 2014) and that the priority is to minimize anthropogenic extinctions (Kolbert, 2014). It is, therefore, important and illuminating to explore this debate. To do this we focus on the Nature Needs Half (NNH) and bio-proportionality movements, which are among the most ambitious protected-areas projects to gain widespread attention.

We will presently discuss the FoC survey and suggest alternatives, followed by the key issues in the NNH and bio-proportionality frameworks, before moving to a discussion of the relationships between social and ecological justice and issues, and how these, in turn, are illuminated by understandings of industrialization, population growth, and habitat destruction.

## **2. CRITIQUE OF THE FUTURE OF CONSERVATION SURVEY**

### **2.1. Critique of the categories**

Beyond our concerns with the questionnaire's propositions and the method by which it was distributed, we find the survey's underlying, four-fold typology, and representation of both practical and ethical issues, problematic. We will, therefore, discuss where we agree and disagree with the FoC survey's categories and their definitions.

#### *'New conservation'*

The FoC framework broadly concurs with Soulé's (2013) discussion of 'new conservation' as a neoliberal approach in which conservation is undertaken primarily for human benefit. New conservation is particularly critical of traditional conservationists, which are seen in Marvier's chastisement as 'unproductive and misanthropic' (Marvier, 2012). Such an understanding of new conservation promotes economic development, poverty alleviation and corporate partnerships as surrogates or substitutes for endangered species listings, protected areas, and other mainstream conservation tools (e.g. Marris, 2011; Kareiva and Marvier, 2012; Marvier, 2014).

### *'Traditional conservation'*

The FoC survey characterizes traditional conservation as a biocentric or ecocentric orientation. This, however, ignores the diversity of views during the history of the conservation movement. For example, many ecologists (who likely consider themselves traditional in their conservation orientation) argue avidly for protecting 'ecosystem services' (i.e. services to humanity) rather than ecosystems themselves. Thus, their value orientations are decidedly (if implicitly) anthropocentric (Washington, 2015). We believe that a more helpful distinction arises by contrasting ecocentric conservation (based primarily on intrinsic value but also acknowledging instrumental value) and anthropocentric conservation (only acknowledging instrumental value). Such a distinction avoids an inaccurate characterization of 'traditional' conservation as always ecocentric, and it acknowledges that there have been more than one well-spring for conservation efforts and that the value-underpinnings for conservation continue to develop (e.g. Washington et al., 2017). Examining the literature FoC associates with traditional conservation, we note that some of the supposedly 'traditional' authors (as we ourselves have been classified after taking the survey) support the NNH and bio-proportionality frameworks.

The NNH movement has gained much attention from the publication of the book *Half-Earth* by E.O. Wilson (2016), the source for the market biocentrism orientation in the FoC survey. The NNH idea itself is older than this book, being championed by Noss and Cooperrider (1994), and earlier by Dave Foreman and others, including Reed Noss and another conservation biologist, Michael Soulé, who advanced "The Wildlands Project" (Foreman and Davis 1992). More recently, it has also gained momentum through the work of ethicists, conservation biologists, ecologists, environmentalists and social scientists (Kopnina, 2016a; Cafaro et al., 2017; Dinerstein et al., 2017; Washington et al., 2017).

NNH is grounded in two basic principles, one ethical the other ecological:

1. All species have a right to continued existence. It is morally wrong for human beings to cause the extinction of other organisms.
2. Habitat loss and degradation today is a leading cause of the decline of biodiversity.

When embraced, these principles generate a strong case for setting aside much more habitat across the Earth's biomes because it is unlikely that the majority of existing species will continue to exist without such a strategy (Dinerstein et al., 2017). Furthermore, the larger protected areas are the greater the diversity of habitats and organisms they will contain and enable to survive (e.g. Soulé, 1985; Soulé and Simberloff, 1986; Triantis et al., 2003). The NNH website also lists the types of protected areas that qualify as contributing to the total: strict nature reserves, wilderness areas, national parks, natural habitat or species management areas, protected landscapes or seascapes and those with sustainable use of natural resources.

These protected areas cover the full range of reserves that, in the words of NNH, have 'sustainable use of natural resources'. This must be *ecologically* sustainable use of truly *renewable* natural resources. Potentially, such an example reflects the rapidly expanding networks of 'Indigenous Protected Areas'

(IPAs), which permit hunting and gathering and other activities, including carefully managed timber harvesting (Trosper, 2007; Grignon and Kimmerer, 2017; Whyte et al., forthcoming), that (when properly managed) do not threaten ecological integrity. In Australia, for example, there are over 70 IPAs, covering some 65 million ha, which accounts for 40% of the total reserve system area (DEE, n.d.). IPAs do not replace the need for wilderness and national parks, but they do build on this framework. Basically, traditional conservation has demonstrated that large natural areas with minimal human impact (i.e. wilderness) are the most sustainable (and cost-effective) of all management regimes (Mackey et al., 1998). Their sustainability is because evolution and other ecological processes have, over the course of many millions of years, resulting in diverse and resilient systems.

### *'Critical social science'*

Scholars calling themselves 'critical social scientists' claim that nature protection is the providence of the 'elites' – as if these were the sole beneficiaries (Fletcher, 2009; Büscher and Dressler, 2012; Holmes, 2013; Fletcher et al., 2014; Fletcher and Büscher, 2016; Holmes et al., 2016; Büscher et al., 2016). They ground their perspective, it is clear, in a neo-Marxist worldview. This worldview is based on interpretation of Marxism as supporting 'mastery over nature' (Marx, 1981), or as Schmidt (1971: 155) put it, on the intention to create a "new society . . . to benefit man alone", which comes "at the expense of external nature". According to this interpretation of Marxism, nature is to be mastered "with gigantic technological aids, and the smallest possible expenditure of time and labor" in order to "serve all men as the material substratum for all conceivable consumption goods" (Schmidt, 1971: 155).

The preferred course of action for these critical social scientists is, quite clearly, to replace capitalist with socialist economic systems. This prescription is provided absent of any evidence or examples in which socialist nations have superior environmental performance than capitalist ones. In fact, socialist states have often been as bad as capitalist ones at preserving natural variety (Hansen, 2014). 'Socialism' as a system in comparison to capitalist or globalist practices (if these 'ists' can be distinguished from 'neoliberalism') by no means prohibits exploitation of the environment (Schwartz, 2006; Efind, 2011; Kopnina, 2016c). Critical social scientists seem to think it is morally permissible to accept the extinction of many species. For them, non-human nature is valuable only indirectly, insofar as it contributes to human wellbeing and social justice. Thus, ironically, despite coming from the opposite end of the political spectrum from the neoliberal new conservation (broadly, political Right), critical social science (broadly, political Left) shares many environment-related assumptions, including a rejection of the intrinsic value of nature, and enthusiasm for anthropocentric instrumentalism. We argue, in contrast, for the need for social justice and eco-justice to be entwined (Washington, 2015).

Many critical social scientists also contend that, since humans are part of nature, that the distinction between the human and the natural is artificial (Malone, 2016). Those advancing this critique are often indifferent to the loss of wild places and species; instead, they dismiss the very idea that 'wild' nature has *ever* existed (Fletcher, 2009; Fletcher et al., 2014). According to this critique, nature embodies "the privileged, nostalgic, romantic (and primarily white male US) notions" (Malone, 2016: 341). Such critics place concern for disadvantaged local communities at the forefront of conservation efforts and ultimately – like the neoliberal new conservation – they see nature as just a 'resource' for humans (Crist, 2012).

Critical social scientists have also attacked supposedly 'traditional' conservation and particularly the NNH campaign. Büscher and colleagues (Büscher et al., 2016; Büscher et al., 2017), for example, argue that the NNH campaign will have adverse consequences for human populations because it would

exacerbate human inequality while simultaneously failing to meet its conservation objectives. These criticisms are based on five assertions: that NNH ignores resource extraction; that NNH will have a negative social impact; that NNH ignores difficulties regarding who controls protected areas; that NNH ignores decades of thinking about conservation; and that NNH offers no agenda for biodiversity in the parts of Earth demarcated for human use.

In conservation practice, positions embracing the views of critical social science imply that saving 'nature' (placed in quotation marks as these critics believe it is entirely socially constructed) should be abandoned if poor people do not benefit from it. Implicitly, this can lead to support of environmentally harmful practices, such as poaching or slash-and-burn agriculture and other vegetation clearings (e.g. Peluso, 1993; Adams and Hutton, 2007). Indeed, an exclusive focus on social justice all too often leads to efforts to justify the conversion of biologically-diverse ecosystems into ecologically impoverished agro-ecosystems or industrial spaces, all in order to serve human needs and wants.

Here, we need to acknowledge, that although we are concerned about and contribute personally and politically to efforts to support disadvantaged human populations, and agree with the many of the typical Marxist critiques of capitalist economic systems and the ways they exploit vulnerable communities and degrade environments, our contention is that social equality should *not* be considered the only measure of justice. We also believe in eco-justice.

#### *'Market biocentrism'*

Market biocentrism, as noted in the FoC survey, is an unusual orientation, and it thus requires more extensive analysis than the three previous categories. Biocentric (and ecocentric) conservationists are, like many ecological economists (Farley, 2016), generally wary of market-based economic systems. This is because such systems treat non-human organisms as mere 'resources' (Crist, 2012). Most bio- or ecocentrists see market capitalism, and particularly industrial development, to be a powerful driver of extinction crises (e.g. Noss and Cooperrider, 1994; Doak et al., 2015; Cafaro et al., 2017). Biocentrism draws its ethical support from theorists promoting intrinsic value theory (e.g. Naess, 1973; Curry, 2011; Rolston, 2012). Biocentrism considers humans to be part of the biosphere and seeks to defend all life on Earth, with capitalist industrial development being viewed as the antithesis of the planet's flourishing (Naess, 1973). The market biocentrism category is attributed by the FoC survey solely to the book *Half-Earth* (Wilson, 2016), with no other literature cited. In this book, Wilson pragmatically recognizes, with vexation, that market forces do dominate society, and might have to be engaged *as a last resort* to address the urgency of biodiversity crises. It has been argued by others that the most promising hope for maintaining biodiversity within the prevailing economic system is 'ecologically enlightened self-interest' (Wackernagel and Rees, 1996). However, even mutual self-interest offers no firm ground if there is significant uncertainty and when exclusive self-interest promises a "bigger pay off" (Rees, 2008: 89). It is also the case that the apparent functional redundancy within ecosystems can obviate a self-interested biodiversity ethics. Biocentrism and ecological economics are thus at odds with the views of neoliberals, who do not want the market regulated by laws that protect nature. The term 'market biocentrism' is thus an oxymoron because 'market' (at least from some theories of liberalism and/or neo-liberalism) biocentrism can only have a hope of working if markets are regulated to protect biodiversity (e.g. via an allocated monetary value for biodiversity). In any case, the term 'market' is not being used in a typical sense.

The creators of the FoC survey themselves acknowledge the inherent confusion in the market biocentrism category (<http://futureconservation.org/about-the-debate>): "Wilson's pro-markets view

seems to be more to do with ensuring that humanity can flourish on only 50% of the Earth's surface rather than as a tool for carrying out conservation" (our emphasis). It is thus not possible to be sure that the survey's results will adequately distinguish between two very different types of market forces (neoliberal ones and those guided by robust environmental regulation) in the market biocentrism category.

## 2.2. An alternative categorization of the conservation debate

Given that market biocentrism is almost non-existent in the literature and that the underlying motivations are not presented with certainty in the FoC survey, it should not, we feel, form a pillar in a framework of views on conservation. Additionally, we feel that, by virtue of their rejection of the notion of intrinsic value, new conservation and critical social science are in a sense closely aligned. Also, market biocentrism is not that different from new conservation and critical social science. Remarkably, both new conservation and critical social scientists adopt economic vocabulary when speaking about benefits or threats of conservation (Peluso, 1993; Adams and Hutton, 2007; Fletcher, 2009; Büscher and Dressler, 2012; Kareiva and Marvier 2012; Marvier, 2012; Holmes, 2013; Fletcher et al., 2014; Marvier, 2014; Fletcher and Büscher, 2016). The argument of the supposedly distinct groups of new conservationists, critical social scientists and market-oriented conservationists, then, is not with valuing nature as a resource but over which human group ought to get the biggest part of the economic pie. The main contention between the camps concerns which *humans* should benefit from conservation. This position is very far from biocentrism.

Finally, the term 'traditional conservation' clouds the issue of ecocentrism versus anthropocentrism, for reasons already presented. Rather than applying the label 'traditional', we propose a more precise term, 'ecocentric conservation', for those who profess that nature has intrinsic value (Shoreman-Ouimet and Kopnina, 2016). Ecocentric conservation is closely linked to the rejection of capitalism and neoliberalism. By contrast, anthropocentric conservation encompasses schools of thought that are distinct, but that vary primarily in how the benefits of conservation will be divided among humans. A workable 'Future of Conservation' in a broader sense, we stress, needs to draw from ecocentric conservation, with its intrinsic value theory and an ecological worldview that understands humans to be a part of nature but does not place them above nature (Washington et al., 2017).

## 2.3. (De)constructing dichotomies

Critical social scientists assert that conservationists 'increase polarization between people and nature' (Bücher et al., 2016). This is ironic given that ecocentrism generally supports the dissolution of the categorical distinction between humans and non-humans (Naess, 1973; Kopnina, 2016b). NNH is not a polarizing narrative, but rather, an approach that extends compassion and caring to the entire living community. Yet, one needs to be careful that in dismantling the human-nature dichotomy and viewing ourselves as part of nature we do not allow all the products of human activity, including industrial enterprise or hunting endangered species to extinction, to appear inevitable (Kopnina, 2016b; 2016d; Batavia and Nelson, 2017; Piccolo, 2017). If everything is considered natural it is difficult to find a basis for resisting many destructive practices, including paved roads, intensive agriculture, forest clearing, and nuclear power technologies with their poisonous waste streams. On the other hand, if we fully think through the consequences of 'being part of nature', what should follow is an understanding that the non-human world (including not just organisms but ecosystems and geodiversity) should have rights (but not necessarily the same ones) as should humans, and that humans and any other moral creatures,

beyond their 'rights', should also have *responsibilities* or 'duties' to the rest of nature – the system of life from which all life evolved.

## 2.4. Problems with survey questions

Although we are interested in the results of the FoC survey, we will be cautious in interpreting them based on concerns about the questionnaire. Firstly, there was no accompanying explanation of who drafted the questions and whether an independent person assured they were unbiased and reliable (nor did its architects explain whether the underlying framework represents the views of UNEP). From our own appraisal of the wording used in the survey questions, we doubt the survey is reliable and unbiased. Respondents are asked to specify their level of agreement or disagreement with the following statement: "Nature always recovers after severe perturbations." This proposition can, however, be understood in different ways because the timeline for recovery is not stated, and because the standard for recovery and perturbation is unclear. For example, one of the reviewers of this article has pointed out:

- Answer: Yes, strongly agree, of course nature recovers. Most of the Earth was covered by ice for about 300 million years during the Huronian glaciation. Nature recovered and biodiversity exploded after previous mass extinctions.
- Answer: No, strongly disagree: Large-scale human impacts such as clear-cutting or pavement eliminate most of nature for all practical purposes. A field of mud and the succeeding young-growth forest will take generations to recover its species assemblage – if it ever does.

In addition, because the results will depend on how well the survey is circulated in each of the different 'camps' outlined, a lack of explanation of how representativeness will be ensured raises further concerns about interpreting any findings.

## 3. ECOCENTRIC ORIENTATION

Although an anthropocentric motivation can produce environmentally positive outcomes in situations where both humans and non-humans are negatively affected by some environmental insult (Strang, 2017). However, a fundamental flaw of anthropocentrism, in terms of conservation, is that it does not offer protection for non-human organisms judged to lack utilitarian value for human beings (Naess, 1973; Katz, 1996; Baxter, 2005; Rolston, 2012). As Piccolo (2017:11) stated, "humans coexist with all life within the sphere of intrinsic value", and our "good life is made possible only through the good inherent in nature". Moreover, it has been demonstrated that anthropocentric motivation is inadequate for biodiversity protection (Soulé, 1985; Soulé and Simberloff, 1986; Noss and Cooperrider, 1994; Staples and Cafaro, 2012; Noss et al., 2013; Shoreman-Ouimet and Kopnina, 2016; Cafaro et al., 2017; Washington et al., 2017).

Anthropocentrically motivated conservation is also often subject to flawed underlying assumptions. For example, Miller et al. (2014) have shown that new conservation builds its arguments on distorted ecological science. Assumptions in the new conservation critiqued by Miller et al. (2014) and Doak et al. (2015) are: (1) nature is a warehouse for human use; (2) humans can construct new ecosystems from non-native species; (3) humans do not have to live within limits; (4) nature is resilient; (5) nature is a social construct; (6) conservationists preach too much doom and gloom; and (7) people can manage

nature intensively while preserving biodiversity. Miller et al (2014), Doak et al (2015) and Washington (in press) critique and answer these fallacious assumptions.

We acknowledge that an argument can be made that the existence of a plurality of conservation motivations (encompassing a range of views on the ecocentrism–anthropocentrism spectrum) is itself beneficial (Sandbrook, 2015). However, this argument appears to arise from an unsubstantiated contention that pluralism is an inherent good. Instead, pluralism of solutions can make it harder to prioritize those urgently needed solutions (Washington, 2015). We also note that ecocentrism is *inclusive* as it acknowledges the intrinsic value of non-human nature as well as the benefits that humans can derive from non-human nature. This guarantees true plurality and democracy, because if the plants, animals, other life-forms, ecosystems and geodiversity had a voice, theirs would be the voice of the majority.

#### 4. DEFENDING ‘NATURE NEEDS HALF’ AND BIO-PROPORTIONALITY PRINCIPLES

The NNH vision envisions a world in which both humans and other species can flourish (Mathews, 2016). The website for the NNH campaign (<http://natureneedshalf.org/nature-needs-half/>) asserts that: "Conservationists and policymakers should now fearlessly embrace a global goal of protecting *at least* half of the planet's lands and waters, region by region, in interconnected protected areas" (our emphasis). It has been suggested that the ambition should be to go beyond 50% for the area to be set aside for 'nature', as this is necessary to guarantee *abundance*, not just sufficiency (Mathews, 2016). Such a commitment is owed to the myriad of species we share this world with, from the inhabitants of majestic forests, to the birds that soar in the sky, and the dolphins, sea turtles and other denizens of the sea. This vision is also owed to future human generations who otherwise will inhabit a severely damaged and less biologically diverse planet, which will lead to food insecurity and many other ills. However, we also acknowledge it will be hard enough to reach a 50% NNH vision, let alone to go beyond this.

Ecocentric conservation argues that justice for one species should not come at the expense of a host of other species, and, especially, of their very survival (e.g. Kopnina, 2016a, 2016b). This stance categorically opposes 'mastery over nature' – just as social equality advocates, ourselves included, object to the mastery of one group of humans over another. Thus, unjust conservation, broadly conceived, is the antithesis of the NNH movement and to any conception of 'self-willed' land (Nash, 2001). If we see other species as our brothers and sisters, then NNH is a sign of respect and a gesture of "planetary modesty" (Nash, 2001) towards the rest of life with which we share this world – in political, social, and ethical terms (Naess, 1973; Nash, 2001; Curry, 2011; Rolston, 2012).

This "planetary modesty" is where NNH corresponds with bio-proportionality ethics (Mathews, 2016) – both are clearly opposed to accepting 'post-nature' or supposedly 'pragmatic' anthropocentric reasoning. As Mathews (2016: 142) phrased it:

Merely seeking human advantage might not enhance the prospects for non-human life at all. The human advantage might indeed best be served by a post-ecological civilization. To discount the intrinsic moral entitlements of living things is to risk steering humanity toward precisely such a post-ecological future, thereby abandoning the rest of earth-life to eventual superfluity.

This position is similar to what Crist (2012) has expressed:



I do not necessarily foresee a world that collapses by undermining its own life-support systems. It may instead turn into a world that is propped by the strengths advanced industrial civilization has at its disposal: the rational-instrumental means of technical management, heightened efficiency, and technological breakthrough. It is possible that by such means a viable "civilization" might be established upon a thoroughly denatured planet. What is deeply repugnant about such a civilization is not its potential for self-annihilation, but its totalitarian conversion of the natural world into a domain of resources to serve a human supremacist way of life, and the consequent destruction of all the intrinsic wealth of its natural places, beings, and elements.

The Anthropocene park' (Kopnina, 2014) scenario that discounts all nature's intrinsic value, allocates Earth's territory and resources to one species only, with wild nature serving, as best, as heavily managed "working landscapes" (Wuerthner et al., 2014). In regard to managed landscapes, we agree that we need to examine how non-human nature is treated within the 'human share' of the planet, as well as the need to challenge the economic growth paradigm. Büscher et al. (2016) are correct in stating that setting aside more habitat for other species will not be sufficient to preserve them if we continue to misbehave in the other half: over-consuming, generating excessive pollution, and so forth. It is all 'one Earth' after all, and habitat may be degraded by actions outside it (climate change being an obvious case). Similarly, they are correct to insist that any significant changes in land use, including NNH, must be made with due consideration for the well-being of societies' poorer citizens.

However, we disagree with a number of points raised by those critical social scientists who claim that strict conservation "ignores the powerful engines of resource extraction and consumption that are the main drivers of biodiversity loss globally." (Büscher et al. 2016: 2). In fact, while habitat loss is always listed as the topmost driver in such lists (e.g. Wilson, 2010), resource extraction and consumption (overexploitation) is listed as one of five principal causes of extinction by the Convention on Biological Diversity (CBD, 2014), along with habitat change, pollution, invasive alien species and climate change. Ecocentric conservation challenges the powerful engines of resource extraction and consumption, as well as addresses the question of populations' proportional needs (Mathews, 2016).

In terms of recent increases in human population, there is growing evidence that population increase in developing countries leads directly to land clearance and bio-simplification (McKee et al., 2013; Crist et al., 2017). Apparently, this is an acceptable consequence of economic development for critical social scientists because distributive justice only applies to humans. Cafaro et al. (2017) take a more holistic approach and observe that solutions are needed concurrently to per capita consumption and population pressures. While critical social scientists implicitly or explicitly prescribe a dramatic reduction in consumption by affluent individuals and groups, they do not provide any realistic assessment as to whether this is possible and, if so, *how*.

Also, the critics ignore inter-species equality. As Kopnina (2016a: 182) has argued:

The position that conservation is hurting most vulnerable communities and thus should be abandoned unless it benefits these communities seems morally defensible because nonhuman communities are simply left out of consideration... To paraphrase George Orwell, exclusive focus on interhuman injustice implies that human beings are infinitely more 'equal' than all other living beings. That position is itself unjust.

To illustrate that the critical social scientists focus exclusively on social injustice, we note that Büscher et al. (2016:2) ask how “the burden of creating more protected areas” will “be shared globally” and who will dictate what goes on in such areas? They argue that removal of land from non-conservation use will primarily impact those communities that are poorest and least responsible for our current environmental issues.

The reality is that there will be a whole range of types of protected areas that contribute to NNH (as listed earlier in this paper). In line with Doak et al. (2015) we fully acknowledge that often-times, the establishment of protected areas have been entangled with imperial and colonial injustices. However, the purpose and nature of protected areas has shifted from exclusive pocketed lands of preserved landscape for the enjoyment of visitors (Phillips, 2003) to being interconnected reservoirs of biodiversity conservation, inclusive of community needs (IUCN, 2008) and poverty reduction (Goodall, 2015). Indeed, increasingly, conservationists have based their rationales for protecting wildlands on the need and moral case for biodiversity conservation (Taylor, 2012). Moreover, recent thinking about protected areas strongly rejects neoliberal economics and the exclusion of local peoples from land (Adam, 2012; African Custodian Communities, 2015; Doak et al., 2015).

Clearly, the unreserved half of the Earth cannot be given away to total clearing, industrial agriculture, mining, fishery overexploitation and urban areas. Major biodiversity conservation strategies will also have to operate in that other half. Examples include the conservation of the genetic variety of organisms humans routinely eat, encouraging community gardens and local food movements, protecting roadside vegetation, increasing connectivity via conservation corridors, and providing opportunities for people to get out into nature to counteract ‘nature deficit disorder’ (Louv, 2005). There is also a need to re-wild small areas within the ‘human half’, and as with the more ambitious rewilding in ‘nature’s half’, this should employ local people in the process (Foreman, 2004; Fraser, 2009; Manning, 2009; Monbiot, 2013).

We contend that the ecocentric motivation for conservation naturally provides a path to a just world. This requires the recognition of the intrinsic value of both human and non-human nature, and the need for the entwining of eco-justice and social justice. We consider the NNH proposal to be a way to advance this process. This proposal is related to the concept of *bio-proportionality*, developed by Mathews (2016). Bio-proportionality would seek not merely viable but optimal populations of all species; it would thus spur specific policy implications for human population and strengthening the case for increasing the extent of protected areas (Mathews, 2016: 140).

## 5. DISCUSSION: FROM ANTAGONISM TO AN ALLIANCE?

The social justice movement is linked to the principle where all community members should have *rights* (UN, 2000). Ecocentrism is an application of this principle (Cullinan, 2012), but one where it is acknowledged that the majority of the greater Earth community is non-human, and that continued exploitation of that community is logically unsustainable and morally irreconcilable. Sectors within the social justice spectrum that retain strong anthropocentric tendencies do so with narrow lenses, but these represent only a portion of the movement. We believe that there is potential for a strong alliance between ecocentric conservationists and social justice activists, with both groups advocating similar political, economic, and environmental reforms. Although some differences will likely remain, if mutual respect is cultivated we believe such an alliance possible, and it is certainly needed. The principles

underlying the NNH concept are ecocentric, but this fact, along with the significant area of overlap between ecocentric ethics and social justice concerns, is ignored by critical social scientists whose primary, overgeneralized claim is that historic and current conservation efforts are inexorably linked to a capitalist neoliberal economy.

Although new conservation and critical social science share an anthropocentric perspective that opposes NNH and bio-proportionality, they differ in their proposed responses to the biodiversity crisis. New conservation essentially insists on more economic growth, while critical social scientists do reflect on the need to tackle the endless growth economy. We concur with this latter position and argue that we need to move toward a steady-state economy (Daly, 1973, Daly, 1991; Washington and Twomey, 2016), which requires an ecologically sustainable population, low resource use and greater equity (Daly, 2014). Part of this transformation will necessarily involve a period of degrowth of the developed world (D'Alisa et al., 2015; Perey, 2016) and rapid transition towards a circular economy (Kopnina and Blewitt, 2015). Here, we agree that Wilson (2016) has not said much about the need to dramatically reform neoclassical economics as an important aspect of efforts to create an ecologically sustainable world.

Critical social scientists and new conservationists style themselves as more 'democratic', as for example, when Büscher et al. (2016) suggest the need to rethink and nurture conservation movements that are "more democratic, equitable and humane". In a similar fashion, Peluso (1993) and Brockington and Duffy (2011) have explicitly argued that conservation is 'undemocratic' and that, for example, anti-poaching measures violate human rights. These assertions are *only possible* if the interests of non-human organisms are not considered. These critics are only able to assume they are advancing more democratic and equitable decision making because they refuse to acknowledge that non-human organisms have any rights. This refusal clearly is a reflection of a typical if implicit ideology of 'human supremacy' (Crist, 2012; Taylor, 2013). Also, the scholars concerned with human rights forget about the war waged against environmentalists with hundreds of park rangers and environmental activists across the globe killed every year (The Guardian, 2016).

Another aspect of the overall conservation debate – but one that new conservation and critical social science ignores – is overpopulation. The world's population is set to increase to 11.2 billion in 2100 from 7.5 billion people in 2017 (United Nations, 2017). According to the UN (2017), roughly 83 million people are added to the world population annually and this upward trend is likely to continue, though fertility in some regions continues to decline. The *Limits of Growth* report (published in 1972, and updated by Meadows et al. in 2004), linked population growth to twentieth-century sustainability issues, including climate change and pollution, as well as production and consumption patterns that further exceed ecological limits. The population problem is compounded by the simple biological fact that humans – even very poor ones – are relatively large omnivorous animals on top of the food chain, and the majority of them aspire to greater levels of material consumption.

Yet, overpopulation as a key driver of extinction appears to be dismissed as inconsequential by *both* critical social scientists and new conservation schools of thought. They thus ignore the  $I = PAT$  equation (impact = population x affluence x technology), as an important way to measure anthropogenic environmental impacts. However, if we were to move proactively to slowing, halting and then reducing human population to an ecologically sustainable level, conflict could be reduced. Increasing population is already causing conflict over water (Shiva, 2002) and other resources (Meadows et al., 2004; Crist et al., 2017). While attention to overconsumption as a driver of unsustainability across the globe is more widespread, and negative effects of fossil fuel consumption on climate change is well-known, research on overpopulation is sporadic and highly marginalized (Kopnina and Washington,

2016). Currently, efforts to reduce excessive consumption in developed countries seem to be failing as total consumption and per capita consumption continues to increase or stay at unsustainable levels (World Bank, 2017). Ending population growth, therefore, is an urgent matter. In order to have any meaningful bio-proportionality and justice between species, as well as to avoid potential for social conflict over scarce resources, the solution is to reduce population pressure via humane and non-coercive policies (e.g. Engelman, 2016; Crist et al., 2017). Access to family planning through increased counseling, contraception and other measures can significantly help reduce fertility and thus curb global population increase as we exercise human rights (Crist et al., 2017). If we stabilize world population at 8 billion we could reduce it to 6 billion by the end of the century and to a sustainable 2–3 billion by the end of the following century (Staples and Cafaro, 2012).

Despite the availability of such solutions, critical social scientists seem to prescribe, essentially, an economic revolution with along communist or socialist lines. While we share criticisms of rapacious capitalism, we disagree that socialist economic systems are the only way to affect environmental protection. Environmental protection under socialism, as well as capitalism, has had dismal results as both systems rely on industrial development and exploitation of resources (Schmidt, 1971; Schwartz, 2006; Efrid, 2011; Hansen, 2014; Kopnina, 2016c). We agree about the need to challenge inequality and the fixation on growth as a measure of social well-being. However, we do not believe that mere equal division of wealth is going to eliminate the challenge of limited resources or to address global injustice of human speciesism (supremacy). In contemplating the moral crusade for economic equity and social equality, one may question how the critics actually plan to “get rid of the elite upper class altogether” (Fletcher and Büscher, 2016) without a bloody revolution. Logically, even if the over-consuming minority elite is somehow convinced to share equally, if what is meant by equality is that every human on this planet is raised to the level of middle-class American consumer, we would need a few pearthearts to sustain ourselves. We believe, however, that practically speaking the steady-state economy and circular economy systems, as well as population reduction provide for a more realistic approach to sustainability of the living world. Ethically speaking, we believe that NNH and bio-proportionality movements provide a plausible path to both planetary equity and biodiversity conservation.

Although we support IPAs, we are compelled to state this caveat. In the biosphere reserve model (UNESCO, n.d.), which envisions management schemes with biological cores, corridors, and increasingly intensive human use the farther one gets from these essential reserves (Noss and Cooperrider, 1994) utilitarian use needs to be carefully weighed – as it also does in the vulnerability of landscape, presence of endangered species, and, crucially, the number of people using the ‘resources’ need to be considered when deciding on the rights of access. We need to note that there are already anthropocentrically inspired attempts to subvert the NNH vision and weaken protection of existing reserves. Ellis (2017), for example, has argued that protected areas should have “sustainable use” (implying e.g. logging, grazing, etc), shown by statements such as “the notion of a dichotomy between used lands and protected areas will need to transition into a continuum of strategies for integration”. The right of access and use cannot be granted automatically as human populations have expanded, the use of modern tools, from transport to weapons, has increased, and the distinction between subsistence and commercialism has become blurred (Shoreman-Ouimet and Kopnina, 2015). Besides, having exclusive rights of use (and abuse) simultaneously idealizes and denigrates indigenous people as pre-modern ‘noble savages’ living ‘in harmony with nature’ (Koot, 2016). The IPAs risk being turned into resource extraction zones, employing indigenous people in many other commercial resource harvesting (World Bank, n.d.). Given the threats to bio-cultural diversity throughout the globe, some

cultural (traditional) use might be allowed by indigenous custodians of the land (Shoreman-Ouimet and Kopnina, 2016).

## 6. CONCLUSION

Although critical social science and new conservation appear to represent 'plural' perspectives, this plurality excludes organisms too numerous to quantify, whose very physical existence and evolutionary unfolding depends on the success of conservation. If the plants, animals, other life-forms, ecos, stems and geodiversity had a voice in the 'future of conservation', theirs would be *a cry for help*. Any viable future for conservation must be based on conservation ecology and ecocentric ethics, and on clear support of ecological justice and intra-species democracy, not on anthropocentric ideology generated from either the political Left or the Right. We believe, moreover, that anthropocentric approaches are a critical distraction at a time of rapid loss of highly biodiverse areas, when all who are truly concerned about the diversity of life should be united, not fractured. We call for an alliance with the social justice movement and better dialogue over priorities, strategies, tactics, and values that encompass all living communities of this planet.

If we are to conceive the 'future of conservation' more broadly as a quest to save abundant life on earth, and not merely for the sake of human welfare, we need to consider a very different typology in conservation – the one that acknowledges the intrinsic value of nature. We believe that to unite social and ecological justice and sustainability concerns, several things are needed. There is a requirement to move from a growth to a steady-state economy, via a period of degrowth, and transition to circular economy. However, there is also a need to urgently begin enacting the NNH and bio-proportionality visions of setting aside sufficient habitat for other species, while also limiting our own numbers. This would allow *all* living beings and ecosystems to flourish and continue to evolve.

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**Figure 1.** A summary of the four conservation ‘orientations’ presented as the framework for the Future of Conservation survey (<http://futureconservation.org/>).

Role of corporations and capitalism	Conservation should work hand in hand with this	<p><b>‘New conservation’</b></p> <ul style="list-style-type: none"> <li>• This is grounded on a belief that win-win situations (in which people benefit from conservation) can often be achieved by promoting economic growth and partnering with corporations.</li> <li>• Key authors within this movement have responded to criticism that they are ‘doing away’ with nature’s intrinsic value by clarifying that their motive is strategic or pragmatic more than it is ethically founded (based on the claim that conservation needs to emphasize nature’s instrumental value rather than its intrinsic value to better promote support for conservation).</li> </ul> <p>Key references, provided on the website are BI (2015), Kareiva and Marvier (2012), Levin (2014), Marris (2014) and Marvier and Kareiva (2014).</p>	<p><b>‘Market biocentrism’</b></p> <ul style="list-style-type: none"> <li>• Although support for conservation based on both nature’s intrinsic value and market-based approaches is not common in the literature, a recent example is presented by E.O. Wilson’s book <i>Half-Earth</i> (which advocates setting aside at least half of the Earth’s surface as protected area).</li> <li>• Noting the substantial decrease in per capita environmental footprint worldwide that this would require, Wilson supports free markets as a means of favoring products with maximum profit and minimum energy and resource consumption.</li> <li>• The pro-market strategy, it would appear, is to be used in order to buffer the ‘human’ half of the Earth against the need to exploit the ‘natural’ half.</li> </ul> <p>The only key reference, as provided on the website, is Wilson (2016).</p>
	Conservation necessitates a move away from capitalism (and growth-based economics)	<p><b>‘Critical social science’</b></p> <ul style="list-style-type: none"> <li>• Here it is argued that the impacts of conservation on human wellbeing should be at the forefront of the conservation debate.</li> <li>• This involves being critical of the potential negative side effects of conservation activities for people who are economically poor or politically marginalized, as well as employing conservation initiatives with a primary goal of improving human welfare.</li> <li>• Critical social scientists tend to be skeptical of the ability of capitalism-based approaches to deliver benefits for both nature and people.</li> </ul> <p>Key references provided on the website are Büscher et al. (2012), Spash (2015) and Brockington and Duffy (2011).</p>	<p><b>‘Traditional conservation’</b></p> <ul style="list-style-type: none"> <li>• Traditional conservationists generally support the protection of nature because of its intrinsic value and are critical of market-based approaches to conservation. Embracing markets, it is argued, means neglecting those species considered to have little economic value. Economic growth is viewed as a major driver of biodiversity loss.</li> <li>• Advocates often note that traditional conservation has for long time considered human wellbeing, for example by trying to minimize negative impacts on local communities.</li> <li>• Protected areas, are generally favored as a primary conservation strategy.</li> </ul> <p>Key references provided on the website are Soulé (1985), McCauley (2006), Greenwald et al. (2013), Noss et al. (2013), Miller et al. (2014) and Wuerthner et al. (2014, 2015).</p>
		Protecting nature in order to improve human wellbeing (especially that of the poor)	Protecting nature for biodiversity’s own sake
		Value center	